DRESS MAKING

1st Semester

TRADE THEORY

SECTOR: Textile and Apparel

COMMON FOR THE FOLLOWING TRADES

Dress Making / Sewing Technology

Directorate General of Training

DIRECTORATE GENERAL OF TRAINING
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
GOVERNMENT OF INDIA

NATIONAL INSTRUCTIONAL MEDIA INSTITUTE, CHENNAI

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FOREWORD

The National Instructional Media Institute (NIMI) is an autonomous body under the Directorate General of Employment and Training (DGE&T) Ministry of Labour and Employment has been developing, producing and disseminating Instructional Media Packages (IMPs are extensively used in the Industrial Training Institutes/Training centres in Industries to impart practical training and develop work-skills for the trainees and the trainers

The Ministry of Labour & Employment constituted Mentor Councils (MCs) to revampcourses run / to be run under National Council of Vocational Training (NCVT) in 25 sectors. The MCs have representatives from thought leaders among various stakeholders viz. one of the top ten industries in the sector innovative entrepreneurs who have proved to be game-changers, academic/professional institutions (IITs etc.), experts from field institutes of DGE &T, champion ITIs for each of the sectors and experts in delivering education and training through modern methods like through use of IT, distance education etc. The technical support to the MCs is provided by Central Staff Training and Research Institute (CSTARI), Kolkata and National Instructional Media Institute (NIMI), Chennai. Some of the MCs are also supported by sector-wise Core Groups which were created internally in the Ministry (in 11 sectors).

A Steering Committee to provide overall coordination and guidance to Mentor Councils has also been constituted and has representation from the MCs, Chair positions to be endowed by the Ministry, trade unions, and experts on distance education and training. The MCs are mandated to work towards revamping/ suggesting new courses, improving assessment systems, overall learning etc. for subjects under the purview of the NCVT.

Accordingly NIMI with the support and assistance of MC has developed **Dress Making Trade Theory 1st Semester** in **Textile and Apparel sector** to enhance the employability of ITI trainees across the country and also to meet the industry requirement.

I have no doubt that the trainees and trainers of ITIs & Training centres in industries will derive maximum benefit from these books and that NIMI's effort will go a long way in improvement of Vocational Training.

I complement Director, Mentor Council members, Media Development Committee (MDC) members and staff of NIMI for their dedicated and invaluable contribution in bringing out this publication.

ALOK KUMAR, I.A.S.,
Director General of Employment &
Training/ Joint Secretary
Ministry of Labour and Employment
Government of India

New Delhi - 110 001

PREFACE

This National Instructional Media Institute (NIMI) was set up at Chennai by the Directorate General of Employment and Training (DGE&T) Ministry of Labour and Employment, Government of India with technical assistance from the Govt. of the Federal Republic of Germany. The prime objective of this institute is to develop and disseminate instructional materials for various trades as per the prescribed syllabi under the Craftsmen and Apprenticeship Training Schemes.

The instructional materials are developed and produced in the form of Instructional Media Packages (IMPs). An IMP consists of Trade Theory book, Trade Practical book, Test and Assignment book, Instructor guide, Wall Charts and Transparencies.

Hon'ble Union Minister of Finance during the budget speech 2014-2015 mentioned about developing **Skill India** and made the following announcement

"A national multi-skill programme called Skill India is proposed to be launched. It would skill the youth with an emphasis on employability and entrepreneur skills. It will also provide training and support for traditional professions like welders, carpenters, cobblers, masons, blacksmiths, weavers etc. Convergence of various schemes to attain this objective is also proposed."

The Ministry of Labour & Employment constituted Mentor Councils (MCs) to revamp courses run / to be run under National Council of Vocational Training (NCVT) in 25 sectors which will give a sustained skill based employability to the ITI trainees as the main objective of Vocational training. The ultimate approach of NIMI is to prepare the validated IMPs based on the exercises to be done during the course of study. As the skill development is progressive the theoretical content on a particular topic is limited to the requirement in every stage. Hence the reader will find a topic spread over a number of units. The test and assignment will enable the instructor to give assignments and evaluate the performance of a trainee. If a trainee possesses the same it helps the trainee to do assignment on his own and also to evaluate himself. The wall charts and transparencies are unique, as they not only help the instructor to effectively present a topic but also helps the trainees to grasp the technical topic quickly. The instructor guide enables the instructor to plan his schedule of instruction, plan the raw material requirement ,

Thus the availability of a complete Instructional Media Package in an institute helps the trainer and management to impart an effective training. Hence it is strongly recommended that the Training Institutes/Establishments should provide at least **one IMP** per unit. This will be small, one time investment but the benefits will be long lasting.

The **Dress Making Trade Theory 1st semester in Textile and Apparel sector** is one of the book develop by the core group members of the Mentor Councils (MCs). The 1st semester book includes **Module 1 - Basic Operations, Module 2 - Sample Preparation, Module 3 - Garment Construction**

The **Dress Making Trade Theory 1st semester** is the outcome of the collective efforts of Members of Mentor Council which includes academic/professional institutions (IITs etc.) , experts from field institutes of DGE&T, champion ITIs for each of the sectors, and also Media Development Committee (MDC) members and staff of NIMI.

NIMI wishes that the above material (Trade Practical & Trade Theory) will fulfil to satisfy the long needs of the Trainees and Instructor and helps the trainees for their employability in vocational training.

NIMI would like to take this opportunity to convey sincere thanks to all the Mentor Council members and Media Development Committee (MDC) members.

A. MAHENDIRAN
Director, NIMI

Chennai - 600 032

ACKNOWLEDGEMENT

National Instructional Media Institute (NIMI) sincerely acknowledges with thanks for the co-operation and contribution extended by the following Media Developers and their sponsoring organisation to bring out this IMP **(Trade Theory)** for the trade of **Dress Making** under **Textile and Apparel** Sector for Craftsman Training Scheme. This Book is prepared as per Revised Syllabus.

MEDIA DEVELOPMENT COMMITTEE MEMBERS

Dr. Darlie Koshy	-	Director General & CEO ATDC & IAM, New Delhi Chairman, Mentor council.
Shri. R.P. Dhingra	-	Director (P) , DGE&T, New Delhi Mentor, Mentor council.
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Shri. V. Gopalakrishnan	-	Training Officer, NIMI, Chennai - 32 Co-ordinator, NIMI, Chennai.

NIMI records its appreciation of the Data Entry, CAD, DTP operators for their excellent and devoted services in the process of development of this instructional material.

NIMI also acknowledges with thanks, the invaluable efforts rendered by all other staff who have contributed for the development of this Instructional material.

NIMI is also grateful to all others who have directly or indirectly helped in developing this IMP.

INTRODUCTION

TRADE THEORY

The manual of trade theory consists of theoretical information for the First Semester course of the Dress Making Trade. The contents are sequenced according to the practical exercise contained in the manual on Trade practical. Attempt has been made to relate the theortical aspects with the skill covered in each exercise to the extent possible. This co-relation is maintained to help the trainees to develop the perceptional capabilities for performing the skills.

The Trade Theory has to be taught and learnt along with the corresponding exercise contained in the manual on trade practical. The indicating about the corresponding practical exercise are given in every sheet of this manual.

It will be preferable to teach/learn the trade theory connected to each exercise atleast one class before performing the related skills in the shop floor. The trade theory is to be treated as an integrated part of each exercise.

The material is not the purpose of self learning and should be considered as supplementary to class room instruction.

TRADE PRACTICAL

The trade practical manual is intented to be used in workshop. It consists of a series of practical exercises to be completed by the trainees during the First Semester course of the Dress Making trade supplemented and supported by instructions/informations to assist in performing the exercises. These exercises are designed to ensure that all the skills in the prescribed syllabus are covered

The manual is divided into three modules. The distribution of time for the practical in the three modules are given below.

Module 1	**Basic Operations**	**200 Hrs.**
Module 2	**Sample Preparation**	**175 Hrs**
Module 3	**Garment Constrcution**	**125 Hrs**
	Total	**500 Hrs.**

The skill training in the shop floor is planned through a series of partical exercises centred around some practical project. However, there are few instance where the individual exercise does not form a part of project.

While developing this practical manual a sincere effort was made to prepare each exercise which will be easy to understand and carryout even by below average trainee. However, the development team accept that there is a scope for further improvement. NIMI looks forward to the suggestions from the experienced training faculty for improving this manual.

CONTENTS

Trade introduction

Objectives: At the end of this lesson you shall be able to
- **explain the role of dresses**
- **name the prospects of the trade.**

Trade Introduction

Role of clothes

Besides food and shelter clothes are the basic necessities of human life. Three main functions for clothes can be stated:

Protection: Clothes cover nudity or nakedness of men and women. They protect against injuries while working or during other activities.

Decoration: Clothes have also decorative function. People wear different dresses in different situations. A day to day dress will look different from dresses worn in auspicious function. The decorative aspect is also used to give an individual touch to the person wearing the dress.

Identification: This function of dresses characterises people as part of a special group or society. Pesant costumes and national dresses as well as uniforms of policemen or students may serve as examples.

Scope and prospects of the trade

People started wearing unstitched dresses, i.e. fur and coat of animals and woven pieces of fabrics which were draped around the body.

Stitched garments for upper and lower body necessitate cutting and tailoring of fabrics. Fashion creates lots of new dresses. Fashion parades are conducted throughout the world. The style of saree blouse and ladies' shirts change according to the shape and decoration. This is the reason why the different trades of dressmaking have good prospects in the future.

The work in the dressmaking field involves a multitude of activities.

Stitching dresses for you and your family at home and employment in tailor's shop require your skills for pattern making, cutting and stitching of the components.

Working in industry normally means that many dresses are produced from one pattern. Here you are working in a highly specialised section of production where many layers of fabric are cut and parts are assembled with the help of highly sophisticated machinery.

To set up your own business like tailor shops for example you have to do some investment for machinery and tools; if you don't have own property you have to rent a room where you can set up your production. You need skills to calculate costing, estimate materials etc.

Ergonomics

Objectives: At the end of this lesson you shall be able to
- **define ergonomics**
- **describe advantages of ergonomics**
- **explain the components of ergonomics.**

Ergonomics is known as human factor which consists of scientific understanding and relation between the human (user/worker) with the elements of system (working environment).

Ergonomics deals with the occupational health, safety and productivity.

It consists of

- Safe furniture
- Easy to use interface
- Easy to use mechanics
- Easy to use handling of equipment

Advantages of ergonomics

- It assesses the fit between a person and technology.
- It assesses the relation between the job (activity) and the demand of user for performing the activity.
- It assesses the presentation of information used.

It is based on following disciplines

- Study of human and their environments.
- Anthropometric survey.
- Bio mechanics.
- Mechanical engineering.
- Industrial design.
- Information design.
- Kinesiology.
- Physiology
- Cognitive psychology
- Industrial and organisational psychology

Ergonomics comprises of three main fields

- Physical
- Cognitive
- Organisational ergonomics

Physical ergonomics include visual ergonomics depends on principles used designing for consumer and industrial products.

Cognitive ergonomics includes usability e.g. Sewing machine/ computer with human interaction (User) such as perception, memory, reasoning and motor responses.

Organisational ergonomics include socio-psycho technical procedures and structure of organizations e.g. team work, virtual organization and quality management etc.

Weakness of ergonomics methods

- More time consuming
- Highly effort planning
- Longer study period is required
- Longitudinal in nature.

Tools and Equipments

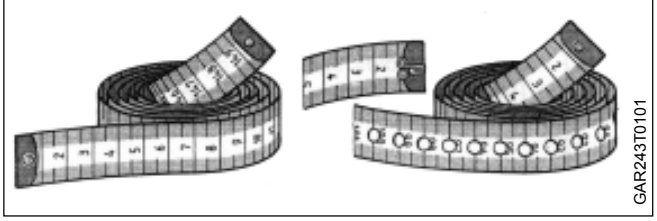
Objectives: At the end of this lesson you shall be able to

- **state various types of**
  - **measuring tools**
  - **drafting tools**
  - **marking tools**
  - **cutting tools**
  - **sewing tools.**

Measuring tape

Flexible fiber glass or fabric measuring tape that is ideal for taking body measurements, measuring patterns and layouts as well as general measuring. Fabric types tend to stretch after prolonged uses. It has marks of inch and centimeter only. Its width is 5 points. It is a measuring ribbon made on scientific base knowledge about the use of fundamental for tailoring. (Fig 1)

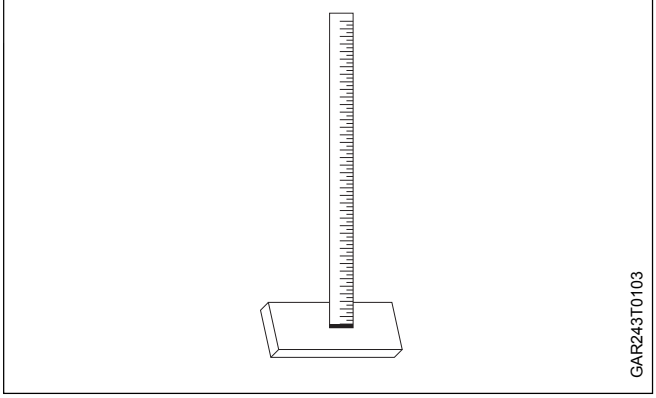
Fig 1



Measuring stand

This stand is used to measure long garments as over coat, ladies nighty, gown etc., as well as to check the flare of enriched garments. (Fig 2)

Fig 2



Metal tape

It is convenient and flexible for measuring form or figure. It is made of flexible metal. (Fig 3)

Drafting tools

'L' scale

It is made up of wood or iron, it is called try square also. Its one arm is 12" in length and another is 24" in length. Each inch contains 8 marks. Wooden try square is used in tailoring. Fig 4.

Fig 3

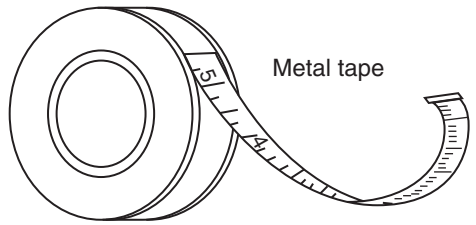


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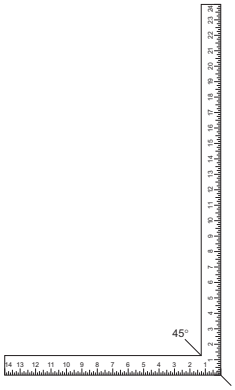
Fig 4



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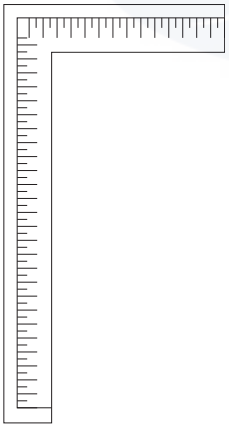
Graduated square

It is also 'L' square scale, but here inch mark are given on the one side and on the other side with ½" marks are in the denomination of ¼, 1/7, 1/16, 1/32 and ride with 24" marks are in the denomination 1/3, 1/6, 1/12, 1/24, 1/48. These marks are used for drafting the patterns. (Fig 5).

Fig 5



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Measuring stick

It has marks of inch and centimeters. It is flexible stick used for checking the grains of the fabric and marking the hems. (Fig 6).

Dress marker's gauge

It has one side with scallop edges and the other side with straight edges. Scallop edge side contains ¼", 1", 11/4", 11/2", 2" where as the other side with straight edge contains 1", 2", 3", 4". Scallop edges used for measuring pleats, tucks etc., and straight edges are used for measuring the button holes. (Fig 7).

Fig 6

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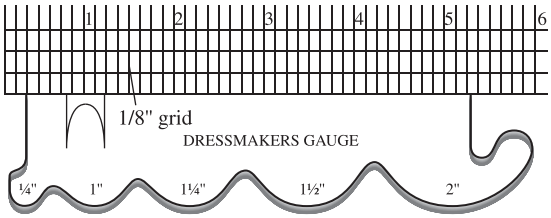
Fig 7



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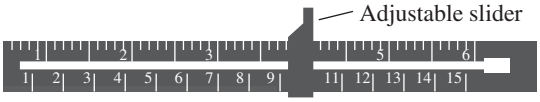
Seam gauge

Seam gauge is 6" ruler with a sliding rod marker has many uses. It is used to mark seam margin lengths, buttons and button holes as well as design details such as pleats and tucks. (Fig 8)

Fig 8



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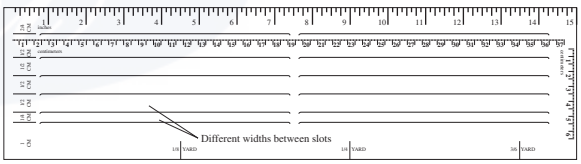
Transparent ruler

It is made of plastic, it has marks of inches and centimeters. It is used for measuring straight or bias lines. (Fig 9)

Fig 9



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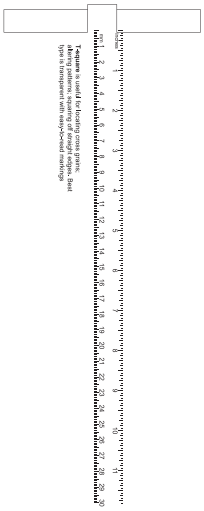
T – square

It is transparent with easy to read the markings. It has marks of inches and centimeters. It is used for measuring the square off straight edges. (Fig 10)

Fig 10



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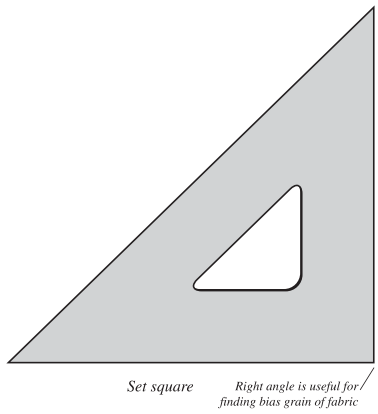
Set square

Set square made of crystal clear, shatter proof synthetic material, metal or wood. They are used in the design and pattern departments. (Fig 11)

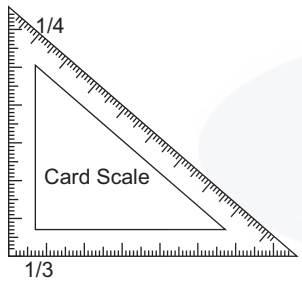
Fig 11



Card scale

It is made up of paper card board. It is commonly used for small drafting in the record note books. (Fig 12)

Fig 12



Tailor's art curve

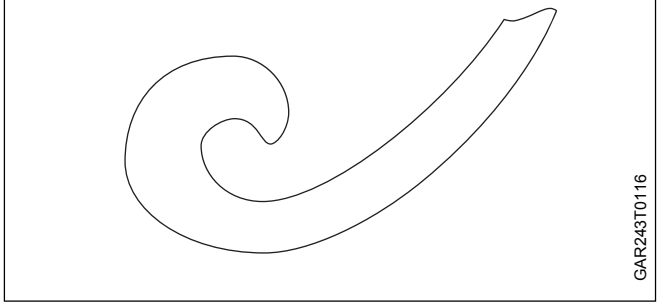
It is made up of wood, plastic and steel. It is also of 'L' shape but other side is closed also and is curved in circles. It contains marks of ½ centimeter on the one side and that of 1/5 centimeter on the other side. (Fig 13)

Fig 13

French curve

These are made up of transparent plastic. It is a set of 12 tools in tailoring only 3 or 4 is commonly used. It helps in drawing the shapes of neck, armhole depth, side and bottom. (Fig 14)

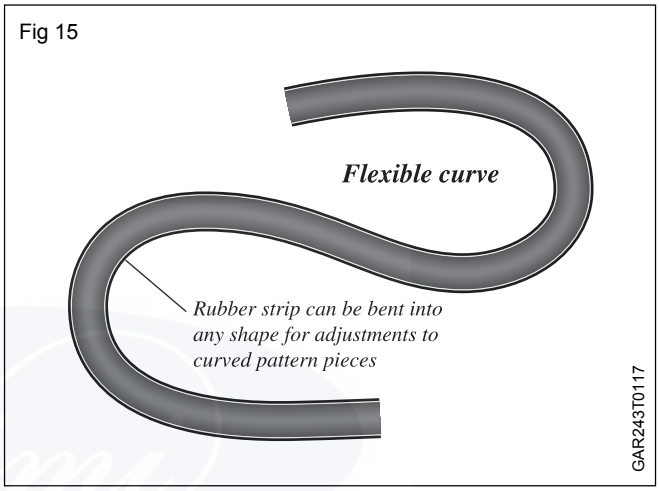
Fig 14



Flexible curve

These are made of flexible rubber. It can be bent into any shape of adjustments to curved pattern pieces. (Fig 15)

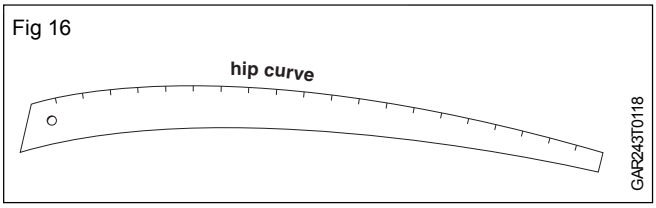
Fig 15



Hip curve or Curve rulers

It is made of wood or plastic. It is a slightly circled rod, it is used for drafting the side shape like shirt, pants etc., (Fig 16)

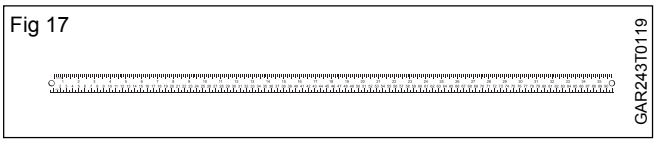
Fig 16



Long rule

It has marks of inch and centimeter. It is used for drawing the straight lines. (Fig 17)

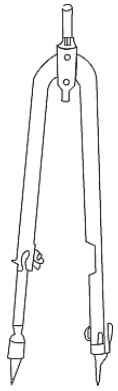
Fig 17



Compass

It is made of metal and it is used for drawing circles and arcs, in tailoring it helps only for make curve in an umbrella frock. (Fig 18)

Fig 18



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The most common drafting tools are

Tailor's chalk

This is available in many forms at sewing motions. Tailor's chalk is hard chalk is used to make temporary markings on cloth. Marking pen may be self erasing after 2 to 8 days or can be removed either by wash or by ironing. It is useful for marking on the top of the cloth eg. Pocket position (Fig 19).

Fig 19

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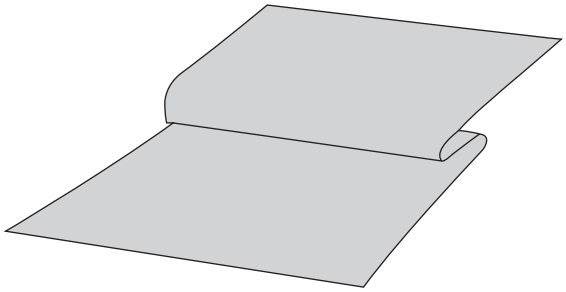
Tracing paper

Tracing paper is named as such for its ability for an artist to trace an image onto it. When tracing paper is place onto a picture, the picture is easily viewable through the tracing paper. (Fig 20)

Fig 20



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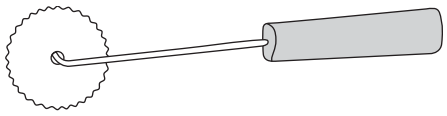
Tracing wheel

A tracing wheel is with serrated teeth on a wheel attached to a handle used to transfer markings from pattern on to fabric with or without tracing paper. Such markings might include pleats, darts, button holes or placement lines for appliances or pockets. There are two basic types of tracing wheels are available to the modern sewing machine one with a serrated edge and one with a smooth edge. (Fig 21)

Fig 21



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Cutting table and cutting board

Cutting table is 6 feet wide and 3 feet , 3 feet height. People who work in standing position use table and those who work in sitting position use board. (Fig 22)

Fig 22

Cutting Table

Cutting board

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Pins

Straight pins range in length from ½" to 1 7/8" look for sharp, smooth, rustproof pins that can bend with out breaking. (Fig 23)

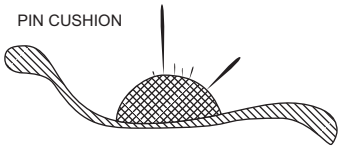
Fig 23

GAR243T0125

Pin cushions

Pin cushions are in variety of styles. It sharpens and cleans pins and needles, a rectangular, wrist band pin cushions mounted on a plastic wrist band that is perfect for pin filling and marking hems and magnetic 'grabber' types net marks for easy pin catching. (Fig 24)

Fig 24



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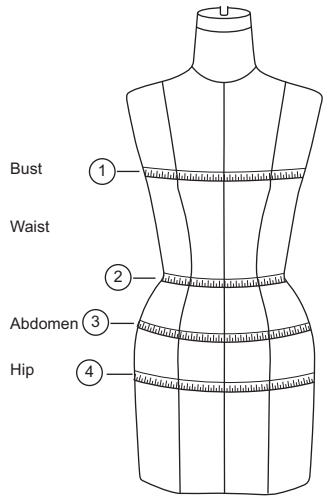
Dress form (Fig 25)

Fig 25



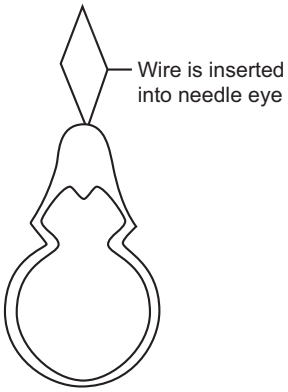
Dress form is used to give a three dimensional view on the article of clothing that is being sewed. They come in all sizes and shapes for almost every article of clothing can be made.

When a piece of clothing is made it can be put on the dress form so one can see how the piece of clothing will turn out. Then one can make alterations up on the clothing on appearance of the dress form.

Needle threader

A needle threader is a small device for helping the thread through the eye of small needles. Most familiar today is the needle threader of Victorian design consisting of a small tinned plate stamped with queen's head and with a diamond shaped steel wire attached. (Fig 26)

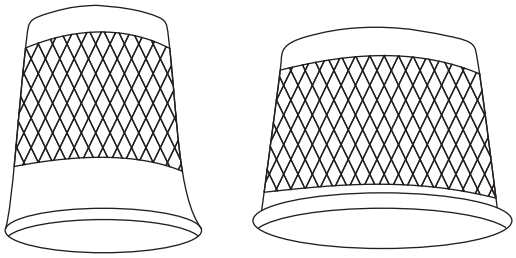
Fig 26



Thimble

Made of metal, rubber or plastic. This small protective cover slips over the index or middle finger. When hand sewing or quilting a thimble protects the finger tip from pin pricks and it is used to push the needle through multiple layer of fabric. (Fig 27)

Fig 27

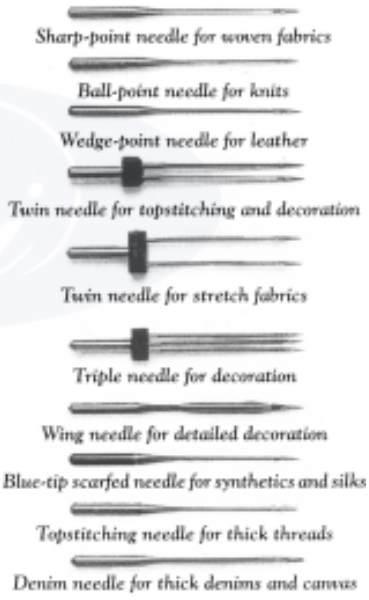


Sewing needles

A sewing needle is a long slender rods with a pointed tip. A needle for hand sewing has a hole called the eye at the non – pointed end to carry thread or cord through the fabric after the pointed end pierces it. Needle rings is defined by a number on the packet.

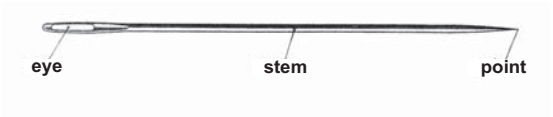
The convention for sizing is that the length and thickness of a needle increase as the size number decreases. For example, a size 1 needle will be thicker and longer, while size 10 will be shorter and finer. (Fig 28)

Fig 28



Sewing needles

Fig 29



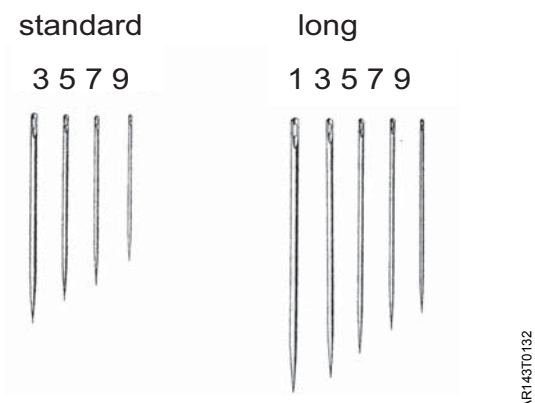
Sewing needles are classified by their length and thickness. The usual types are "standard" and "long".

The numbering system is not directly related to the lenth or thickness of the needles; it serves only to distinguish one needle from another.

The length and thickness of a needle will be choosen according to the fabric to be sewn, the thread to be used and the sewing technique.

Sewing needles are made of nickel-plated steel. They have to be flexible, smooth and sharp. (Fig 30)

Fig 30



The needle has to be able to penetrate the material being sewn, without damaging it, by pushing the yarns aside. Solid materials, such as leather or plastic, will be holed. Sewing machine needles of various types are available. according to the application.

Selection of the needle type will depend on the characteristics of the material, the size of the sewing thread, the type of seam and the stitch type.

Characteristics and Terminology

The **shank** locates the needle in the needle bar. The follow-ing types are found:

Shanks with a circular section

Shanks with a flat side which serves to locate the needle in a specific position In the ncecild bill

Needles in which the thickness of the shank is maintained all the way down the blade. They are used in speciality machines. (Fig 31)

The **blade** of the needle runs from the end of the shoulder to the beginning of the eye. Often the blade will increase in thickness, in stages, from the eye to the shoulder. This reinforcement of the blade increases its stiffnes. Moreover, by widening the stitch hole, it tends to reduce the friction between needle and material the upstroke which can help to avoid overheating of the needle.

There are also needles with curved blades (Fig 32) which are used, for example, in blind stitch machines.

Fig 31

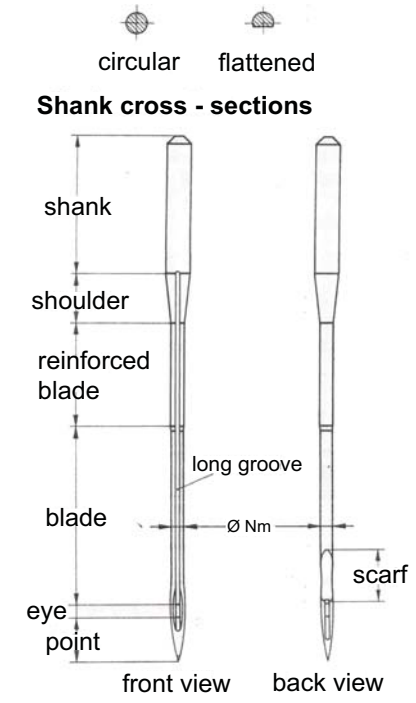
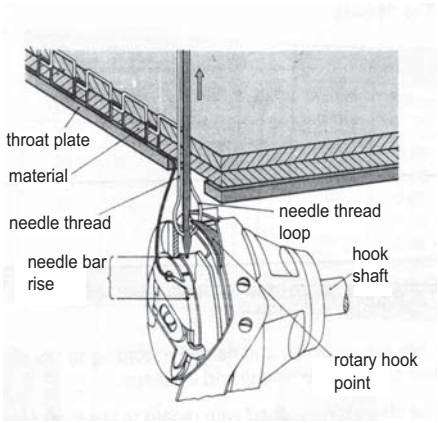


Fig 32

On the threading side of the needle is the **long groove.** Its function is to guide the thread while forming the stitch and to protect it against excessive friction.

Above the eye there is usually a recess or **scarf** across the whole face of the needle. This facilitates the passage of the hook into the loop and reduces the danger of missed stitches. Fig 33

Fig 33



The shape of the **eye** is always extended in Its length, because the needle thread has to pass diagonally through the needle in the length direction. The width of the eye is the same as that of the long groove.

Needle sizes

The metric size" Nm" of a needle defines the diameter of the blade (in 1/100 mm) at a point above the scarf.

Fine needles have a size up about 70; medium needles are about Nm 80 or Nm 90; thick needles have a size greater than about Nm 110.

Forming the Needle Thread Loop

First, the needle thread is carried all the way through the material to be sewn and beyond the underside. As the needle begins its upstroke, the thread is retarded by friction between it and the material so a loop is formed in the needle thread. The loop is caught by the point of the rotary hook, enlarged, and passed around the under-thread The needle thread is then withdrawn whilst the stitch is tightened by the movement of the take-up level. These vertical movements are extremely rapid, so the efficient functioning of the long groove, in permitting smooth passage of the thread, is critically important.

Needle Points

Needles are manufactured with a wide variety of needle points appropriate for the differing properties of rnaterials which have to be sewn The needle point can be located either centrally or eccentrically.

There are two basic classes of points, namely Round Points and Cutting Points

Round Points

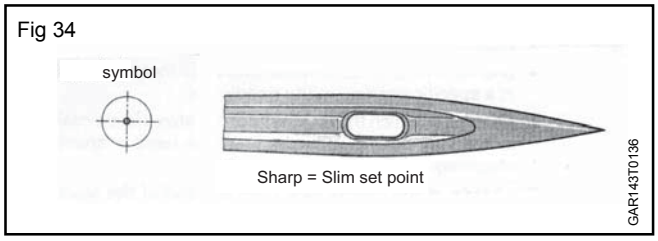
Round points have 3 circular cross-section but may have two basic shapes known as Set Points and Ball Points, which are suited for different materials.

Set points

Slim set points (Fig 34)

Slim set point needles can penetrate the yarns of the material being sewn. They are used for blind stitches and for fine, densely woven fabrics. They are not suitable for knitted fabrics.

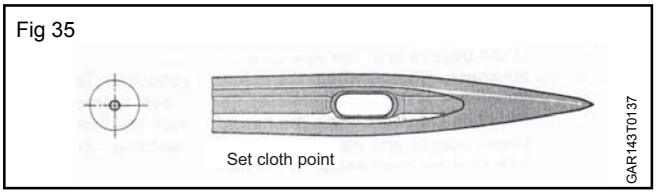
Fig 34



Set cloth point (Fig 35)

The set cloth point is slightly rounded. It displaces the yarns of the material being sewn without damaging them. This is the most versatile point shape.

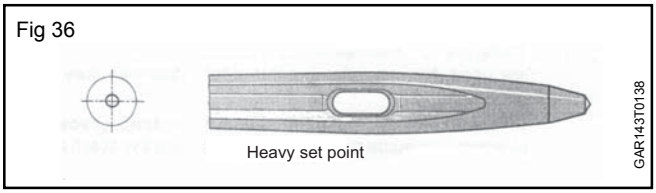
Fig 35



Heavy set point (Fig 36)

The heavy set point is strongly blunted. It is especially used for button sewing machines.

Fig 36

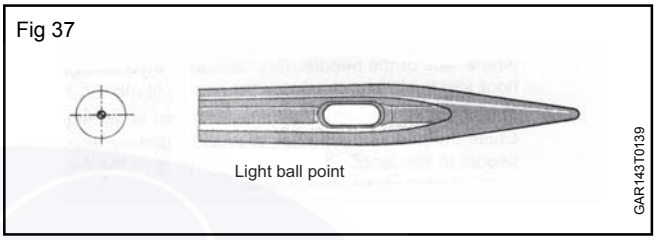


Ball points

Light ball points (Fig 37)

Light ball points are used for sensitive fabrics such as knits, to prevent damage to the loops.

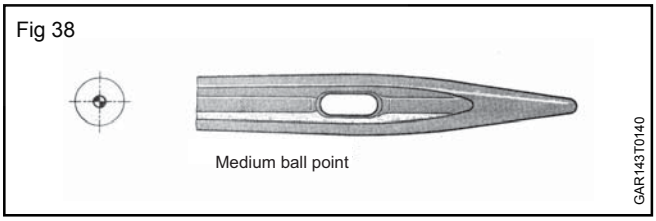
Fig 37



Medium ball point (Fig 38)

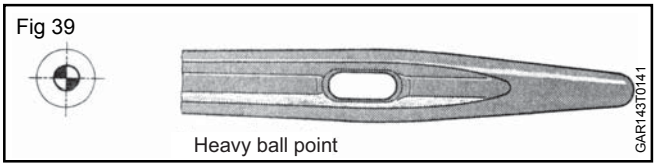
Elastic materials containing rubber or elastorneric threads are sewn with medium or heavy ball points. The threads are not pierced, but displaced.

Fig 38



Heavy ball point (Fig 39)

Fig 39



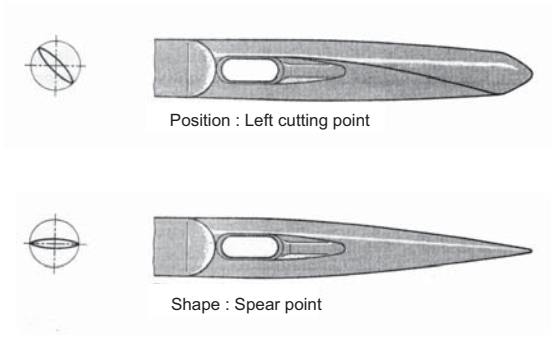
Cutting points (Fig 40)

Cutting points are used for sewing leather and films or coated and laminated textiles.

They are classified and named according to the position of the cutting edge and its shape.

The shapes are named with regard to the form of the cutting edge e.g. spear point, triangular point, diamond point.

Fig 40



Embroidery and Darning needles

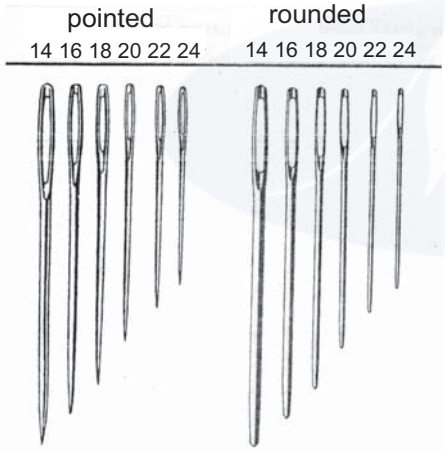
Embroidery and darning needles are particularly thick sewing needles. Material and yarn thickness determine the length and thickness,of the needle to be used .

The numbering system is not directly related to the length or thickness of the needles; it serves only to distinguish one needle from another

Rounded needles are used for coarse materials; pointed needles are used for finer materials.

Embroidery needles (Fig 41)

Fig 41



Darning needles (Fig 42)

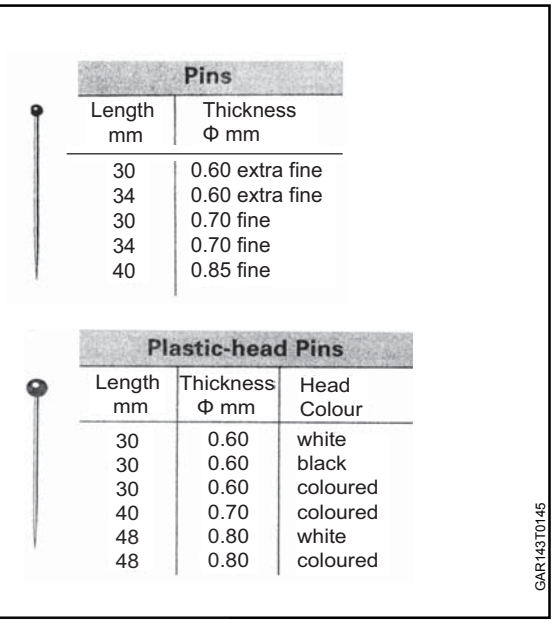
Fig 42

Pins (Fig 43)

Pins are made of steel or brass and may have plastic heads.

The length, thickness and type of pins are chosen depending on the type of fabric and the application (component assembly, decoration, packaging).

Fig 43



Pins

Length mm	Thickness Φ mm
30	0.60 extra fine
34	0.60 extra fine
30	0.70 fine
34	0.70 fine
40	0.85 fine

Plastic-head Pins

Length mm	Thickness Φ mm	Head Colour
30	0.60	white
30	0.60	black
30	0.60	coloured
40	0.70	coloured
48	0.80	white
48	0.80	coloured

Darning mushroom (Fig 44)

It is a mushroom shaped tool usually made of wood. The sock is stretched over the curved top of the mushroom and gathered tightly around the stalk to hold it place for darning.

Fig 44

Loop turner (Fig 45)

It is one of the tools designed for turning the fabric tube right side out after it has been sewn. It is made of metal average about 12" (30.5cm) long. At one end they have a large circle through which hooks the fingers to pull them along and at the other side, is a latch hook that can be placed in the open or closed position.

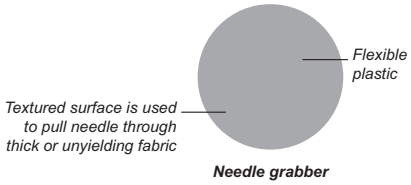
Fig 45

GAR143T0147

Needle grabber

It is a 2 count rubber disc that grip and pull the needle through layer of fabric. It is useful when hand sewing heavier fabric. It provides protection for sensitive fingers.(Fig 46)

Fig 46

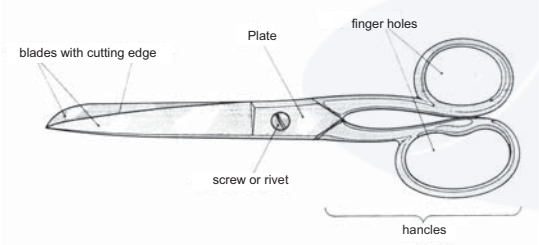


Needle grabber

GAR143T0148

Scissors (Fig 47)

Fig 47



GAR143T0149

Paper shears (Fig 48)

Paper shears have long pointed blades. The blades are longer than the handles.

They can be used for accurate cutting of thin paper.

Fig 48

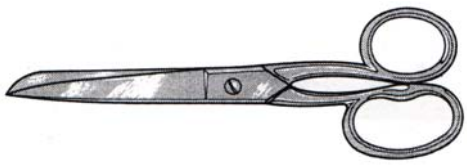
GAR143T0150

Hand scissors (Fig 49)

Hand scissors are designed to be easy to handle, with their differently-shaped blades and finger holes.

Hand scissors are used in all general purpose cuttinq operations.

Fig 49

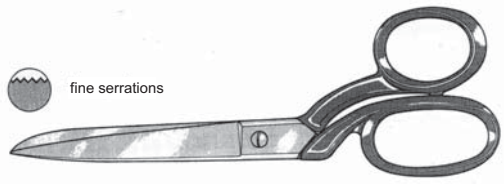


GAR143T0151

Tailors shears (Fig 50)

Tailors shears are large and stable. The finger holes are specially contoured, shaped and positioned to make it easier to cut thick fabrics. One of the blades is provided with serrations which helps to prevent smooth fabrics from slipping. Tailors shears are suitable for cutting garment components from single layers.

Fig 50



GAR143T0152

Pattern shears (Fig 51)

The handles, which are strongly contoured, are much longer than the short, strong blades. In heavy duty types the blades are screwed on and can be changed.

They are used for cutting out pat-tern templates from thick card-board, or plastic.

Fig 51

GAR143T0153

Pinking shears (Fig 52)

The shape and handling characterestics are somewhat similar to tailors shears, but the cutting edges have a zigzag profile.

The zigzag edge of the cut fabric reduces tile tendency for the cut edge to fray and may provide a more attractive trimming.

Fig 52

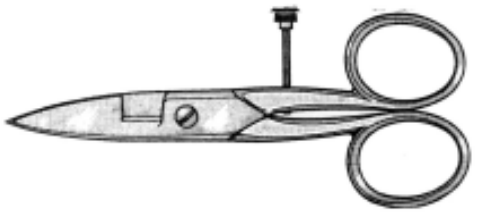
GAR143T0154

Buttonhole scissors (Fig 53)

A special gap in the blades allows short cuts to be made Inside the edge of the fabric.

The length of cut can be adjusted by a screw

Fig 53

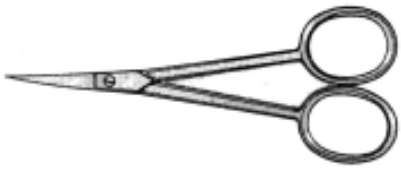


GAR143T0155

Embroidery scissors (Fig 54)

The handles are longer than narrow and pointed blades. They are suited for catching and cutting fine,short threads

Fig 54

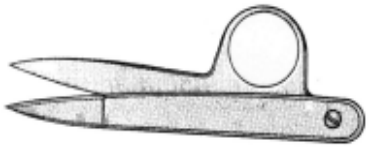


GAR143T0156

Snippers (Fig 55)

The small lightly spring loaded blades open automatically. Allows very rapid and easy snipping and trimming of waste thread, or removal of tacking stitches and opening of seams. Used e.g in fitting, final inspection, and reworking

Fig 55



GAR143T0157

Other tools

Stitch cutter (Fig 56)

The stitch cutter has a hooked edge with an arrowhead. It is especially suitable for opening up machine made button holes.

Fig 56

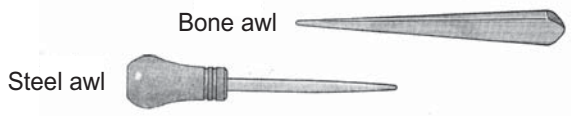
GAR143T0158

Awl (Fig 57)

An awl is made of bone, plastic or metal. It tapers to a point and has 2 smooth surface.

It is used for rounding off button eyes or draw string holes and for pulling out threads

Fig 57



GAR143T0159

Hole punch (Fig 58)

Punches are available in diameters of 2 mmt to 25mm.

The punch is generally used for making holes in cards or plastic pattern templates or cutting patterns.

Fig 58

GAR143T0160

Revolving hole punch (Fig 59)

The revolving punch has a maga zine of punches of different diameters.

It is used to make holes close to the edge of the fabric.

Fig 59

GAR143T0161

Notcher (Fig 60)

Makes notches of various shapes according to requirements.

Used for placing positioning marks on cutting patterns, e.g. balance marks and seam allowances.

