CHAPTER ONE

1.1 Introduction:

The scope of the project work is defined by its title" Studies on the manufacture of gent's sandal" and in this respect it differs from several earlier works. Although the definition and development of different last, construction and foot anatomy of men and other interesting topics are not ancillary to it. Therefore, there are many references to them, as will be seen from the index; they are not dealt Lasting down within any great detail.

Lasting down construction is a conventional system of gent's sandal making by which a comfort and flexible sandal is made and its use is relatively high.

In my project work, I am going to produce a gent's sandal in Lasting down construction and to observe its features. There are various operations that are carried out in hand and due to such limitations some anomalous operations are to perform which gave my work a special character.

In later chapter, the details about this are described.

1.2 Aims of this project work:

The main aim of this project work is to know the lasting down shoe construction system and to make one pair of sandal in this construction.

Others goals are:

- To know about the pattern making for this construction.
- To know which types of materials are used for this purpose
- To study the last which is suitable for this
- To study the advantages and disadvantages of this construction
- With the help of buckle. Popular unisex footwear which is very comfortable.
- The foot is free at the toe and heel
- The sandals serves according to the specific needs as the length can be adjusted

1.3 Methodology:

1. Literature review
2. Market justification.
3. Last development.
4. Conclusion and recommendation.

1.4