Fig 60

GAR143T0162

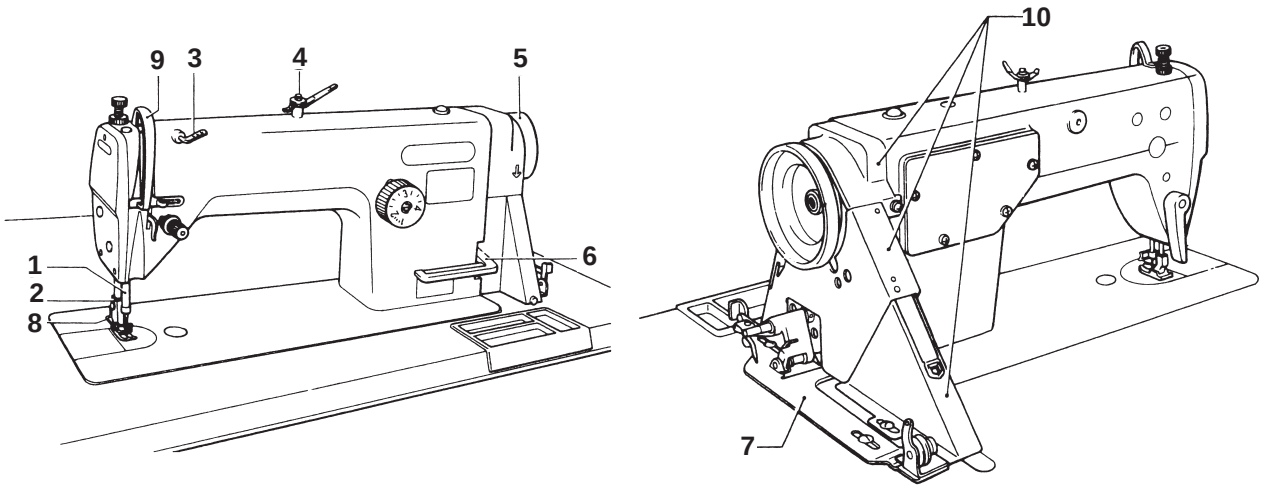
Sewing machine (Fig 61)

Sewing machine are available in a variety of different styles and configurations and most are operated using foot pedal. Most sewing machines are capable of creating a variety of different stitches including speciality stitches such as button holes.

Sewing machines draw thread from two sources to create a strong stitch in fabrics and also accommodate heavy duty fabrics with the right choice of needles. Sewing machine needles are available in different lengths and thickness to accommodate different applications.

Fig 61

NAMES OF MAJOR PARTS



1 Needle bar
2 Presser foot
3 Thread retainer
Safety devices
4 Pre-tension
5 Machine pulley
6 Reverse Stitching lever
7 Bobbin winder
8 Finger guard
9 Thread take-up cover
10 Belt cover

GAR143T0163

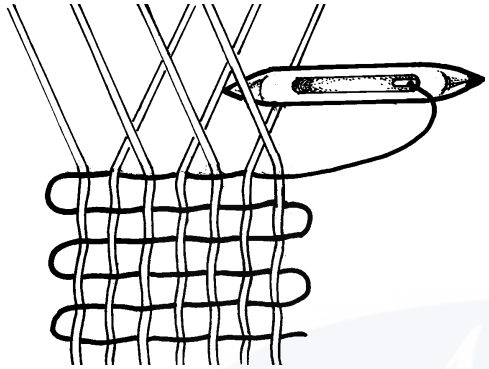
Fabric construction

Objectives: At the end of this lesson you shall be able to
- **explain fabric construction.**

Construction of fabric: Woven fabric is constructed by two groups of yarns known as lengthwise and widthwise yarns.

Weaving is inter-leaving of 2 sets of yarns, warp and weft, at right angles. The **warp yarn** is tied to the loom in length direction. The **weft or filling yarns** are inserted at right angles to the warp. (Fig 1)

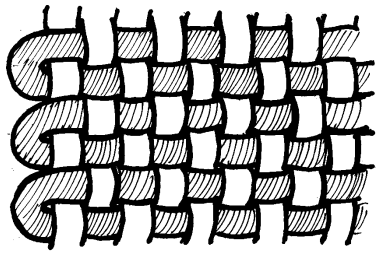
Fig 1



CT11011E

The simplest type of fabric construction is the **plain weave** in which each weft yarn goes alternately over and under each warp yarn. On the sides of the woven fabric, the **selvedge** runs lengthwise as a ribbon like or fringed edge. (Fig 2)

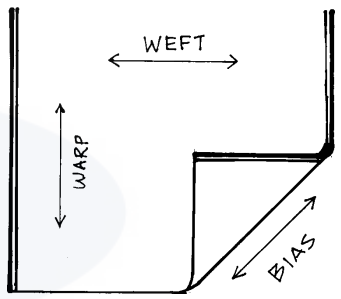
Fig 2



CT11011F

Grain of fabric gives the direction of yarns. The warp running parallel to the selvedge forms lengthwise grain. Crosswise (widthwise) grains are formed by weft yarns running perpendicular to the selvedge. The direction oblique to selvedge is called bias. True bias is at 45 degree. (Fig 3).

Fig 3



CT11011G

Sources and features of fibres

Objectives: At the end of this lesson you shall be able to
- **name the source of different fibres**
- **list the features of fibres.**

For a successful sewing knowledge of fabrics is important. Fabrics are available in a variety of weaves, textures, colours and designs. It is essential to know whether the fabric is suitable for use, whether it is worth your expenditure of time and money. Here are some fabric facts that will help you to select the fabric best suited for your requirements.

Fabrics are made up of **fibres**, either natural or man made. These fibres are spun into yarns and woven together on various types of looms.

Each fibre has its own characteristics which can be changed partly by spinning, weaving and finishing, but even then, the original characterstics are still evident.

The fibre, its main characteristics, and the care of these fabrics can be seen in the table given at the end of the lesson.

Man made fibres are mainly synthetic fibres not found in nature, but gained from a chemical solution. Natural fibres are cotton, linen, silk and wool; except the silk yarn the natural fibres are of short length, called **staples**. These staples are twisted (spun) to a long **yarn**. (Fig 1)

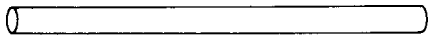
Fig 1

CT111011

Longer staples make high quality yarn, more expensive but also more durable. Fabrics made from these high quality yarns are called “combed” in case of cotton material and “worsted” in case of wool. The number of twists affects appearance and durability. A yarn with many twists is stronger and will produce smooth-surfaced fabrics.

A filament yarn is a strand of several meter length either extruded from a chemical solution of which man made fibres derive or it is unreeled from a silk worms cocoon. Filament yarns are smooth, fine and slippery. (Fig 2)

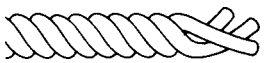
Fig 2



CT111012

Yarns can be used alone or two or more yarns may be twisted before weave (ply yarn). (Fig 3)

Fig 3



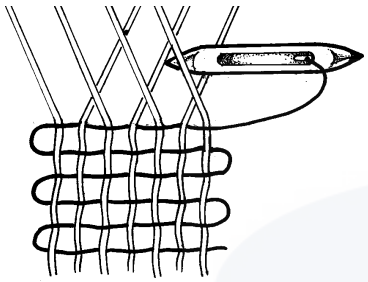
CT111013

Basic types of weave

Objectives: At the end of this lesson you shall be able to
- **explain and sketch the features of the basic types of weave.**

The rectangular interlacing of yarns is called **weaving**. **Warp yarns** are tied to the loom and filled by crosswise or **weft yarns**. (Fig 1)

Fig 1

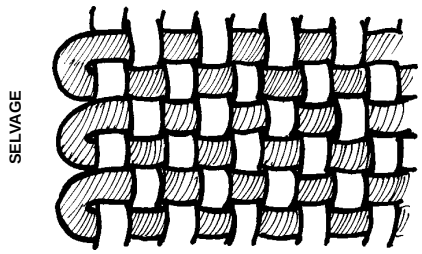


CT111021

The final weave structure will depend on the way in which the warp and weft yarns are interlaced. There are three basic types of weaves. Most of the other types are variations.

Plain weave is the simplest and most common type of weaves. The horizontal threads (weft or fillers) pass alternately over and under successive vertical threads (warp yarns). Muslin or Taffeta are examples for this type of weave. (Fig 2)

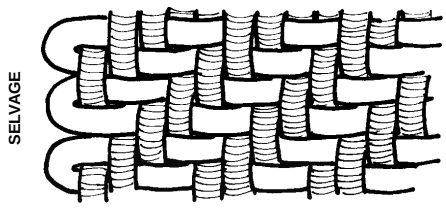
Fig 2



CT111022

Twill weave is woven more closely than the plain weave. The warp and weft threads are interlaced to form a ridge or rube on the face of the fabric. On each successive line the weft moves one step to right or left. Examples are Denim and Gabardine (Fig 3)

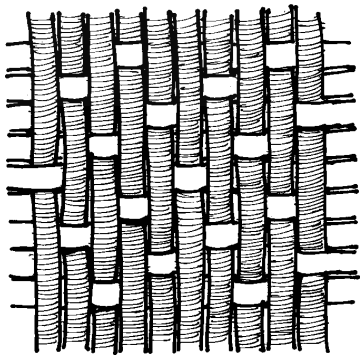
Fig 3



CT111023

In **satin weave**, one set of threads is floating over the other set of threads. The warp yarn passes over four or eight weft yarns to produce the effect. But it is also possible to create a weft satin weave. Then the weft yarns are predominant on the face of the fabric. Examples (for the more common warp satin weave) are satin, damast, chiffon (Fig 4)

Fig 4



CT111024

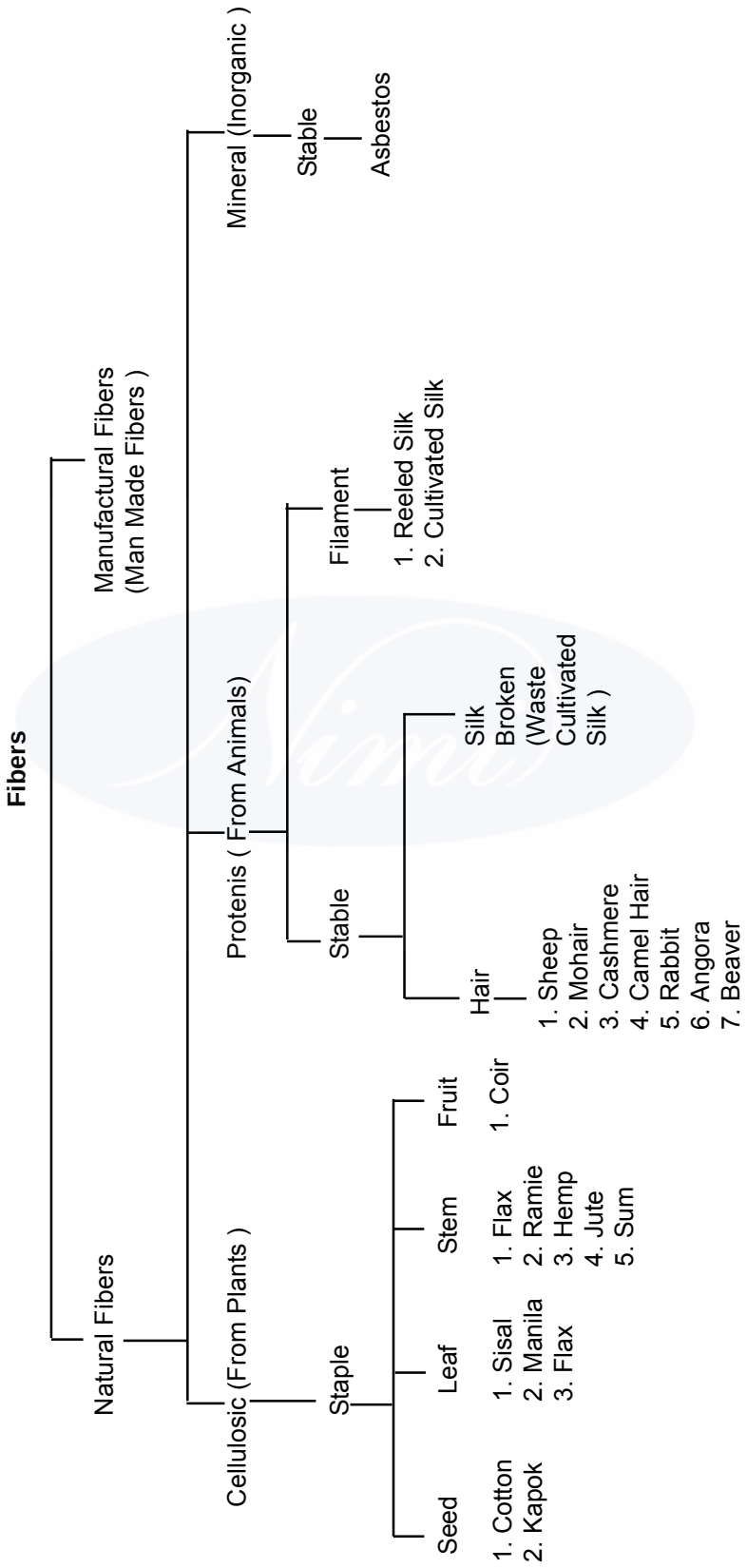
Non-woven fabrics have no grain. They are made by pressing fibres together, eg. felt, plastic film and vilene interfacing.

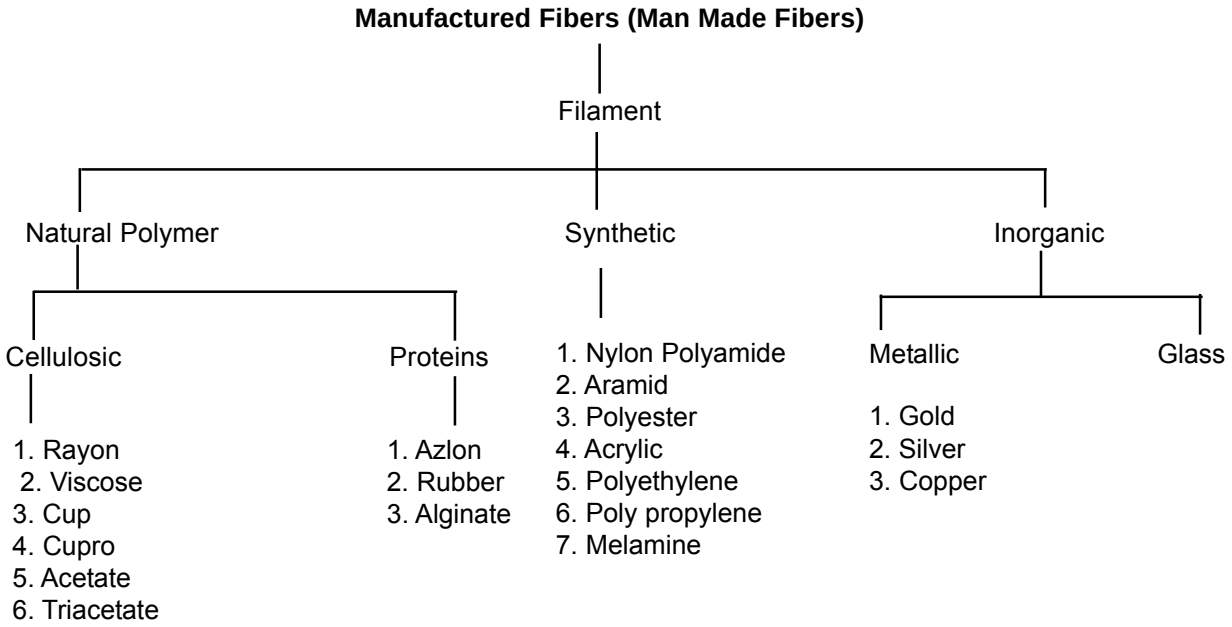
Many fabrics are given a finish after they are woven to increase their body, to prevent shrinkage (sanforized) or wrinkling (crease-resistant), to impart crispness to the surface or to make them drip-dry, water repellent, stain resistant or mothproof. There are also other finishes such as dull, shiny, stretch, rough, soft, smooth, fine, coarse, lustrous, hard and laminated. The fabrics are labelled with the respective finish.

Napped fabrics have hairlike fibres lying in one direction. This effect is achieved by a special weaving and finishing process, eg. flannel, velvet, face cloth and wool broad cloth. These fabrics are called one-way fabrics.

Fabrics give variety in feel, e.g. ranging from rough to smooth. This effect is caused by the texture of the fabric. Texture refers to the surface appearance of the fabric and its characteristic body or hang. Texture is created by yarn, weave and finish of the fabric.

Classification of Fibers





Identification of fabrics: For identification of right and wrong side of fabric the following criteria will be helpful. Place both sides of fabric beside each other.

On right side of fabric

– the design is more bright and clear

– the selvedge is darker

– the piles are visible

If you want to buy a certain fabric like cotton for example you will normally find the information about the type of the fibre written on the selvedge of the material itself.

But some of the fabrics are not labeled. In that case different types of test help to determine the fibre. Two tests which are not difficult to perform are explained below.

Burning test: With the help of tweezers some yarns or a small piece of cloth will be burnt horizontally in a flame. The way of burning down, the smell and the residue inform about the type of fibre.

Dry tearing test: A piece of fabric is slashed and formed by hand. The length of the fibre ends at the torn edges informs about the type of the fibre. This test helps to distinguish amongst cotton and linen (while the burning test gives same features for these fabrics).

	Burning	Smell/residue	Dry tear testing
Cotton	Burns quickly and bright	Like burning paper/leaves a grey ash powder	Short fibre appear at the torn edges
Linen	Burns quickly and bright	Burns like paper/grey powder ashes left	The torn edges are much longer than that of cotton
Wool	Burns slow	Like burning horn or hair/ black ash is left	
Silk	Burns slow	Smell like burning horn or hair/leaves a black crystalline ash	
Polyster	Melts and shrinks from	No smell/leaves a brownish mass the flame hard and uncrushable	
Nylon	Shrinks and melts away from flame	No smell/leaves a hard residue, with fibre uncrushable forming drops	

Characteristic features of fibres

Fibre and source	Characteristics	Typical fabrics and uses	Care
Natural fibres			
Cotton From seed pod of cotton plant	Strong even when wet absorbent. Draws heat from body. Tends to crease Good affinity for dyes. Shrinks unless treated. Weakened by sunlight.	Used for summer wear, season-spanning garments, work clothes Examples: Corduroy, denim, poplin, terry, organdy, seer-sucker care instructions	Most cottons can be laundered Colourfast ones in hot water, others in cold water. Tumble-dry at hot setting. Chlorine bleach can be used . Iron while damp.
Linen From flax plant	Strong. Absorbent. Creases unless treated. Poor affinity for dyes. Some tendency to shrink and stretch. Deteriorated by mildew.	Fabrics usually have coarse texture and natural luster Draws heat from body Weave weights vary light to heavy. Used for spring and summer wear; also many household items	Usually dry-cleaned to retain the crisp finish. Can be washed if softness is preferred. Usually shrinks when washed.
Silk from cocoons of silkworms moths.	Strong. Absorbent. Holds in body heat. Crease resistant. Good affinity for dyes, but may bleed. Resists mildew, Weakened by sunlight and perspiration	Luxurious, lustrous fabrics in many weights. Used for dresses, suits, blouses and linings Examples: Brocade, chiffon, crepe, satin, tweed, jersey	Usually dry-cleaned, if washable, usually done by hand in mild suds. Avoid chlorine bleach. Iron at low temperature setting
Wool From fleece of sheep	Relatively weak. Exceptionally absorbent. Holds in body heat Creases fall out. Good affinity for dye. Needs mothproofing. Shrinks unless treated	Fabrics of many weights, textures, constructions. Used for sweaters, dresses, suits and coats Examples: Crepe, flannel, fleece, gabardine, melton, tweed, jersey	Usually dry-cleaned. Many sweaters can be washed in tepid water and mild suds; do not wring. Do not use chlorine bleach. Some wools can be machine-washed; follow instructions
Man-made fibres (selection)			
Nylon	Strong. Low absorbency. Holds in body heat. Resists wrinkling, soil, mildew and moths. Tends to pill. Accumulates static electricity.	Wide range of fabric textures and weights. Often blended with other fibres. Used for lingerie, linings, swimsuits, blouses & dresses Examples: Fake fur, satin, jersey ture.	Can be washed by hand or machine in warm water. Use gentle machine cycle. Use fabric softener to reduce static electricity. Tumble-dry or drip-dry. Iron at low tempera-
Polyester	Strong. Low absorbency. Holds in body heat. Resists wrinkling, stretching, shrinking, moths and mildew. Retains heat-set pleats electricity Examples: Crepe, double knit.	Wide variety of fabrics in many weights and constructions. Used for dresses, Accumulates static suits, sports-wear, lingerie, linings, curtains, thread, filling for cushions setting for touch-ups.	Most polyesters are washable in warm water by hand or machine Tumble-dry or drip-dry. Use fabric softener to reduce static electricity. May need little or no ironing; Use moderate heat.

The textile labelling regulations in different countries aim at providing information on the fibre types which have been used to make a fabric. In dresses, the fibre content information is written on sewn-in labels ffixed at collar or in the side seams. In fabrics, it is wirtten on the selvedge. If the product is sold in a package (e.g. socks) the information is given on the packaging.

100% silk	Materials which are made 100% from only one raw material may be described as "pure" or "all"; an allowance of 7% for visible decoration material is given. Interlinings used for shaping need not be identified.
80% Nylon 20% of elastine	With blended products, the percentages by weight of the constituent fibres must be given. The fibres must be listed in decreasing order.
Minimum 85% silk	For textiles which are made from several fibres, one of which is at least 85% it is sufficient to say "85% minimum content".
60% silk with wool and viscose	If no one fibre in a blend is as much as 85%, then it is sufficient to give the percentage share of the dominant fibre with the other components listed in decreasing order .
85% cotton 15% other fibres	If one or more components are present in an amount of less than 10%, then they may be designated as "other fibres"
Outer fabric: 100% new wool Lining: 100% silk	With lined clothing, the fibre content of the main lining material must be given.

Types of hand stitches and their use

Objectives: At the end of this lesson you shall be able to
- **name and classify hand stitches**
- **describe their use.**

Basic stitches are divided into constructive and decorative stitches which are used in embroidery. Constructive stitches are further divided into temporary and permanent stitches.

Temporary stitches: Basting or tacking is a temporary stitch used for holding two or more layers of materials together before the permanent stitches are made. Usually this stitch is horizontal and is worked from right to left. This is the only stitch, which is started with a knot. For basting use a contrasting colour thread so that it can be easily seen and removed. The length of the stitch will vary depending on the weight of the fabric and how securely the pieces are to be held together. To end basting make two stitches, one on the top of another. There are several types of basting stitches.

Even basting is used for short length of seams and folds.

Uneven basting is used for long length of seams and folds.

Diagonal basting is used when several layers of fabric are to be held securely.

Padding stitch is used in coats to hold the lining and inner lining.

Tailor's tacks – Thread marks are basically uneven basting stitches. They are used to transfer marks on a lower layer of fabric.

Permanent stitches: In permanent stitches avoid using knots, while starting and ending the stitches. Begin with a small back stitch if it can be concealed under the permanent stitches or leave a short length of thread (about 2 to 3cm) extending on the wrong side which can be caught and held under the first few permanent stitches. To end the stitch take the thread to the wrong side and secure with loops.

Running stitch is the simplest of all the hand stitches, used for sewing hand made seams, tucks, gathering, quilting and mending.

Back stitch is strong and sometimes substituted for machine stitching.

Pick Stitch (Half back stitch) is used on fine materials.

Overcasting is used on raw edges, either single or double to prevent them from fraying.

Hemming is used to secure a folded edge of material. Its most common use is for hems. Hemming appears as small, slanting stitches on the wrong side and sometimes on right side. These stitches should be fine and spaced close enough to hold the hem securely in place. Before starting the hem, fasten the thread with several tiny stitches on top of each other. Finish the hemming with several stitches to fasten it securely. Don't use too long thread for stitching. The maximum length should not exceed 70 cm to avoid knots in thread, it also helps to avoid accident with the needle while pulling the thread.

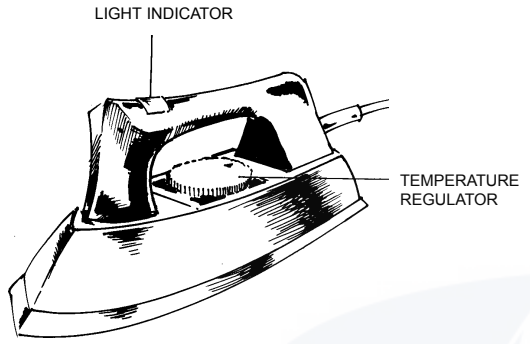
Pressing equipment

Objectives: At the end of this lesson you shall be able to
- **name the pressing equipment and its application**
- **explain the importance of pressing.**

Pressing equipment

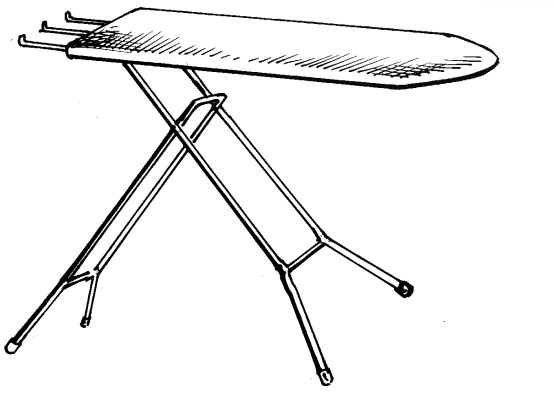
Electric iron: It is specially shaped with pointed nose and parallel sides. The bottom plate of the iron is heavy, hard and smoothly polished, so as to allow easy movement on the fabric to be pressed. It is provided with a non-conducting handle and a temperature regulator or a thermostat. (Fig 1)

Fig 1



Ironing board/pressing table (foldable)**:** It is a flat, hard board, made of either wood or metal. The board is stuffed with cotton and covered with cotton fabric and it is fixed on an adjustable stand to vary the height. (Fig 2)

Fig 2



Tailor's ham: It is a firmly packed cushion with rounded ends. It is used for pressing shaped areas such as bust darts and curved seams; it is also used for moulding the corner. (Fig 3)

Point presser: It is a sharp pointed wooden board and is used for pressing seams in collars and for helping to bring out the sharp points in collars, cuffs etc. (Fig 4)

Fig 3

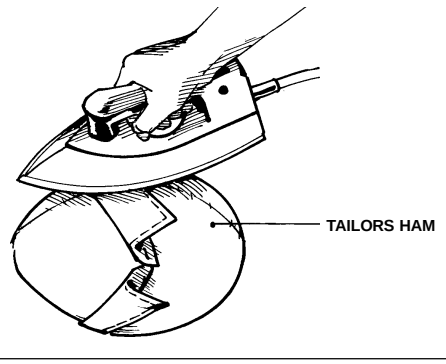
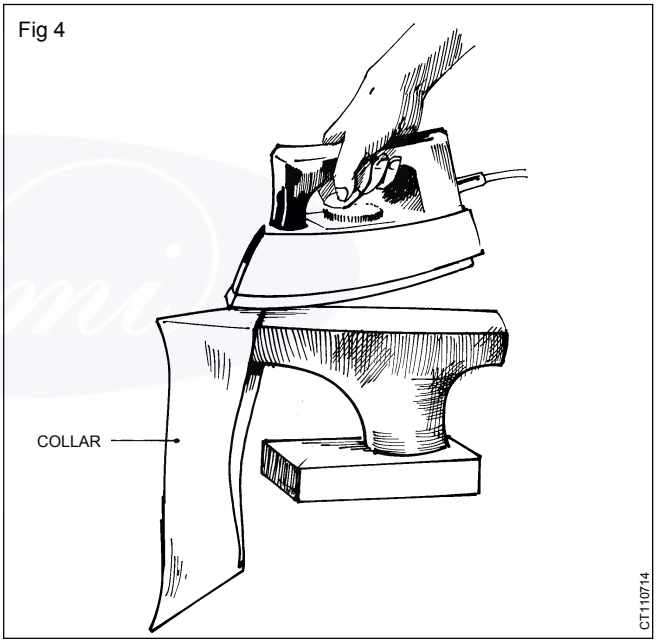
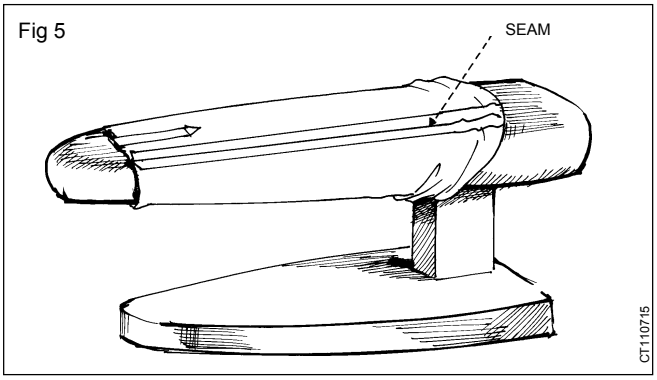


Fig 4



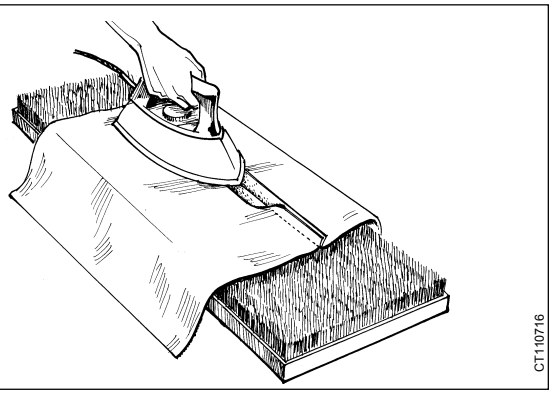
Sleeve board: It is a board with a narrow, long, flat surface on which the seams and details of the narrow sections of the garment, such as the sleeves and the legs of the trouser can be easily pressed. (Fig 5)

Fig 5



Needle board: It is a board with a collection of small needles fixed on a wooden board. It is used to press pile and nap fabric (e.g. corduroy, velvet) (Fig 6)

Fig 6



Pressing is as important process during and after stitching. Pressing will remove wrinkles, sharpen creases, flatten bulky layers and open seams. Pressing can shrink or stretch a fabric.

The main factors involved are heat, pressure and humidity. These factors have to be harmonized with the fabric which shall be pressed.

Pressing is done

– during the construction of a garment (press flat seams, darts, press components in shape etc.)
– for finishing of a garment after stitching.

Differences between **ironing & pressing**: Ironing is the process by which the iron is pushed along the fabric in lengthwise or crosswise direction. The ironing process is used for garments after they have been constructed.

Pressing is the process by which the iron is lifted up and set down on the fabric in a series of up and down motion, in the lengthwise and crosswise direction. Pressing is done for all garments during the process of constructing.

Safety precautions

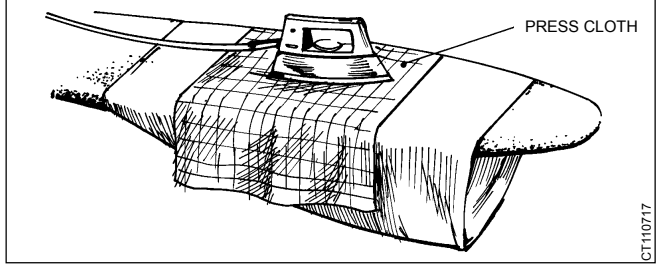
– Do not let iron cord drag over your work.
– Either use the iron stand or tilt the iron when not in use depending on the type of iron you have.
– Do not scorch the ironing board cover.
– If starch is stuck to the iron, let it cool and then scour with soap or non-scratching scouring powder or baking soda.
– Use distilled water for steam irons; empty the same when you have finished your work.
– Make sure that there is no leakage of electricity in any part of the iron, the wire and plug pins.
– Never leave the heating surface of iron on the ironing table or on the cloth when in rest, the iron must be kept in erect position.

Set the regulator or control on your iron correctly for the less heat resistant fibre in your fabric. Temperatures are not always clearly marked on the iron dial but should be graded from hot to cool in this order: linen - cotton - rayon - wool - silk - nylon (and other artificial fibres).

Wet pressing can easily be done with a steam iron. Otherwise sprinkle water directly on the fabric and leave it for a minute before ironing.

Another method of wet pressing can be done with the help of a damp cloth. It is used for linen or wool fabric. For some fabrics like spun rayons, embossed and glazed fabrics its better to press dry. (Fig 7)

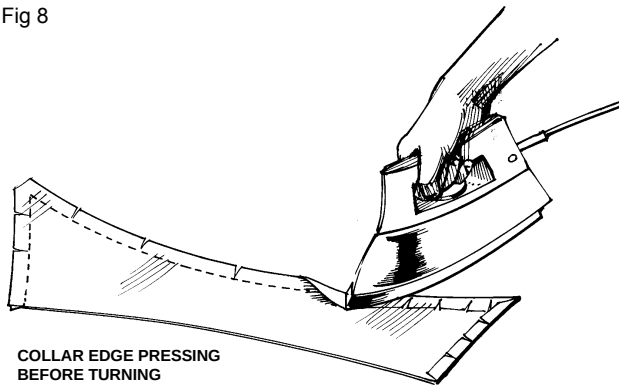
Fig 7



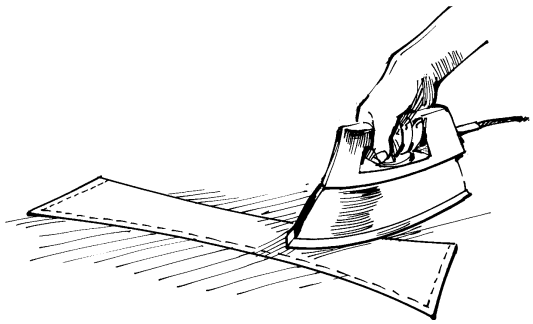
Techniques for pressing during construction

– Pressing over basting is frequently necessary along edges with enclosed seams, pleats or hems. After a first light dry pressing, clip the basting, remove and press again with dampness before the marks made are set on the fabric. Never press over pins.
– Press with the grains, also on bias components press along the grains.
– Have scissors handy at the pressboard to release any pull from points that are not sufficiently slashed. Corners or curves that are to be trimmed or slashed closely are less likely to fray if they are dampened and well pressed before cutting.
– After a piece of garment is pressed, keep it pinned up on a coat hanger or spread out carefully to dry so that you won't have to give it another pressing.
– Gathers are pressed by folding firmly at the stitching line in your left hand. For slow work reduce the heat.
– Hold the side of the iron closely parallel to the stitching line when fullness is to be shrunken out.
– Press-buttons, embroidery, lace, beading, braiding are to be pressed from the wrong side over a soft pad such as layers of turkish towel.
– Press collars, cuffs, belts and pockets first on the wrong side then finish them on the right side very lightly over a press cloth. Press first along the edges firmly, remove basting, press again. Work from the outer edges towards the inside. (Fig 8)

Fig 8



COLLAR EDGE PRESSING
BEFORE TURNING



COLLAR PRESSING
AFTER TURNING

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– Do not press lengthwise creases in sleeve if you want a professional appearance, instead use sleeve board.

Order of pressing work

– First press interior parts such as pockets, facings, seams, linings and shoulder pads.

– Then press sleeves.

– Press ruffles and gathers before the parts they trim.

– Press yokes and shoulder seams before the lower blouse.

– Press top parts of long garments before the lower parts (blouse before skirt); skirt top before lower part of skirt.

– The collar is usually pressed last, because its position next to the face is so important.

– Finally remove any creases accidentally produced. Do not put creases in sleeve or below dart or unpressed pleats.

Method of shrinking

Objectives: At the end of this lesson you shall be able to
- **explain the method of shrinking and it's use.**

Fabrics have a tendency to shrink when they are first dipped in water. Therefore, the fabric is made to shrink before stitching. Pre-shrunk material does not need shrinking treatment.

Shrinkage is not necessary in case of sanforized fabrics. Non-sanforized fabrics like cotton, silk, wool etc. have to be shrunk by different methods.

After shrinking the fabric should be pressed well to remove wrinkles.

There are several methods of shrinking. The fabric may be soaked in water for a few hours or the fabric may be steamed.

Shrinking treatment for different fabrics: White fabrics (Cotton, Linen) should be soaked in hot water for minimum of four hours. The position of the fabric should be changed once or twice to get uniformity in the shrinkage. Same treatment is applicable to coloured fabrics as well, except that these are to be soaked in luke warm water.

The shrinkage treatment for woollen fabric is given by steam, adopting any one of the two methods:

A wet turkish towel is placed in between two layers of the woollen fabric so that the right sides touch the wet towel. Spread press cloth on the top layer and press it with hot iron. The steam generated from the wet towel ensures shrinkage.

The other method is to spread a wet muslin cloth over the fabric and rolling the fabric together. Then the wet muslin is removed and the fabric is pressed with hot iron.

Precautions

– The container used for soaking and the wire ment for drying should be free from rust and dust

– Two different coloured fabrics should not be soaked together

– Drying should be done under the shade.

Sari fall

Objectives: At the end of this lesson you shall be able to
- **explain the varieties of sari fall fabrics and their application.**

The sari fall is a long piece of fabric with a narrow width, extending to half the length of the sari. It prevents the early wear and tear of the lower edge of the sari. It also gives a good fall and drape of the sari, especially for thin and light woven sari fabrics.

It is attached to the falling end of the sari or the bottom. The fabrics generally used are of three varieties: cotton, terrcossa and polyester. Cotton falls are used for cotton saris and polyester and terrcossa are used for polyester, silk and chiffon saris.

Select the sari fall, which nearly matches the sari, in colour and fabric. (ie. cotton with cotton and polyester with synthetic).

Since saris are not shrinked before a fall is attached, polyester falls should not be stitched on cotton saris and vice versa. It affects the appearance of the sari by puckering due to uneven shrinkage.

Use pre-shrunk saris and sari falls for attachment. Otherwise shrinkage treatment and pressing have to be given.

If the selection of the sari fall is of poor quality, it may get torn earlier than the sari. The colour of the fall may get faded causing damage to the sari.

Precautions

– Apply good quality falls

– Always shrink and press the cotton falls before stitching

– Fall should match with the sari as much as possible in colour and fabric

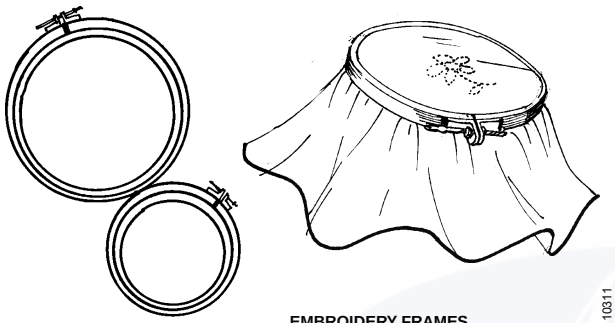
– While stitching the sari fall, don't stretch the sari or falls.

Embroidery accessories/embroidery stitches

Objectives: At the end of this exercise you shall be able to
- **name embroidery accessories and their features.**
- **explain the application of the main stitches.**

Tools for embroidery work: Embroidery **frame** is usually in circular shape. It consists of two rings, one inner and one outer. The fabric is placed in between the rings (Fig 1) and kept in tight position with the help of an adjustable screw on the outer ring (Fig 2). The frame helps to keep the fabric in an uniformly stretched position. This maintains uniform tension of the embroidery work.

Fig 1



EMBROIDERY FRAMES

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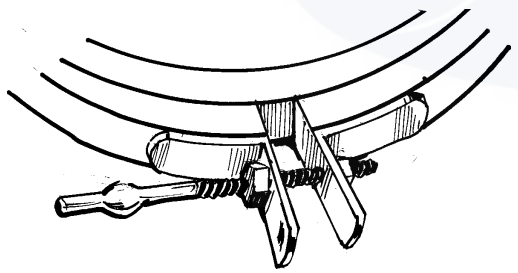
Fig 2



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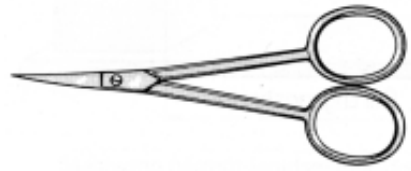
Round frames are available in 10 to 25 cm diameters. The larger sizes are generally made with clamps for attaching it to a table with a screw for adjusting.

Sharp pointed embroidery scissors are essential. The handles are longer. They have narrow and pointed blades. They are used for cutting fine and short threads. (Fig 3)

Fig 3



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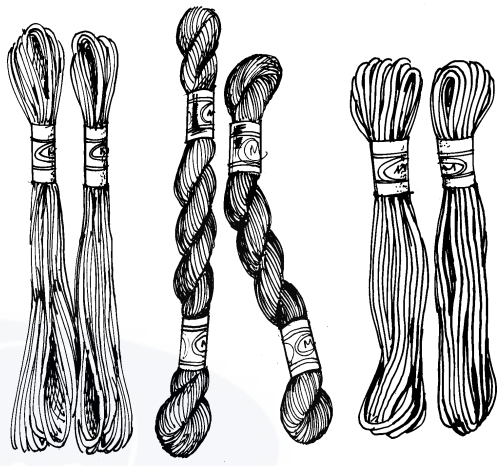
Embroidery **threads** are comparatively thicker than fabric threads. The best threads have a fairly smooth texture, which enhances the crisp character of the embroidery. Stranded cotton is lustrous thread made of six strands easy to separate. A single strand can be used for fine work and several strands for bolder effects. The threads are available in hundreds of colours. Pearl cotton thread is short with two plies, which are twisted to produce a beaded or pearl effect. Soft embroidery cotton thread is a thick thread, used on coarse fabric. Silk threads give a luxurious quality to the stitching, but are more expensive than the cotton threads. (Fig 4)

Fig 4



STRANDED COTTON PEARL COTTON SOFT EMBROIDERY COTTON

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Embroidery needles have large eyes, to allow the stranded threads to pass through. They are shaped with pointed and round tips and the sizes are denoted by numbers from 14 to 24. (Fig 5)

Fig 5

POINTED NEEDLES ROUNDED NEEDLES

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Transferring the design: After selecting the design for the embroidery work, the markings for the design should be transferred to the right side of the material without spoiling it. There are several ways of doing this besides the method shown in practical lessons. Some of them are Direct Method, Tacking Method, Transfer by Ironing.

Direct method: Fabric such as organdy, nylon, muslin, nylex, voil, etc., can be laid over the design and traced directly with pencil.

Tacking method: This method is used on velvet, dark coloured cloth materials and all knitted fabrics. This method is worked by tracing the design on a thin tissue paper and tacking the design with the fabric by fine running stitch and then tearing the rest of the paper.

Transfer by ironing: Readymade paper pattern can be transferred onto the material by ironing. The transfer has the design outline in wax or ink on thin paper. The printed design is laid onto the material and moderately hot iron is applied to the back of the transfer. When the paper is removed, it is found that the design is transferred onto the material.

Embroidery stitches: Besides weaving and printing techniques, embroidery work gives an ornamental look to the fabric. There are different kinds of embroidery stitches, which are known by special names. For successful embroidery work, it is essential that you learn to work the basic stitches. In addition, you should acquire the ability to choose the right kind of stitches, designs and colour combinations suited to the type of fabric and for the purpose and use of garment or article, on which the embroidery is to be made. The stitches must be sufficiently taut, so as not to make loops and yet loose enough not to pucker the material. While beginning embroidery, the design must be outlined first. The outlining must always be done correctly or otherwise the design would loose its shape.

There are different kinds of embroidery stitches, for example;

Stem stitch is often used. It is one of the simplest stitches. It is worked on the traced line. It is a line stitch used for outlining designs, especially stems and leaves. It can also be used for filling small designs by working several lines side by side.

Blanket stitch is used as a decorative edging for blankets and other articles or as part of a design for which the blanket stitch makes up the border.

Closed blanket stitch is used mainly for scallop. The beauty of a scallop lies in the regularity of the stitches, which must be as close together as possible.

Buttonhole stitch is similar to blanket stitch. The difference is the stitches are close together and are of same height.

Fishbone stitch is used for large motifs. It is made by gathering the cloth slightly with the stitches.

The working of **straight feather stitch** is similar to that of blanket stitch, but the stitches slant towards a centerline from either side. You can make **double or triple feather stitch** by making two or three slanting on one side and then a similar number on the other side. It is used for border patterns.

Chain stitch is used for filling. It can be done side by side to fill large shapes or to work single lines. The result of this stitch is a loop, which will then form a link. The link can be of varied lengths, shorter the prettier.

Hem stitch is used as a decorative stitch on borders. Different designs can be created by working either single or double hem. Suitable fabric for this type of stitch is linen of even weave.

Lazy daisy stitch is done in the same way as chain stitch, the only difference being that the loop is held by a stitch taken across the end. It can be used to portray flowers and leaves.

Herring bone stitch is used as a decorative stitch as well as for finishing hems and raw edges of seams. On the wrong side, two rows of running stitches are seen. When worked closely on the wrong side, this stitch can be used to do shadow work.

Cross stitch is composed of two slanting stitches which cross in the middle. This stitch does not require any great experience. The beauty of the work depends mainly on regularity and the good choice of colour. Choose a fairly thick material in which the thread can be counted or used as a temporary canvas. It is commonly used for filling of a third design,

Satin stitch is used for solid embroidery. It is worked on a design with filling or padding. Satin stitch make the embroidery stand out and gives it a richer effect.

Sewing machine : types - parts - maintenance

Objectives: At the end of this lesson you shall be able to
- **identify the parts of the machine and name their function**
- **explain the required maintenance work for the proper functioning of the machine.**

Types of sewing machines: Sewing machines are various models such as domestic model, tailor model, industrial model, portable model and cabinet model are available in the market. When you buy a sewing machine, select one that is made by a well-known manufacturer. They may be operated by hand, treadle or electric motor. Good work can be done in a hand machine but it is slower than a treadle, which leaves also both hands free to manipulate the fabric. An electric sewing machine is ideal, being less strenuous and quicker to use because the hands are free to manipulate the fabric. If you are interested in fancy sewing, you may select the new models with decorative stitching attachments. A beginner will find the foot or treadle machine easier to handle, since it is easier to control the speed.

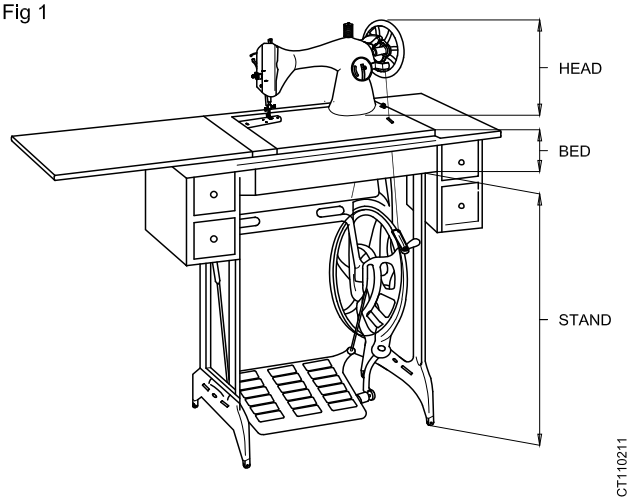
The invention of the sewing machine was a great progress in dress making since sewing became faster, seams were more durable, stitches were more even. Main feature of sewing with machine is the use of top and lower thread which are inter-linked in stitching progress.

If you have a hand machine, you need practice to turn the wheel smoothly with your right hand and guide the fabric with the left hand.

An electric sewing machine is operated by knee or foot control of an electric motor. A little practice is required to control the pressure needed to operate the machine at any desired speed with an even regular rhythm.

The treadle sewing machine and its parts: Most of the parts are common in all sewing machines. Each machine has a so called machine head and machine bed, while the stand and its part is a typical feature of the treadle sewing machine. (Fig 1)

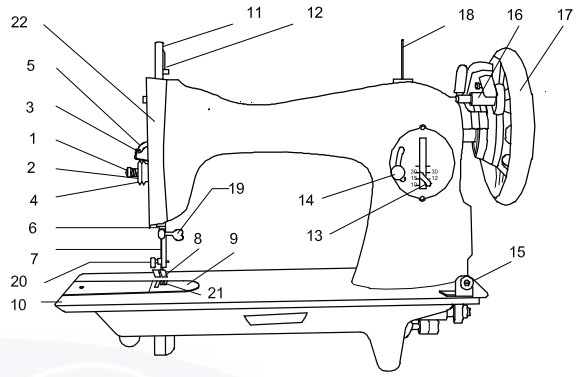
Fig 1



The parts of the head are as follows. (Fig 2)

Spool pin (No 18) holds the spool of thread.

Fig 2



1. TENSION NUT	12. PRESSURE BAR
2. TENSION DISC	13. STITCH REGULATOR LEVER
3. EYELET	14.STITCH REGULATOR LOCK SCREW
4. THREAD TAKE-UP SPRING	15.BOBBIN WINDER THREAD GUIDE
5. THREAD TAKE-UP LEVER	16.BOBBIN WINDER
6. THREAD GUIDE	17.BALANCE WHEEL
7. NEEDLE	18.SPOOL PIN
8. PRESSER FOOT	19.NEEDLE CLAMP
9. NEEDLE PLATE	20.PRESSER FOOT SCREW
10. SLIDE PLATE	21.FEED DOG
11. NEEDLE BAR	22.FACE PLATE

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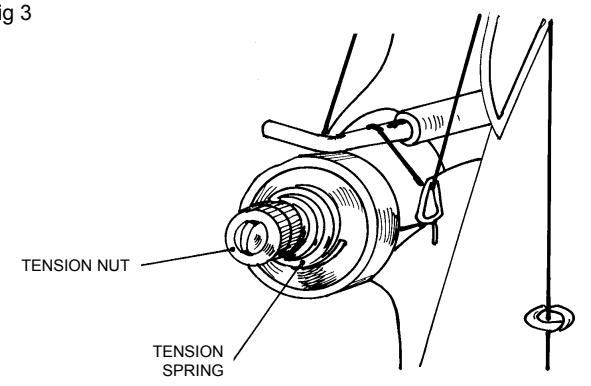
Thread guide (No 6) holds the thread in position from the spool to the needle.

Tension disc is a simple mechanism, where two concave discs are put together with the converse sides facing each other. The thread passes between the two. The tension of the thread is adjusted by a spring and a nut, which increases or decreases the pressure on the disc, ie. the thread. (Fig 3)

Fig 3



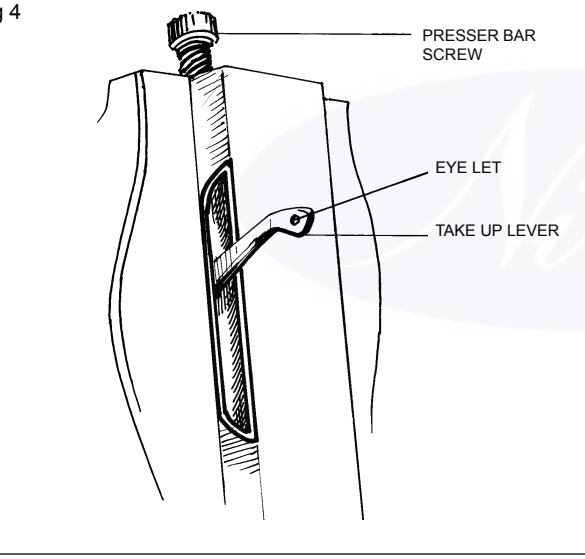
Take up lever is fitted to the body of the arm which receives its up and down motion from the front. At the outside end of the lever, there is a small hole through which the thread passes. There are two funtions of this lever:

– to feed the thread to the needle

– to tighten the loop formed by the shuttle (Fig 4)

Face plate is a removable side cover which gives access to the oiling points on needle bar, pressure bar and thread take-up. (Fig 4)

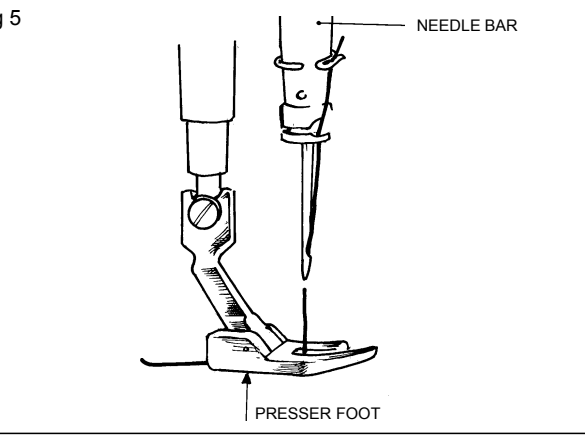
Fig 4



Needle bar is a steel rod, which holds the needle at one end with the help of the clamp. (Fig 5)

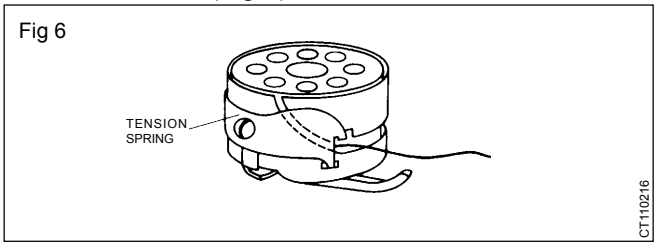
Presser foot is attached to the presser bar and it holds the cloth firmly in position, when lowered. (Fig 5)

Fig 5



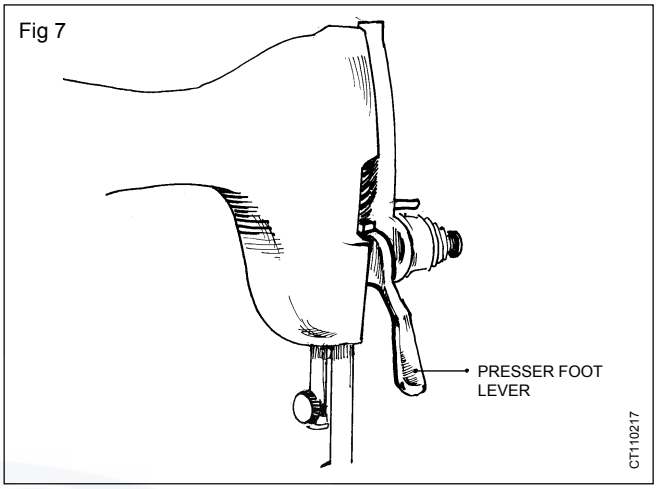
Bobbin case moves into position to catch the top thread and forms the stitch, as the needle is lowered into the bobbin chamber. (Fig 6)

Fig 6



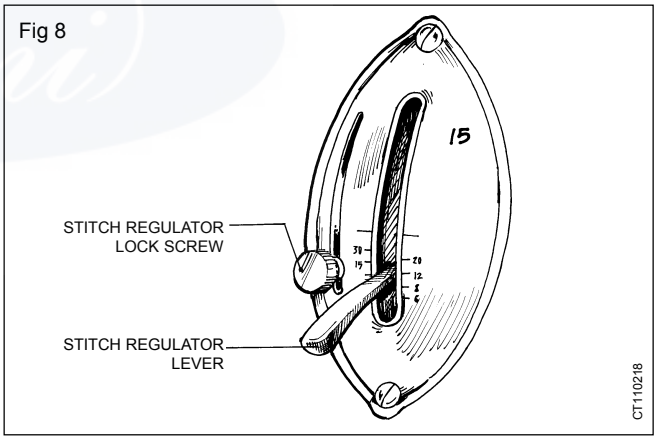
Presser foot lifter is a lever attached to the presser bar for raising and lowering the presser foot. (Fig 7)

Fig 7



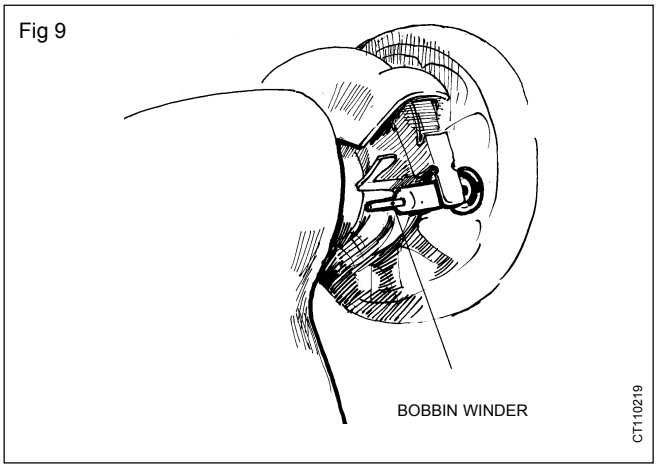
Stitch regulator controls the length of the stitch. Some regulators can be set to stitch in reverse. (Fig 8)

Fig 8



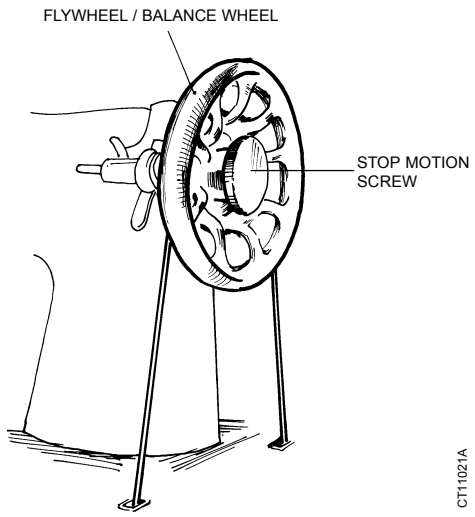
Bobbin winder facilitates the winding of thread on the bobbin. Some are made to stop automatically when the bobbin is full. (Fig 9)

Fig 9



When the **flywheel** is made to rotate, it works the mechanism of the machine. (Fig 10)

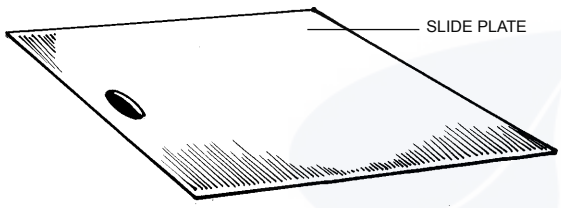
Fig 10



Stop motion screw is in the centre of the flywheel and it engages and disengages the stitching mechanism. (Fig 10)

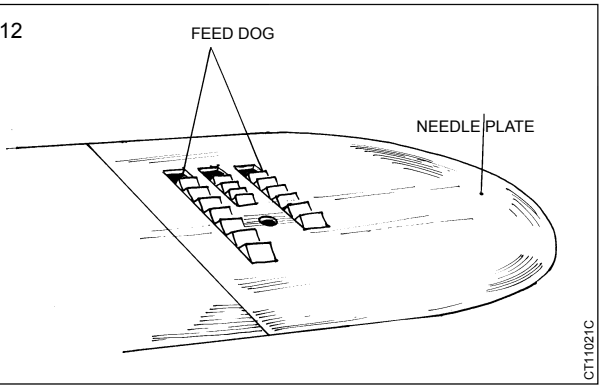
Slide plate is a rectangular plate that can be slide open to remove or insert the bobbin case. (Fig 11)

Fig 11



Needle plate or **throat plate** is a semi circular plate with a hole to allow the needle to pass through it. (Fig 12)

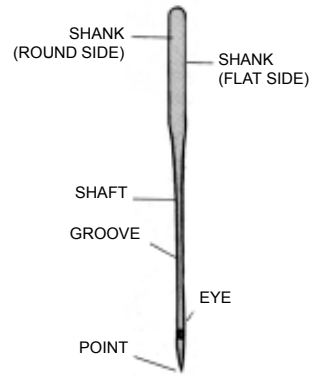
Fig 12



Feed dog consists of a set of teeth fitted below the needle plate. It helps to move the cloth forward while sewing. (Fig 12)

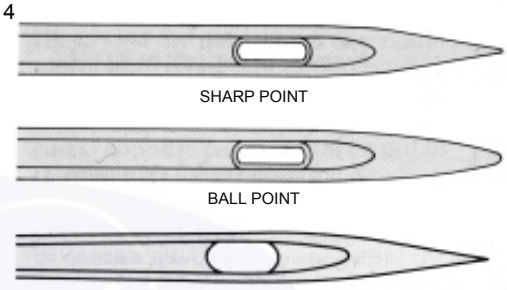
Sewing machine needles are of various types. Needles are selected according to their application. The sizes mainly depend on the structure of the fabric and the sewing threads used. The upper part of the needle is called the shank. The lower part is called the shaft. One side of the shank is flat and the other side is round. On the round side is the groove, which guides the thread while forming the stitch and protects it against excessive friction. (Fig 13)

Fig 13



The eye of the needle is just above the sharp point. It is always extended in its length because the needle thread has to pass diagonally through the needle in the lengthwise direction. The needles have different points; each designed for a particular type of fabric. The most commonly used are **sharp points** for woven fabric, **extra fine points** for twill, denim and heavy leather fabric and **ball point** for knit and stretch fabrics. (Fig 14)

Fig 14

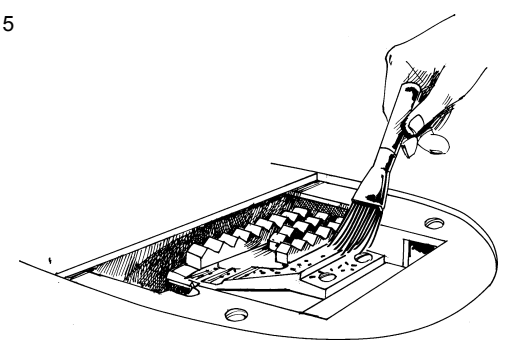


The needle sizes range from 9 to 19. When selecting the needle, remember that finer the weight of the fabric and thread, the finer the needle should be.

Care and maintenance of the machine: Regular cleaning, oiling and care of the machine ensures satisfactory sewing and a long life for the machine. When not in use, keep your machine covered to prevent dust from settling on it.

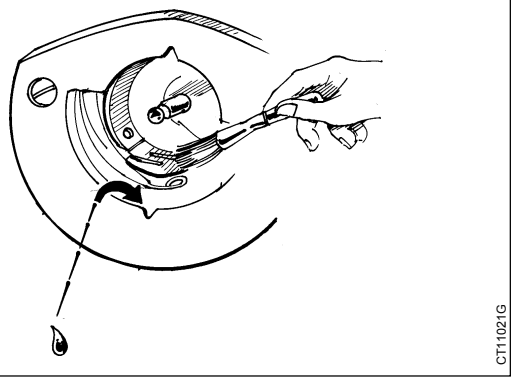
Cleaning: You should always remove lint deposits, dust and thread bits before oiling any part of the machine. Use a small dry brush or a toothbrush and a soft cloth to remove dust and lint. Use a pointed instrument like a needle to pick out bits of thread and lint that cannot be brushed out. To clean the feed dog remove the needle plate of the machine and brush off lint deposits and dirt sticking to the feed mechanism. (Fig 15)

Fig 15



To clean the shuttle race, remove the two screws holding the shuttle race assembly to the machine, take out the shuttle race, wipe its groove free of dirt, fluff and broken bits of thread. Sometimes loose thread wind around the rivets of the treadle and make the machine hard to run. You should remove thread bits caught in the wheel and all lint and dust sticking to the treadle part. (Fig 16)

Fig 16



Oiling: It is necessary to oil and lubricate the machine periodically. If the machine is used everyday, oil it once a week. If you use it infrequently then once a month should be sufficient. To oil thoroughly, remove the upper thread, needle plate, slide plate, faceplate, bobbin case, needle and presser foot. Put special sewing machine oil in all oil holes and joints where one part rules against another. While oiling, turn the flywheel back and forth to help the oil flow to the moving parts. (Fig 17 & 18)

Fig 17

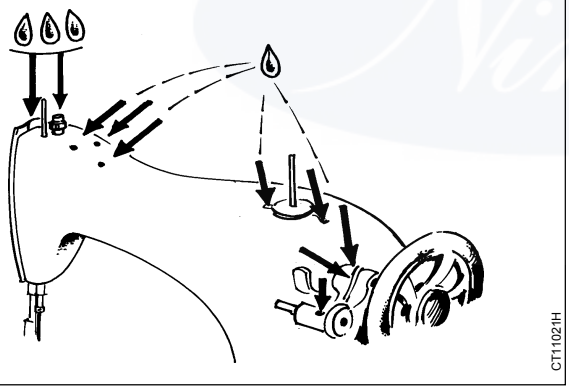
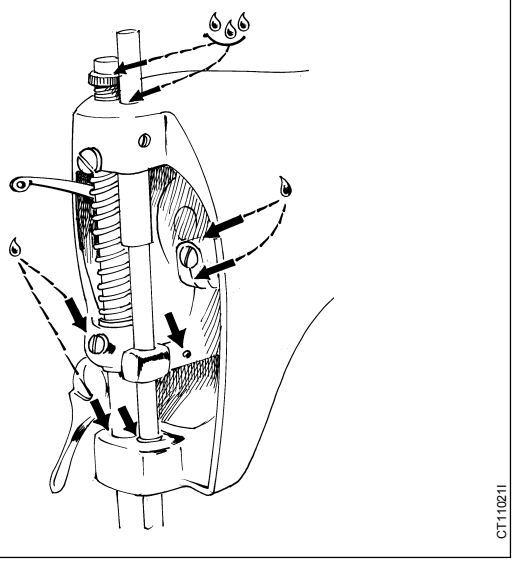
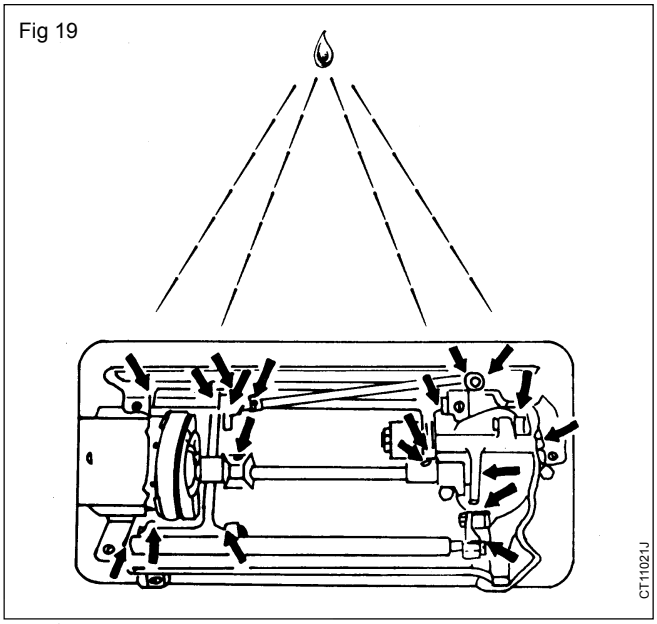


Fig 18



After oiling the points on the head of the machine, tilt the machine head back to oil the points on the bed of the machine. It is essential to oil the shuttle race. On a treadle machine, the belt will have to be released before tilting the machine head back. (Fig 19)

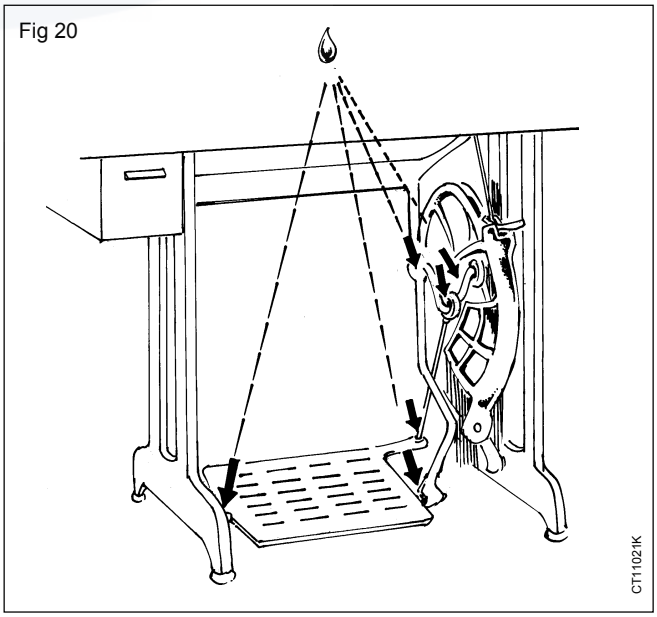
Fig 19



Do not forget to oil the machine stand. (Fig 20)

When the machine has been thoroughly oiled, wipe away excess oil and run it slowly for several minutes on a waste piece of material. Before you close the machine, place a scrap of material under the pressure foot and lower the needle. The fabric will absorb the excess oil that might drain down through the machine and will prevent formation of oil spots on your work, when the machine is used.

Fig 20



If there is excess oil in the machine, put a drop of kerosene or petrol in each oil hole and joints and run it rapidly for several minutes. Then wipe off the oil that oozes out with a soft cloth and re-oil the machine. It will need a second oiling within a few hours after this treatment.

Stitch formation/troubleshooting

Objective: At the end of this lesson you should be able to
- **explain the stitch formation, balance and stitch length**
- **explain machine troubles occuring while stitching with machine and name its rectification**
- **select needle and thread according to the fabric.**

Stitch formation: The needle thread loop, having been formed on the underside of the material by the needle, is interlocked with a second thread (underthread) by means of a hook.

The needle is inserted into the material. (Fig 1)

As the needle moves upwards from its lowest position, the needle thread forms a loop which is caught by the point of the hook. (Fig 2)

The hook enlarges the needle thread loop. (Fig 3)

The needle thread loop is guided around the bottom thread spool. (Fig 4)

Interlacing begins. (Fig 5)

The take-up lever tightens the stitch into the material. The material is fed forward. (Fig 6)

Stitch balance: Before regulating the tension, make sure that the threading of the machine - top and under threading - is correct. When there is perfect balance of tension between the upper and lower threads, the stitches lock or meet together in the middle of the thickness of the cloth. The stitches will look alike on either side of the work, both as to shape and tightness.

When the upper tension is too tight, the spool thread lies straight on top of the fabric and the under thread appears like loops on the upper side of the cloth.

When the upper tension is too loose, the under thread lies straight on the underside of the fabric and the top thread appears like loops on the underside.

An easy method of recognising tension is to stitch diagonally across a square of the fabric folded on true bias and then to stretch the cloth firmly between your fingers until one or both threads break.

The broken thread always is the one with tighter tension. If the tensions are balanced, both threads break together and require more force to break. If it is found that the tension needs adjustment, it is better to try to adjust the upper tension. To increase or decrease upper tension, turn the screw on the tension regulator with the pressure foot down. In turning the screw remember that right is tight and left is loose. Usually there will be numbers

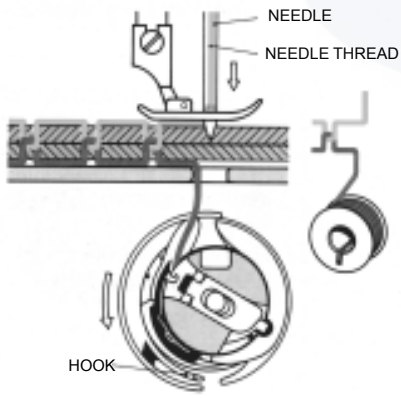


Fig 1

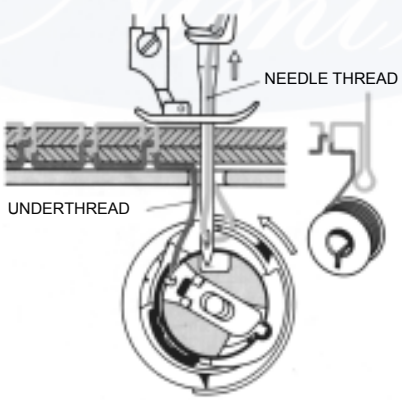


Fig 2

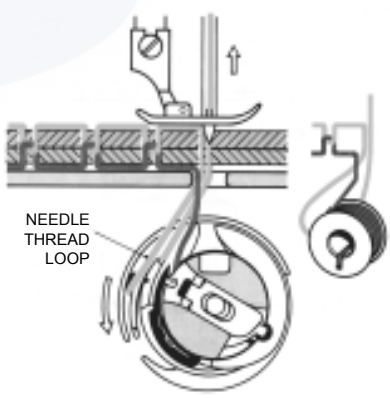


Fig 3

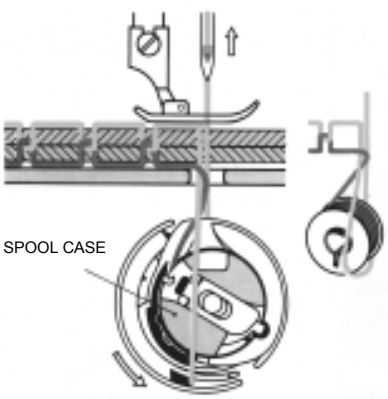


Fig 4


Fig 5

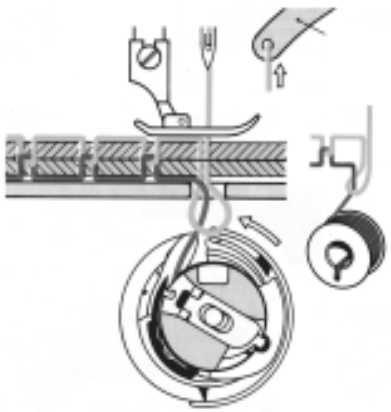


Fig 6

Fig 7

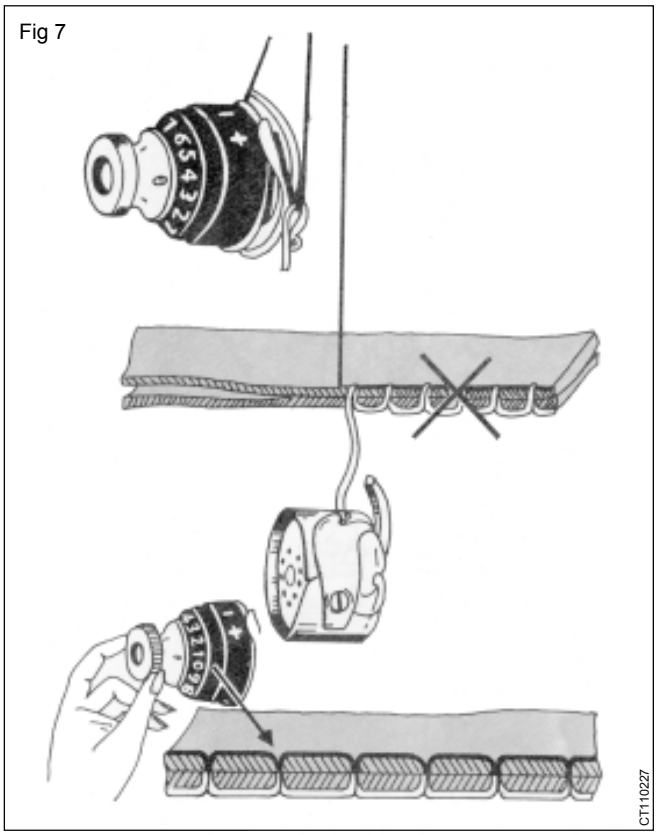
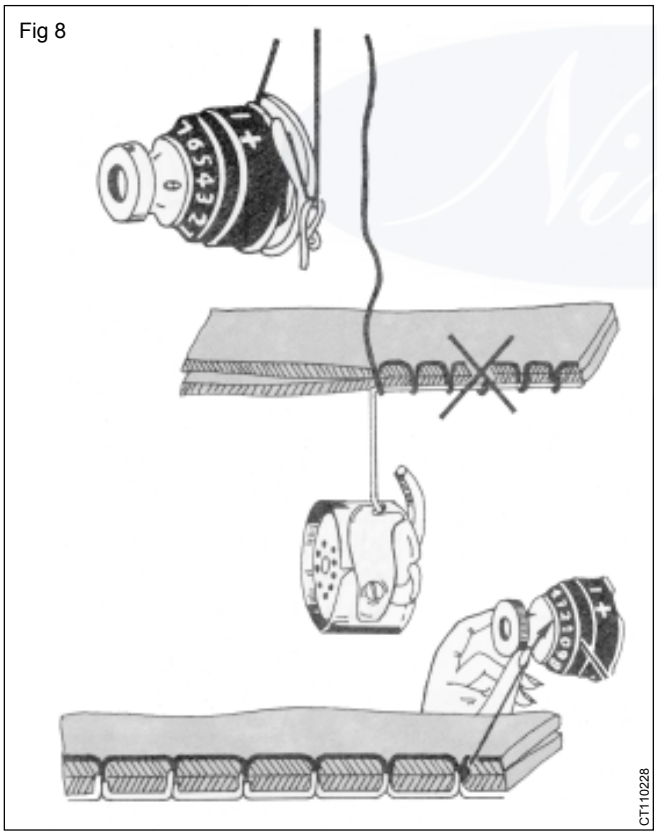


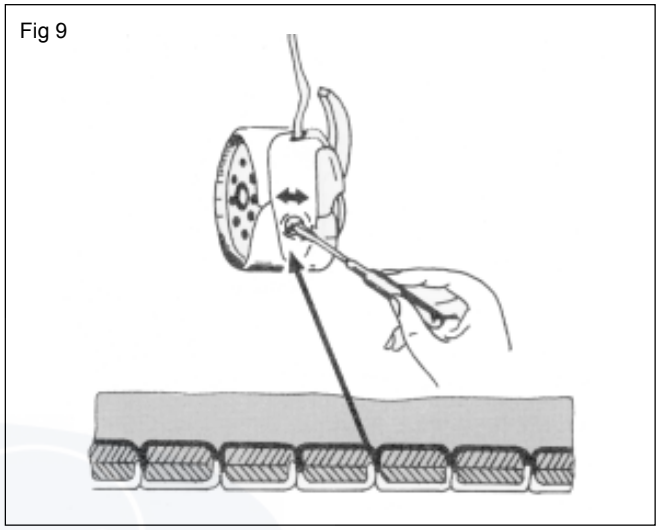
Fig 8



written on the tension dial. To increase tension you should turn towards the higher numbers (Fig 7) and to decrease, towards the lower numbers (Fig 8). Do not move more than two numbers or a slight turn at a time. Then recheck the tension by stitching on a sample of fabric.

Avoid changing the lower tension unless you are sure that the tension cannot be corrected completely by adjusting the top one alone. The lower tension is adjusted by turning the small screw on the bobbin case using a screwdriver. Usually the screw is turned to the right to tighten and onto the left to loosen. Make a very slight turn only each time. (Fig 9)

Fig 9



Adjusting the stitch length: The chart on this page gives the correct stitch length for various fabrics. In general, fine fabrics require a short stitch (16 to 20 stitches for 2.5 cm), medium weight fabrics, a medium stitch (12 for 2.5 cm) and heavy fabrics a long stitch (8 to 10 for 2.5 cm). For machine basting and machine gathering a still longer stitch (6 to 8 for 2.5 cm) is required.

Selection of thread and needle: A perfect stitch can be obtained only when the thread is selected to suit the material to be stitched and the needle is of correct size. For stitching on thin fabrics use fine thread and fine needle. For heavy fabrics, needle and thread size should be larger. The table will guide for the selection of appropriate needle and thread size. The last column in the table gives the approximate number of machine stitches per 2.5 cm.

Sl. No.	Weight of the Fabric	Type of Cloth	Thread size	Needle size	Stitches per 2.5 cm
1	Light	Muslin, Cambric and other thin fabrics	50	9 - 11	14 - 20
2	Medium poplins, etc.	Shirting, Sheeting,	40 - 50	14	12
3	Medium heavy brocade, corduroy	Light woollens,	40	16	10 - 12
4	Heavy upholstery fabrics	Woollen goods,	20	18	8 - 10

Troubleshooting while stitching with machine: Common troubles and their possible causes are listed below. You can take care of most of these yourself and in case of major troubles, the help of a qualified mechanic should be obtained.

Fault	Causes	Remedies
Tangled thread at the beginning	Bobbin too full. Bobbin set in wrongly. Under thread not drawn up. Both threads not pulled back under the presser foot, machine not properly oiled and cleaned.	Fill the bobbin just below the outer rim. Set the bobbin in correct position. Under thread should be drawn out. Take out both threads through the hole in the presser foot and leave it under the presser foot. Oil and clean periodically.
Skipped stitches	Needle bent. Needle set to wrong side. Needle set with long groove turned inserted too high or too low in the needle bar. Needle too small. Needle threaded from the wrong side. Excess oil on shuttle.	Check and fix the needle in a correct position. Check whether it is threaded properly. Stitch with a scrap of material to remove excess oil.
Upper thread breaking	Poor thread. Machine incorrectly threaded. Needle set on wrong side. Needle too fine. for thread. Needle threaded from the wrong side. Upper tension too tight. Sharp edge on needle plate hole or shuttle thread. Take-up spring broken.	Select an appropriate (correct) thread and needle. Thread the needle properly. Check the upper tension and the hole in the needle plate (which should be smooth) and also for take up spring.
Lower thread breaking	Poor thread. Lower tension too tight. Bobbin case threaded wrongly. Sharp edge on the needle plate. Bobbin would too full or uneven. Dirt in the bobbin case.	Clean the bobbin case and select the correct thread and wind it uniformly. Check the lower tension and check for a smooth hole in the needle plate.
Fabric puckering	One or both tensions too tight. Stitches too long for material being sewn. Blunt needle.	Select the correct needle. Check for both tensions. Fix the stitch length accurate to the fabric.
Needle breaking	Incorrect size of needle for thread and fabric. Needle bent. Pulling of material while stitching. Presser foot incorrectly set. Crossing a thick seam using a too small needle.	Set the presser foot properly. Select appropriate needle and thread to match the fabric. Fabric should not be pulled out while stitching.
Staggered stitches	Too little pressure on presser foot. Take-up spring weak, broken or missing.	Check the pressure on the presser foot and also for the take up spring.
Uneven stitch length	Incorrect presser foot pressure. Feed dog dirty or worn out.	Check the pressure of the presser foot. Clean and check the feed dog.

Material not feeding correctly	Stitch regulator set too close to 'O' point. Dirt under needle plate near feed dog. Incorrect presser foot pressure. Bent pressure foot.	Stitch regulator should be set to a correct number to match the fabric. Clean the feed dog and the lower side of the needle plate. Check the presser foot and its pressure.
Machine runs heavily	Lack of oil. Thread wound around the wheel or treadle bearings. Belt too tight. Bobbin winder pressed down. Thread jammed in shuttle race. Gummed oil or dirt on bearings.	Oil the machine periodically, clean the wheel and treadle bearing. Check the belt tension release the bobbin winder. Clean the shuttle race. Use only sewing machine oil.

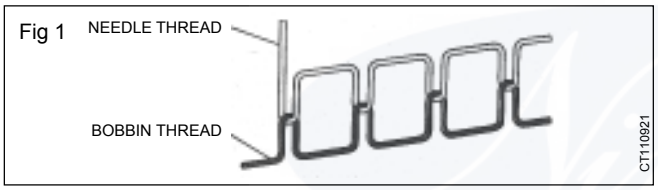
Motorised sewing machines

Objectives: At the end of this lesson you should be able to
- **state two types of machine stitch formation**
- **identify the parts of motorised sewing machine**
- **state the maintenance aspects of motorised sewing machines.**

Motorised sewing machines can be classified according to the stitch formation they produce.

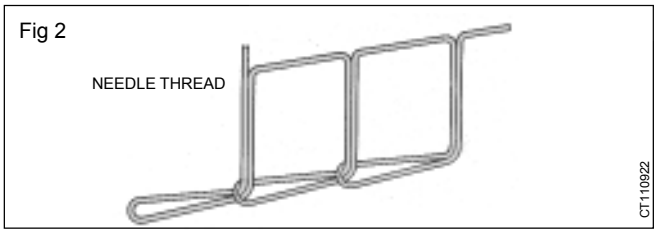
Lock stitch machine is the common machine used in domestic tailoring and industrial production. The stitch is formed by interlocking two threads. This machine is distinguished by the winding device provided for the bottom thread (Bobbin thread). (Fig 1)

Fig 1



Chain stitch machine uses only needle thread, forming a chain of loops. It is distinguished by the thread tension device placed on the arm and the absence of a spool winder. (Fig 2)

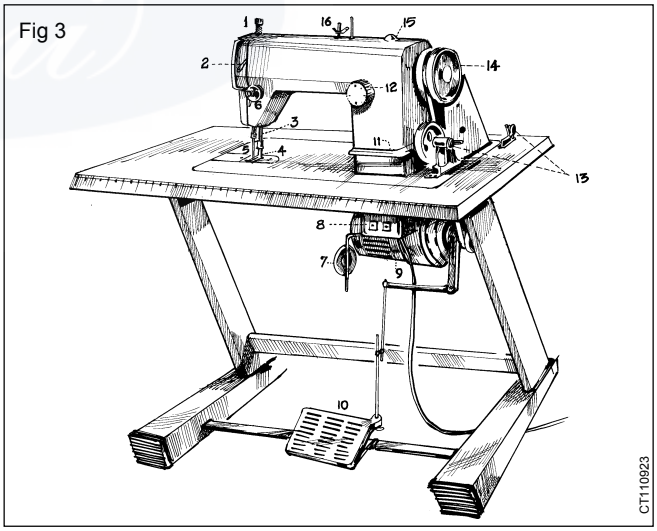
Fig 2



Parts of the motorised lock stitch sewing machine

– Presser foot lever (1)
– Thread take up lever (2)
– Needle bar (3)
– Presser foot (4)
– Needle (5)
– Presser spring regulator set (6)
– Knee lifter (presser foot lifter by knee) (7)
– Power switch (8)
– Motor (0.25HP) (9)
– Accelerator (10)
– Back tack lever (11)
– Stitch regulator (12)
– Thread winder (Bobbin) (13)
– Balancing wheel (14)
– Sight glass (15)
– Thread tension (16) (Fig 3)

Fig 3



Maintenance: After each use, the lint and the dust must be removed. Cover the machine when not in use. Periodic oiling and greasing should be done. Take particular care of the electric power cord and plug and have them repaired at first sign of problem.

Stitch lines in different shapes

Objectives: At the end of this lesson you should be able to
- **explain the importance of stitching by machine**
- **state about the different shapes of stitching lines in sewing machine.**

Stitching by machine

Sewing by machine is an art. It is an ultimate skill to be known to every dressmaker trainee primarily. Using a sewing machine for stitching involves some important techniques to be followed for perfection and accuracy in stitching. Adress maker attains perfection in stitching with continuous practice in machine stitching only.

The practice of machine stitching is done step by step. It ensures for the perfect use of the sewing machine by the dress maker. First it involves the pedalling process for easy running of the machine.

The machine is run by pedalling with out needle and thread to acquire perfection. Later the machine is plugged and switched on to practice handling the machine with power. It requires more care as the functioning of the machine is more speedy with the motorised application.

Secondly, various shapes like vertical and horizontal lines, concentric squares circles etc are down on A4 size papers 1 in each.

Machine is set for stitching without threading. Every design drawn A4 paper is fed in machine to sew over it, in the order of various shapes.

The same shapes are drawn on fabric pieces. Finally, threads the sewing machine and practice stitching the fabrics one by one following the drawn shapes. This practice allows the trainee to handle the machine more efficiently and to control the machine speed as and when required. It also helps to stitch perfectly the every component of a garment as it expertise him o stitch different shapes like lines, squares, circles, curves, arcs etc.

Needle guard policy

Needle guard policy is also known as needle control system. Needle control system is a part of product safety compliance. As per the survey reports United States and European countries have strict regulations for children's clothing. These regulations require the retailers, among other things, to ensure that broken parts of needles or any other metal object do not find their way into the garment or its packaging, can cause injury to the customers. Therefore, factories are required to put in place reliable procedures to prevent needles, pins or other sharp metal objects from entering the final products. Similar precautions are also required for under garments.

Factories need to ensure that each and every needle in the factory is accounted for. There should be no needles in the factory anywhere except the ones attached to machine and those in the stock. Broken needles parts should be collected and kept safely for record.

Garment manufacturers should adopt a policy and a set of operating procedures to prevent and detect a metal contamination in the garment. A factory can take the following measures to establish an effective needle control system.

The needle control can be done by the following steps

1 The factory should keep the entire stock of new needles under lock and key and away from sewing area.

2 They can maintain the broken needles record.

3 All the parts of broken needles should be collected immediately and disposed properly.

4 The factory should not allow the operators to keep spares needles.

Special Attachments

Objectives: At the end of this lesson you shall be able to
- **explain the features of different special attachments.**

Special Attachements

Special attachments are special accessories attached to the sewing machine to enhance the ability of the machine to perform special opearations. These special attachments also reduce the amount of time spent on special operations and helps to maintain consistent standard of quality.

Wide range of special attachments are availble to perform specific operations on a wide range of machines. They are all classified into three different types as follows

1 **Foot attachments:** The foot attachments are designed to perform the basic function of the foot and a special operation. These attachments can either stitch straight stitches or both zigzag and straight stitches, which depends upon the needle hole. If it is small and round, only, used for straight stitching, if the hole is wide, it can be used for both straight and zigzag stitching.

2 **Binders and folders:** This kind of attachments are used for joining / binding together two or more fabric layers and or folding the fabric edges for finishing .

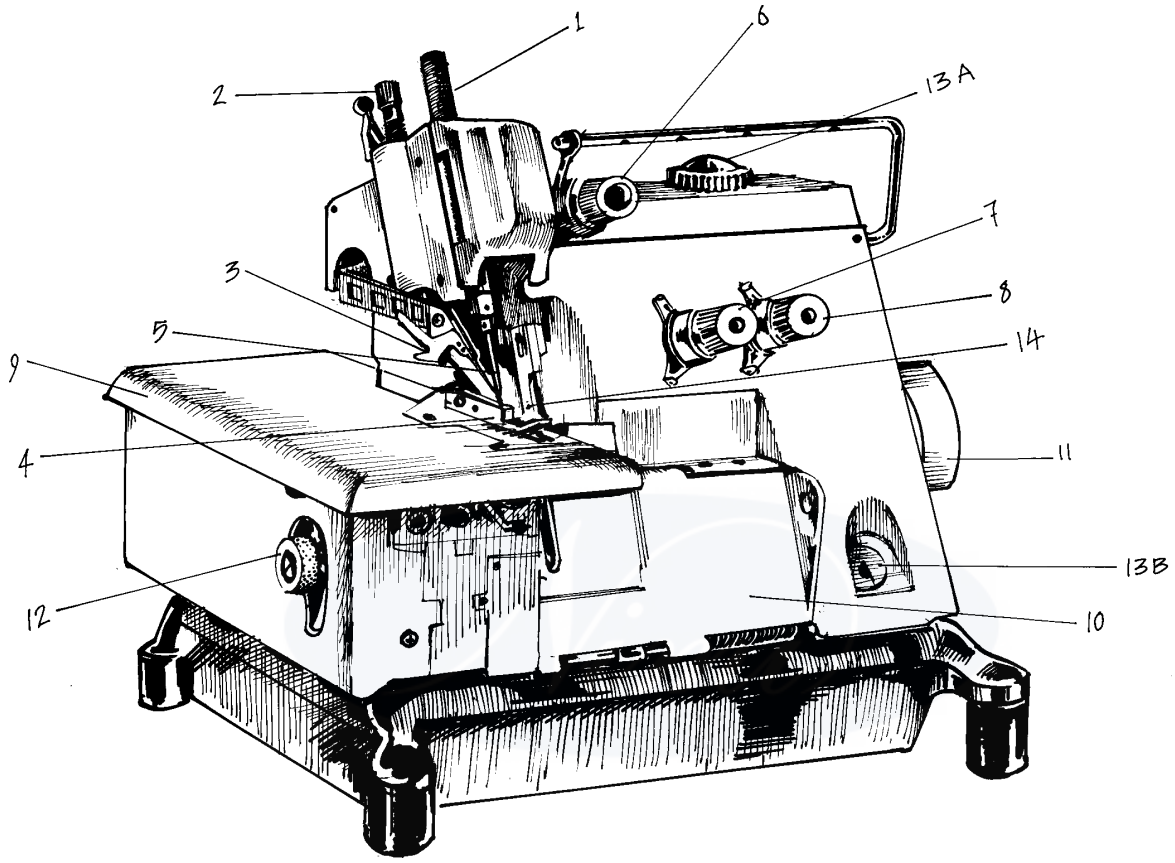
This attachment is used either with compensating foot and / or special feed dog etc to do the special operation. It is widely used in two or three needle machine.

3 **Guides and Gauges:** Guides and gauges attachment helps to direct / guide the fabric or tape towards the needle for stitching with the set measurement. This attachments are either fixed on the bed part or pressure foot bar of the machine.

Overlock machine - 3 thread

Objectives: At the end of this lesson you shall be able to
- **state the use of overlock machine**
- **state the different parts of the overlock machine.**

Fig 1



Over lock Machines

Over lock machines a special purpose machine used for finishing edges and sometimes for seaming. It falls under the class 500, which means stitches are formed with one or more groups of threads and have a general characteristics that loops from at least one group of threads pass around the edge of the material.

Over lock sewing machines are usually runs at high speeds, from 1000 to 9001 rpm and mostly are used in industry for edging , hemming and seaming a variety of fabrics and products. Overlock stitches are also used for decoration, reinforcement or construction.

Types of Over lock stitches:

Over lock machines are generally made in 1,2,3, 4 or 5 thread formations. Each formation has unique uses and benefits -

1. **One Thread Overlock:** End to end seaming or "butt-seaming' of piece goods for textile finishing.
2. **Two Thread Overlock:** Stitch type 503. Machine has one needle & one looper. Used for edging and seaming, especially on knits & woven, finishing seam edges, stitching flat lock seams, stitching elastic and laces to lingerie and hemming. Stitches can be adjusted to sew a rolled hem.
3. **Three thread Overlock:** Stitch type 504. Machine has one needle and two loopers. Used for finishing edges or decorative edging and seaming knit or woven fabric. This is a most common overedging having excellent stretch & recovery. Here stitches looks the same on both the sides.
4. **Four Thread Over lock:** Machine has two needles & two loopers. It will stitch a chain stitch or a safety stitch Decorative edging and finishing, seaming high stress areas, mock safety stitches which create extra

strength while retaining flexibility. Suitable for both knits & woven. Machine can be converted to two thread or three thread overlock.

5. **Five Thread Overlock:** Machine has two needles & three loopers. It is two thread chain stitch combined with a three thread overlock. The left needle and lower looper form a two thread chain stitch. For every unit length of stitch it requires 20 times of thread length.

Securing the raw edges of a seam allowance with overlock machine is a very fast way of finishing. Overlock machine can also be used to sew two pieces of fabric together (e.g. knit garments). It cuts the edges and secures them in one operation.

Overlock machines come in different models but all are basically similar. The machine shown here is a three-thread overlock machine working with two knives - a moving upper knife and a fixed lower knife. They cut off frayed fabric edges to give a neat finish.

Parts of the machine (Fig 1)

– Needle bar (1)
– Thumb screw (to regulate pressure of the presser foot) (2)
– Thread cutter (3)
– Presser foot (4)
– Needle (5)
– Tension set (for needle) (6)
– Tension set (for overlooper) (7)
– Tension set (for underlooper) (8)
– Cloth plate (9)
– Slide cover (10)
– Hand wheel (rotates in clockwise direction) (11)
– Feed ratio (12)
– Sight glass (oil window) (13)
  i indicates lubrication of the mechanism
  ii indicates the level of the oil in oil tank
– Lower and upper knife (14)

Lower and upper knife are fixed in the opposite direction with the sharper edges meeting each other so that the fabric will get cut with each movement. Sharp edges of the knifes overlap around 0.5 - 1 mm depth. (Fig 2)

The overlock machine has two feed dogs, the main feed dog and the differential feed dog. (Fig 3) The levels of these two should be equal with one another and the height can be adjusted independently by the respective bolts. The height of the feed dog must be adjusted according to the thickness of the material.

1 mm for thin materials

Fig 2

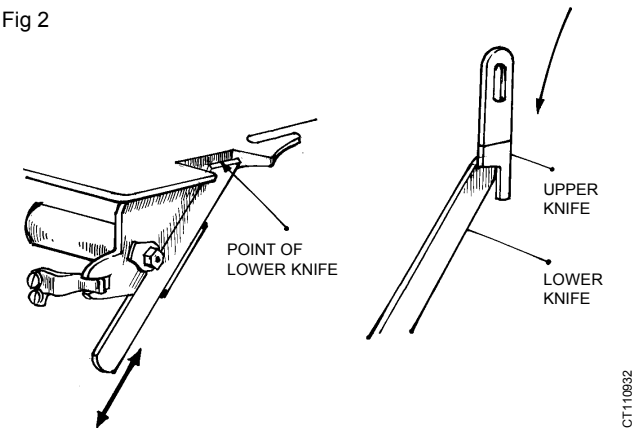
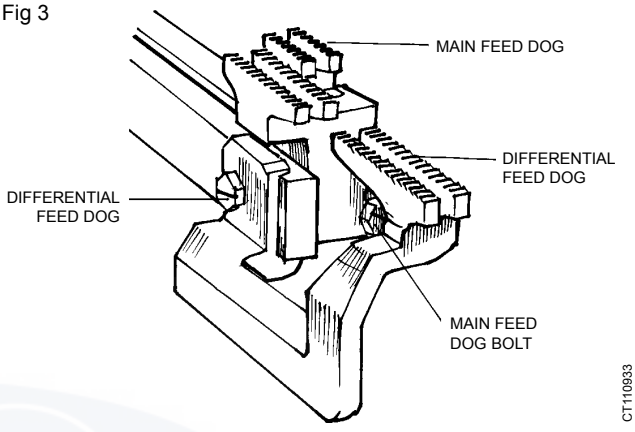


Fig 3

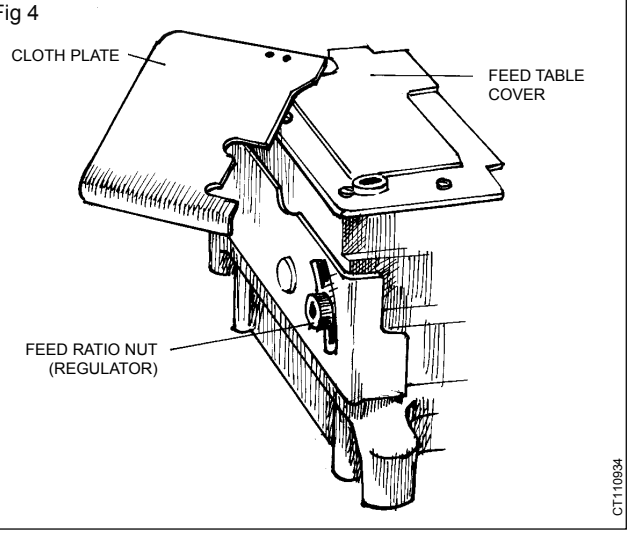


1.3 mm for medium thick materials and

1.5 mm for thick material, also raised above the top of the needle plate. (Fig 3)

Feed ratio nut regulator increases and decreases the teeth of the feed dog to get shirring and stretching stitches. (Fig 4)

Fig 4

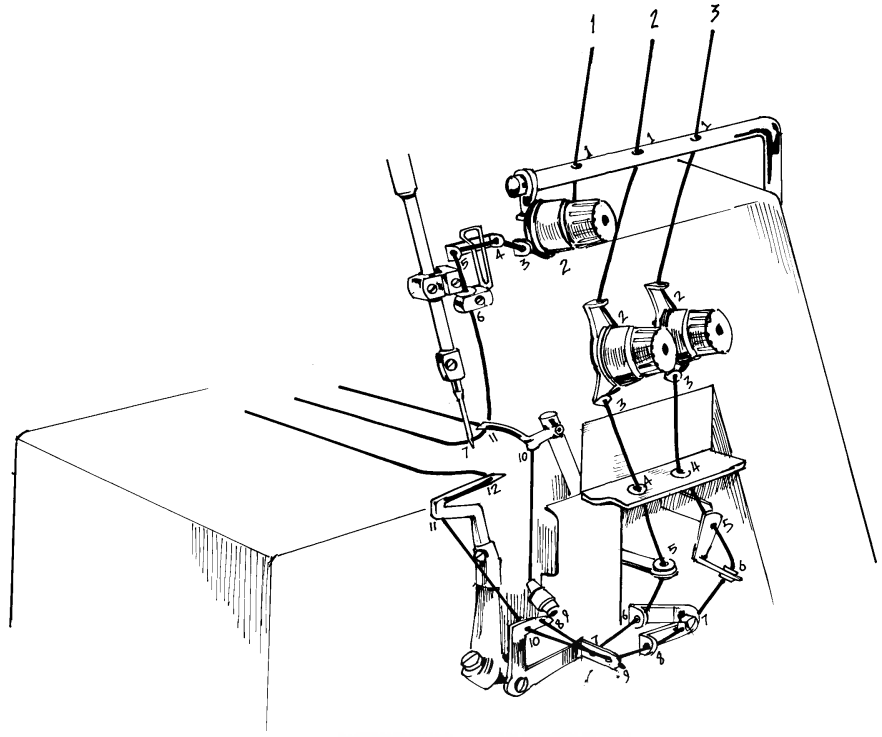


Threading of overlock machine: Threading of the overlock machine is strictly complicated compared with other sewing machines. The one shown in the graphic has three different threads: the needle thread (I), the overlooper thread (II), the underlooper thread (III). The

sequences of guiding these three threads can be followed as in the diagram. (Fig 5)

After each use the lint and dust has to be removed. Cover the machine when not in use. Periodic oiling and greasing should be done.

Fig 5

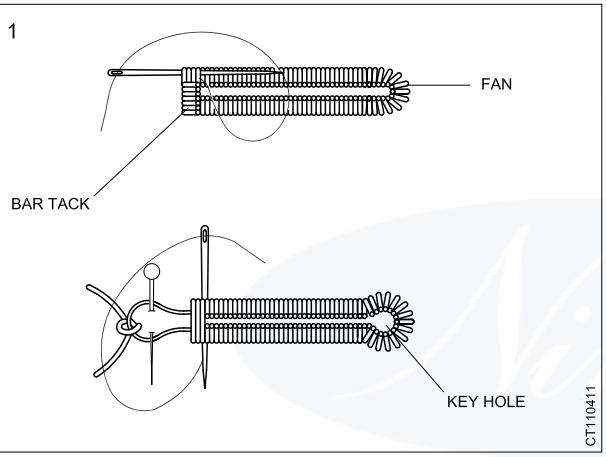


Types of buttonholes

Objectives: At the end of this lesson you shall be able to
- **list the types of buttonholes and name their features.**

Buttonholes are created as one of the last steps in stitching garments. In ladies' garments the buttonholes are worked on the **right-hand side**. But in gents garments, they are worked on the **left-hand side**. In side plackets, the buttonholes are always worked in the front part. A buttonhole is constructed with 2 long sides and two ends. These ends are either finished by **bar tacks** or one end is finished with a bar while the other end can have the shape of **keyhole** or a **fan**. The keyhole with its strong rounded end is suitable for coat buttons which pass through easily. (Fig 1)

Fig 1



Bound buttonholes are worked with machine by stitching strips or patches on the location of the buttonhole. The strips or patches are fixed on the right side and finished on the wrong side, thus the binding edge is seen on the right side. They are not suited for delicate fabrics. Worked buttonholes can be worked either by hand or by machine. Hand worked buttonholes are slashed first and then stitched. But machine worked buttonholes are stitched first and then slashed. Hand worked buttonholes are stronger than the machine worked buttonholes but take more time. (Fig 2)

Corded buttonholes are prepared by machine with a corded bias strip used for buttonhole lips or by hand using a cord as a filler below the single stitch. The cord produces soft, rounded edges suitable for spongy fabrics such as knits etc. (Fig 3)

Dimension of the buttonhole can either be calculated (diameter of the button + it's height) or tried out by cutting a slit in a scrap of fabric and by adjusting the length until the button slips through easily. (Fig 4)

Marking position of Buttonholes -

Button holes are always marked in relation to the button

Fig 2

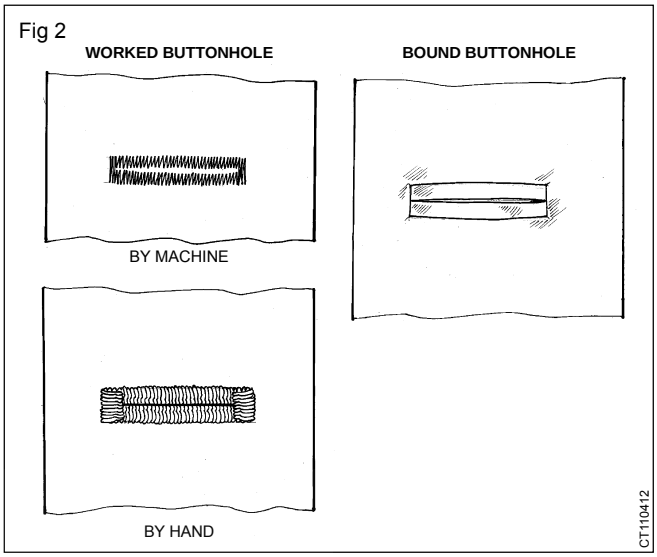


Fig 3

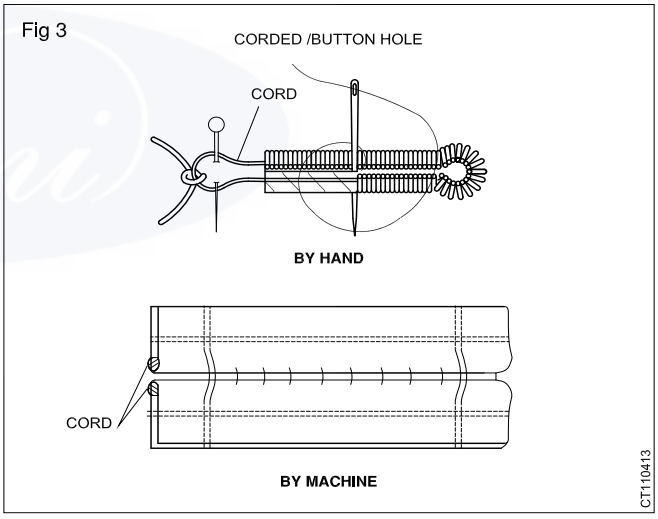
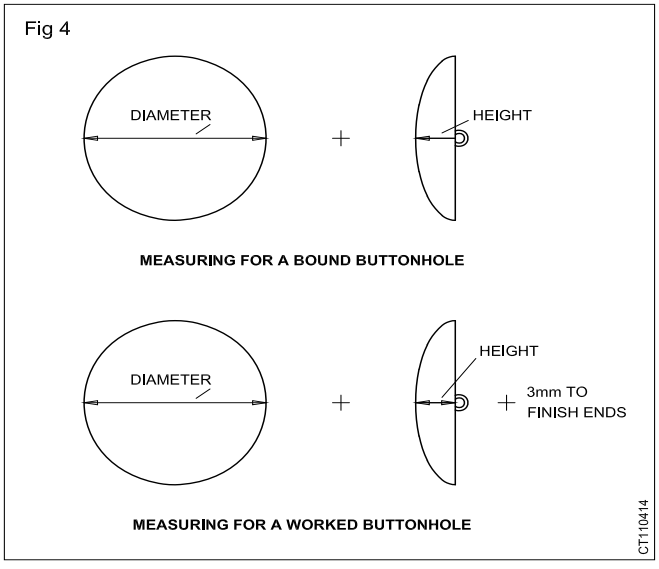


Fig 4



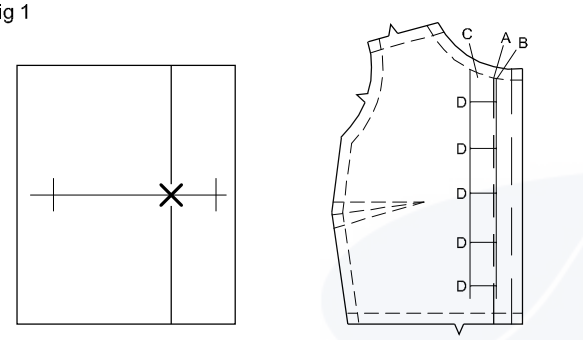
placement line, which is always in according to the centre line of the garment.

The three key placement points for the button holes are Neck, the fullest part of the bust and the waist. Additional button holes are evenly placed in between these points. The lowest button hole must always be above bulk of hem.

Horizontal Button Holes are placed to extend 3 mm beyond the button placement line.Line A is the button placement line of the garment.. B is 3 mm from button placement line . Line C is at a distance of buttonhole length. D marks the centre of the button hole.

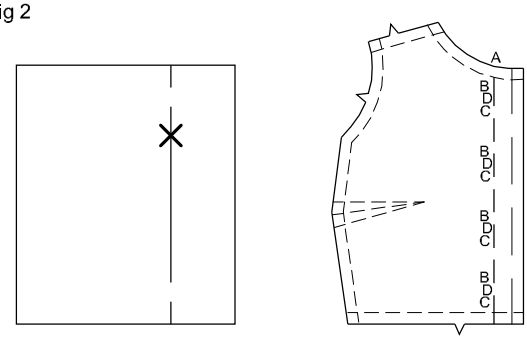
Vertical buttonholes are marked 3mm above the mark for centre of button. The markings for vertical buttonholes are placed directly on the button position line A. The marking B and C is the length of buttonhole. Pont B is 3mm above the mark for the centre of the button. D is the button hole marking.

Fig 1



HORIZONTAL BUTTON HOLE MARKING

Fig 2



VERTICAL BUTTON HOLE MARKING

There are three types of Button holes in consideration with Bar & Fan

1 One Bar & one Fan (Standard)

2 Two Bar (Mostly machine made)

3 Two Fan (Fitted Ladies Garment)

The button placement line must be marked on each half of the garment to make it convenient to mark button hole position and for checking that both the centre lines will match when the garment is closed.

Button holes in women garments - placed on the right hand side of the front open garments and on the left hand side of the back open garments.

In fitted garments Buttonholes are horizontal and in loose garments Buttonholes are vertical

The space between finished edge of garment and button position line must be three-quarters to the diameter of the button.

Zig-zag machine/ attachment

Objectives: At the end of this lesson you shall be able to

- **explain the formation of zig-zag stitch**
- **name important parts of the zig-zag equipment and explain its function**
- **set width and length of zig-zag stitch.**

The zig-zag sewing machine is a motorised sewing machine which requires some experience in handling to control the speed of sewing. Some power sewing machines have an in-built zig-zag facility. Apart from ordinary sewing machines, these machines have some additional parts and functions.

The machine has extra features like reverse stitch which helps to overcome the problem of turning the fabric every now and then. It has a powerful sewing light which gives more visibility while stitching. It also has a facility to perform zig-zag stitches in various patterns for functional (e.g.buttonhole stitching) and decorative purpose. The appearance of the zig-zag stitch as a decorative stitch is very close to the satin stitch.

A buttonhole foot (all-purpose presser foot) and an all purpose needle plate have to be fixed for zig-zag stitching.

Both attachments have a wider needle opening. While performing the stitch, the needle not only moves up and down but sews also from left to right. The shuttle race moves correspondingly to help forming the stitches while the fabric moves forward at the same time. (Fig 1)

Width and length (distance between the single stitches) of zig-zag stitch can be manipulated in order to create different designs. (Fig 2)

The stitch length is controlled with the help of the stitch regulator knob. If the knob is set on or close to ‘0’ the stitch will look like a satin stitch. (Fig 3)

Fig 1

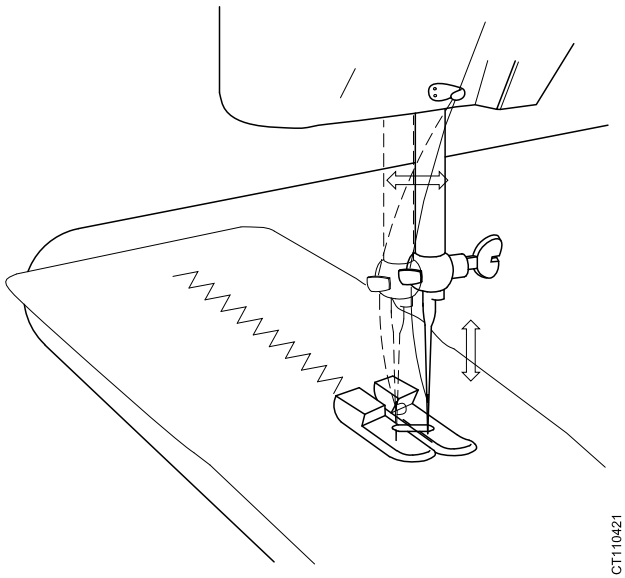


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Fig 2

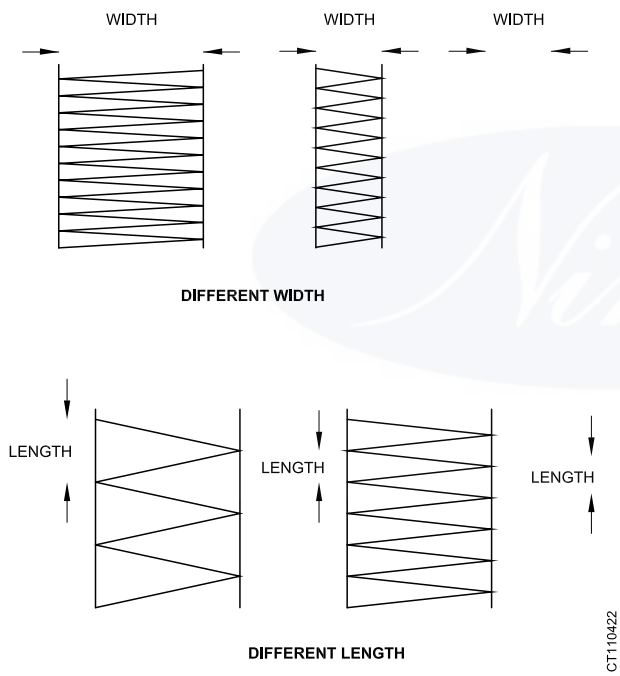

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Fig 3

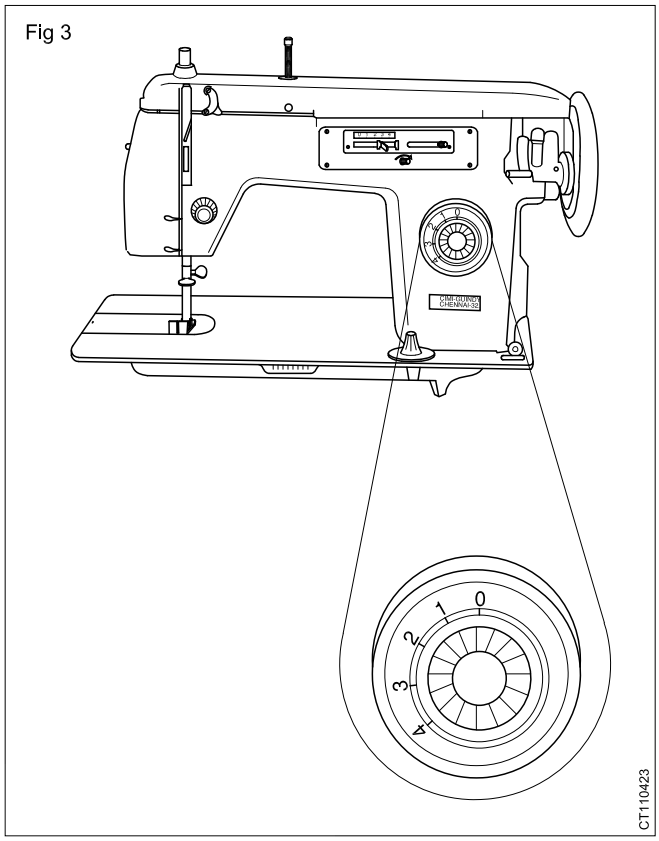

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Fig 4

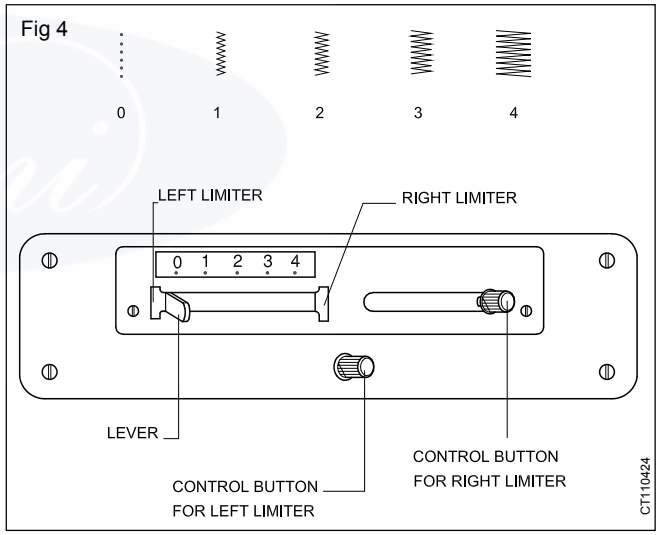

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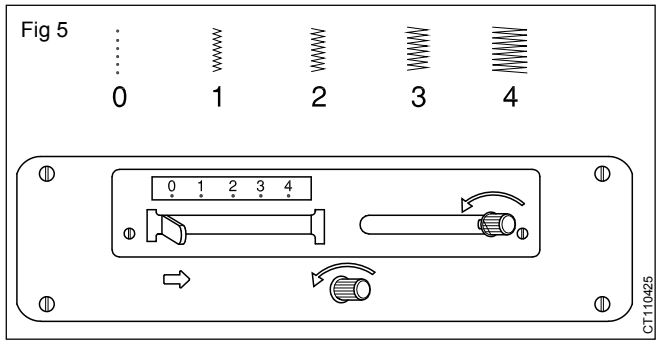
Fig 5



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To set the width of the zig-zag stitch, you have to operate the zig-zag width lever. (Fig 4)

If you want to set the lever on a width marked as ‘3’ on the scale first you have to unscrew the two control buttons. (Fig 5)

Then slide the lever on ‘3’. To keep the lever in a fixed position, the two side limiters have to be adjusted also. Position the left limiter by hand close to the lever and clamp the left control button. (In some machines the left side limiter is attached to the lever). (Fig 6)

Fig 6

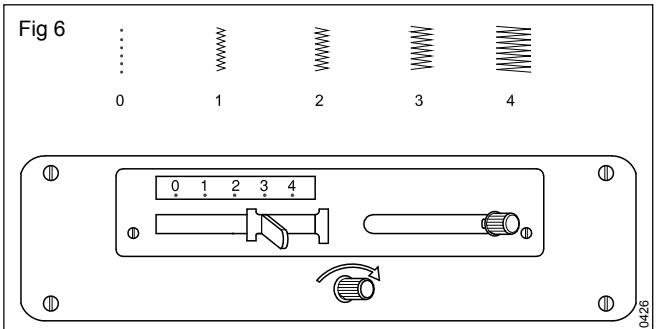
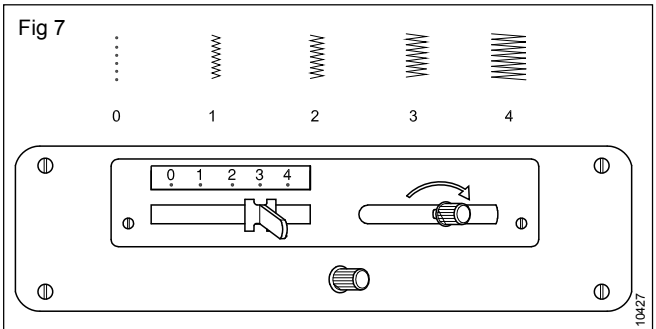


Fig 7



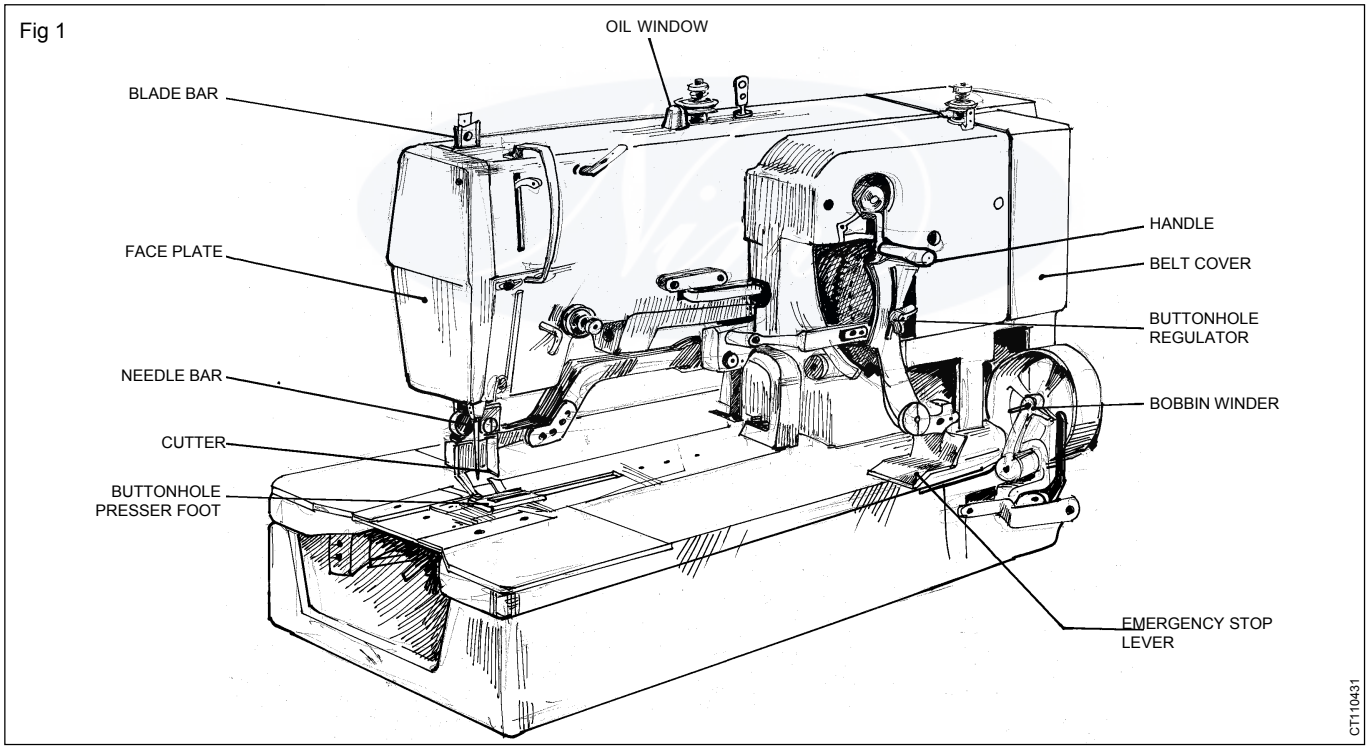
Set the right limiter close to the lever while shifting the right control button to the left until the final position of the right limiter is reached. Clamp the control button. (Fig 7)

Buttonhole machine

Objectives: At the end of this lesson you shall be able to
- **name the main parts of the buttonhole machine**
- **explain their functions**
- **explain the use of buttonhole scissors.**

Buttonhole machine and its parts (Fig 1)

Fig 1



The **cutter blade** helps to cut the buttonhole after it is worked. The blade width varies from 8 mm to 32 mm. The blade length can be adjusted according to the button size. The presser foot is of rectangular in shape. Center space is provided to form a zig-zag stitch. (Fig 2)

The emergency stop lever is used to stop the machine at any time during stitching.

The **buttonhole regulator** selects the desired stitch length on which the stitches of buttonholes are set. The machine will stitch automatically according to the selected length of stitch. (Fig 3)

The **blade bar** will be selected according to the desired buttonhole length. After completing the buttonhole stitch, the length of the buttonhole is cut automatically.

Threading the machine with the upper thread is shown in Fig 4.

Safety precautions while using buttonhole machine

- **Keep hands a little away from the sewing area to avoid hand injury.**

Fig 2

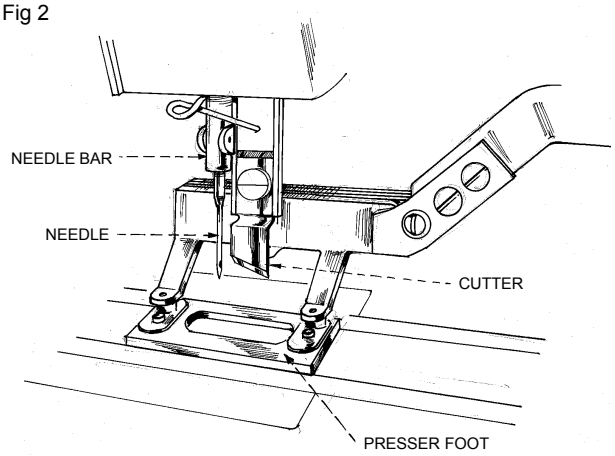


Fig 3

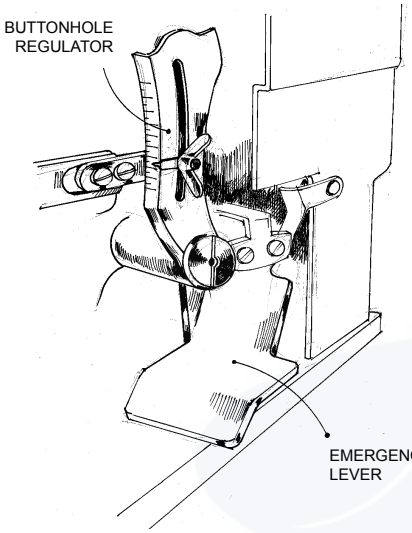
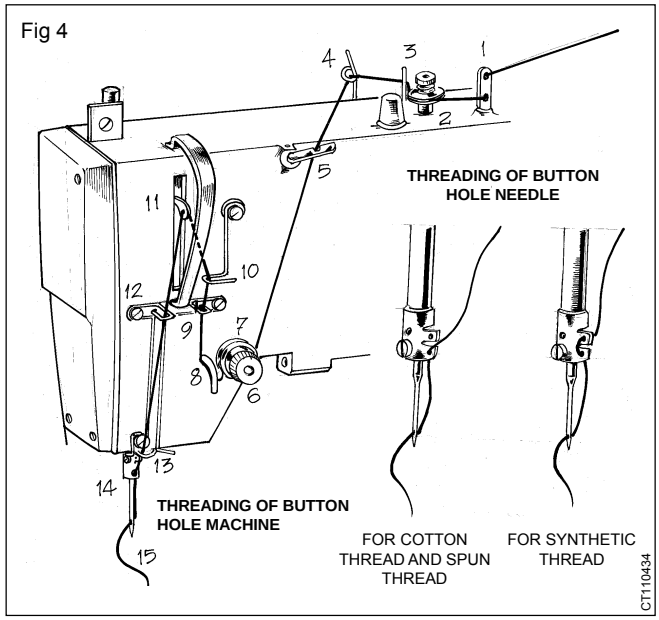


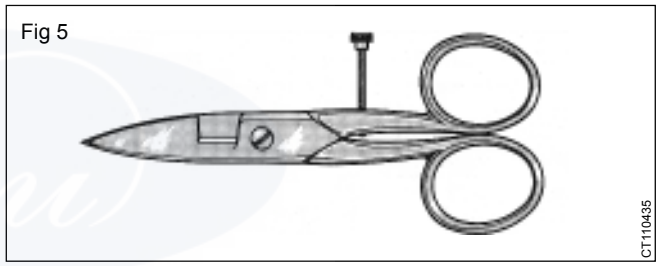
Fig 4



– **Ensure that there is no electrical leakage before starting to work on the machine.**

Buttonholes scissors have a special gap in the blades which allows shortcuts to be made inside the edge of the fabric. The length of the cut can be adjusted by a screw. (Fig 5) It is used for horizontal buttonholes.

Fig 5



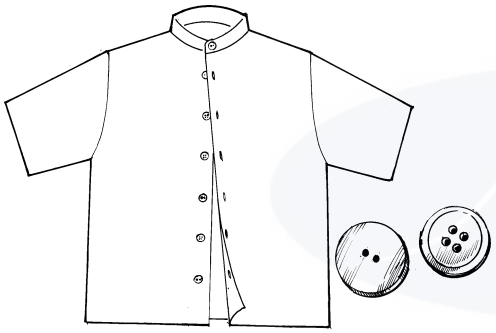
Fasteners

Objectives: At the end of this lesson you shall be able to
- **name the different types of fasteners, their features and applications.**

There are various types of fasteners. Some are decorative and some others are meant to be conspicuous. The common fasteners are buttons, press studs, zips, velcro strips, hooks and eyes, buckles and clasps etc. Fasteners are used in garments, bags, purse, suitcase cover etc.

Buttons are of different types. They are made of plastic, nylon, metal, leather, wood, pearl, ivory etc. They may be round, elongated, oval etc. Buttons are fixed either by hand stitching or machine stitching. They are mainly used in body garments. Buttons are basically of two types: shank and sew-through. Sew- through button has either two or four holes through which the button is sewn on. (Fig 1)

Fig 1



BUTTONS

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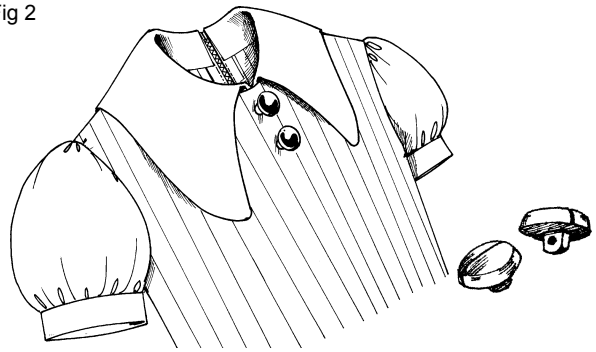
Shank button is provided with shank beneath through which it can be fixed. It is often used in ladies' tops and kids' garments, mostly for decorative purpose or in heavy garments like coat or uniforms. (Fig 2)

Fig 2



SHANK BUTTONS

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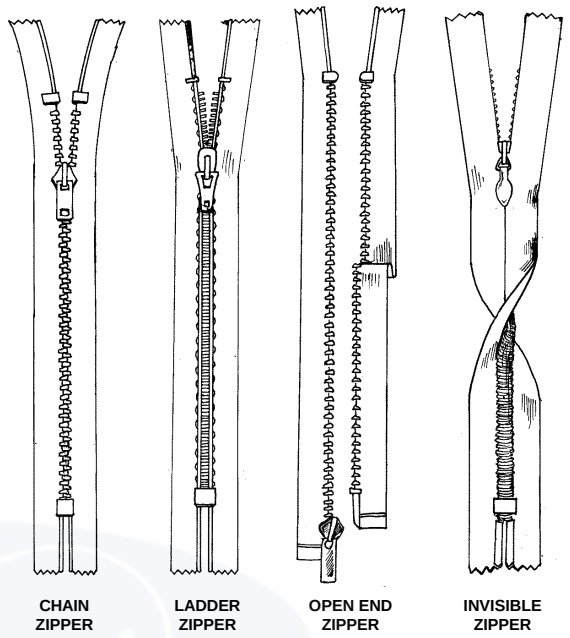
Zip fastener is the most important fastening accessory. Varieties of zippers are available like chain zipper (invisible zipper), ladder zippers and open-end zippers. For light weight and fine fabric plastic zippers and for heavy weight fabric metal zippers are used.

Single and open end zippers are used for sportswear, jackets and on garments with completely open front. (Fig 3)

Fig 3



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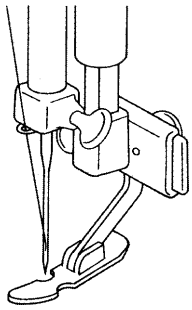
Zippers are fixed by machine. A special attachment is used. The presser of a machine is replaced by the zipper presser foot. (Fig 4)

Fig 4



ZIPPER FOOT

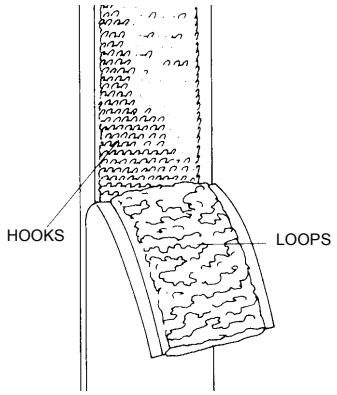
CT110514

Velcro fastening has two surfaces, one surface is covered with small nylon hooks and the other surface with loops. It is easy to fasten and therefore mainly used in children's wear. (Fig 5)

Hooks and eyes are available in wide range of sizes and types. They are used in trousers and ladies' garments.

Buckles and clasps are made of metal or plastic. They are used in belts suspenders. (Fig 6)

Fig 5



VELCRO

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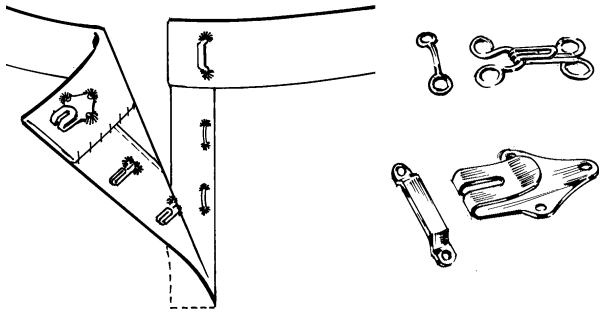
Fig 6



BUCKLES AND CLASPS

CT110516

Calculation : division of stretches for fixing buttons

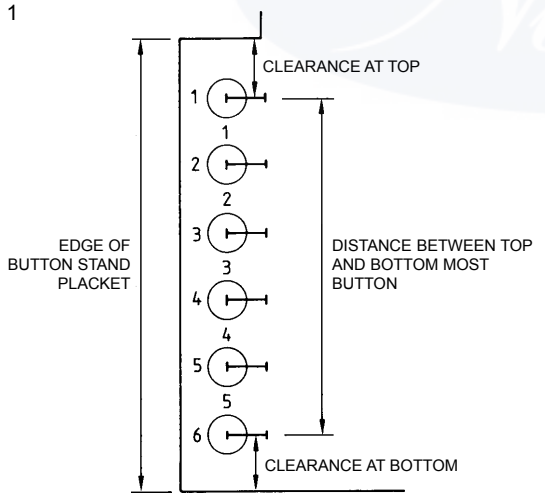
Objectives: At the end of this lesson you shall be able to

- **calculate the division of stretches for buttons and the gaps between buttons.**

Division of stretches for stitching buttons: Ask for either the number of buttons (then the button distance is known) or for the button distance (then the number of buttons is known). In any case, the distance between the topmost and the bottommost buttons should be known. As the number of buttons is always identical with the number of buttonholes, for all practical purposes one can either refer to the (number of) buttons or buttonholes.

The terms and the measuring stretches are as given in the following figure: (Fig 1)

Fig 1



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The distance between two buttons is always measured from the middle point of one button to that of the second one. The clearance at the top and at the bottom are also measured from the midpoint of the button to the top edge and the bottom edge respectively.

Besides, the following equations hold good:

Number of buttons
= number of gaps between buttons plus one

Number of gaps between buttons
= number of buttons minus one

Example 1: A dress item is closed with 5 buttons. The clearance at the top is 6 cm, that at the bottom is 36 cm. The button placket is 102 cm long. What is the distance between any one of the horizontal buttoholes and the next one?

Solution

102 cm – 6 cm – 36 cm = 60 cm

- Calculate the distance between the top-most & bottom-most buttonhole

  5 (buttons) – 1 = 4 (gaps)

- Calculate the number of gaps

  60 cm : 4 = 15 cm

- Divide the total stretch by the no. of gaps

  The buttoholes have a distance of 15 cm from each other.

Example 2: The distance between the topmost and the bottom most button of a button placket is 33 cm. The distance between one button and the next was meant to be 6 cm

a How many buttons are needed?

b What is the exact distance between one button and the next that results?

Solution

a 33 cm : 6 cm = 5.5 (gaps)

- The number of the gaps should be a whole number; one should therefore decide to have either 5 or 6 gaps (say 5 gaps)

  5 (gaps) + 1 = 6 buttons

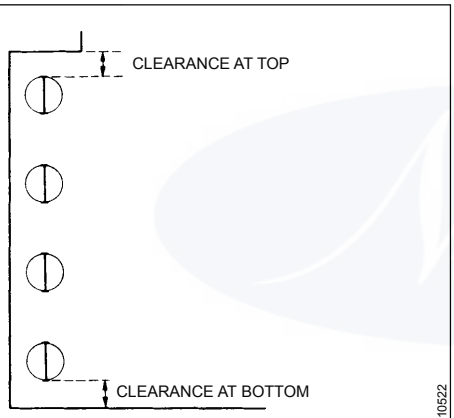
- The number of buttons is always one more than the number of gaps. The number of buttons needed is 6.

b 33 cm : 5 (gaps) = 6.6 cm

- As in these circumstances the gap between buttons is no longer 6 cm, there is need for a correction. The exact distance between buttons is 6.6 cm, if there are 6 buttons.

Example 3: Vertical buttonholes are to be made in a button placket of a shirt. The length of the button placket is 58 cm. The clearance at the top is 2 cm, that at the bottom is 7.2 cm. The size of the buttonhole is 0.8 cm in keeping with the button-diameter. The shirt is to be closed with 9 buttons. What is the distance between one buttonhole and the next? (Fig 2)

Fig 2



Solution

0.8 cm x 9 = 7.2 cm

- Calculate the total length of all buttonholes.

  This stretch is not available for apportioning and is therefore deducted in the step after the next.

  58 cm – 2 cm – 7.2 cm = 48.8 cm

- Calculate the distance between buttonholes.

  48.8 cm – 7.2 cm = 41.6 cm

- Calculate the total of all the gaps between buttonholes.

  9 (buttons) – 1 = 8 gaps

- Calculate the number of gaps (between buttonholes) between buttonholes.

  41.6 cm : 8 = 5.2 cm

- Calculate the distance between one buttonhole and the next by dividing the stretch.

  The gap between one buttonhole and the next is 5.2 cm.

Calculate

- For different garments you have to calculate the number of buttons and the exact distance between buttons.

  i Length of button placket is 78 cm; clearance at the top is 4 cm, clearance at the bottom is same as distance between the buttons, distance between the buttons is approx. 9 cm.

  ii Length of the button placket is 17.2 cm, clearance at the top and bottom is same as the distance between the buttons, which is approx. 4 cm.

- For a garment you have to calculate the distance between vertical buttonholes: length of the button placket: 32.7 cm, clearance at the top and at the bottom is same as the distance between the buttons; size of the buttonhole: 0.9 cm; number of buttons: 13.

- A ladies' blouse is finished with a button placket. 9 cm buttons at a distance of 6 cm are fixed. How many buttons are required if the buttons are fixed at a distance of 8 cm?

- Calculate the missing factors in the table given below:

	Length of button	Distance between top-most and the bottom-most button	Clearance at the bottom	Clearance at the top	Gap between buttons	No. of buttons	No.of buttons
a	56 cm	?	?	2 cm	9 cm	?	6
b	?	?	36 cm	6 cm	15 cm	?	5
c	-	21 cm	-	-	3.5 cm	?	?
d	72 cm	?	8 cm	4 cm	6 cm	?	?

Trims

Objectives: At the end of this lesson you should be able to
- **describe different types of trimming materials and accessories.**

Trimming is an ornamental element used on garments. Different from other decorative elements like pleats, tucks etc., a trim is always attached separately after stitching the dress. It can change the impression of a dress immensely. Trimming attracts the attention and often creates a more romantic look. It is used in both dress making and home decoration.

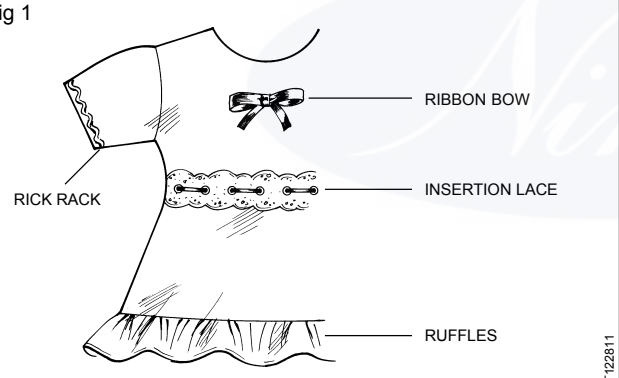
Trimming can also be used to hide small defects in the fabric.

Trimming can be distinguished into two groups readymade and self made.

Lace is made of cotton, silk or nylon with different designs and colour. Its width is usually from 2 cm to 25 cm or even more. It is like an embroidery tape. It is commonly used on the neckline, sleeve hem, yoke line, garment hem, etc. It can also be gathered to give a frilled effect.

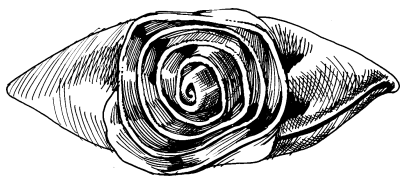
Rickrack is made in cotton or polyester, it is available in different colours and is of narrow width. Rickrack is often used to make designs. (Fig 1)

Fig 1



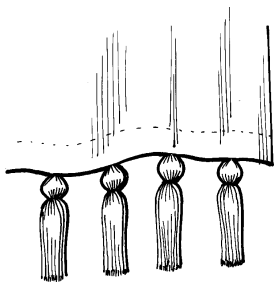
Ribbons are made of satin, taffeta or nylon of different colours and different width. Ribbon bows are often used as decoration for bridal wear and children's clothing. Ribbons of different width can be made into rose or other floral shape. These can be stitched from wrong side at the back so that no stitching is visible from the right side. (Fig 2)

Fig 2



Tassels are made of strings of silk, cotton, wool, nylon, etc. They are also available in different widths and colours. Contrast coloured, embroidered tassels are also available. They are mostly used on saree pallu or on duppattas. (Fig 3)

Fig 3

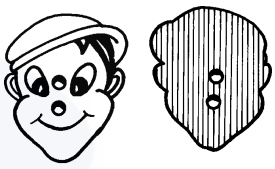


Rope or Cord of various colours and designs made of silk and cotton are available. These are used as belts in night suits and frocks. (Fig 4)

Fig 4

Fancy buttons depicting fruits or animals etc can also be used as trimming. (Fig 5)

Fig 5

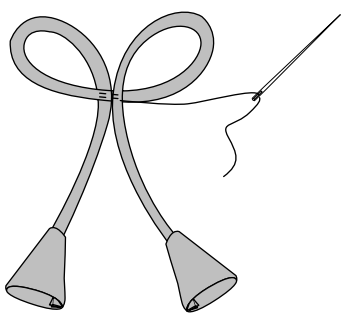


Motifs are available as readymade or self-made. A piece of cloth is cut into different shapes and the edges are finished with embroidery stitches. Such motifs are also used as decorative patches mainly in children's garments. Self-made trimmings are made by hand. For example,

Bias trimmings: Bias binding in contrasting material or self fabric can be used to finish necklines, openings and hems in garments. (Ref. Ex.19 & 29)

Bias tubing can be used for making decorative button loops, motifs of different shapes etc. The shape can be drawn on the garment and then tubing is tacked accordingly on to the garment along the marked line. Several layers of bias tubing can be made into a decorative belt. This may be of self or of contrasting material. (Fig 6)

Fig 6



Frills are also used as a trim. They can be applied on the edges or in between the dresses. It adds weight to the part where it is applied. So it helps in the flow of the garment.

Embroidery is another good method of applying decoration. Some of the simple embroidery stitches can be used on a design or the garment itself or a motif can be made and attached. In the same way smocking or applique can also be used as trimming.

Darning and patching

Objectives: At the end of this lesson you shall be able to
- **explain the two methods of mending**
- **name the basic rules for darning**
- **name the feature of the darning needles**
- **name the feature of stain and its treatments.**

Mending is the method of repairing damage caused by the wear and tear of use or accident. The most satisfactory methods of mending garments are darning and patching.

Strengthening or replacing of the worn and broken threads or yarn of fabric, by working into the weave or knit of the fabric is called darning.

Filling in with new stuff in place, where the torn or worn out of a garment is too much to bear darning is called patching.

There are needles specially made for darning with elongated eyes to receive the loosely twisted strands of darning thread used for this purpose. (Fig 1)

Fig 1

Basic rules for darning: Darning should be inconspicuous and hence the thread used for darning should be the same as the original fabric or similar to it in colour or texture. The best method is to ravel out yarn from seam or hem of the garment, which is to be darned. Use warp threads raveled out from side seams for lengthwise darning and filling threads from the hem for the crosswise darning.

– The needle used for darning should be long and fine.

– If the tear is large or if its edges are fraying, keep a piece of thin material on the wrong side under the tear and darn through both layers of the fabric.

– Small running stitches spaced to resemble the weave of the fabric should be worked.

– You should leave a loop of thread at the end of the first and subsequent rows to allow for shrinkage in the wash and elasticity in wear.

– Do not begin darning with a knot; instead leave thread end of about 22 cm length on the under side of the work.

– Work should be done far enough from tear so that mend will not pull out.

The damage in a fabric normally has the shape of a hole or a cut. The shape of a cut/tear can be as follows:

Straight tear is a tear or cut along a straight thread – either warp or weft.

In **diagonal tear** both the warp and weft yarns are cut and so it is necessary to work running stitches parallel to both sets of threads. Stitches should be alternated over and under the tear as in darning a straight tear. First darn in lengthwise and then widthwise direction.

Three-cornered tear is the common 'L' shaped right angle tear. Darning follows the same method as in the straight cut, but the stitches are overlapping on the corner to give more strength on it.

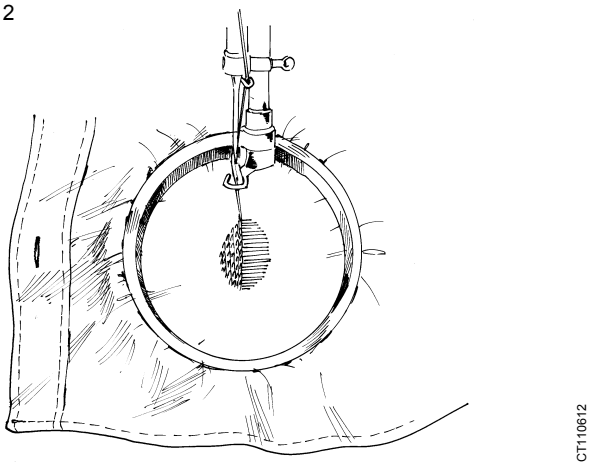
If the damage is in the shape of a hole, the plain weave hand darn is done. First trim the ends and ragged edges. Then darn in lengthwise direction and in widthwise direction so as to produce a plain weave darn over the hole.

Darning of small holes and tears can also be done by machine by following the same general principles as for hand darning. However machine darning is more conspicious and less neat. With a straight stitch, machine darning is done. If you have a zigzag machine, darning involves making a series of zigzag stitches over the area to be darned. To stretch the material evenly, an embroidery needle plate can be fixed. (Fig 2)

Patching is a type of mending where in the place of a tear or hole, an additional piece of fabric of the same kind is inserted and stitched. For repairing a big hole, patching is more suitable than darning. It is stronger and can stand more wear and tear in laundering.

In order to make the work inconspicious, the patch should be of the same material as the garment and it's grain should match the design perfectly. If the garment is faded, cut the material for patching from some hidden part of the same garment itself. If new material is to be used, wash it with soap and dry it in the sun.

Fig 2



Patches can be attached from the wrong side of the garment (hemmed or plain patch) or from the right side. The difference in plain or hemmed patch is the finishing of the seam allowance.

In plain patch, the seam allowances are pressed open and the raw edges are finished with overcasting. In hemmed patch, the seam allowance should be larger (2 more) on all sides so that they can be folded and hemmed to the garment fabric.

Patches can also be attached from the right side of the garment : the ragged edges of the hole in a garment are cleaned well. The patch is atleast 1.5 cm larger all around than the hole. The patch is attached to the fabric with dummy stitches. Working from right side, neaten all around the raw edges with close zig zag machine stitch.

Decorative patches are also stitched on the right side of the garment. Since they have decorative purpose they are of different material than the garment according to the task. They can also be embroidered. They are often used in children's wear but also in adults' dresses.

Seams

Objectives: At the end of this lesson you shall be able to
- **name the features and applications of seams and seam finishes**
- **explain the supporting techniques for a good seam construction.**

Seaming is a method of joining two or more pieces of fabric by a row of stitches. Stitching seam belongs to the basic and structural activities for construction of garments. If the purpose of a seam is mainly functional it is called a **constructional seam**, like side seam, underarm seam, waistline seam etc. These seams must be inconspicious and as flat as possible. Beside of that, there are **decorative seams** which are made conspicious to give a design or decoration to the garment, like piped seam, corded seam, flat and felled seam or topstitched seam.

The direction in which seams are stitched in general, is from the wider part of the garment to the narrower, because grain lines can be matched easier in this direction. A side seam of sleeve for example will be stitched from the armhole to the sleeve bottom. Only in piled fabric the seams are stitched always with the direction of the pile, irrespective of the garment being wide or narrow at the starting point. Most of the seams are stitched with right sides of the fabric together. Seams should be back stitched at the beginning and at the end for reinforcement.

Seams are of three types -

1. Plain seam - Plain seam are again of three types -

a. Straight seam

b. Curved Seam

c. Cornered seam

2. Self Enclosed Seam - Self enclosed seams are those in which all seam allowances are contained within the finished seam, thus avoiding the necessity of a separate seam finish. Self enclosed seam are of the following type -

a. The French Seam

b. Mock French Seam

c. Flat Felled seam

d. Self Bound Seam

3. Topstitching Seams - Seams are topstitched from the right side with seam allowances caught into the stitching. Topstitching is to hold the seam allowances flat, to add interest to plain Fabric and to keep the under layers flat and secure. Topstitching seams are of the following types -

a. Double Topstitched seam.

b. Welt Seam

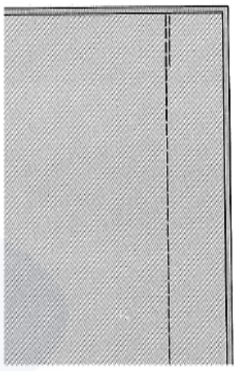
c. Tucked Seam

d. Slot Seam

e. Faggoted Seam

Seams can be constructed in different shapes. The **straight seam** is the most basic and easiest to stitch. (Fig 1) The seam allowances can be pressed to one side and finished together (in light weight fabrics) or they are pressed open and finished separately.

Fig 1



STRAIGHT SEAM

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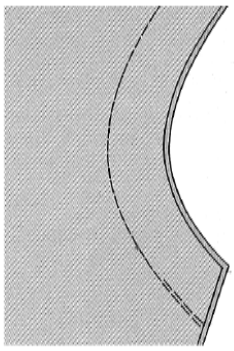
Curved seams require careful attention in handling and shaping. Use a shorter stitch length and a slow speed to get well shaped curves and to ensure extra strength. (Fig 2)

Fig 2



A CURVED SEAM

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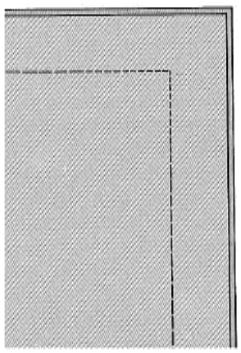
Cornered seam is reinforced by using a shorter stitch length on either side of the corner. Accurate pivoting is important to get an accurate corner. (Fig 3)

Supporting seam techniques: Some additional seam techniques ensure a better fit of seams as there are:

Fig 3

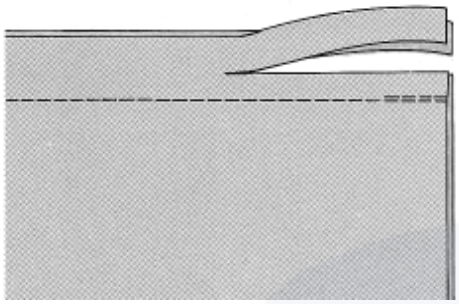


A CORNERED SEAM

CT110913

Trimming means cutting away some of the seam allowance. This is done to reduce bulk in order to get a better fit (for example at the armhole) or to prepare the seam for further construction (e.g. french seam). (Fig 4)

Fig 4



TRIMMING

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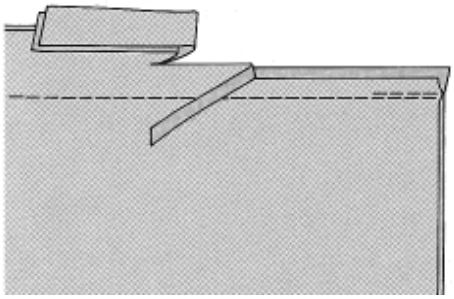
Grading is a variation of trimming. It is done where bulky seams cannot be pressed open. The fabric layers of the seam allowances are trimmed to different width to avoid a thick ridge at the edge. The widest layer should set nearest the garment. This helps the seams to lie flat without causing a bulky ridge (for example in enclosed seams). (Fig 5)

Fig 5

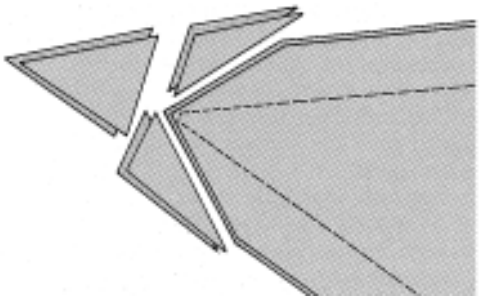


GRADING

CT110915

Trim a corner: Corners of enclosed seams must also be trimmed to reduce the bulk. First trim seam allowance on point slightly away from the stitch line. Then trim the sides tapering to point. (Fig 6)

Fig 6

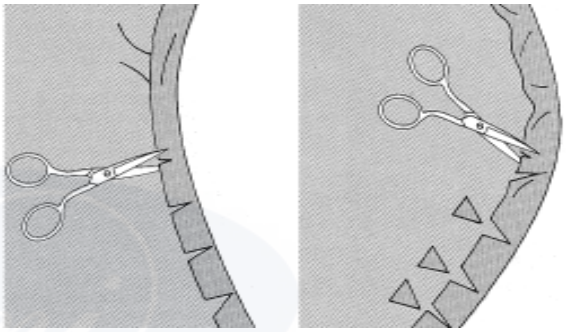


TRIM A CORNER

CT110916

Clipping and notches: In seam allowances with inward curves and corners, **notches** help to remove bulk of fabric. In outward curves and corners, clipping the seam allowance allows the fabric spread out to lie flat. (Fig 7)

Fig 7



CLIPPING AND NOTCHING

CT110917

Seam finish is given to the seam edge to prevent the fabric from fraying and to provide a neat look. The type of seam finish choosen depends on the type of fabric, its weight, its weave etc. and wear and tear of a garment; it is not required in lined garments. Some seam finish is given on the edge of the seam allowance, like overcasting, pinking, overlocking, hongkong and bias bound seam finishing. The other method is to enclose the seam allowance, so that it is not visible any more, like in french seam, self-bound seam, flat and felled seam. For enclosed seams, more seam allowance is required. This seam finish is suitable in straight seams and in light to medium weight fabrics. Trimming and pressing are important steps in finishing enclosed seams.

Corners

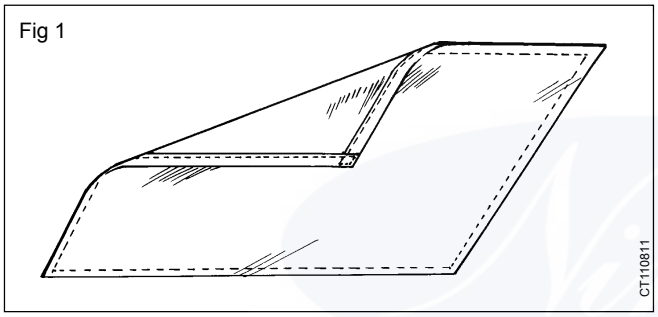
Objectives: At the end of this lesson you shall be able to
- **describe the types of corners and their features.**

Corners are formed where two edges meet. The meeting place of corners has more layers. They are finished in different methods.

Overlapping corners are slightly bulky, therefore constructed in light weight fabrics used for napkins, table cloths, towels, handkerchiefs, bed covers etc. and also on the hem of dresses with full open front.

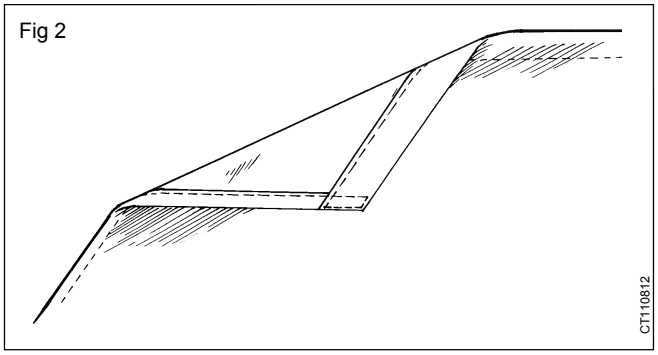
Variations of overlapping corners: When the hems on both the edges (lengthwise and widthwise hem) have folds of equal size, we get a **square corner**. Reducing bulk at the corners of a heavy fabric, can be made by cutting away a rectangular piece on the underlay. (Fig 1)

Fig 1



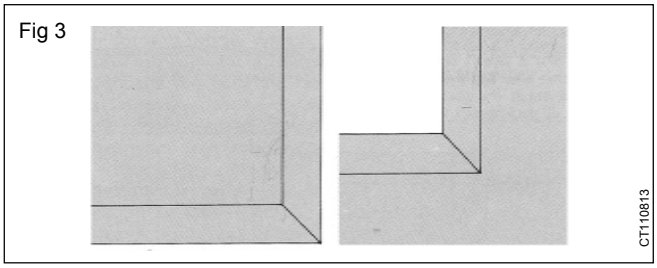
If one hem width is wider than the other side, then the finished corner will form a small rectangle. (Fig 2)

Fig 2



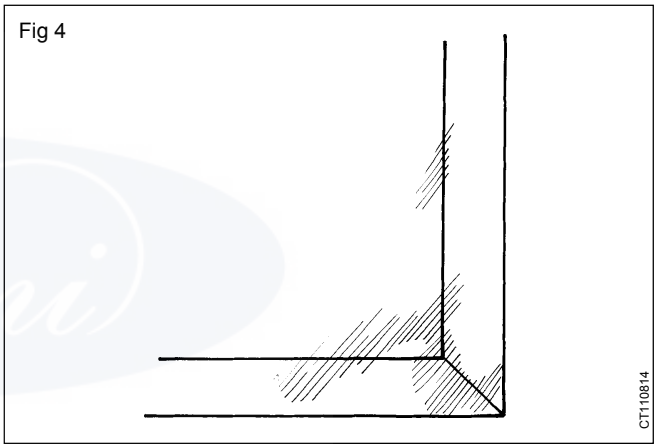
The diagonal joining of two edges at the corner is called **mitring**. The joint may be stitched or folded in place. Only an accurate folding will help you to get a good mitring. To reduce the bulk of the material on the under side, the joint is cut diagonally and pressed open. **Mitred corners** can be finished in two directions, when the mitred piece goes around the corner, it is an outward corner (used in table cloth, pillow cover, bed cover, etc.). If the piece lies within the corner then it is an inward corner (used in neck line) (Fig 3)

Fig 3



Variations of a mitred corner: Self-turned-up corners are worked mainly on the wrong side of the material. The main material is turned to the wrong side and folded in place; This type of corner always forms an outward corner. (Fig 4)

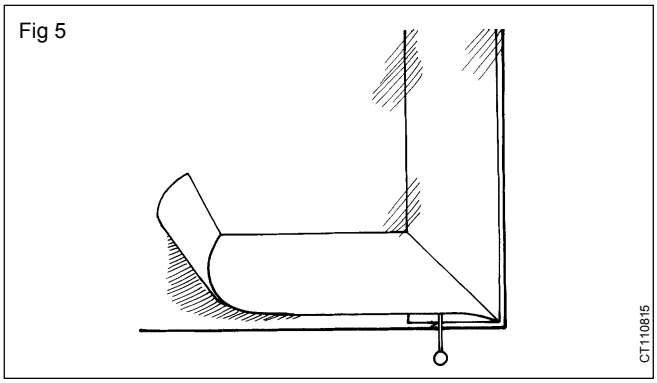
Fig 4



See the other methods of mitring which are explained below to use a separate strip or band to form the corners. They all can be finished as inward or outward corners.

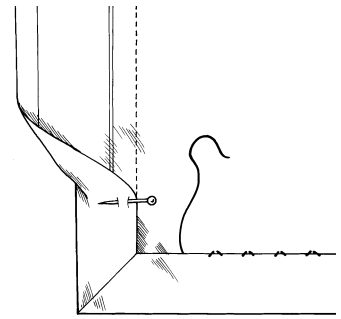
Mitring with flat tape or ribbon is done mainly to create a decorative effect on the right side. The size of the garment material remains the same. (Fig 5)

Fig 5



Mitring with banding always extends the size of a garment (material). It is used to give a decorative effect as a border or it is used for alteration of length etc., e.g. in children's garments. The banding is always finished on a double layer. (Fig 6)

Fig 6



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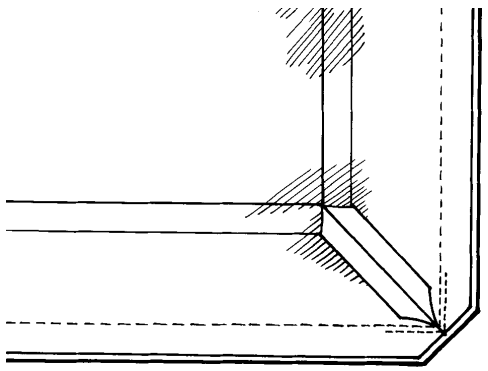
Mitring with bias facing is mainly used for neckline finishes of square or V-shape. Here the facing must be stretchable, therefore a bias strip is used. Because of the stretchability, this corner finish will give a flat appearance. The bias piece can either be readymade or self-made of light weight underlining fabric. (Fig 7)

Fig 7



CT110817

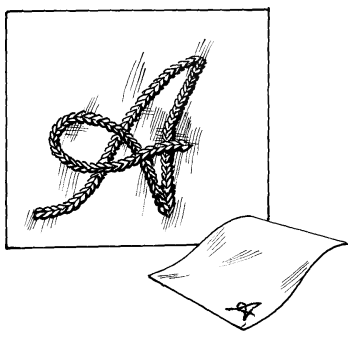
Lettering and monogram

Objectives: At the end of this lesson you shall be able to
- **state the application of lettering and monogram stitching**
- **select the different letters for monogram.**

Lettering and monogram is the art of drawing letters and the art in which the letters are embroidered. This is done on clothes and articles for the identification of individuals.

In **lettering**, the alphabets are stitched either by outlining or by filing with stitches like stem, chain, satin, cross stitch, etc. (Fig 1)

Fig 1

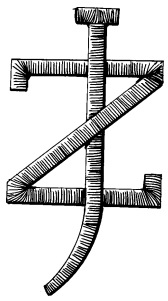


CHAIN STITCH LETTERING (HANDKERCHEF)

CT110821

Monogram is the interlacing of two or three letters with one another. This can be worked either by filling or outlining with stem, satin, cross stitch, etc. (Fig 2)

Fig 2



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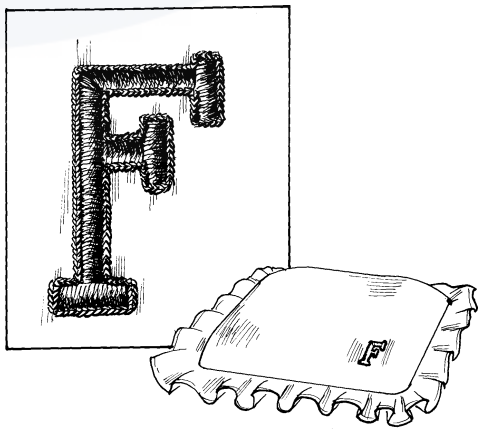
Padded lettering is done to highlight the letters by special effect. The letters can be raised by working of a pad by running or chain stitches or by using cord first and then covering these with satin stitches. It is applied in curtains, upholstery, etc. The area around the letter or monogram can be embroidered to give an ornamental effect. (Fig 3)

Fig 3



PADDED LETTERING (PILLOW COVER)

CT110823

The lettering should be worked on an embroidery frame, to prevent the fabric from puckering. Trace the letters evenly in clearly defined lines and marks.

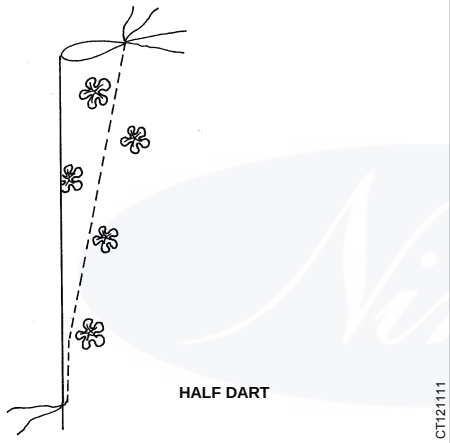
Darts

Objectives: At the end of this lesson you shall be able to
- **name the types of darts and explain their constructional features**
- **explain important construction techniques**
- **state the application of tracing wheel.**

Darts are one of the most basic structural elements in dressmaking. Darts are necessary because the body is not straight and flat but curved. A dart is used to shape a garment around the contours of the body and to allow freedom of movement, comfort to the wearer and also to make the garment look attractive. Darts are used mainly on women's dresses to allow fullness at the bust, hips, shoulders and elbows.

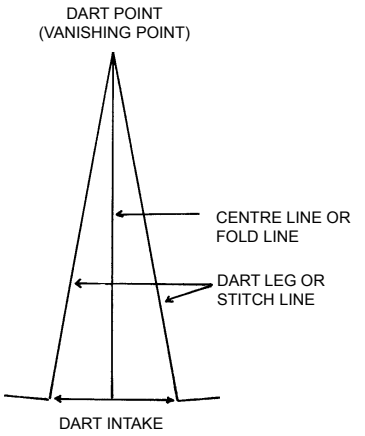
Standard dart (half dart): It is triangular in shape, wide at one end and pointed at the other. (Fig 1)

Fig 1



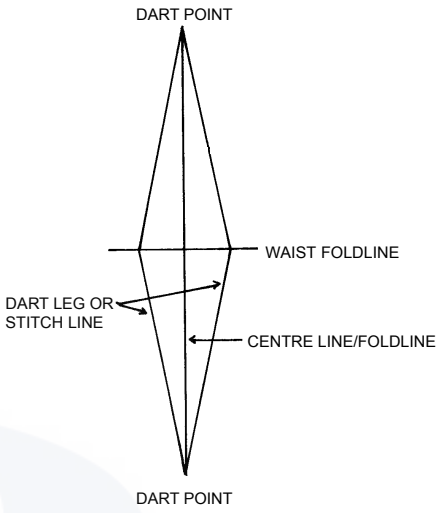
The pointed side should always be directed to the fullest part of the body. Tacking and stitching should start from the wide end towards the dart point. The wide base of a dart takes in fabric fullness, so that a garment fits the narrower parts of the body. The space inside the triangle is called intake which will appear on the wrong side of the garment. The dart stitching lines are matched, then stitched together. These stitching lines can be straight or gently curved for a close fit around the shape of the body. (Fig 2)

Fig 2



Double pointed darts (full darts): These are wide in the middle and pointed at both ends. (Fig 3) They are used at waist line of one-piece dresses.

Fig 3

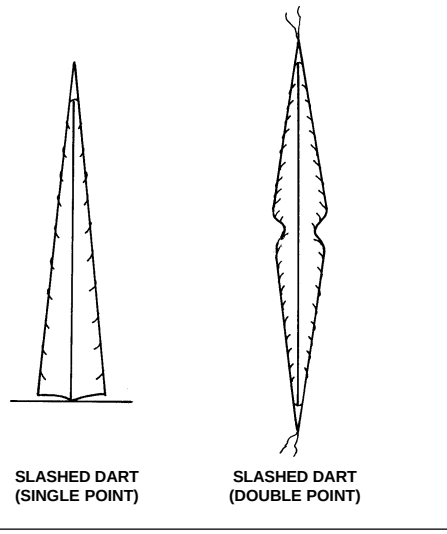


After stitching, vertical darts are pressed towards centre front or centre back, and horizontal darts are pressed downwards.

In general, it is better to set two small darts than one large dart.

A very deep and bulky dart intake is slashed and pressed open, the edges are overcasted or pinked. These darts are called **slashed darts**. (Fig 4)

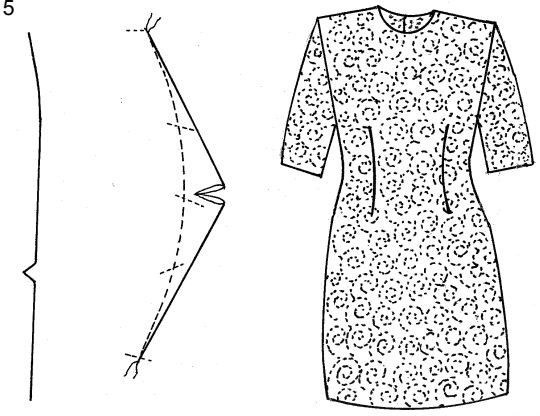
Fig 4



Well constructed darts appear on the right side as a seam. The seam should not bulge but taper gradually to point. Darts set better, if pressed over a round pressing pad on the wrong side.

The **contour dart** (variation of full dart) is used for semi-fitted and fitted styles of garments which don't have a waist seam. These darts have two pointed ends, one providing fullness at the bust, the other fullness at the hip. The wide central part of the dart shapes the fabric at the waist. Clipping of intake is done in the middle of the dart; it will relieve strain at the waist and other curved sections and allow the dart to lie smooth. (Fig 5)

Fig 5

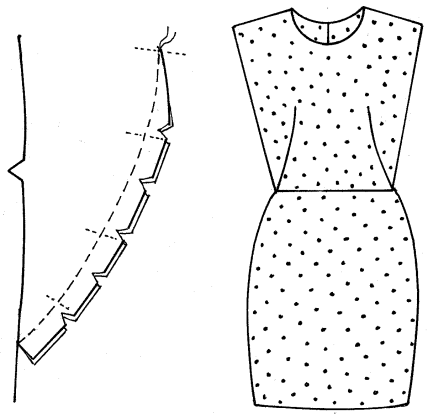


CONTOUR DART

The **French dart** (variation of half dart) gives a semi-fitted shape. It combines underarm bust dart and waist dart into one long dart running from the bust down at an angle towards the side seam. This dart is cut open on its center line before sewing so as to match the stitching lines. (Fig 6)

Before stitching, the darts have to be transferred from pattern to the fabric. Depending on the material two methods can be applied: tailor marks will be used on silk, polyester etc. and loosely woven material. On cotton marking with a **tracing wheel** is a fast method.

Fig 6



FRENCH DART

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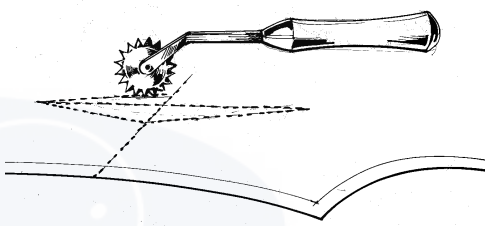
The tracing wheel is a pinned metal tool which is used to transfer pattern marks or construction lines on the lower layer of fabric or paper. (Fig 7)

Fig 7



TRACING WHEEL

CT121117

Pleats

Objectives: At the end of this lesson you shall be able to
- **explain the basic construction features of pleats using the technical terms related to pleats**
- **explain the difference between knife pleats, box pleats and inverted pleats.**

Pleats are folds of fabric that are made to give decorative flare and fullness to a garment. They are commonly used on skirts and dresses, but also on sleeves or other components of a garment.

Construction features of pleats: Pleats are folded in vertical direction.

– Each pleat has an inner and outer fold. The outer fold line is placed on a placement line.

– The distance between inner and outer fold is called pleat depth.

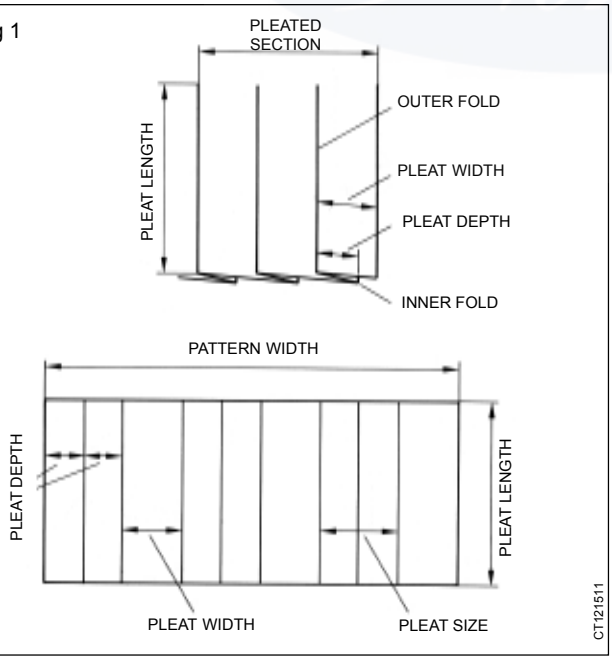
– The pleat size consists of double the pleat depth.

– The distance between two neighboring outer folds is the pleat width (gap between the pleats).

– The width of material before pleating is called the pattern width.

– After pleating it is called the pleated section. The pleated section does not consider allowances for plackets etc. (Fig 1)

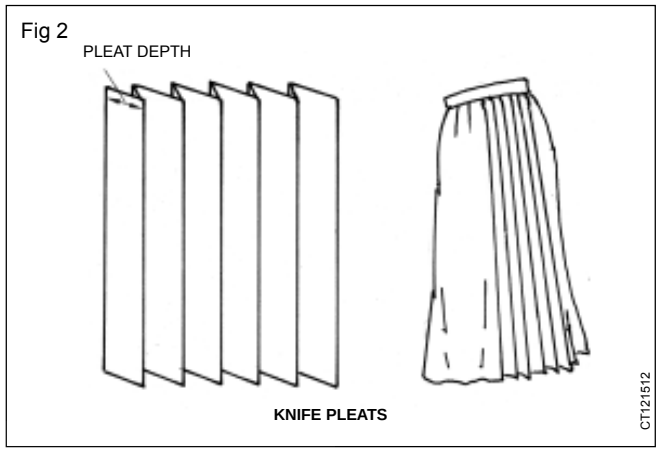
Fig 1



There are three **basic types of pleats**:

Knife pleats are the most common form of pleats. The outer foldlines are all placed in one direction. (Fig 2)

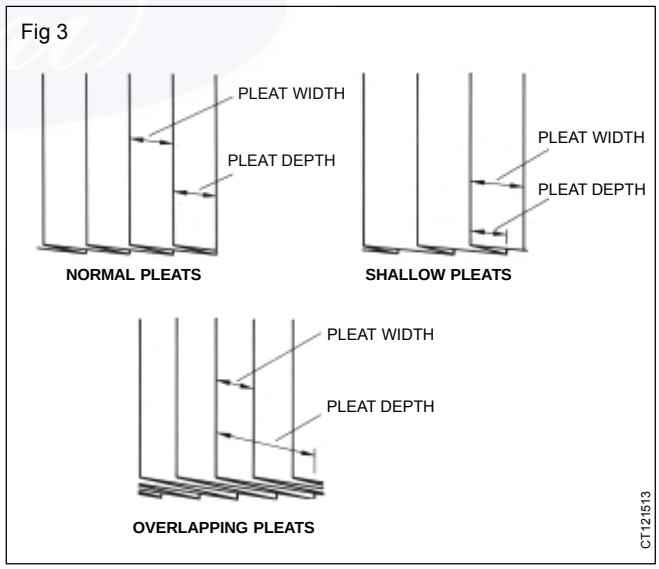
Fig 2



While setting knife pleats there are three possible proportions among pleat depth and pleat width:

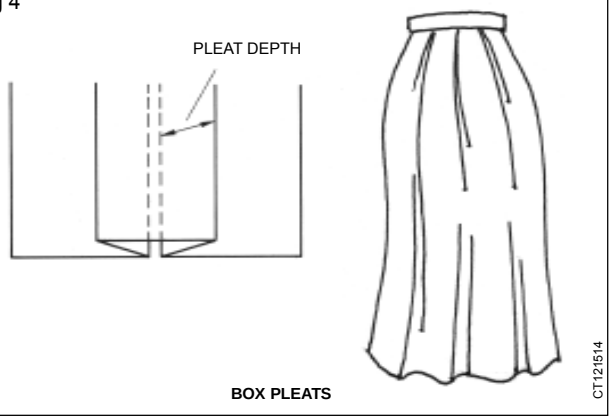
– pleat depth = pleat width g normal pleats
– pleat depth < pleat width g shallow pleats
– pleat depth > pleat width g overlapping pleats (Fig 3)

Fig 3



Box pleats are made by two single pleats in opposite direction. A full box pleat is folded under from two sides, so that the inner folds meet. It has two fold lines and two placement lines. (Fig 4)

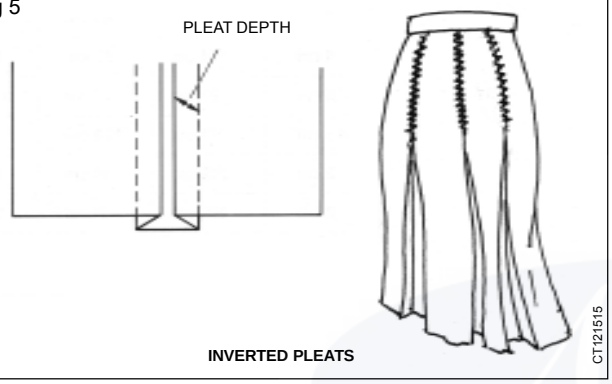
Fig 4



BOX PLEATS

Inverted pleats are also made by two single pleats. They have two fold lines and a single common placement line. The two outer folds in the center of the pleat meet on right side. (Fig 5)

Fig 5



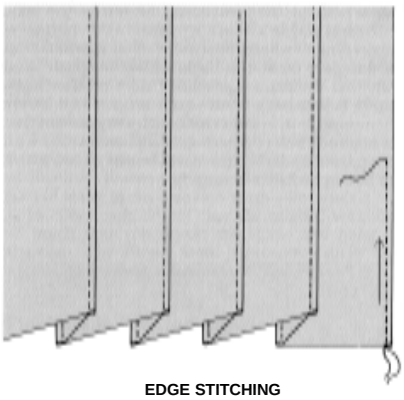
INVERTED PLEATS

Pleats can be pressed crisply or can be left as unpressed to hang as soft folds. For pressed pleats, garment fabrics that crease easily are the most suitable. Pressing should be done with a pressing cloth. If pleats shall be sharp, use steam or damp cloth to set the creases, then ensure that the pleats dry thoroughly before moving them. During construction of pleats they are pressed before basting stitches are removed.

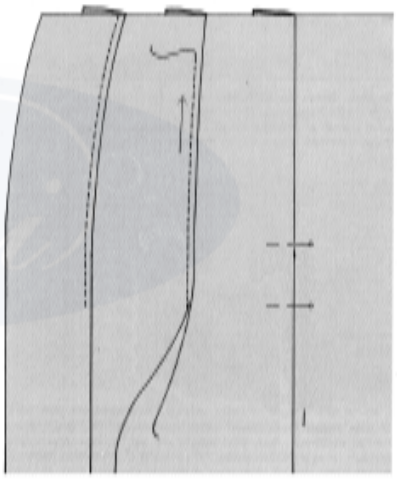
To hold the pleats in position they can either be edge stitched or topstitched from the waist towards the hip. (Fig 6)

If pleats are formed on a checked fabric it must be taken care that repeats of check are consistent and that folds have appropriate depth to hang satisfactorily (not too deep and not too shallow). Pleats on checked fabric can be set without drawing construction lines, since the lengthwise check lines can be used as such.

Fig 6



EDGE STITCHING



TOP STITCHING

Calculation: Material requirement for pleats

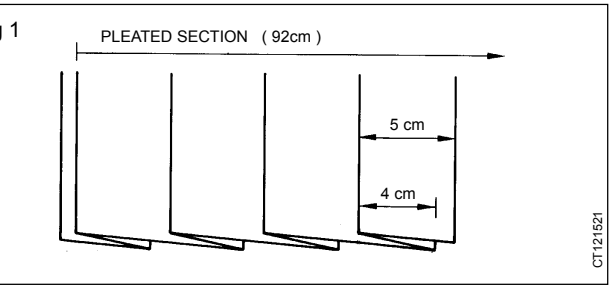
Objectives: At the end of this lesson you shall be able to

- **calculate the material requirements for knife pleats, box pleat and inverted pleats.**

Knife pleats

Example 1: A pleated section should be of 92 cm width. The pleat depth should be 4 cm and the pleat width should be 5 cm.

Fig 1



a How many shallow pleats should be made?

b What should be the pattern width of the material strip for the pleated section?

c How much material (=length in cm) is required to make the pleated section, if the fabric is of width 90 cm, the length of pleat is 15 cm and 2 cm seam allowance per strip are necessary for each seam?

Solution

a 92 cm : 5 cm = 18.4 (pleats) g 18 pleats
92 cm : 18 = 5.11..... = 5.1 cm (corrected pleat width)

Explanation: If the pleated section is divided by the pleat width, it gives the number of pleats.

If the number of pleats so got is not a whole number, it must be rounded off (can be rounded off to the next higher or to the next lower number, at free will). But then - as seen above - the pleat width as originally contemplated, has to be corrected by a fresh calculation.

b 4 cm x 2 = 8 cm (pleat size = material required per pleat)
8 cm x 18 = 144 cm (material required for all pleats size)
144 cm + 92 cm = 236 cm = 2.36 m (material required for all pleats size + width of pleated section)

Explanation: The material required for each pleat is (irrespective of the dimensions) twice the pleat depth. To the material required for all the pleats is added the width of pleated section (= sum of all the pleat widths); (Ref. to Fig 3, Lesson 1)

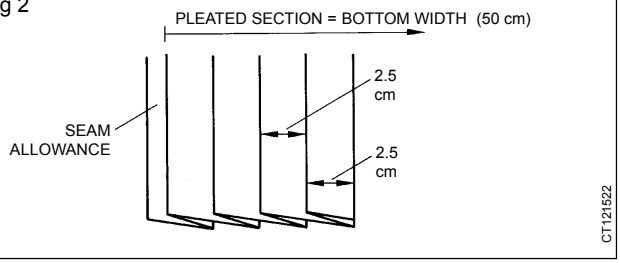
The general rule: pattern width for pleated components = 2 x pleat depth x number of pleats + width of pleated section

c 2.34 m : (0.90 m - 0.02 m) = 2.6... g 3 strips
15 cm x 3 = 45 cm

Explanation: If the pattern width is divided by the width of the material (less the seam allowances), one gets the number of material strips required. The number of strips, if fractional, is always rounded off to the next higher integer, as there can only be a whole number of strips and the material must suffice. In this and in the similar exercises that follow, the pleat lengths include all necessary material allowances.

Example 2: A baby frock is to have a pleat-set at the bottom. The width of the bottom circumference is 50 cm. The knife pleats (normal pleats) should have a depth of 2.5 cm. The seam allowance at the pleated section amounts to 1 cm each on the left and on the right. (Fig 2)

Fig 2



a How many normal pleats should be made?

b What should be the length of the strip of material for the pleated section?

Solution

a 50 cm : 2.5 cm = 20 (pleats)

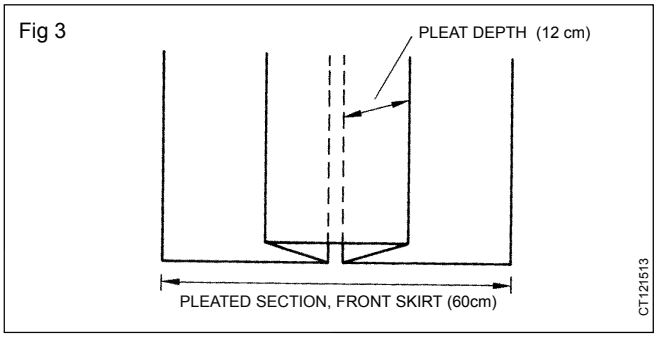
b 50 cm x 3 = 150 cm (pattern width)
150 cm + 2 cm = 152 cm = 1.52 m

Explanation: Exercise (b) can be solved in accordance with the general rule derived from Example 1. In the case of normal knife pleats, however, there is a simpler procedure: The pattern width is always three times the pleated width, i.e. it is independent of pleat depth and pleat width (because of the triple layer of the material per pleat.

Box pleats: A box pleat consists of two normal knife pleats whose inner folds lie against each other. The pleat width is twice the pleat depth.

Example: A skirt has a box-pleat at the front. The pleated width of the skirt front at the hem should be 60 cm (when the pleat is flat). The pleat depth is to be 12 cm. What should be the pattern width of the front part of the skirt at the bottom (without seam allowance)? (Fig 3)

Fig 3



Solution

12 cm x 2 = 24 cm

24 cm x 2 = 48 cm

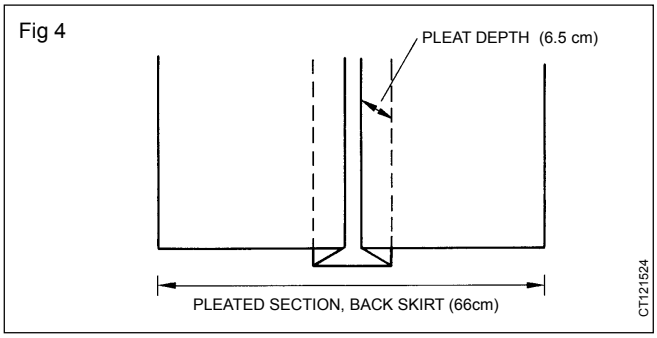
48 cm + 60 cm = 108 cm = 1.08 m

Pattern width should be 1.08 m.

Inverted pleats: An inverted pleat consists of two normal knife pleats whose outer folds lie against each other. The pleat width is twice as much as the pleat depth.

Example: For comfort, a dress is provided with an inverted pleat at the center back seam. The pleat depth should be 6.5 cm. The pleated section of the back portion at the bottom should be 66 cm (when the pleat is flat). What should be the pattern width of the back portion (without considering allowances)? (Fig 4)

Fig 4



Solution

6.5 cm x 2 = 13 cm
13 cm x 2 = 26 cm
26 cm + 66 cm = 92 cm

The pattern width should be 92 cm.

Exercises

1 Prepare a paper model of

- normal pleats (pleat depth 2 cm).
- shallow pleats (pleat depth 2 cm/pleat width 3 cm)
- overlapping pleats (pleat depth 4 cm/pleat width 1 cm)

2 Calculate the missing values (note: while calculating pleat depth, round off the final result to the next lower integer):

	a	b	c
Pleat depth	3 cm	4.2 cm	4 cm
Pleat width	4 cm	-	4 cm
No. of pleats	?	12	?
Pleated section	80 cm	62 cm	48 cm
Pattern width	?	?	?

3 Calculate the quantity of material (fabric) required for pleated sections ("fabric allowance" in the last row refers to the requirement for seam allowance to join the strips)

	a	b	c	d	e
Pleat Depth	3	4.5	3.5	4.2	2.5
Pleat width	3	5	3	4	4
Pleated section	168	260	144	172.2	124
Pleat length	22	12	10	48	18.5
Width of material	105	90	122	148	130
Seam allowance per strip	1.5	2	3	2.5	2

4 A pleated section of normal pleats has to be made. The pleated section should be 189 cm and the pleat length 15 cm. The material available has a width of 114 cm. A seam allowance of 2.5 cm per strip is required to join the strips. What is the total material requirement?

5 A pleated section should have a width of 15.5 cm. 5 normal pleats are to be set.

a Calculate the pleat depth.

b What should be the pattern width of the material strip for the pleated section?

6 A pattern width of 144.5 cm is available to make a pleated section. What can be the maximum width of the pleated section, if the pleat width should be 3.5 cm and the pleat depth should be 2.5 cm?

7 A strip of material of 120 cm width is made into 8 normal pleats with a pleat depth of 4 cm. What will be the width of the pleated section?

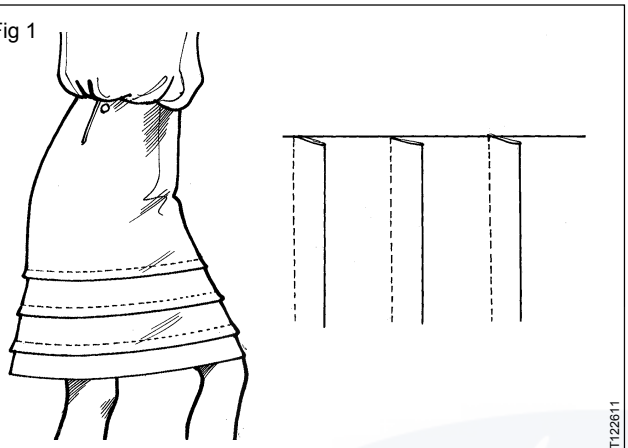
8 A pleated section consisting of normal pleats has a width of 95 cm, the pleat width being 5 cm, what should be the pattern width (ignoring the seam allowances)?

Tucks

Objectives: At the end of this lesson you shall be able to
- **name the function of tucks**
- **name the types of tucks and their features**
- **explain the construction techniques and stitching aids.**
- **explain the material required for stitching tucks.**

A tuck is a straight fold of fabric stitched on the grain evenly throughout the fold. (Fig 1)

Fig 1



It may appear similar to the pleat but some construction features are different. Tucks are stitched to the full length, whereas pleats are stitched on the top in the horizontal direction or only for a short length in vertical direction.

A tuck also has a fold line and a placement line and is stitched parallel to the foldline on its full length. A tuck is constructed similar to the knife pleat, i.e. in one direction (except the cross tucks). The beauty of a tuck depends on it accuracy. It will look good only if the width of tuck and the distance between the tucks are maintained evenly. The tuck width and the spacing between the tucks depends on the desired design effect and the thickness of the fabric. Special design effects can be achieved by setting the tucks groupwise.

Tucks are used mainly for decorative purpose. In some cases they are used for shaping the garment to the body (similar function as the dart) or used in children´s dresses to provide some allowance for growth. In some rare cases tucks are used to conceal joints in a garment when they are altered. The joint will appear on the wrong side of the garment while the decorative tuck will be visible from the right side.

Generally tucks are folded on the right side of the garment since they have decorative purpose. Only dart tucks used for shaping are folded on the wrong side for shaping.

Types of tucks:

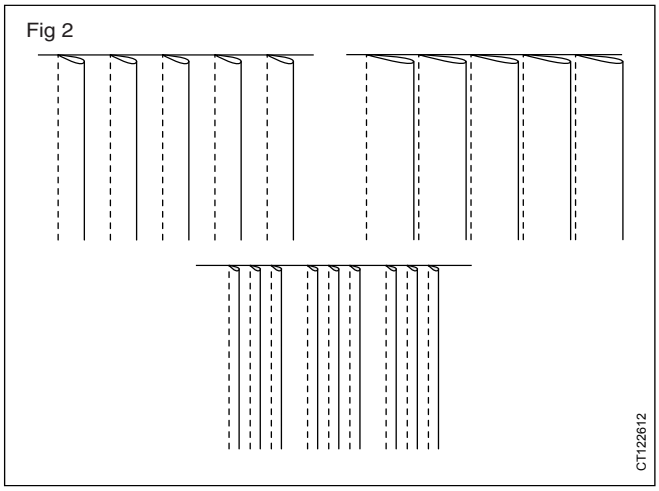
There are types of tucks -

1. Pin tucks - When the fold is very narrow, they are called Pin Tucks.
2. Spaced tucks -Spaced tucks are folds of cloth sewn at regular intervals.
3. Blind Tucks - Blind tucks are sewn so close together that the rows of stitching do not show on the outside. Each tuck overlaps the next covering, the previous row of stitching.
4. Shell Tucks - Narrow tuck with shell like scallop edge is called scallop tucks.
5. Corded Tuck - When a cord is placed inside the fold, is called corded tuck.
6. Released Tuck - When tuck stitching started from a point and end somewhere in middle called released tuck. This is to control small amount of fullness.

Tuck is a fold or pleat in fabric that is sewn in place.

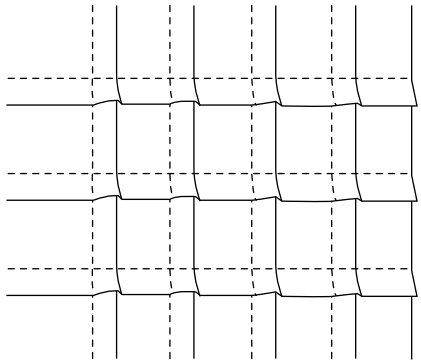
Plain tucks are formed in one direction.Width of tucks and the spacing can vary with the desired effect. If the space given between the tucks is equal to the depth of tuck, i.e. the fold of the tuck touches the stitching line of the previous one, they are called blind tucks. **Blind tucks** can be regarded as a variation of plain tucks. Another variation of plain tucks are the **pin tucks.** As the name implies they are of very narrow width, almost equal to a pinhead. Only thin fabrics are suitable for pin tucks. (Fig 2)

Fig 2



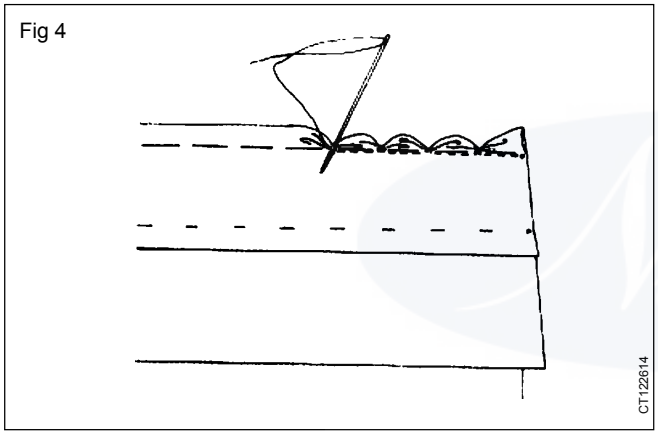
Cross tucks are stiched in both directions, vertical and horizontal. The lengthwise tucks are stitched first, then pressed in one direction before the widthwise tucks are stitched. (Fig 3)

Fig 3



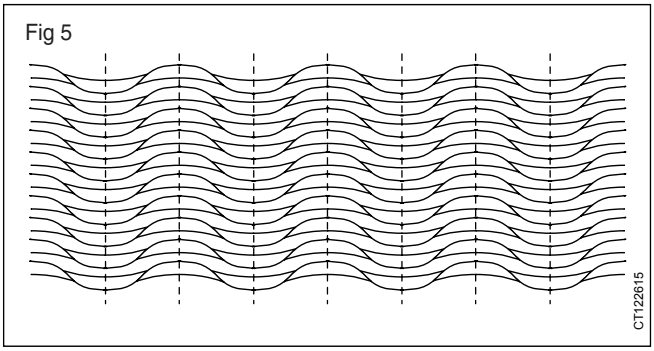
A tuck can be given a special decorative effect by making it into a **shell tuck.** This tuck has a scalloped edge. They can be formed on single edge or as multiple rows. Thin and medium weight fabrics are best suited for that purpose. (Fig 4)

Fig 4



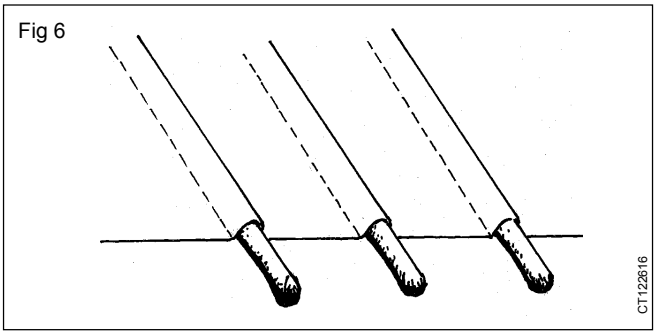
A group of blind tucks can be made to show a **scalloped effect.** For that purpose the fold of tucks should be a little wider. The tucks are top stitched perpendicular to the tucks first in one direction, then their folds are placed in the opposite direction to be topstiched again perpendicular to the tucks. This process is repeated on the full length of tucks at regular intervals. Thin and medium weight fabrics are best suited for shell tucks and scalloped tucks. (Fig 5)

Fig 5



Corded tucks are made by placing a cord inside the fold. This makes the tuck more prominent. A zipper foot is required for stitching this type of tuck. (Fig 6)

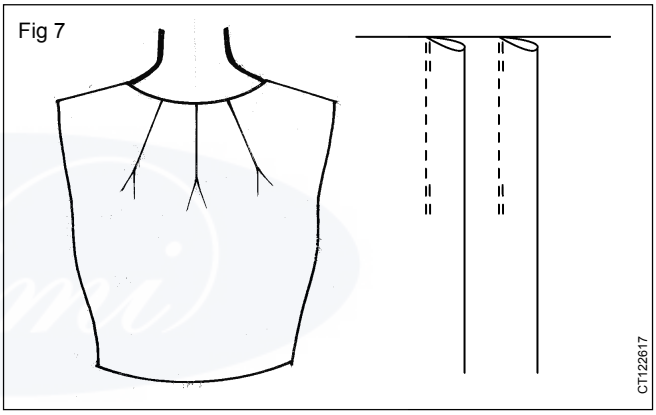
Fig 6



When tucks are used as a symmetrical element of decoration on the garment, the fold lines of either side should either face centre front or they should be directed away from the centre.

Dart tucks are used for shaping the garment. They can be formed on shoulder line, front and back waistline of the bodice and the front and back section of the lower garment. They are used to provide fullness and are usually formed on the wrong side of the garment. In rare cases they are formed on right side for decorative effect. (Fig 7)

Fig 7



The difference between darts and dart tucks can be described as follows:

– Dart tucks are of less width (approx. 0.5 cm).

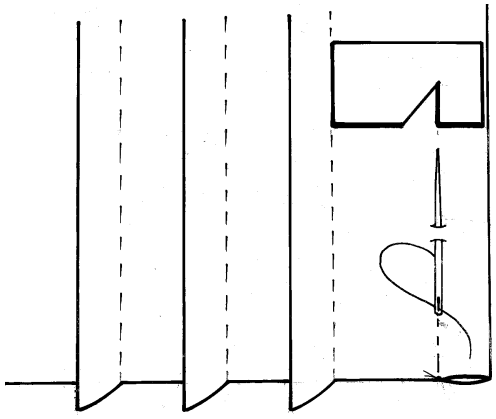
– To achieve the desired shape they are stitched in groups of 3 or 4.

– Dart tucks are of equal width on the full length while darts taper towards the end.

While stitching tucks some tools are useful:

A gauge made from cardboard helps stitching without marking the stitching lines. The length of gauge includes the width of tuck and the space between the tucks. The notch indicates the width of tuck. If the gauge is placed with the left edge on the stitching line of the previous tuck and the right edge is on the fold of the new tuck the notch will indicate the position of the stitching line for the new tuck. (Fig 8)

Fig 8

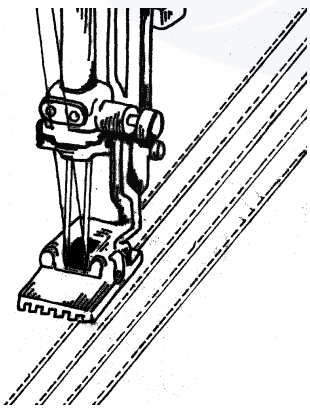


CT122618

Tucker foot is a time saving device for making tucks up to 2.5 cm in width. It is an extra attachment inserted in place of the presser foot for treadle and motorised sewing machine. It helps to achieve an equal width of tucks and equal spacing between the tucks in one operation. The tucker foot is provided with two scales numbered from 0 to 8. The smaller scale near the needle will help to get a uniform width of tuck. The required width of tuck is set by moving a sliding plate with the help of a screw. While stitching, the fabric is guided between the two scales.

There is another screw near the needle to regulate the space between the tucks. Set the tuck scale first for the width of tuck, then the space scale is adjusted to a required space. The tucker foot does two operations at a time: it maintains the tuck width and the distance between the tucks even. (Fig 9)

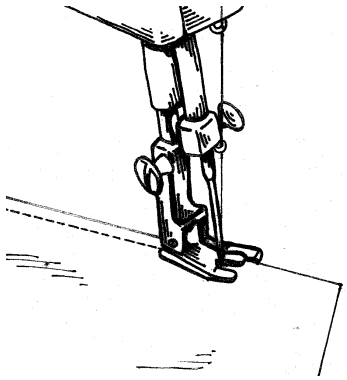
Fig 9



CT122619

An edge stitcher is a special presser foot which is inserted in the machine in place of the normal presser foot. It is useful as a guide for stitching pin tucks, tucks with lace, piped seams and for self enclosed seams (e.g. french seam). It has a series of slotted guides where the folded fabric is inserted. The slots are of different widths for different edge stitch distance. (Fig 10)

Fig 10

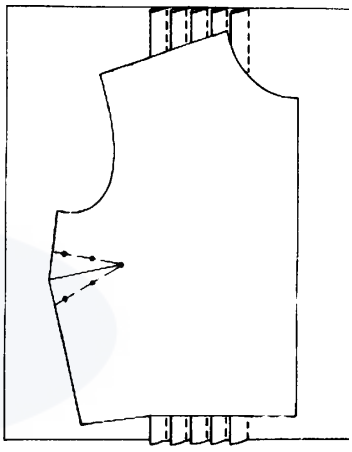


CT12261A

Tucks can be formed before or after the respective component of the garment is cut from the fabric.

The easier way is to fold the tucks before layout. The disadvantage with this method is that the edges have to be recut. It also increases the wastage of fabric. (Fig 11)

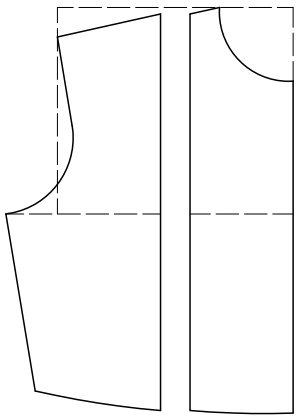
Fig 11



CT122612

With the other method the pattern is slashed and spread. This provides the extra space for folding the tucks after the component is cut. (Fig 12)

Fig 12



CT12261C

Calculation : Material requirement for tucks

Objectives: At the end of this lesson you shall be able to

- **calculate the material requirement for stitching tucks.**

The following terms and measurements are important for the calculation of tucks:

Example 1: A tucked component shall be of 39 cm tucked width while the gap between the tucks is of 1.2

cm. How many tucks are to be stitched, if the first and the last tuck is 1.5 cm away from the edge?

Solution

39 cm – (2 x 1.5 cm) = 36 cm (distance between the first and the last tuck)

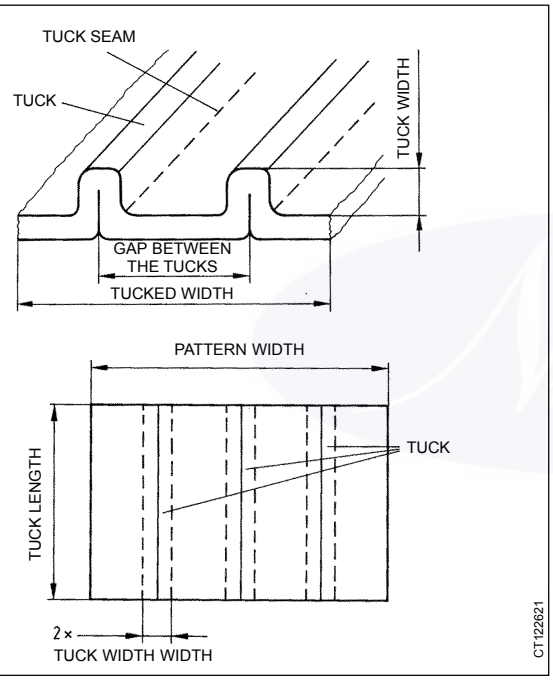
36 cm : 1.2 cm = 30 (gaps)

30 (gaps) + 1 = 31 (tucks)

The fundamentals for the calculation of tucks are similar to those for the calculation of buttons.

Example 2: A tucked component of 28 cm tucked width shall be prepared. There shall be a gap of 1.5 cm between the tucks and the tucks shall be of 2 mm width. The first and the last tuck shall be 2 cm away from the edges. What is to be the pattern width for the respective tucked component?

Fig 1



Solution

2 mm x 2 = 4 mm (material requirements for each tuck)

28 cm – (2 x 2 cm) = 24 cm (distance between the first and the last tuck)

24 cm : 1.7 cm = 14.1 ... (gaps) 15 gaps

15 (gaps) + 1 = 16 (tucks)

4 mm x 16 = 64 mm = 6.4 cm (for all tucks)

28 cm + 6.4 cm = 34.4 cm (pattern width)

24 cm : 15 = 1.6 cm (corrected gap between the tucks)

Explanation: If the number of gaps between the tucks so got is not a whole number, it must be rounded off (can be rounded off to the next higher or to the next lower number). But then – as seen above – the gap between the tucks as originally contemplated, has to be corrected by a fresh calculation.

Exercises

1 Calculate the number of tucks:

	Tucked width	Gap between the tucks	Distance of outer tucks from the edge
a	44 cm	2 cm	2 cm
b	24 cm	1.5 cm	1.5 cm

2 Calculate the missing values.

	Tucked width	No. of tucks	Gap between the tucks	Tuck width	Distance between tuck and left edge	Distance between tuck and right edge	Pattern width
a	30 cm	?	3 cm	1 mm	1.5 cm	1.5 cm	?
b	42.5 cm	?	1.5 cm	1.5 mm	2 cm	3 cm	?
c	28 cm	?	1.5 cm	1.2 mm	3 cm	3 cm	?

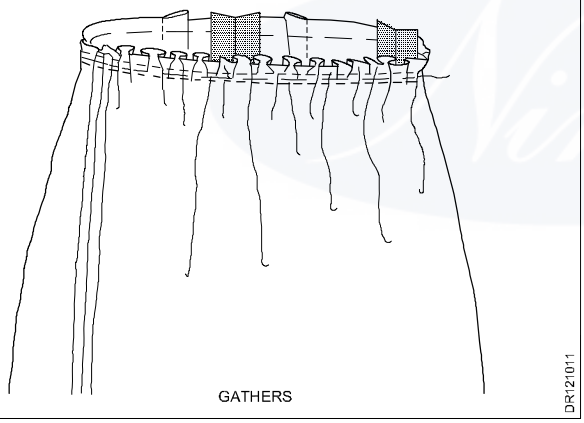
Gathers and Shirrings

Objectives: At the end of this lesson you shall be able to
- **state the features of gathers**
- **explain the importance of shirring.**

Gathers

Gathers are more popular method for controlling fullness in a garment. Gathering is one or two rows of stitching drawn up to form very tiny pleats in the fabric. It is important that the fullness must distributed evenly through out the entire area. If the fabric is very wide for gathering, work the gathering stitches in batches to prevent the thread snapping as it is pulled up. The gathered section of a piece of fabric often looks completely different from the actual fabric. Fabric is usually gathered to one-half (½) to one-third (1/3) the original width. The effect of gather may be soft and drapey, or crisp and billowy depending on the fabric. Gathers is done after construction seam have been stitched, seam finished and pressed. Gathering most often occurs in a garment at waist line, cuffs, yokes and children clothes etc.

Fig 1



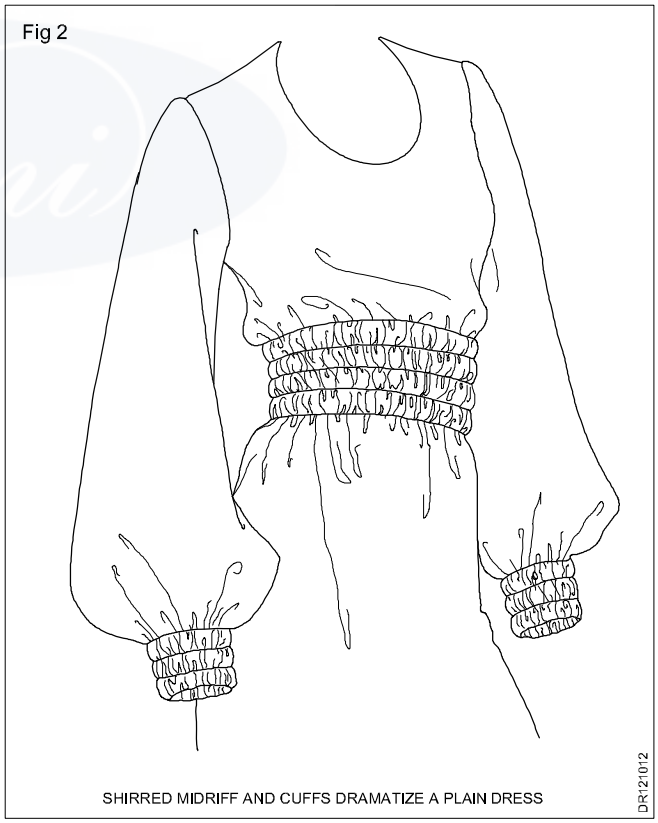
GATHERS

DR121011

Shirring

Shirring is the most popular method of controlling fullness in a garment. Gathering is one or two rows of stitching drawn up to form very tiny pleats in the fabric, but shirring is more than three rows of gathers. In shirring the fullness is distributed evenly throught the entire area. It is primarily a decorative way of controlling fullness. Shirring by machine is the easiest and quickest method than by hand. Shirring is formed with multiple row of gathering. Light weight fabric are most appropriate for shirring; they may be either crisp or soft voiles, crepes and jerseys are excellent choicer. Non iron fabrics are good because it is difficult to press shirring without flattening. Rows of shirring must be straight, parallel and equidistant. Pressing done with tip of iron directly into the fullness.

Fig 2



SHIRRED MIDRIFF AND CUFFS DRAMATIZE A PLAIN DRESS

DR121012

Frills and Ruffles

Objectives: At the end of this lesson you shall be able to
- **explain frills and ruffles.**

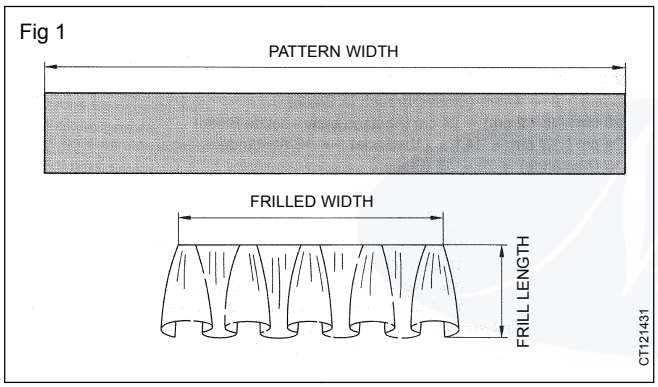
Frills are used for the purpose of decorating a garment. They can be used on hem lines, necklines and at any portion of the garment as per taste. The width of the frill may 1" to 3" and length should be cut as per the required amount of gathering. The length side should be cut along the warp way of the fabric. The gathered edge of the frill can be concealed in a seam. Frills can be constructed in a double layers and in circular shape. If the width of the frills are more than required then they are called as "Flounces".

Calculation: Material requirements for frills

Objectives: At the end of this lesson you shall be able to
- **calculate the material required for frills of different length and width.**

Terms and measurements which are important for the calculation of frills can be seen from the graphic:

Fig 1



Example: A frill of 1.80 m/1 m frilled width is required. The pattern width shall be frilled to 1/3 of its length.

a What is the measurement of the pattern width (length of the strip of material for the frill)?

b What is the material requirement under the following conditions?

Width of fabric : 1.10 m
Length of frill: 12 cm

Additional material for hem and allowance to join the frill to the garment: 3 cm

Solution

a 1.80 x 3 = 5.40 m

b 12 cm + 3 cm = 15 cm
5.40 m : 1.10 = 4.9 (5 strips)
15 cm x 5 = 75 cm

Since the number of strips is got only by rounding off to a full (whole) number the balance material generally is sufficient for the seam allowances which are required for joining the strips. If the number of strips is calculated as a full (whole) number or close to a whole number an additional strips would have to be calculated for the seam allowances.

In practice some material is saved while the material is frilled with less density. This is the reason why seam allowances for joining the strips are not calculated separately in the example above and also in the following exercises.

Exercises

1 Calculate the material requirements for frilled components (‚seam allowance" in the last column is meant for the hem of frill and for joining the frill to the garment).

	Pattern width	Width of fabric	Length of frill	Fabric allowance
a	440 cm	0.98 m	12.5 cm	2.5 cm
b	210 cm	1.20 m	8 cm	3 cm

2 A pattern width of 9.40 m is required for a frilled component. The width of fabric is 1.19 m. The length of frill shall be 7.5 cm; 2 cm are required for hem and joining the frill to the garment. How many cm of fabric are required for the frilled component?

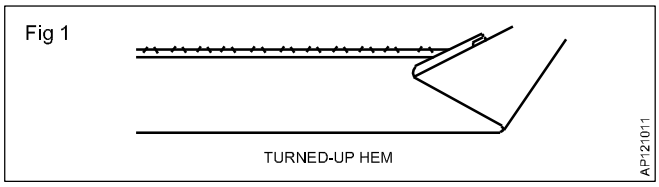
3 A frill shall be attached to the hem of a skirt. For this a frilled component of 1.60 m frilled width is required. The pattern width is reduced to 2/5 of its length. What is the length of the strip of material?

Hems

Objectives: At the end of this lesson you shall be able to
- **explain about hems and types of hems.**

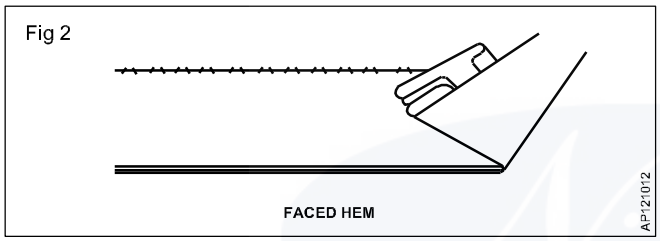
A hem is a finish for any bottom edge of a garment. There are three basic forms - a turned up edge (the most common), a faced edge and an enclosed edge. Although all are dealt with here as hem treatments any of them might be used for other edges as well.

Fig 1



Selection of a hemming method depends largely on garment style and fabric. Whatever the choice, certain criteries should always be met:

Fig 2

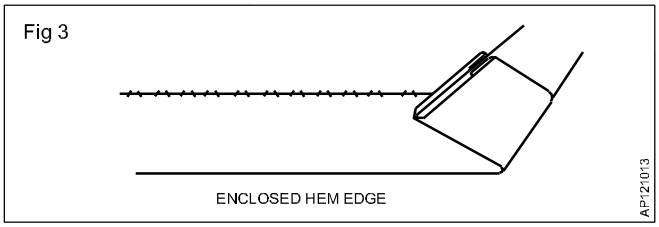


1 The garment should hang evenly and gracefully.

2 There should be no lumpiness in the hem allowance.

3 Unless meant to be decorative, finished hems should be totally inconspicuous.

Fig 3

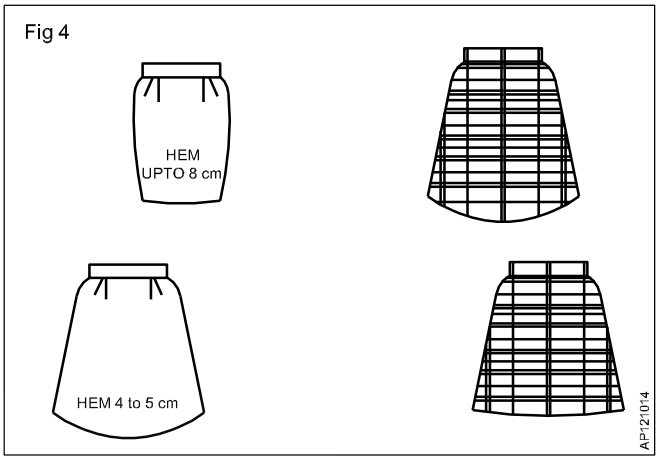


Turning up the hem edge

In a turned-up hem, a certain width of fabric, the hem allowance, is folded inside the garment, then secured by hand, machine or fusing. This is the hem type usually provided for in pattern designs, with the amount of turn-up indicated on the pattern by a line or written instructions. It is wise to check this allowance before cutting out te garment, should a change be desirable.

The hem's shape, straight or curved, generally determines how much should be turned up. As a rule, the straighter the edge, the deeper the hem allowance; the more it curves, the shallower the allowance. Exceptions are sheer fabrics, in which a very deep or a narrow rolled hem may be preferable and soft knits. Where a narrow turn-up will minimise sagging.

Fig 4



Hem allowance varies according to garment shape up to 8 cm is usually allowed for a straight garment 4 to 5 cm for a flared one. Fabric weight should also be considered.

A hem line may look distorted if the hem curve is too extreme for, or does not align with, the fabric design. A slight adjustment may be necessary, for a better effect.

Sewing hem by hand

Before a hem is secured by hand, the raw edge should be neatly finished. The finish chosen depends first on fabric characteristics and garment style, second on personal preference. The edge can be left uncovered on fabric that does not fray, also where a lining will cover the hem; use a covered edge for fabric that frays a great deal, and in those situations where a more finished look is wanted.

There are two basic hand hemming methods - flat where stitches pass over the hem edge to the garment and blind where the stitches are taken inside between hem and garment. Blind hems are best for heavier fabrics and knits because the hem edge is not pressed into the garment.

Sewing a hem by machine

The major assets of machine hems are speed and extra sturdiness. They can also provide a decorative touch and are especially appropriate if top stitching is part of the design machine stitches are more apparent on a hem

than hand stitches. Of the several methods, the blind stitched hem is the least conspicuous because only about every sixth stitch catches the right side of the fabric. For blind stitching a hem on a knit or on fabric that does not fray. For fabric that frays, see the method below.

Use machine hems only on garments where easily seen stitches do not detract from the overall appearance. Take special care with all types of machine stitched hems to keep stitching on even distance from the hem line.

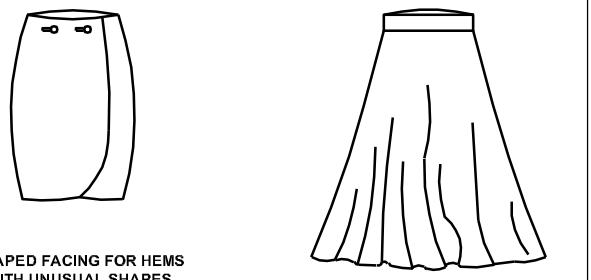
Faced hems

In a faced hem most of the hem allowance is eliminated; a band of light weight fabric is then stitched to the hem and turned inside so it does not show. There are two basic facing forms - shaped (cut with grain lines and shape conforming to the hem) and bias (cut as a bias strip, then shaped to fit). You can buy bias hem facing ready made in various colours.

A shaped facing is applied as a rule, where a hem shape is unusual, as in the wrap skirt, right. Its use is limited to a hem with minimal flare.

A bias hem facing is ideal for a widely flared hem, especially when the garment itself is cut on the bias. It is recommended in place of a turned-up hem when (1) there is not enough hem allowance to turn up; (2) the fabric is exceptionally bulky; (3) a skirt is circular in style.

Fig 5



SHAPED FACING FOR HEMS WITH UNUSUAL SHAPES

BIAS FACING FOR WIDELY FLARED SKIRTS

AP121015

Banding

Banding is an extension of a garment edge. It can be cut the same shape as the edge or on the bias. The latter is the usual approach for a hem as it is ideal for adding length.

To prepare the hem for banding mark the hem line at the desired length measure up from the hem line a distance equal to finished banding width; mark a new line and trim all but 6 mm of fabric below it.

Casing

Objectives: At the end of this lesson you shall be able to
- **define casing**
- **explain types of casing.**

A casing is a fabric tunnel through which elastic or a drawstring can be threaded to pull in or draw up the fabric. Casing can be used at sleeves and pants hems as well as for garment waist bands. The most common use of casings is for waist bands on pull on pants and skirts, pajamas. This is best suited for straight edges. Waistline casings are practical because they can be adjusted easily to change in waist measurement - merely tighten or loosen the drawstring or elastic.

A casing should 6 cm wider than the elastic (or drawstring) so the elastic or drawstring can move easily through the tunnel, but not so loose that it twists easily.

There are two types of casing

a. Fold down casing

b. Applied casing

Fold down casing

A fold down casing is formed by turning an extension at the garment edge to the inside and stitching it in place. Fold down casing are of three type

1 Casing with drawstring - Used in Petticoat, pull on pyjamas

2 Casing with elastic - Used in baby garments, pants etc.

Applied casing

An applied casing consists of a separate strip of fabric that is stitched to the area to be drawn up on either the outside or the inside of the garment. If the casing is inside but the drawstring is required outside, provision is to be made to lead the drawstring outside. This can be done with button hole or with opening in the seam. An applied casing may be sewn on a one piece garment that has no waistline seam.

A casing sewn from inside may be of light weight lining fabric or a readymade bias binding to reduce unnecessary bulk. The applied casing also act as facing for a top edge of pants and skirts and the lower edge of blouses and jackets. Applied casing from outside may have of same colour and material or of contrast colour fabric.

3 Inside applied casing - Used in the waist line of jackets/ dresses/ pants etc.

4 Outside applied casing - Used in the waist line of jackets/ dresses/ pants etc.

Casing with heading can be formed on either type of casing having free edge. This is done after making a tunnel, stitch a second row of after the desired depth of the casing. When the casing is drawn up it will gather the heading automatically.

Safety precautions

1 Lines should be parallel to grain.

2 Elastic may not twist inside the casing.

3 Back/ secure stitch should be there to secure the open ends.

4 Always remove the tacking before finishing.

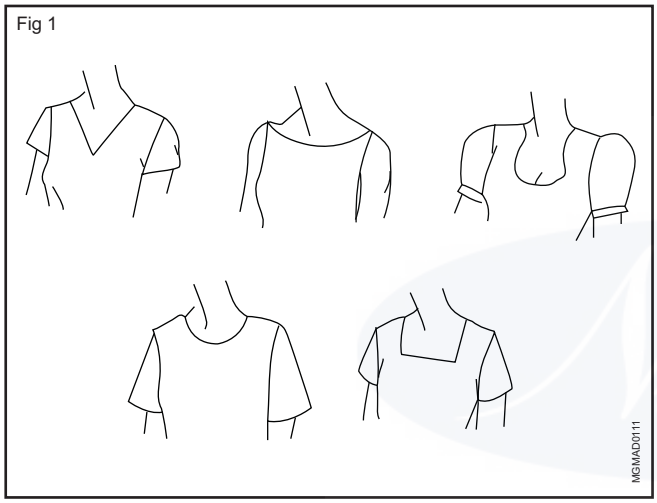
Neck Lines

Objectives : At the end of this exercise you shall be able to
- **explain the different types of neck designs**
- **name the different methods of finishing raw edges.**
- **describe the main difference in facing, banding and binding and their suitable application.**
- **explain the required materials for bias piece.**

The design of the neckline generally is given importance, since it will influence the style of the garment and it should suit the person wearing the garment. Neck lines must be finished with special accuracy since they attract the attention easily.

All neck designs can be regarded as variations of three main shapes: round, square and V-shaped. (Fig 1)

Fig 1



If the plain shape shall be highlightened no decorative elements like frills etc. are attached. Instead the neckline is finished by a facing piece which is invisible from right side.

There are different methods of finishing a raw edge in a garment, as on bottom, arm-hole, neckline etc. Beside hemming, that is turning up the raw edge on the wrong side of the garment, there are two more methods of edge finishing which are **facing and enclosing of edges.**

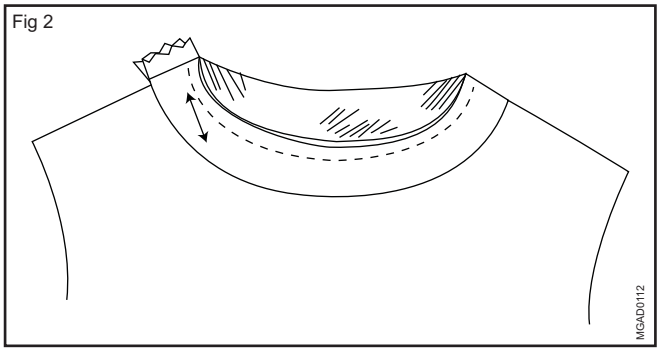
The material used for facing and enclosing of edges can be cut on the straight grain or on the bias, i.e. at a 45°angle (diagonal) to the warp and weft.

Bias is mainly used on curved areas to ensure that the material can be stretched.

Facing is the method where a piece of fabric is used to finish the raw edge on wrong side of the garment. Facing can be done as bias facing or shaped facing.

Bias facing is applied on a curved edge and done with the help of a strip. (Fig 2)

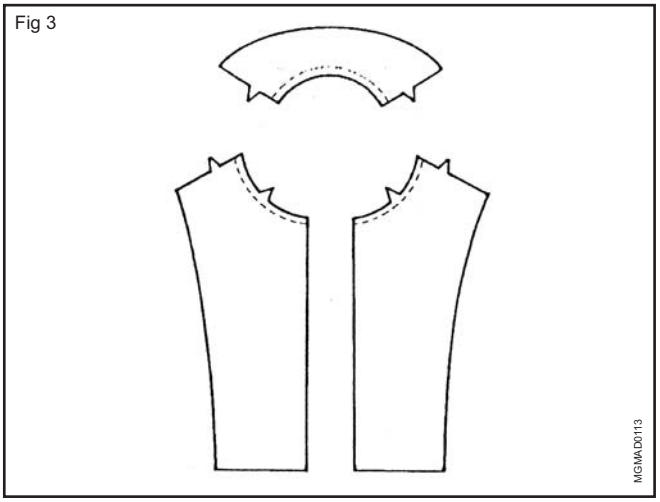
Fig 2



It is usually turned to the wrong side of the garment and will not be visible from right side. It is only turned to the right side if a decorative effect is desired. When bias facing is applied on inward curves it should be eased while stitching (easing means holding bias strip slightly loose at the seam line) and for outward curves it must be notched for stretching (since the circumference increases). It is mainly applied on the neckline, armhole and on hemline in skirts or sleeves.

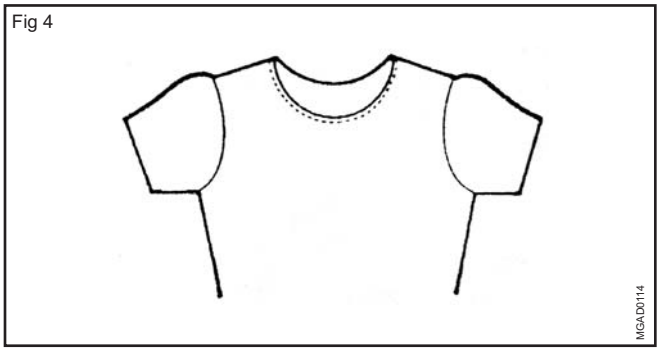
Shaped facing can be of any width. It is cut to the exact shape of the garment edge to which it is to be applied, usually it is cut on the same grain as the section of the garment it faces. It is often used to finish square or V necklines. It is easier to apply than bias facing and is less conspicuous. It is usually cut separately for front and back. It can also be used on armhole (sleeveless). Here the facing must be matching with the wrong side of garment, so that it will be right side out when finished. (Fig. 3)

Fig 3



A topstitch is very close to the neck shape line from right side is a must. This ensures that the facing stays flat on the neck shape. (Fig 4)

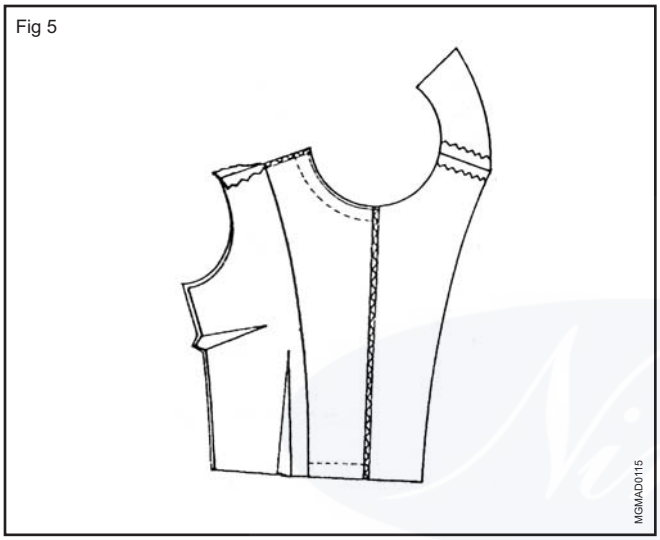
Fig 4



MGAD0114

Expanded facing: If the facing piece is cut as an extension of the garment (e.g. on front opening) it is called extended facing. (Fig. 5)

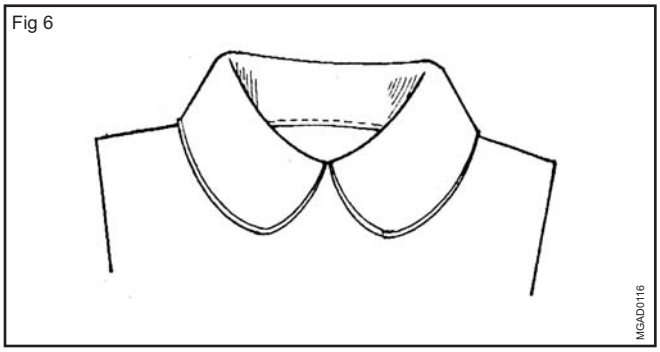
Fig 5



MGMAD0115

Piping is a method for a decorative edge finishing. It is cut from the bias material. The pipe is stitched between the two layers of fabric to, form a flat welt on the edge. The pipe can also be filled with a cord to make the welt stronger and more conspicuous. (Fig. 6)

Fig 6

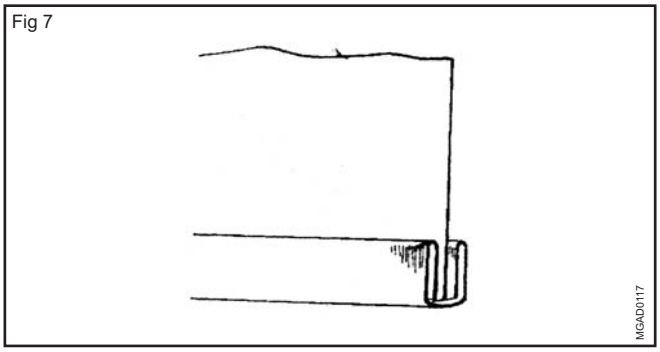


MGAD0116

Enclosing of edges: This type of edge finishing can be done with straight or bias material.

Binding is used to finish and straighten raw edges or to add a decorative trim to a garment. It is a neat finish also for reversable garments. It is used to finish necklines, armholes, sleeve edges, front closings, collars, cuffs and seams. Ready made bias binding piece can also be used.(Fig. 7)

Fig 7

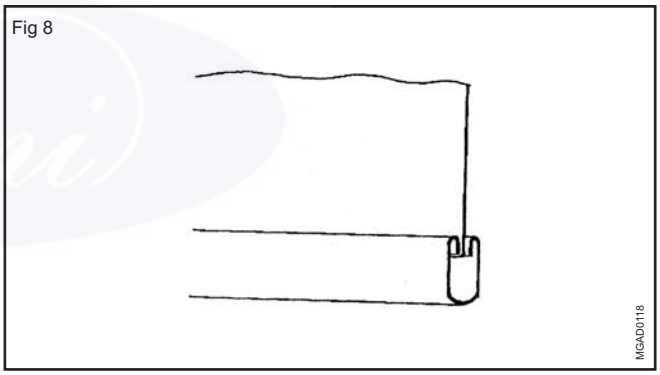


MGAD0117

Bias bindings can be applied in two ways: Single binding is cut to double the finished width plus two seam allowances. Bindings are handled in the opposite manner to facings at Inward and outward curves. Stretch bias on inward curves and eases it in outward curve Double binding or French binding is used on sheer fabrics. Here the width is four to six times the required width. The binding piece is folded first and applied to the garment. It gives a corded effect when finished.

Banding is an extension of a garment on the raw edge for example hemline and neckline. The width of banding can vary according to the desired length. When used on hemline it is cut on the same grain. A contrasting material can also be used. When applying bias piece as banding on curved shapes, only a narrow width is used. (Fig. 8)

Fig 8



MGAD0118

The following factors are to be considered while finishing necklines.

The design of facings and collars should harmonize well with the fabric design, i.e. big and bold floral designs, checks or stripes are not suitable.

When designing the neckline, the purpose of the dress is important. For casual wear and uniforms prominent decorative features are avoided.

While selecting the shape of the neckline the individual features of the wearer must be taken into consideration; the following combinations are suitable:

- Round face - long pointed collar or V-neck
- Thin and long necks - standing collar or close neck
- Broad face and short neck - long pointed collar or wider neck shapes
- Long slender face - short collar points and broad spacing between the points or close neck.

Important hints to avoid trouble while stitching: To avoid bulge on the edge or comer of the neckline notches should be given on inward curves.

To avoid bulge on the neckline edge of right side facing top stiching must be done on the right side close to the neckline and the shoulder seam allowance should be pressed open.

On square and V-shaped necklines clipping should be done at the corners or at points. This is to avoid bulging and to prepare for a flat set.

If a narrow facing is used it is hemmed to bodice fabric. Be careful to catch only one thread from the garment section and don't pull the thread tight. Otherwise stitches are visible from the right side.

Materials reuirements for bias strips

A bias strip is a strip of material which is cut diagonally to the warp and weft yarns. Since it is very stretchable and suitable to finish edges.

The shape of the material required for cutting a single bias strip is always a square.

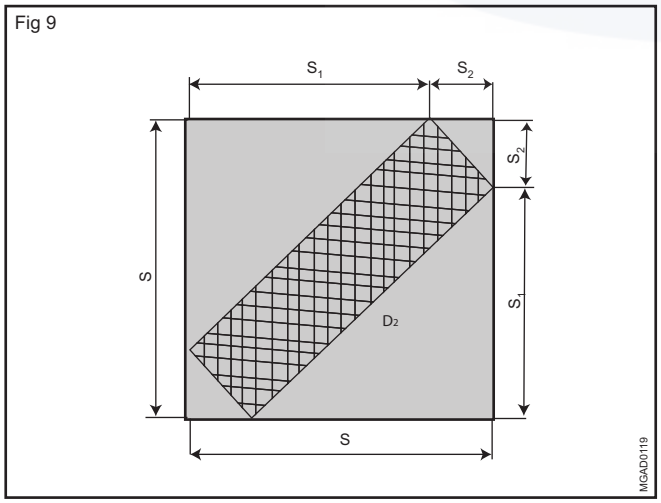
s = length of edge of square material

s = s1 + s2

s1 = lateral side of the isosceless right-angle triangle D1, in which the length of the bias strip functions as the hypothenuse

s2 = lateral side of the isosceles right-angle triangle D2, in which the width of the bias strip functions as the hypothenuse.

Fig 9



From the theorem of Pythagoras it can be deduced, that the hypothenuse of the isosceles right-angle triangle is 1.4 times of the appropriate lateral sides.

Length of bias strip = s1 x 1.4

Width of the bias strip = s2x1.4

Side length of the square s = (length of strip x 1.4) + (width of strip x 1.4)

Example 1:

A bias strip of 20 cm length and 2 cm width is required. What is the side length of the appropriate square piece of fabric if the strip is cut on the true bias?

Answer:

20 cm: 1.4 = 14.28 cm (length of the lateral side s1)

2 cm : 1.4 = 1.42 cm (length of the lateral side s2)

14.28 cm + 1.42 cm = 15.7 cm

The side length of the square of fabric has to be 15.7 cm.

Explanation:

If the length of strip is 1.4 times the length of the lateral side of triangle, then vice versa the length of the lateral side of triangle is the 1.4th part of the length of strip.

Example 2:

A square piece of fabric with 65 cm side length is available to cut a 3 cm wide bias strip. What is the length of the bias strip if it is cut on the true bias?

Answer:

3 cm: 1.4 = 2.14 cm (length of lateral side s2)

65 cm - 2.14 = 62.86 cm (length of lateral side s1)

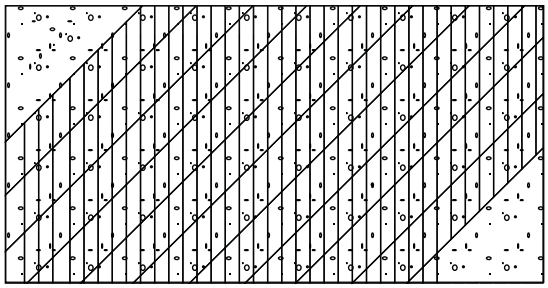
62.86 cm x 1.4 = 88 cm

The length of bias strip will be 88 cm.

Joined bias strips

If the bias strips might be joined the layout will become much more economical. The strips can be laid out side by side. The shape of the fabric will be rectangular. Fig.10

Fig. 10



Example 1:

A bias strip of 5 m length and 2.5 cm width is required. The shortest strip shall be of 10 cm minimum. The fabric available is of 86 cm width. How much material is required?

Answer:

500 cm x 2.5 cm = 1250 cm (surface of the strips)

10 cm : 1.4 cm	=	7.14 cm " 7.1 cm (lateral side of balance triangle)
7.1 m x 7.1 cm	=	50.41 cm2 (surface of both balance triangles)
1250 cm2 + 50.41 cm2	=	1300.41 cm2 (surface of the fabric)
1300.41 cm2:86 cm	=	15.12 cm m 15.5 cm (rounded to the next higher)

Explanation: The total surface of the fabric is calculated by adding the balance material to the surface for the strips. The length of the piece of fabric is calculated by dividing the total surface into the width of fabric.

The result should always be rounded to the next higher number. Why?

Example 2:

A piece of fabric of 96 cm width and 20 cm length is available. What is the length of a joined bias strip of 2 cm width? The minimum length of the single strip shall be 10 cm.

96 cm x 20 cm	=	1920 cm2 (surface of the fabric)
10 cm x 1.4	=	7.14 as 7.1 cm (lateral side of the balance triangle)
7.1 cm x7.1 cm	=	50.41 cm2 (surface of both balance triangles)
1920 cm2-50.41 cm2	=	1869.59 cm2 (surface of the strips)
1869.59 cm2:2 cm	=	934.79 9.34 m (rounded to the next lower)

Explanation: The calculated surface of the bias strips can be projected as a rectangle of 2 cm width and an unknown length. The length of strip is calculated by dividing the surface of strips into the width of strips.

The result should always be rounded to the next lower number. Why?

Exercises

I. Calculate the missing values for single stripsII.

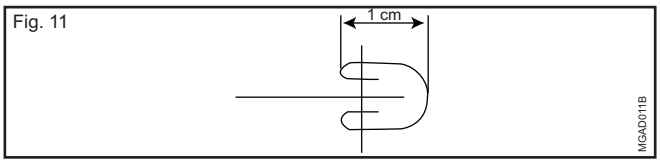
Length of strip	Width of strip	Side length of square fabric
a) 20 cm	2.5 cm	?
b) ?	3 cm	40 cm
c) 75 cm	?	62 cm

II. Calculate the missing values for joined strips!

Length of Strip	Width of Strip	Width of fabric	Length of fabric	Minimum length of single strip
a) 10 cm	2cm	1.10 m	?	10 cm
b) 8 cm	2.5 cm	0.80 m	?	15 cm
c) ?	2 cm	1.20 m	50 cm	10 cm
d) ?	2.5 cm	0.90 m	25 cm	8 cm

III. Several edges of a dress shall be finished with bias binding. The single stretches of edges are 62 cm, 2 x 45 cm, 2 x 35 cm, 2 x 40 cm. Seam allowance regarding width of strip is 0.5 cm for each edge. Seam allowance for joining the strips will be 9 cm in total. What quantity of material is required if the width of fabric is 0.72 m? The minimum length of the single strip shall be 10 cm. (Fig11)

Fig. 11



Plackets

Objectives: At the end of this lesson you shall be able to
- **name the function of a placket**
- **explain the different types of plackets and their application.**

Plackets are finished openings, constructed to make it easy to put on or take off a garment. When the garment is in use, generally plackets are kept close with the aid of fasteners such as zips, buttons etc. They are used at waistline, neckline, sleeves (wrists) and other snug fitting parts of a garment.

A placket may be made in an opening left in a seam or in a slash cut in a garment. The former is stronger and gives a better finish when completed. A placket should be as inconspicious and flat as possible, unless it is used as a decorative element in a garment.

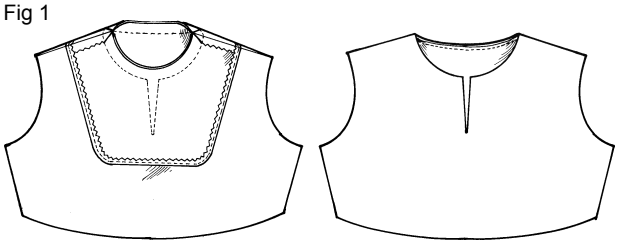
In women's garments, placket should lap **right over left**, in gent's garments **left over right**.

Except in zip plackets, one or two facing components are used to finish the edges of the placket opening.

Features and use of plackets

Faced placket is used in front or back neck line for a short opening. A separate placket piece is first stitched in place and slashed after. In fine material self material with lining is used. (Fig 1)

Fig 1



FACED PLACKET

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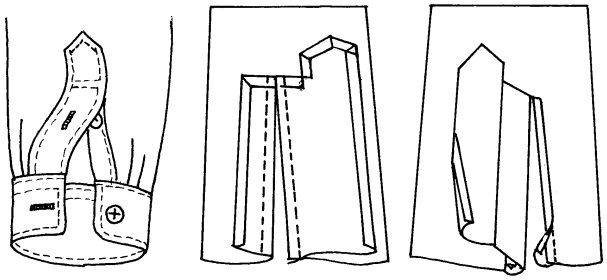
A two-piece placket is generally used on upper garments with a loose fit. For the construction of this placket, two seperate pieces (facings) of self material are used. One smaller width for the facing and the wider width for the bound. When finishing this placket on jibbas and on sleeves the wider width is overlapped on the narrow facing piece. The end is finished in a square or mitred (triangular) shape. When the placket is used in waistline, the narrow piece overlaps the bound piece. Lock stitch is done at the end of the placket. (Fig 2)

Fig 2

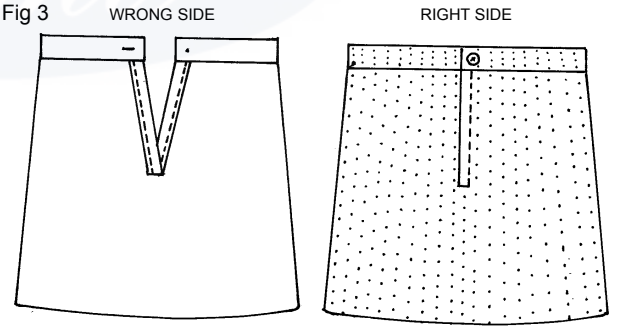


TWO PIECE PLACKET

Italian placket is similar to the two-piece placket. The only difference is, that the two pieces are of the same width. It is commonly used on men's shirts sleeve openings and in half opened shirt as well as in children's dresses.

Continuous plackets are used in slashes. They are best suited for full gathered sections and also on umbrella skirts, children's dresses and sleeve cuffs. The placket strip (facing) is cut in widthwise direction of the self material. It is not suited for curves or bulky fabrics. (Fig 3)

Fig 3



ONE PIECE PLACKET
CONTINUOUS PLACKET

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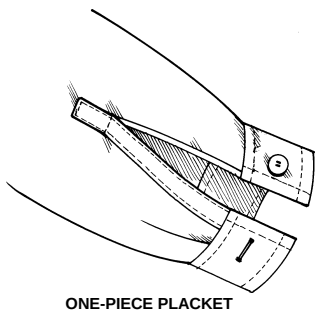
One-piece placket is used only on shirt sleeves. One side has a self hem and the other side has a bound piece, that may be finished in square or V-shape for better appearance. (Fig 4)

Fig 4



ONE-PIECE PLACKET

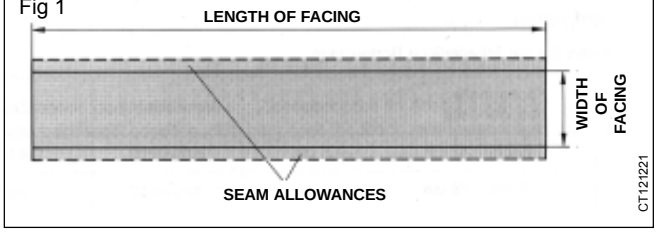
CT121214

Calculation: Material requirements for facings

Objectives: At the end of this lesson you shall be able to
- **calculate the material required for facings.**

Facings are strips of cloth, straight or curved, which are used as designing aids on, in or at dress items. (Fig 1)

Fig 1



Example: A facing of length 2.80 m is required. The contemplated width of the facing is 5 cm; an extra 2 cm is to be provided for the seams.

The material from which the facing is to be cut has a width of 90 cm. How much material is required?

Solution

2.80 m : 0.90 = 3.1 .... (strips) ——> 4 strips
5 cm + 2 cm = 7 cm
7 cm x 4 = 28 cm

Extras for the seams for sewing together the facings are ignored here and in the following exercises.

Exercises for practice

1 Calculate the material required :

2 For an item of dress a facing of length 3.10 m and breadth 6.5 cm is required. A total extra of 3 cm is to be provided for the seam at the width of the facing. How much cloth (material) (of 1.10 m width) is required?

3 A frock is provided with 2 facing strips all around, alongside the hem and parallel to the seam-edge. The width of the frock is 1.30 m for both the strips; the width of the strip is 3.5 cm. For sewing on the facings an extra 2 cm to the facing width should be taken into account. (How the facing strips are sewn together is immaterial). How much material (= cloth) (of width 0.90 m) is required for the facings?

Zipper

Objectives: At the end of this lesson you shall be able to

- **explain the different zipper types**
- **explain the various zipper applications.**

Zipper plackets can be finished with different types of zippers. The basic type of zipper is the chain zipper, a medium weight zipper with metal or plastic teeth closed at lower end.

Ladder or coil zipper has synthetic coils of polyester or nylon attached to a woven tape. It is also closed at one end.

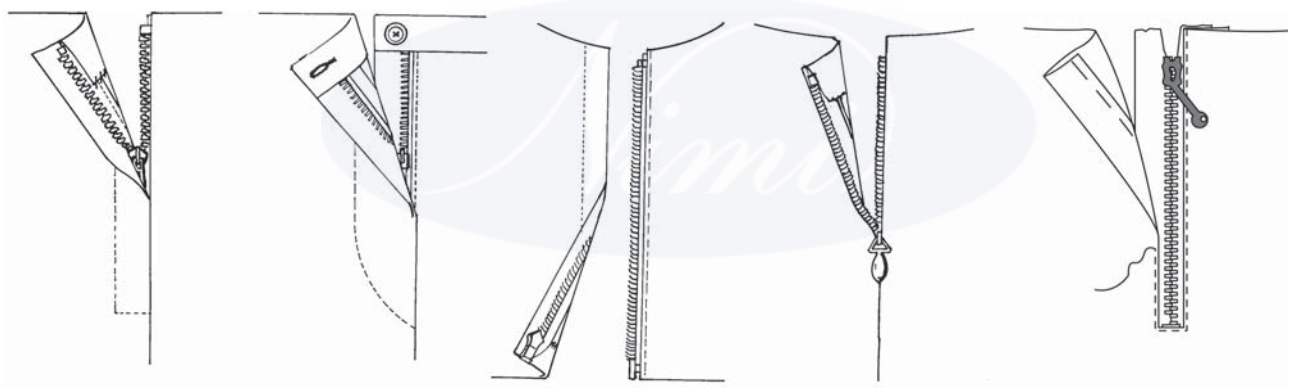
Invisible/concealed zipper is a type of coil zipper and has teeth that are concealed on the underside, so that the zipper is invisible from right side.

Open end zippers are open at both ends, usually long and heavy. They are mainly used in jackets, track suit tops, waist coat, kameez etc.

Zippers are opened and closed by a slider which moves up and down. The top stop and bottom stop keeps the slider from running off the zipper.

There are several ways of inserting zippers, the method depends upon the position in the garment and the type of garment. Generally zippers are either concealed in a lapped seam with only one line of stitching visible, or they are centred under a channel seam with two lines of stitching. In some dresses, it is also desired to keep the zipper visible. (Fig 1)

Fig 1



Centred application of the zipper is either visible application or invisible application. It is constructed at the centre front or centre back of the garment.

Lapped zipper application is commonly constructed at a seam line. In this method one zipper section is applied to project out on the underlap layer and the other stitched on the corresponding overlapping layer of the garment placket.

Open end zipper application is a special kind of application, where both the zipper sides are open fully and stitched separately to either placket sides. It is commonly used in upper garments.

Pockets

Objectives: At the end of this lesson you shall be able to
- **name and distinguish between the different types of pockets**
- **name the different components required.**

A **pocket** is a small bag stitched to a garment for carrying money, handkerchiefs etc. Pockets besides having this functional meaning they are also made for decorative purpose. Care should be given to their size, shape and location since they attract the eye.

The **pocket position** should be at a level that is comfortable for the hand to reach. If it is on the upper body garment it should be on the chest line or just below the waistline. In lower garment (skirt or trouser) the position is on back or front hip line and also on the side seam just below the waistline. But for decorative purpose it can be placed anywhere, according to the fashion, like above knee and elbow for example.

Children love to have pockets in their dresses. These pockets can be designed to various shapes and sizes with decorative details such as lace, ruffles, tucks, pleats, embroidery etc.

A pocket might consist of different components depending on the type of pocket:

Pocket pouch will appear either outside of the garment in patch pocket or inside the garment in all other types of pockets. In case of patch pocket the pouch is cut from the dress material otherwise strong lining material like poplin or gada is used mostly. The pouch material must be strong since it is meant to carry items inside.

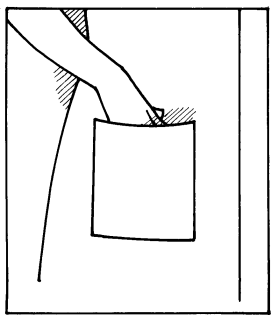
– Material for finishing the pocket mouth (flap or lip piece) is also taken from dress material.

– The jetting piece will also be cut from the dress material. It is used as an extention of the pocket pouch at pocket mouth on the right side of the garment (e.g. front-hip pocket, inseam pocket).

The position of pockets are marked in pattern. There are many methods for the construction of pockets, but in general they can be classified as three types:

The **patch pocket** is attached to the outside of a garment. It can be placed more freely to flatter the wearer or to highlight the design of a dress. They may seem to be easiest to stitch but since all the sewing lines are visible they have to be attached perfectly. Patch pockets may be cut in various shapes and may be finished with a flap which covers it partly. A cardboard template cut to the pocket shape and size is helpful for guiding during the stitching and pressing process. If the pockets are to be used in pairs it has to be taken care that the finished pockets look exactly same. (Fig 1)

Fig 1



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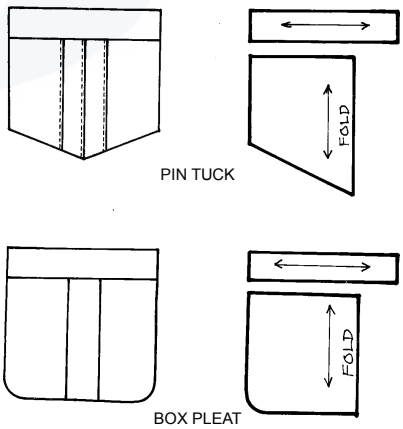
Some of the patch pocket designs are given below:

Pocket pattern might be cut into two section a patch piece and a lip piece. The patch piece is folded lengthwise, then an extra material is added on the fold for pin tucks or box pleat. (Fig 2)

Fig 2



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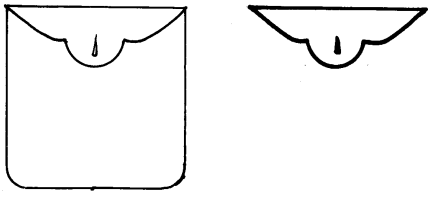
For shaped flap, the flap piece may be cut in double layers to avoid showing the unfinished inside part of the flap, to hang firmly and to give a neat finish. The flap is finished and then attached to the pocket mouth from the right side. (Fig 3)

Fig 3



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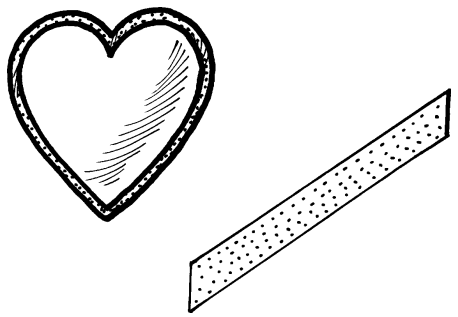
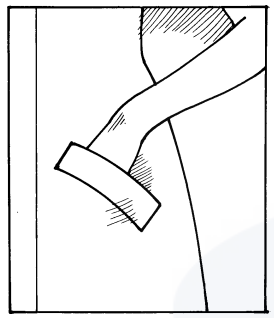
The edges of a shaped patch pocket can be finished with a bias strip. (Fig 4)

Fig 4



Slashed pockets are used on the chest line, waistline and just above the hip line. They are made by slashing the fabric for pocket mouth. The edges are then finished in different ways. In this type of pocket, the pocket pouch hangs on the wrong side of the garment. The lower raw edge can be finished with a lip piece that is covering the upper raw edge. (Fig 5)

Fig 5



If the lip piece is wider, the pocket is called **welt pocket**. Here the lip piece should be of widthwise material. If the lip piece is of narrow width then it is known as **bound pocket**. For this finish the lip piece should be of length-wise material. This finishing method is similar to the bound button hole and it can be of either single or double piece.

It is also possible to finish the upper raw edge with a flap, covering the lower raw edge. This type of pocket is known as **flap pocket**, suitable for coats and pants.

The two raw edges of a slashed pocket can also be finished with a zip. (Fig 6)

Inseam pockets are always placed in the seam of a garment. Here the pocket piece also hangs on the wrong side of the garment. This pocket is placed on the hip level of side seam in skirts and trousers. (Fig 7)

The **front-hip pocket** starts from waistline and ends in side seam line of a lower garment. Its pocket mouth can be finished in straight, diagonal or curved shape. (Fig 8)

Fig 6

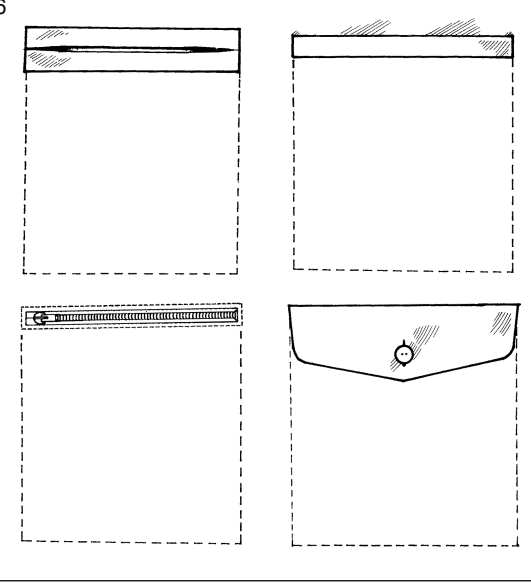


Fig 7

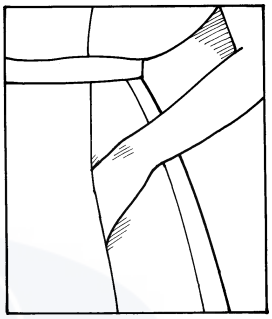
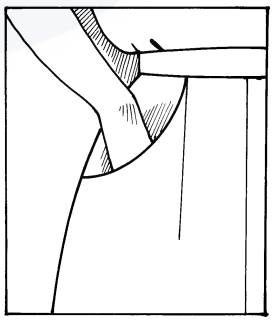


Fig 8



Hints for stitching pockets

– to avoid wrinkles on the outer edge of patch pocket, ease stitch should be given on the curved area before stitching.

– to avoid bulge at the corners or outer shape of pocket on a heavy weight fabric, notches should be given.

– on either side of pocket mouth stitches must be strengthened by giving a straight or triangular bar or else the stitches may come off due to frequent usage.

Collars

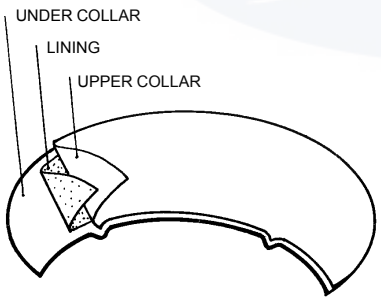
Objectives: At the end of this lesson you shall be able to
- **explain different types of collars and their application.**

A **collar** is attached to the neckline of a garment in order to enhance its appearance. It also serves to finish the raw edges at the neckline. It can either be close to the neck or away from neck or raised from neck level.

Collars are made from either single or double section of fabric and attached to the neckline, so that the ends meet, either at the centre front or back. This depends on the type of collar or fabric and shape of the neck.

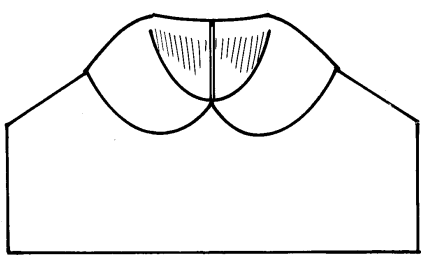
Collars are made of double layers of fabric (with or without an interfacing) with the outer edge hanging free (except in mandarin). The top layer is the upper collar. The lower layer is called under collar. In between these layers light or medium weight sew-in or iron-on **interfacing** is applied. Same material as the dress material can be used or canvas or iron-on, depending upon the garment fabric. Iron-on interfacing is steam pressed (with moderate heat temperature used for silk or wool) onto the whole top collar piece. The iron-on has one side coated with a fusible adhesive, available in woven and non-woven form. It strengthens or stiffens the part where applied. (Fig 1)

Fig 1



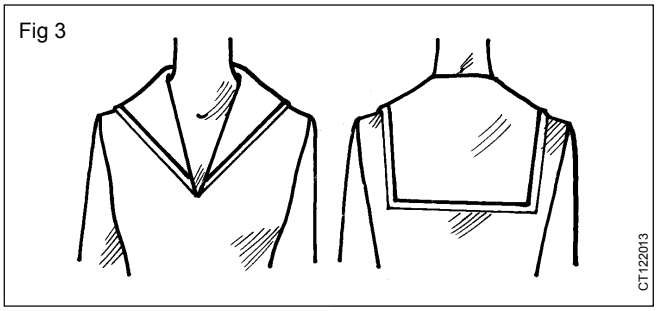
Flat collar emerges from the neck seam line to lie flat against the garment. The neck shape can be close or wider. Variation of this collar is Peter Pan collar. It is a round flat collar and can be of one or two pieces. If the dress has a back opening then a two piece collar is applied. Since collars are of two pieces, you need four sections for two piece collar. One piece Peter Pan collar is used on front open dress, widely used on children and girl's dresses. (Fig 2)

Fig 2



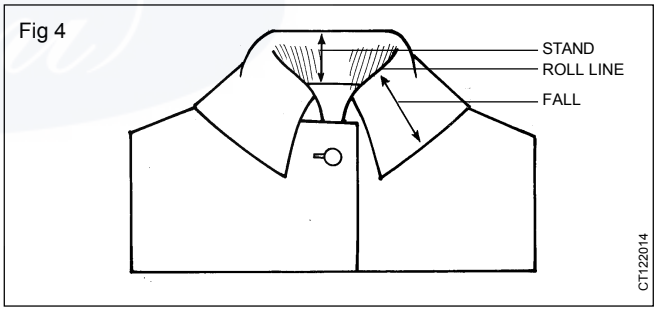
The other variation is **sailor collar**. It has a 'V' shape in front and square at the back. If the dress has no front opening. The front collar should be cut in V shape identical to that of the neckline. This collar is suitable for babasuits and little girl's dresses. (Fig 3)

Fig 3



Rolled collar : Part of the collar stands up at the neck edge (called the stand). The stand section may be the same depth all around or higher at the back and gradually reducing in depth towards the front. The imaginary line dividing the stand and fall is called the roll line. This collar is suitable for blouses, jackets and coats. (Fig 4)

Fig 4



Variation of this collar is **shawl collar**. This is the only collar which is not cut separately but with the front piece. It is cut as an extension of the garment front itself. The collar is formed by folding this extension back over the garment after applying shaped facing. The fold itself forms the neckline of the garment. This collar combines the top and lapel if the collar is in one piece. It is cut with a smooth curve at the outer edge. The stand section of this collar gradually tapers down to a point at the centre front. A seam will appear on the centre back neck. (Fig 5) This collar is suitable for jackets and coats.

The other variation is the **convertible collar (tennis collar).** It can be worn closed or open. It is cut as single section and the collar the neck should not have a deep, round shape. The front collar is slightly away from the centre front. (Fig 6)

Fig 5

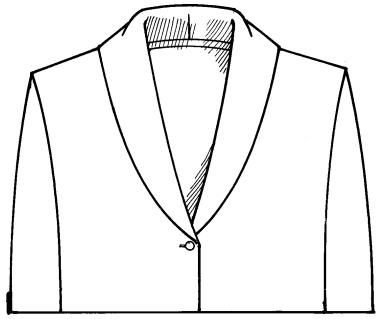


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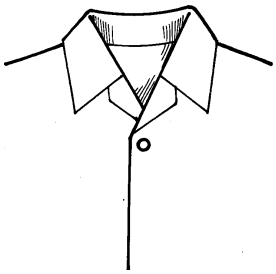
Fig 6



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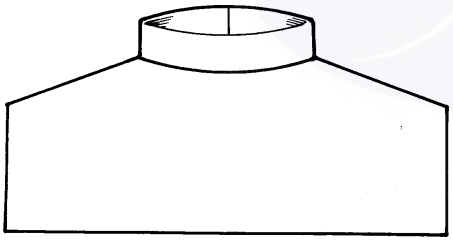
Stand collar or mandarian collar: The neckline edges of this type of collar has convex curve and the collar stands up close to the neck. It can be made from a narrow band or a wider one that folds back on itself. This collar can be one piece or two pieces made from a rectangle of a fabric, sometimes cut on bias. It extends upwards from the neck seam line. The corners may be curved or squared. (Fig 7)

Fig 7



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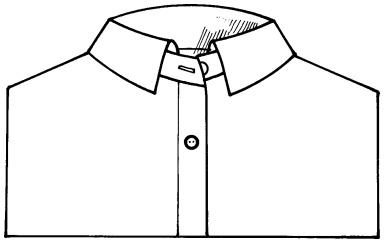
Variation of this collar is the **shirt collar with stand.** This collar has a stand and collar piece that folds down over the stand. The stand or the band may be cut as a separte piece or as one piece with collar. The stand raises upwards from the neckline. It is frequently used in gent's shirts. (Fig 8)

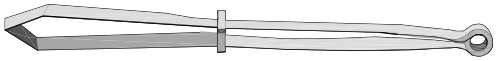
Fig 8



CT122018

During process of collar making the Bodkin is an useful tool to bring out the corners of collar after turning to right side. (Fig 9)

Fig 9



BODKIN

CT122019

Cuffs

Objectives: At the end of this lesson you shall be able to

- **name and distinguish between different plackets**
- **explain the features of different types of cuffs.**

The cuff is a fabric band at the bottom of the sleeve. The cuff types vary according to the garments. The two main classification of the cuffs are

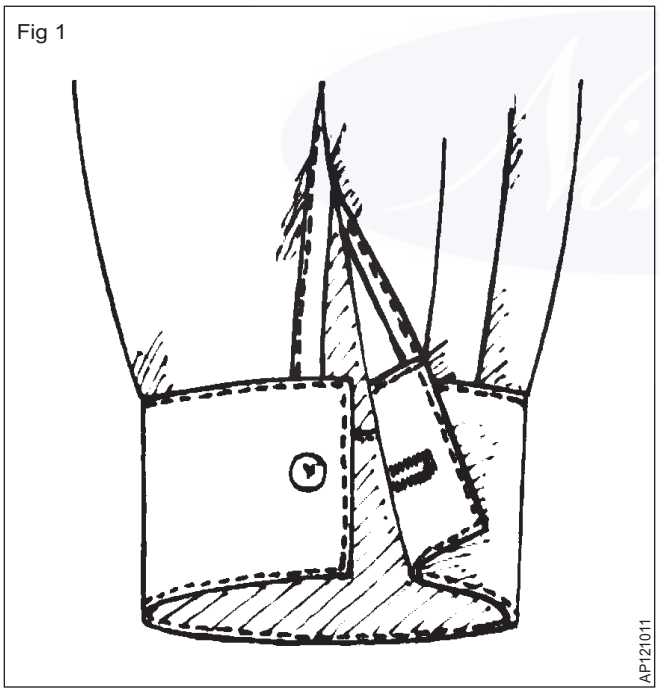
- with plackets
- cuffs without plackets

Cuffs with plackets - It is a placket opening that helps a long sleeve fit snugly around the wrist. The sleeve ends are finished either with continuous bound placket, shirt placket or with faced placket.

The three most popular styles of cuffs are

- Lapped cuff
- Shirt cuff
- French cuff

Fig 1



The lapped cuff (normally made with a continuous bound placket) has one edge projecting from the placket edge. This provides the required overlap for the button at the cuff. (Fig1)

The shirt cuff is sewn with its edges aligned to the underlap and overlap edges of the shirt placket. This cuff is normally constructed with a shirt placket. (Fig.2)

French cuff is stitched similarly as the shirt cuff, the only difference between these cuffs is French cuff is cut wide so as to fold back onto itself. When the cuff open is made with faced placket the cuff edges of French cuff are sewn to the placket so that the cuff ends meet and not overlap. The cuff is closed with cuff link (Fig 3)

Fig 2

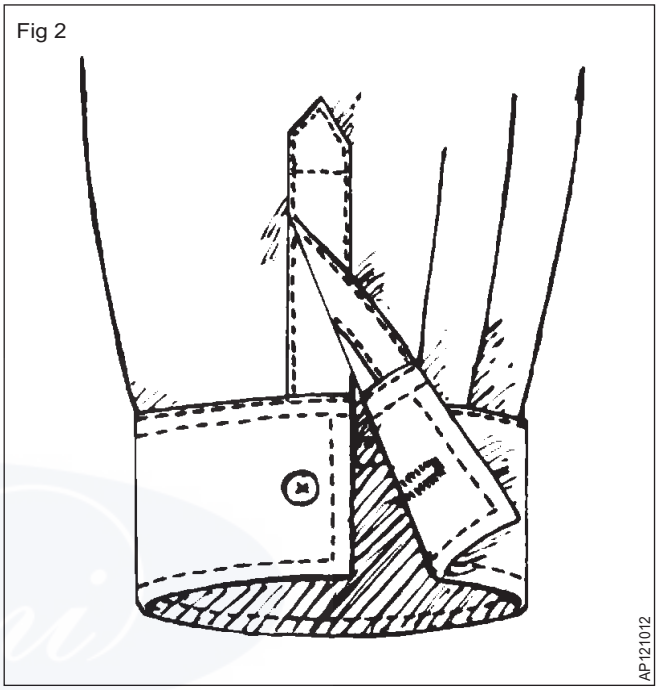
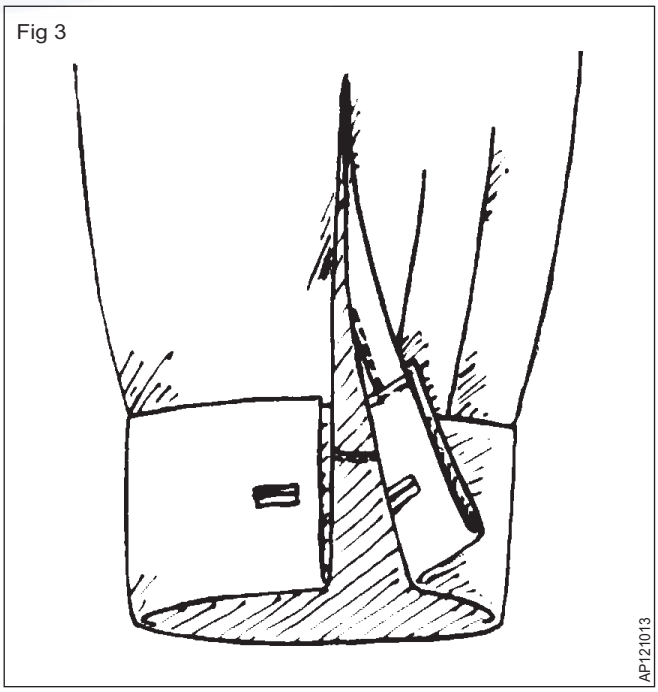


Fig 3

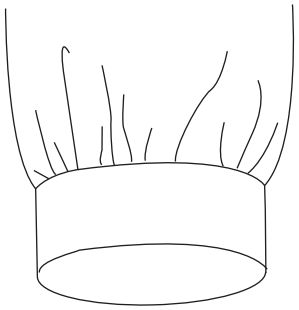


Cuffs without plackets - This type of cuffs are used in long but loosely fitted sleeves, which are finished without placket opening. There are three basic types of cuffs stitched without plackets

- Band cuff
- Straight turnback cuff
- Shaped turnback cuff

Band cuff is a separate piece of cuff material of required width stitched to the pleated or gathered sleeve hem. Either it is cut as two seperate pieces or a single piece of width double the required measure. One end of the cuff is sewn to the sleeve hem at the right sides and the other end is turned back inside to finish with heming at the sleeve hem line (Fig 4)

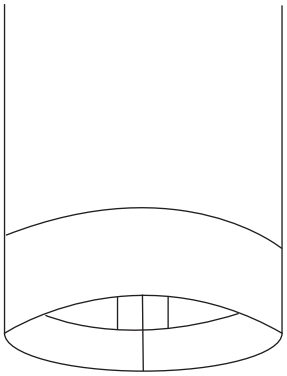
Fig 4



AP121014

Straight turnback cuff is stitched by folding up the deep finished hem of the sleeve. The sleeve cuff is folded along the hem line to the wrong side of the sleeve and turned back up at the sleeve right sides with a stitch at the turnback line (Fig 5)

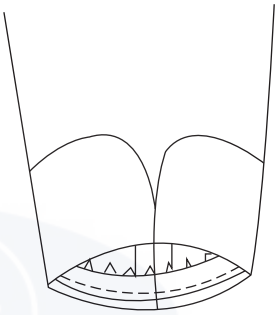
Fig 5



AP121015

Shaped turnback cuff is stitched with a seperate cuff piece. The cuff is cut in required shape (i-e) either with sharp or curved cuff edges. Two cuff pieces are cut & finished separately. It is joined to the sleeve hem at the right side with a facing (Fig 6)

Fig 6



AP121016

Sleeves

Objectives: At the end of this lesson you shall be able to
- **describe the different types of sleeves and their construction features**
- **explain the function and the application of a gusset piece.**

A garment can be of sleeveless or can be finished with a sleeve. This is very much depending on fashion, season (often summer dresses are of sleeveless style) etc.

Sleeves come in various styles. They differ in look and method of construction. This is concerning the way the sleeve is joined with the upper garment and the way the sleeve is shaped and finished at the bottom.

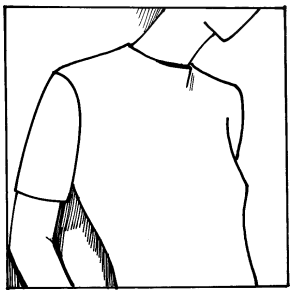
A sleeve can be of different length, depending on the design of the garment. The sleeve bottom can be flared, gathered or tapered. Finishing can be done with facing, binding, by attaching a sleeve band or by attaching a cuff.

For a good fit of a long sleeve shaping is given at the elbow. In some cases darts or ease stitching is given at the back. This is done to give room for the elbow to bend without straining or tearing the fabric.

Three basic types of sleeves can be distinguished: the set-in sleeve, the raglan sleeve and the cut-on sleeve (kimono sleeve).

The **set-in sleeve** is cut and stitched separately and then seemed to the armhole of the garment. Generally the sleeve crown rests exactly on the shoulder line. (Fig 1)

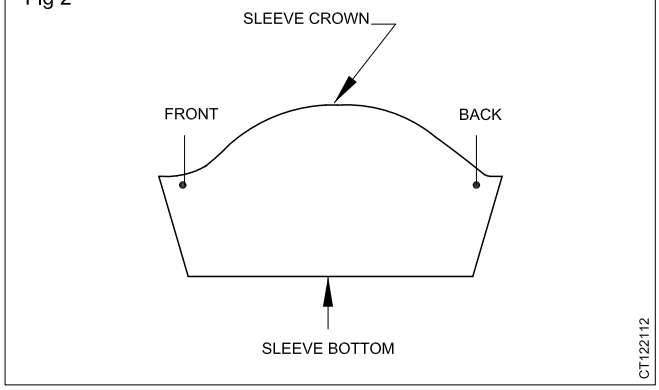
Fig 1



CT122111

In some styles of dresses the shoulder part is overlapping so that the sleeve crown rests on the upper arm. The front of the sleeve crown has a deeper curve than the back. (Fig 2)

Fig 2



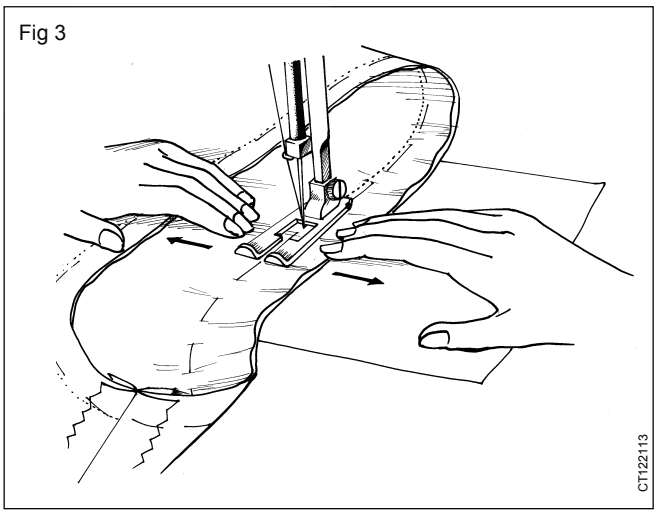
CT122112

The sleeve armhole circumference when compaired with the bodice armhole circumference is slightly more. While attaching the sleeve to the armhole this excess material on the sleeve crown should be set with ease stitches.

Hints

– To avoid wrinkles on armhole (bodice of the garment) while stitching the excess material to the armhole the edge of armhole may not be stretched. Instead pull excess material (ease) to both the sides. (Fig 3)

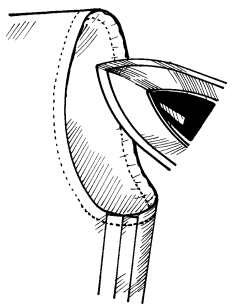
Fig 3



CT122113

– The set-in sleeve seam is neither pressed to the sleeve nor to the bodice comonent. It is kept free and also it is not pressed open. (Fig 4)

Fig 4

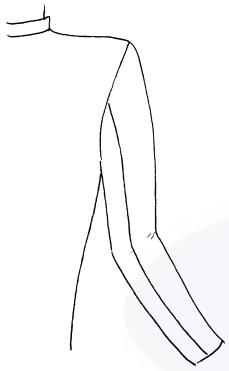


CT122114

Mostly the sleeve is of a single piece, but in coats and jackets it is often constructed with two pieces. Here the pieces are curved to follow the shape of the sleeve and the seam is positioned at the back. The two pieces are joined before the sleeve is set in to the armhole.

In one-piece sleeves the underarm sleeve ends in side seam of bodice. But the seams of two-piece sleeves never end in side seam of bodice. (Fig 5)

Fig 5

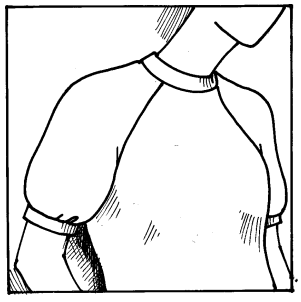


CT122115

A variation of set-in sleeve is called the shirt sleeve which is attached to the armhole in a different method (shirt-sleeve method). Here the sleeve is attached to the armhole before both, the garment side seam and the underarm sleeve seams are stitched. Since the sleeve crown is not deeply curved, case stitching is not required.

Another type of sleeve is the **raglan sleeve,** in which part of the bodice is combined with the sleeve. It has loose armholes and is ideal for coats, since they require more room for the other garments to be worn underneath. (Fig 6)

Fig 6



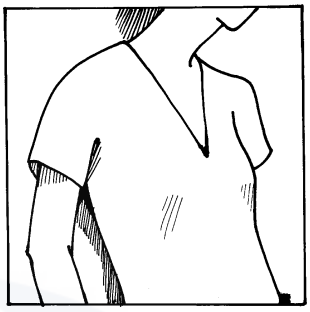
CT122116

The armhole seam of a raglan sleeve runs from the neckline to the under arm (scye) and back to the neckline. This sleeve covers the entire shoulder area. It can be made of one piece, then sloping is done with the help of a dart along the shoulder line. For this sleeve the under-arm and side seam are stitched after finishing the sleeve.

If the raglan is made from two pieces the sleeve is shaped with a seam that runs across the shoulder and down the outer arm. It will need clipping on curves that release strain. The raglan will also be joined before stitching the under arm seam and bodice side seam.

The **kimono sleeve** (cut-on sleeve) is cut as an extension of the main bodice piece. The front section of the sleeve is cut in one with the bodice front and the back section of the sleeve with the bodice back. It can be shaped with loose or close fitting. (Fig 7)

Fig 7

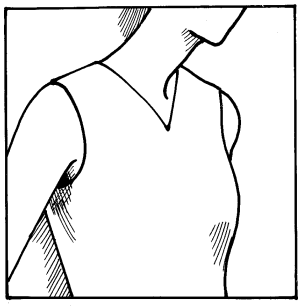


CT122117

In loose fit there is no need for a gusset piece, but the under arm should be reinforced with a bias strip or tape before or after the seam is stitched.

If a sleeveless dress is chosen it is generally finished with a bias piece or shaped facings. Shaped facings are commonly cut in one piece with a joint at the underarm. If it is cut from two pieces a joint will appear at underarm and at shoulder. A very light weight interfacing adds stability. (Fig 8)

Fig 8



CT122118

Variations of basic sleeves and sleeve finish

Objectives: At the end of this lesson you shall be able to
- **describe the construction features for variations of basic sleeves**
- **explain different methods of sleeve finishes.**

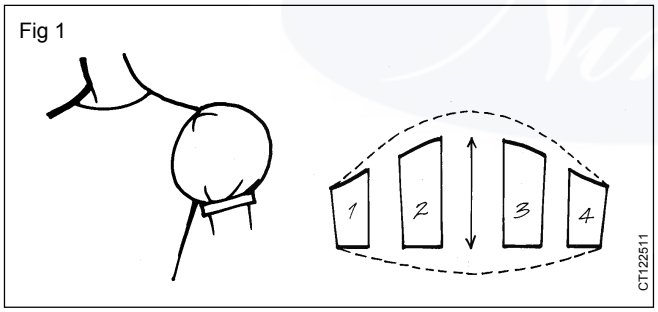
Variety of sleeve styles can be developed from a basic sleeve pattern. (Drafting of sleeve pattern is explained in Ex.21). The styles depend on various factors like fabric, dress style and fashion.

The design can be achieved by manipulating the basic sleeve pattern itself. Most commonly used is the manipulation of a set-in sleeve. Here the basic pattern is either slashed or cut according to the style required.

Set-in sleeve variation: Puff sleeves are of short length. Medium and light weight fabric are best suited for this style. There are three types of puff sleeves. In the first type, the gathers are formed both at the top and at the bottom. The basic sleeve pattern is cut at the centre line and on both sides.

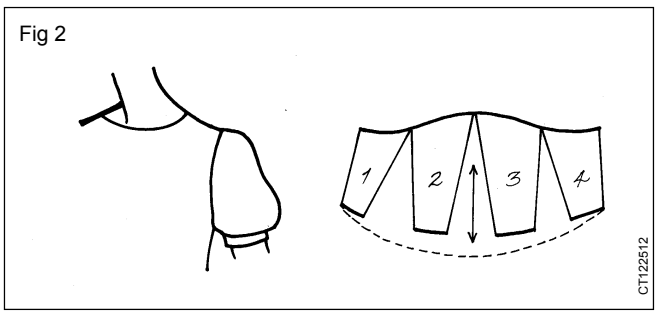
Then they are spaced apart to get more width and to achieve gathers at the top and bottom of the sleeve. The highest point of the sleeve cap is raised by 1.5 cm and a smooth curved line is drawn. Similarly the lower end of the sleeve is lowered by 1 cm at the centre point and a smooth curve is drawn. The top and bottom sections are gathered to the girth of the armhole and sleeve round. Then it is prepared like a set-in sleeve. (Fig 1)

Fig 1



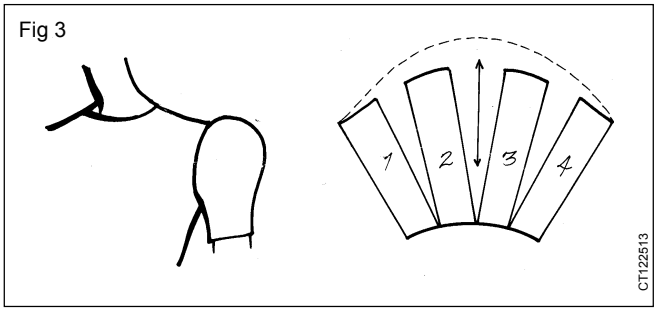
With the second type of puff sleeve, the gathers are only at the bottom. The sleeve pattern is slashed from the edge to the top and then spread to allow for fullness. After the sleeve is lengthened by 3 to 5 cm at the lower end and given a smooth curve as shown. The bottom section is gathered and finished with a band or bias binding or may be gathered using an elastic (explained below). (Fig 2)

Fig 2



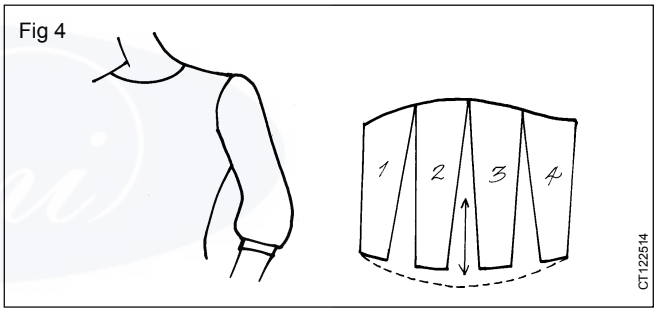
In the third variety the gathers are at the top end. The sleeve pattern is slashed from the top edge to the lower and spread to allow for fullness. Here the sleeve crown is increased and a smooth curved line is drawn. The top section is gathered to the girth of the armhole and prepared like a set-in sleeve. (Fig 3)

Fig 3



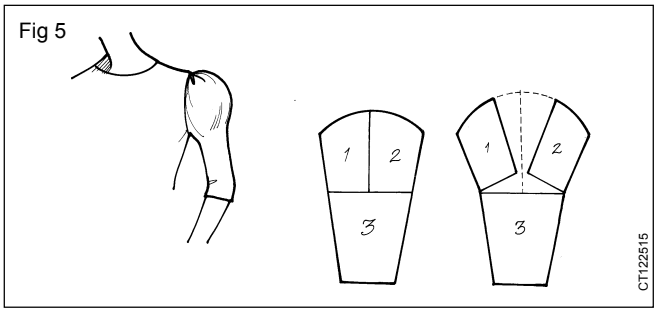
Bishop sleeve is a variation of the second type of puff sleeve. Here the sleeve is of full length or three-quarter length only. It has gathers at sleeve bottom, set into a band or cuff. (Fig 4)

Fig 4



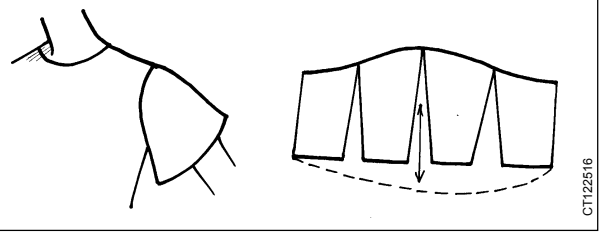
The Leg-O-Mutton sleeve is a long sleeve, which has a tight fitting below the elbow and puffed above, with gathers at the top edge. The basic sleeve bodice is used for the upper part. It is cut in centre line and spread as shown. (Fig 5)

Fig 5



Bell sleeve is also a variation of the puff sleeve. The bell sleeve is designed with more width at sleeve bottom, but the material is not gathered. The basic sleeve pattern is slashed from the bottom to top and spread open to get extra width. The centre bottom is slightly increased to give a bell shape. The sleeve bottom is finished with narrow hem or with shaped facing. (Fig 6)

Fig 6



CT122516

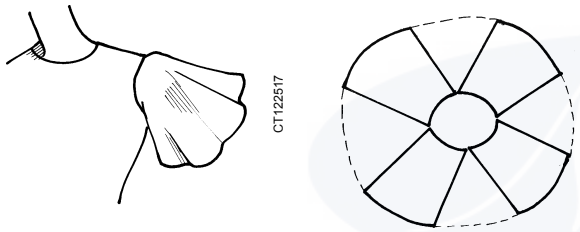
Different from other sleeves the circular sleeve has no underarm seam. The bottom of the sleeve has a circular shape and the bottom circumference is more.

Notches at sleeve crown and armhole help to identify front and back part while attaching sleeve to the armhole. The bottom is finished with a narrow hem.

The sleeve pattern is cut into 4 sections which are positioned in such a way that sections 1 and 3 and 2 and 4 are positioned opposite to each other. The bottom edges of the sections are connected to form a circle. This will increase the circumference of sleeve bottom.

There is no change in the length and shape of sleeve top but the sections are arranged to form a type of circle. (Fig 7)

Fig 7

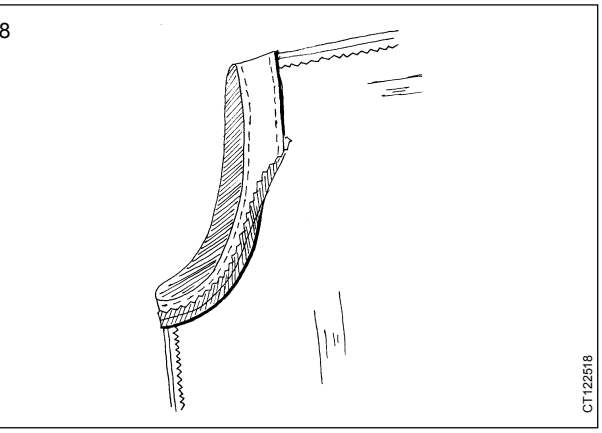


CT122517

Sleeve bottom finishes: The lower edges of the sleeve are finished in many ways. This depends on the style, length of the sleeve and the fabric. It can be of self or contrasting fabric.

Sleeveless armholes are finished with shaped facing. It gives a smoothness to the edge. The facing may be cut in one piece with one seam joining it at one end at the underarm. But it is commonly cut in two pieces, the front and the back armhole facings. They are joined at the shoulder and underarm. A light weight interfacing gives more stability. (Fig 8)

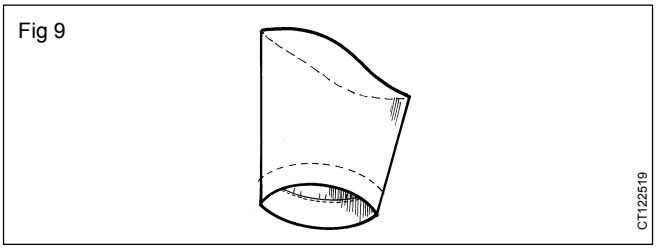
Fig 8



CT122518

Hem is the easiest of straight sleeve finishes and is the most often used. The edge of the sleeve is folded to the wrong side along the hemline and usually hand stitched to the inside of the sleeve. (Fig 9)

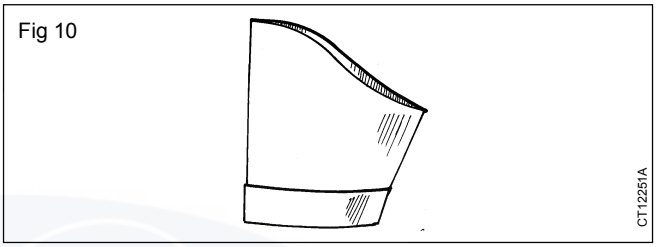
Fig 9



CT122519

Turn-up facing is prepared by cutting out a strip of material (width equal to twice the finished width plus seam allowance). The length will be equal to lower arm measurement plus seam allowance. The ends of the facing pieces are either joined to form a circle before they are attached to the sleeve or the facing is attached and turned up before the underarm seam is stitched. Then the facing piece are stitched to the lower edge of the sleeve on the right side and folded over to the inside of the sleeve and stitched by machine. Then the under arm seam is finished. (Fig 10)

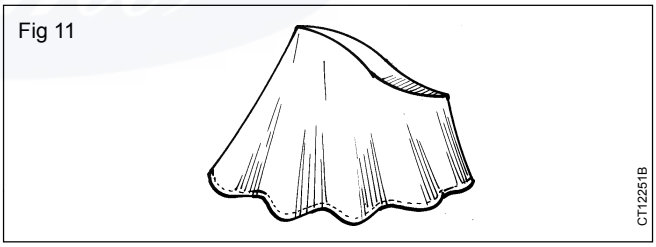
Fig 10



CT12251A

Finish with bias binding is mainly used on a circular or bell sleeve. The sleeve end is finished with a 2 cm wide bias strip of fabric. Then it is stitched and hemmed to the inside of the sleeve using slipstitch. (Fig 11)

Fig 11

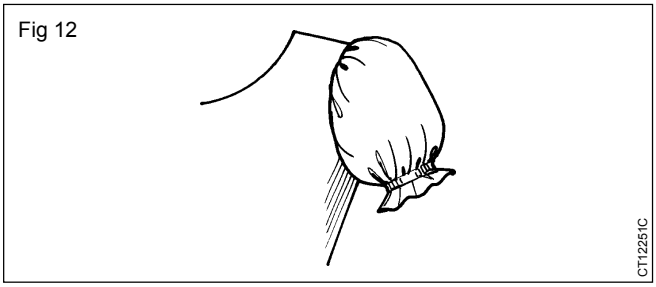


CT12251B

The binding can have decorative feature by using a contrasting fabric.

Finishing with elastic: After finishing the lower edge by hemming, attach the 1.5 cm wide tape or strip of thin fabric on the wrong side of the sleeve (2 cm above the hem). Thus a casing is formed through which an elastic is inserted and the sleeve is gathered to get a frill effect. Therefore length of the elastic should be slightly less than the finished circumference of the sleeve hem. (Fig 12) The other way of finishing at the lower end is with a cuff. Cuffs are of different shapes and widths. (Ref. Ex.No.42)

Fig 12



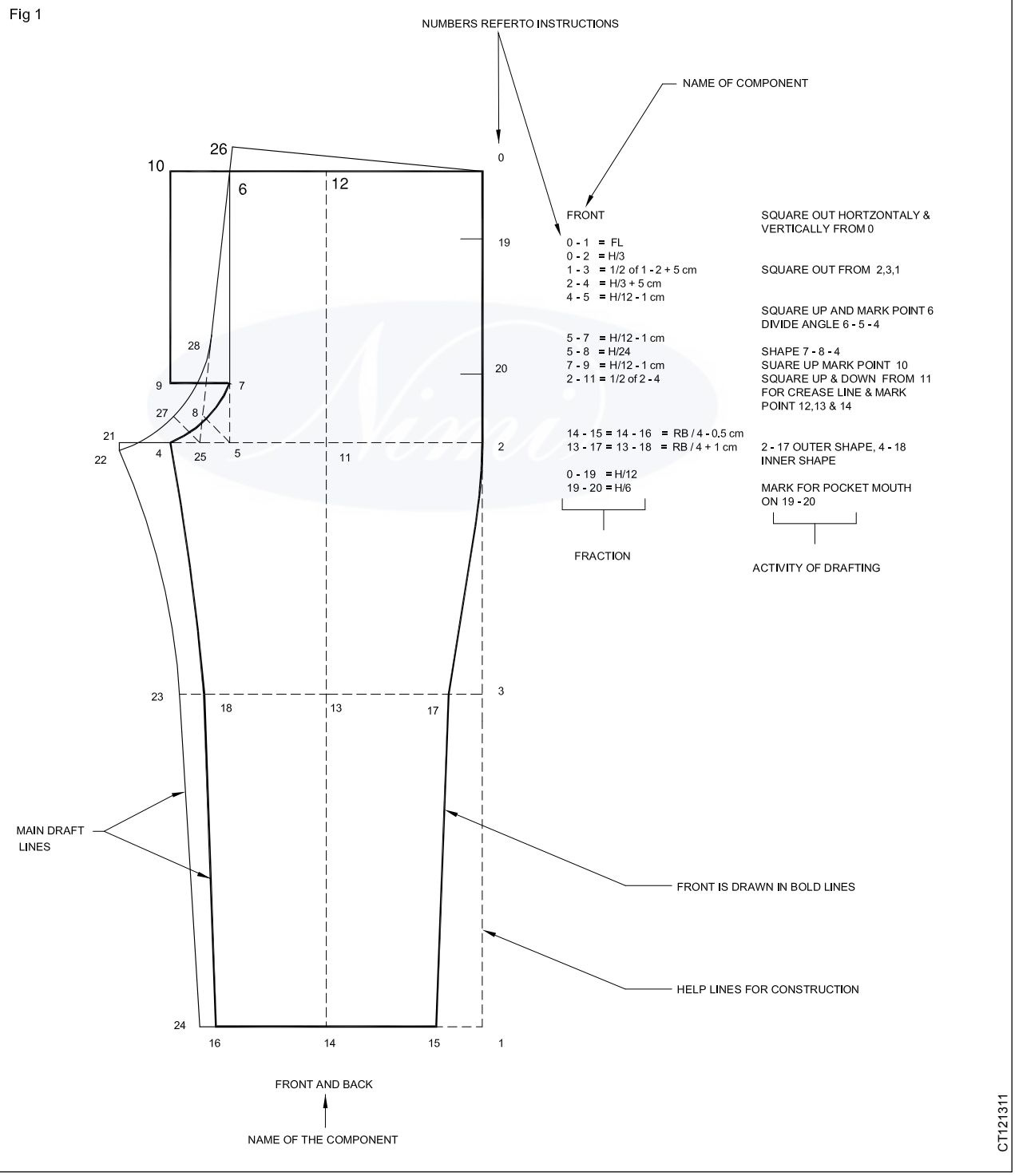
CT12251C

Paper pattern and layout

Objectives: At the end of this lesson you shall be able to
- **explain the draft for a paper pattern**
- **name pattern working and safety precautions while creating and cutting a paper pattern.**

Pattern construction: Pattern construction is one of the most complicated activities in dress making. A pattern is a diagrammatic representation of the way a garment is constructed. Paper pattern is a permanent record and is used several times. From the basic paper pattern, various designs can be achieved easily. Using a paper pattern saves time and material.

Fig 1



Always draw the pattern from wrong side of the brown paper.

The paper pattern for each garment will be drawn always with the help of the small graphic given in each exercise and with the help of the **instructions for drafting** which you will find beside or below the graphic. (Fig 1)

The numbers in the instructions for drafting refer to the numbers in the graphic, so that you can draft an enlarged version of the paper pattern according to the size desired.

The first column of the instructions gives the **fractions**, i.e. a general measurement which can be transferred to any size, e.g. hip/8.

Measurements given in fractions as "cm" might have to be adjusted. For example:hip/8 + 2 cm will indicate some ease to hip size. These 2 cm ease have to be adjusted if you stitch for a bigger or smaller size than given in the book. This needs of course, some experience.

Abbreviations used in fractions are listed below.

Abreviation	Body measurement
NW	Natural waist
FL	Full length
Sh	Shoulder
SL	Sleeve length
SB	Sleeve bottom
Ch	Chest
B	Bust (Ladies'garment)
W	Waist
H	Hip
N	Neck
ACh	Across chest
AB	Across back
BL	Bust level
LL	Leg length
ILL	Inner leg length
KnL	Knee length
BR	Body rise
RKn	Round knee
RC	Round calf
RB	Round bottom

The second column describes the **activity of drafting**. For example: "join" means to draw in straight line, "shape" means to draw in a curved line (here 3 points are given to indicate the depth of shape). "Square out (down) from .." means that you have to draw an horizontal or vertical line where a point will be set on in the next step.

The graphic shows all the components of the pattern which are required for the garment. The continuous lines are main draft lines, the dotted lines are help lines for construction.

Sometimes the front and back part of a garment is shown in one graphic. While converting the graphic into a paper pattern these parts have to be drawn separately. For easier identification the front part is shown with a bold line.

Since, the front part of the body is more prominent than the back (bust, tummy), the length of the front pattern is to be increased. This is shown in all front patterns.

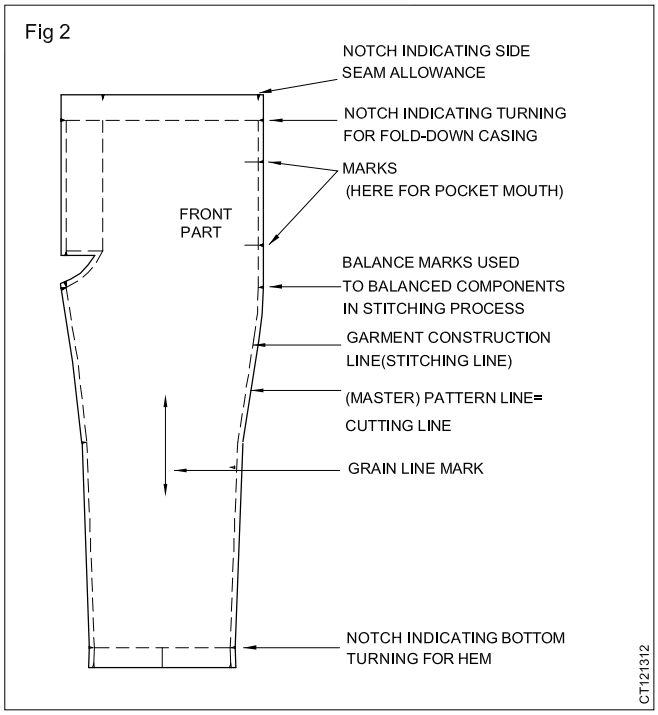
The draft normally shows only a quarter or half of the full garment. This influences either the number of layers on which you draft the pattern or the layout on cloth. For example: If there is given only half the component of back you can draw the component on a folded brown paper, centre line of component on fold of paper. Or you can draw half the back component and use it twice while placing it mirrorwise on the centre line. Instructions are given in each exercise. The draft shows the components of the pattern without any allowances. They will be added later in the master pattern.

While drafting the components on the brown paper, sufficient space for allowances in master pattern has to be provided between them. Generally 5 cm will be sufficient, but in some cases more space will be required. This you can check up with the help of instructions for master pattern.

The **master pattern** includes all the allowances for seams, turnings, inlays etc. This pattern shape will be laid out on cloths and cloth will be cut accordingly.

The allowances for seams, turnings, facings etc. have to be added to the basic pattern construction. They will be indicated by 2nd line but also by notches which are cut into seam allowance. (Fig 2)

Fig 2



Notches are also indicating balance marks, which are used during stitching process to ensure the balance of two components. They have to be set on

- Centre of neck and collar
- Centre of front and back component
- Facings
- Sleeve crown
- Sleeve bottom and sleeve band
- Waistline / hipline
- Kneeline / calfline / bottomline
- Sections of waist band and applied casing
- Attached components
- Pocket mouth
- Placket
- Darts
- Pleats.

The master pattern will be laid on cloth and the cloth will be cut accordingly. The stitch lines have to be drawn on the cloth after the notches are transferred to cloth and the pattern is removed.

It is also possible to transfer the pattern component on the fabric without seam allowances and to add the seam allowance directly on the cloth. But be careful to provide sufficient space between the components!

Work and safety precautions for creating and cutting the paper pattern: The measurements are to be finalised before drafting the pattern on paper. Incomplete measurement information may lead to confusion.

The working area of the pattern draft must be wide enough to accommodate the required pattern to avoid patching up the paper and measurement error.

Attention must be given while applying the correct measurements on drafting the pattern.

All the lines (seam lines, fold lines, dart lines etc.) of the draft should be distinctly clear, to avoid incorrect cutting.

All the incorrect lines have to be erased in order to avoid confusion and subsequent damage.

After drafting, all the measurements have to be checked to ensure accuracy.

In cutting the drafted pattern, the outside edge of the seamline has to be followed.

The notches are to be made wherever the seam line and fold line occur.

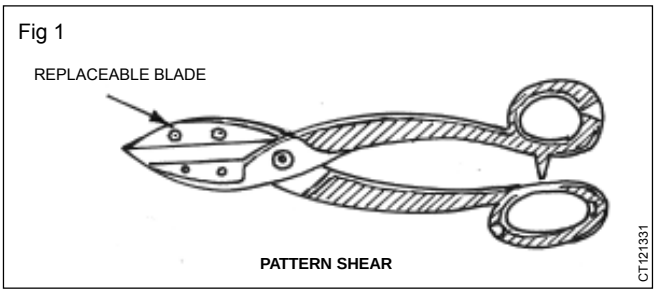
Tools for pattern making

Objectives: At the end of this lesson you shall be able to
• **explain the different tools used for pattern making.**

Supplies for pattern making: Besides **paper cutting scissors** and pins some other equipment is also required to create a paper pattern.

Pattern scissor have long and strong contoured handles with strong replaceable blades. They are used for cutting out pattern templates from thick cardboard or pattern paper. (Fig 1)

Fig 1

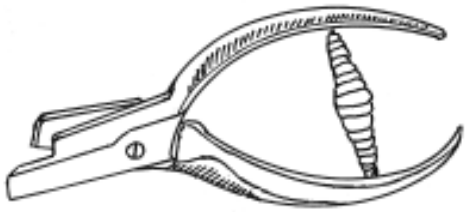


PATTERN SHEAR

Notches are cut with a notcher used for positioning marks on patterns. Example: balance marks, seam allowances, center lines, ease and dart marks etc. (Fig 2)

Brush with soft bristles is used to remove construction lines drawn on cloth.

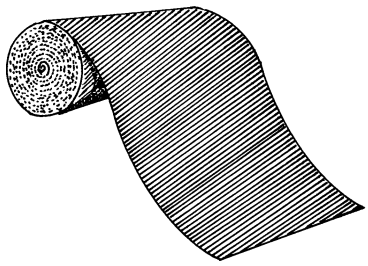
Fig 2



NOTCHER

Pattern drafting paper or brown sheet is a thick white or brown paper of good quality. It is used to draft garment design and to cut parts of the garments patterns, e.g. front, back, sleeve, collar, cuff etc. (Fig 3)

Fig 3



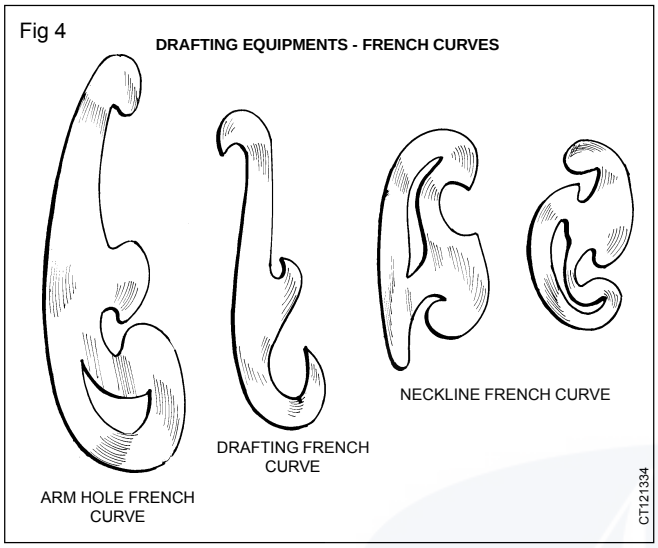
PATTERN DRAFTING PAPER

Cutting table with 180 cm length, 120 cm width and 100 cm height can be conveniently used for spreading the layout and cutting the fabric.

Drafting tools: To work efficiently, one should have the proper tools and supplies. To communicate effectively and to minimise errors, one should know and understand the terms for tools commonly used in drafting. The drafting tools simplify the drafting process.

French curves are made of plastic or wood and available in different shapes and sizes. They are used for shaping armholes, waist, sleeve and necklines. (Fig 4)

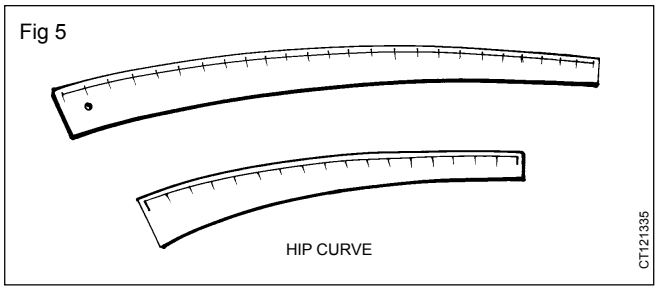
Fig 4



Mechanical pencil and sharpener are ideal for pattern work. Use 2-H for drawing patterns and 4-H for manipulation of patterns. Use red and blue lead and washable felt tip in black, green and blue for practicing on white or brown paper.

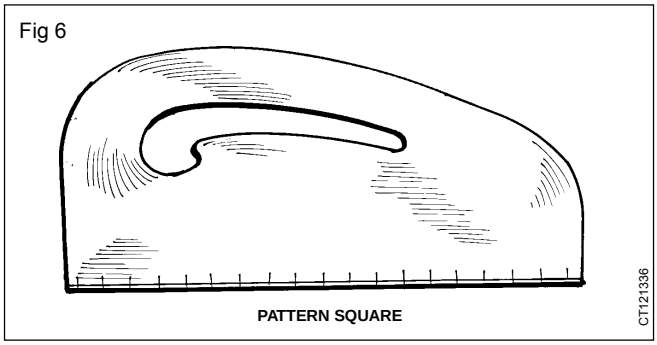
Curve ruler or Leg shaper (Hip curve) is mainly used for drawing inside leg shape for pants, payjama and shorts. It is also used for hip shapes, bottom shapes, elbows and lapels. (Fig 5)

Fig 5



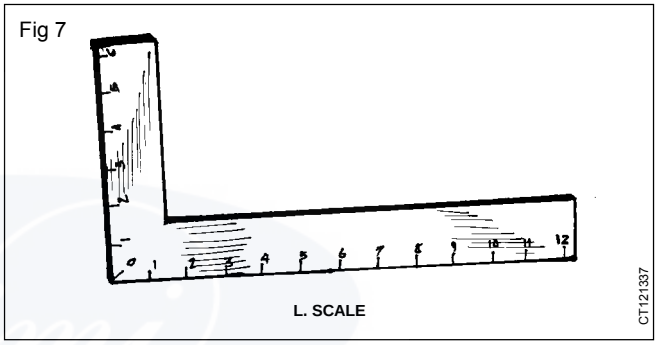
Pattern square is generally made of light metal or synthetic material or of wood. Its special feature is the curved edge. It is used in the design and pattern for drawing curved lines, e.g. hip, collars. (Fig 6)

Fig 6



Tailors' square is also called as 'L' square, mostly made of wood and it is 'L' shaped. The long arm is generally 61 cm and the small arm is 30.5 cm long. It has a scale on both the sides. Some of the scales are marked with divisions like 1/2, 1/4, 1/8, 1/12 & 1/16. (Fig 7) It is used for drafting garments.

Fig 7



Tape measure, tailors chalk, awl, pencils, pins etc. are also required for pattern making.

Measuring techniques

Objectives: At the end of this lesson you shall be able to
- **explain measuring tehniques.**

Measuring techniques

How to take body measuremet?: When taking measurement it is most accurate with under-garments or garments worn should be plain and well fitting.

Pull the tape firmly around the body part but not too tight; keep it parallel to the floor. Measure always around the fullest part of each body area.

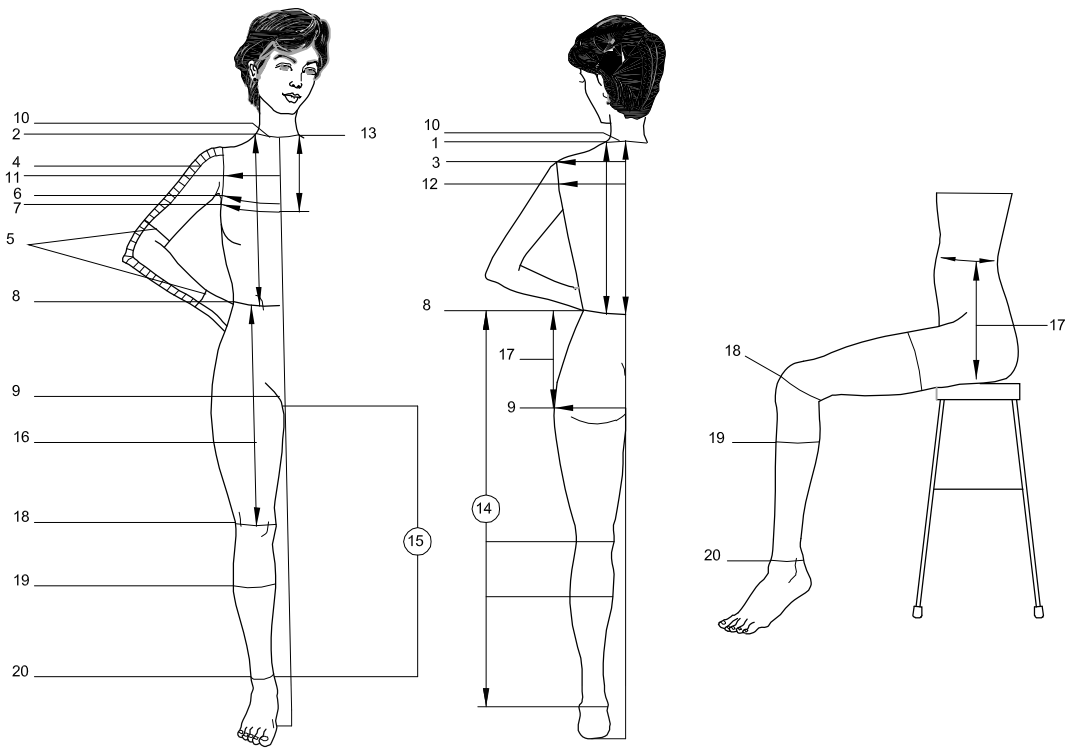
Measurement charts: Every person has an individual height and shape of the body. Big, small, fat persons don't match with the ideal proportions. While stitching a garment the shape of the garment has to be adjusted to the shape of the body as much as possible.

The most accurate way of shaping a garment according to the individual body takes place on the basis of measuring an individual body. This measurement will reflect all individual conditions. Since the garment industry does not produce for an individual customer they produce dresses for body measurements which represent a larger number of persons. These measurements are found by measuring thousands and thousands of people of a certain region/country. The data found in such a survey will be systematically organised in a chart valid for that particular area.

Even though many charts can be seen in books, a proper measurement chart for the Indian population is still missing. Therefore the Trade Practical book is not referring to a chart. The measurements given with every garment are based on experience, but it is always the best to take authentic measurement from the person to stitch the dress for.

Sl. No.	Body measurement	Abbreviation	How to take body measurement
1	Natural Waist	NW	Measure on back from nape to waist
2	Full Length	FL	Measure from neck point to waistline upto the desired length of garment
3	Shoulder	Sh	Measure from left shoulder end to the right shoulder end (where you find the ball moving while moving your arm)
4	Sleeve length	SL	Measure from shoulder end to desired sleeve length (for full length arm should be in a bended position)
5	Sleeve bottom or round arm	SB	This is a garment measurement. It gives the desired girth of sleeve at bottom line
6	Chest	Ch	Measure around the fullest part of chest/bust above the nipple line (one finger loose)
7	Bust (Ladies'garment)	B	
8	Waist	W	Measure a round the natural waist line, draw the tape close but not too tight
9	Hip	H	Measure firmly around the fullest part of hip
10	Neck	N	Measure loosely around the base of neck
11	Across chest	ACh	Measure across the chest line on scye level
12	Across back	AB	Measure on back from one sleeve joint to the other on scye level (Above the blade bone)
13	Bust level	BL	Measure from neck point (which is on the level of neckline at side) to bust
14	Leg Length (Side length)	LL	Measure outer leg length from waist to ankle (or desired length of garment)
15	Inner leg length	ILL	Measure from fork to ankle or leg length - body rise
16	Knee length	KnL	Measure from waist to knee on side of body
17	Body rise	BR	Measure from waist to seat line on side of body
18	Round knee	RKn	Measure firmly girth around the knee
19	Round calf	RC	Measure firmly girth around the calf
20	Round bottom	RB	This is a garment measurement! It gives the desired bottom girth of pant (Fig 2)

Fig 2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Salwar

Objectives: At the end of this lesson you shall be able to

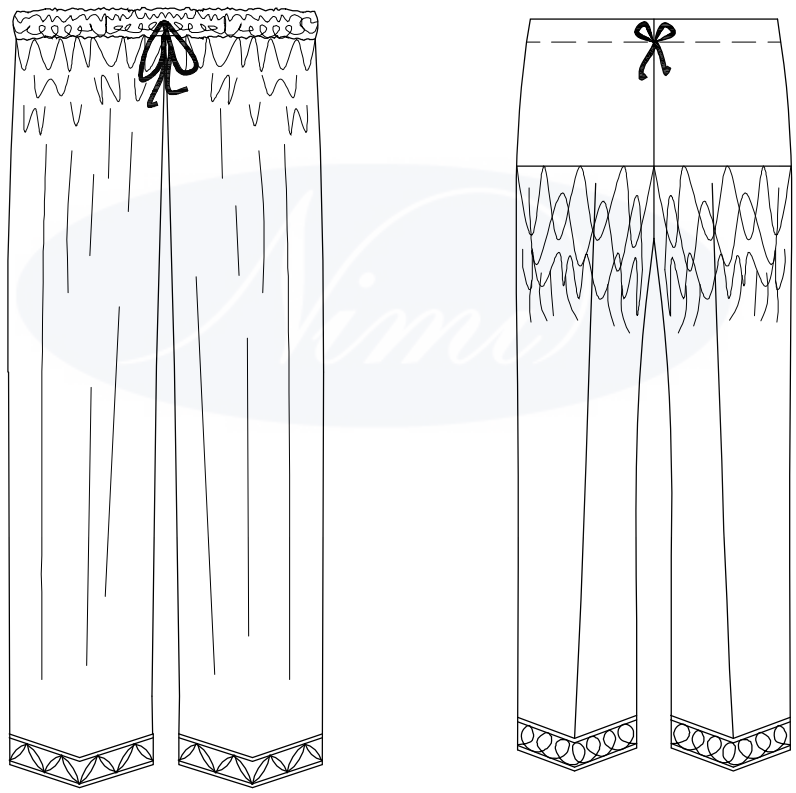
- **explain the different features of salwar**
- **describe the kali piece attachment.**

Salwar is a **unise ower** garment. It is a loose fitting wear, worn in combination with either kameez or kurtha. It is a leg garment providing a lot of room by panels and gathers in front and back. It tapers down to the bottom to a narrow width at the ankles. Because of the width it is traditionally stitched from fine fabrics. The bottom cuff shows decorative stitches, as this portion is visible while most of the upper portion is covered by the kameez.Waistline of salwar is finished with casing for inserting cloth tape.

Style variations in salwar is brought with certain modifications at its (Fig 1)

- Waist piece
- Kali piece

Fig 1



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Waist piece :- To achieve a less bulky effect the salwar can be designed with a broad yoke at the hipline, this is also called as waistpiece or waist band / belt. The gathers are given on the lower edge of the yoke line. Salwar is also prepared with wasitpiece, where it is very loose at the waist and seat.Looseness of the garment depends on wearers' taste.

Kali piece :- Salwar is either prepared with two leg pieces, one on either side or with six leg pieces, three on either sides. Among the three the two side pieces are known as kali pieces, it is joined together with a centre piece at their middle to form a leg piece (Fig 2). The introduction of kali piece gives to the garment will give looseness to the garment with less fabric consumption. Even salwar with waist band is also stitched with kali pieces now - a - days.

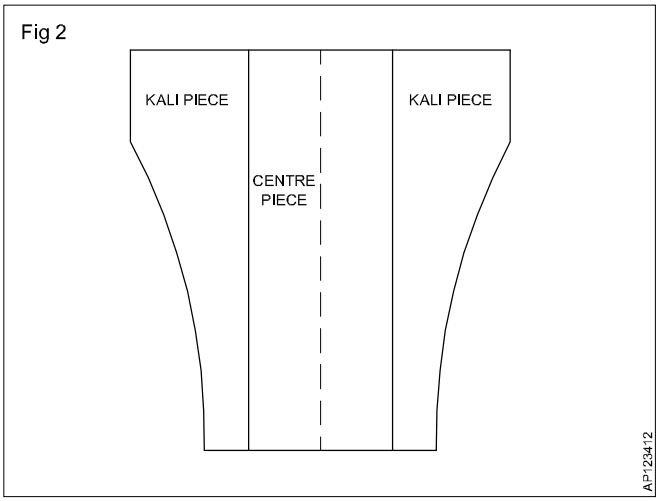
The style features of Salwar selected for stitching

- Waist belt
- Gathered front and back
- Decorated bottom finish

The material required for stitching a salwar

2 length + 10cm

Fig 2



Churidar

Objectives: At the end of this lesson you shall be able to

- **explain the features of churidar**

Churidhar also known as surwar is a popular variety of pyjama worn by both men and women. It is a leg garment providing a lot of room up to the knee line and is shaped to a very tight fit up to the ankle. It narrows more quickly, so that contours of the leg are revealed. It is cut on bias to provide some stretchability required along with the tight fit. The garment is cut longer than the leg length, to form a special feature the "churis" (hindi :bangles), folds which are set from calf to ankle. The churidar can also be designed with a belt, similar to that of a salwar. It is always finished with a bottom opening (10cm). Churidar is stitched with casing at the waist for inserting the tape. It is worn with khameez, punjabi kurtha, Jodhpur coat, sherwani etc. Unlike salwar, the upper portion of garment (waist) is not wide spread, it is 10 - 14cm loose to the hip measurements. Material like cotton, poplin,khadi are suitable for stitching churidar.

The garment is cut on bias material to get a nice fit below knee. For this, either bias bag is prepared or it is cut on plain material. Sometimes the inner leg length of the garment is finished with taped seam to give a firm stitching as it is worn tightly fitted (Fig 1)

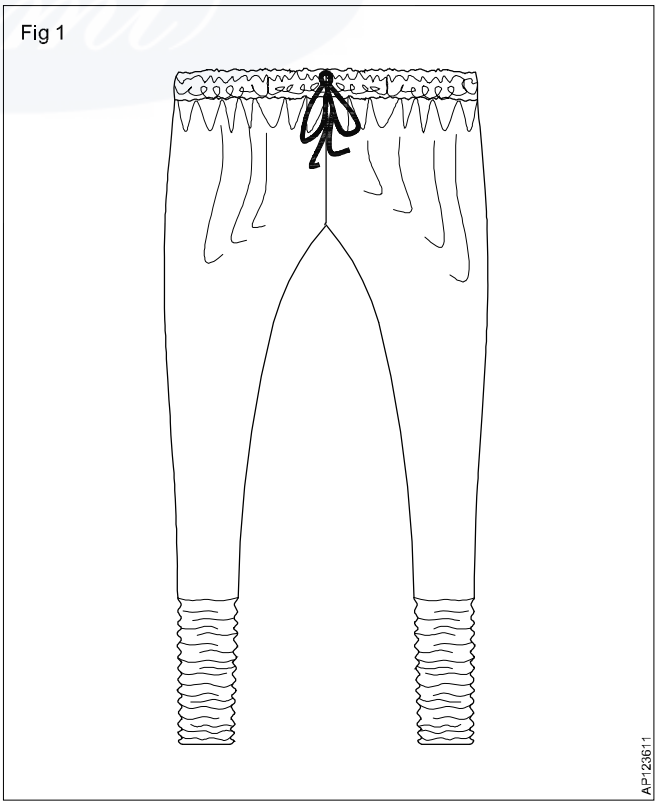
The style features of churidar selected for stitching

- Bias bag
- Gathers at bottom
- Tapped seam at inside leg finish

The material required for stitching a churidar

2 Length + 25cm

Fig 1



Kameez

Objectives: At the end of this lesson you shall be able to

- **explain the different style features of kameez**
- **describe the decorative sleeve types and neck designs suitable for kameez.**

Kameez is refered to as kamiz or qamiz. It is also known as ladies shirt. It is a body garment. Its full length can vary between above knee to the lower calf. The length / design varies with the fashion scenario. It can be fitted or flared as the fashion demands. Slits are normally provided on both side seams from mid thigh to bottom line. The sleeve can be of any length. The kameez can be clubbed with a salwar or churidar. A long and broad shawl called dupatta is worn along with it. All three components (salwar,kameez,dupatta)

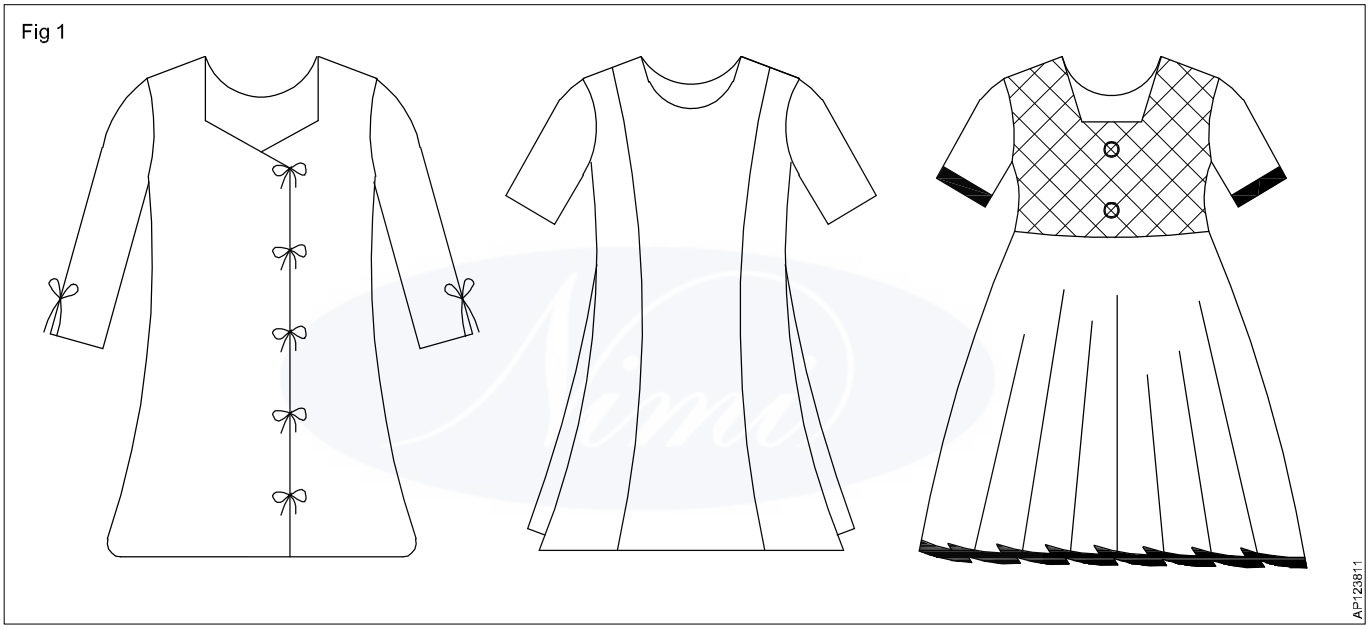
should match or compliment each other in colour or design or both of it.

The kameez has evolved tremendously from the traditional style which usually consisted of a long dress with long sleeves. They now come in a variety of styles and designs, having been influenced by popular designers all over the world.

The style variations in kameez may be brought with modifications in (fig 1)

- Bodice
- Length
- Dart

Fig 1



- Sleeve
- Open
- Neck design
- Trimmings

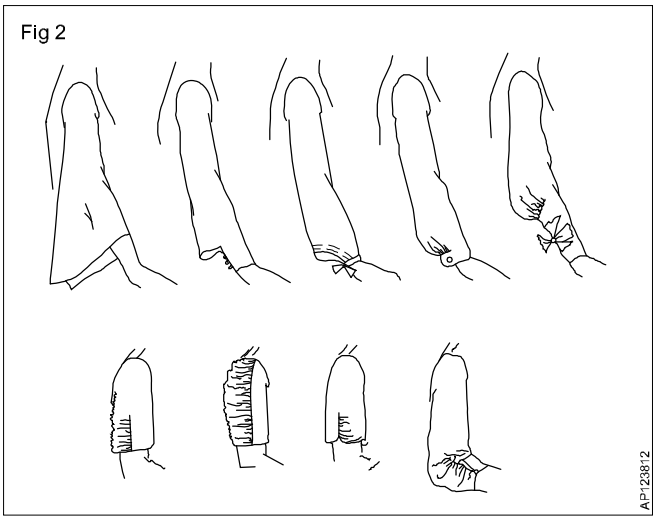
Bodice - The garment style is mainly reffered by its bodice type. The front and back bodice which are cut into either four or six panels and stitched into a kameez is a princess line kameez. When it is stitched with yoke part and circular bodice it is known as umbrella kameez. The length of yoke may vary according to taste. The garment is also prepared with overlapping bodice part (normally left side) in overlap kameez. (Fig 1)

Length is another important feature of kameez. Now -a-days, ladies started wearing short kameez with its length ranging from shoulder to knee level or just below it. Those worn with churidar are stitched with circular bodice with yoke and full length measuring more than the other kameez types (nearly just 12 - 15cms less than the height of the person - measuring from shoulder)

Dart - Kameez is stitched with full dart or half darts to create fullness at the front part.Usually two full darts are stitched at front part one on either sides. In some styles like punjabi kameez, the garment is prepared with armhole and waist darts along with the full darts to construct a tightly fitted garment.

Sleeve - The kameez is either stitched with or without sleeves. The sleeve length may vary according to the taste. It may be magyar sleeves short sleeve, 3 /4th sleeves or full sleeves. It may also be constructed with certain details to suit the style of the kameez if required. (fig 2)

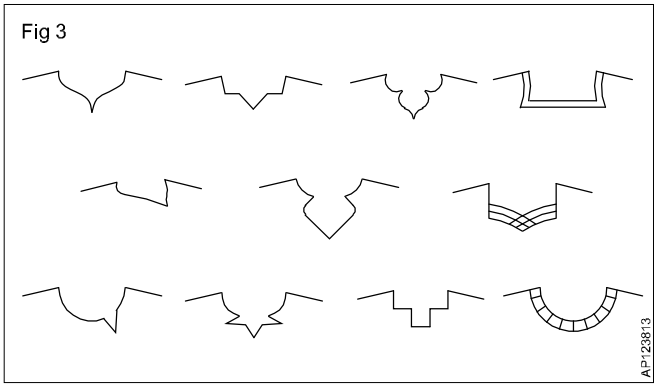
Fig 2



Open - The kameez is prepared without open when stitched with required front and back neck depth for easy put on and take off the garment. When the garment is constructed in tight fitted style, the zipper placket is introduced at the centre back. In certain styles like overlapping kameez it is prepared with front half open (10cm) which is finished with two placket and fastened either with hooks & eyes or fancy buttons.

Neck designs - Wide variety and patterns of neck designs are applicable for kameez.The neckline is finished with facing or piping.It is selected to suit the fabric and the garment style choosen. (Fig 3)

Fig 3



Trimmings like lace, ribbons, braids, beads etc are suitable for enhancing the beauty of kameez.The garment is worked with trims in the neckline, bottom, hem, sleeve hem, side slit etc. Trimmings like beads, flowers are even worked all over the garment to give rich look to the garment.

The style features of Kameez selected for stitching

- Front part with scye dart, side dart and waist dart.
- Back part with waist dart.
- Faced neck finish
- Side slit

The material required for stitching a kameez

2 Length + 1 sleeve + 10cm

Ladies' suit

If the body and leg garment are sewn in a same fabric, then it is called as "Suit" and then the fabric used for that is called as "Suiting fabric". Salwaar kameez, churidhar kurtha are the examples of ladies' suit.

Nimi

Nimi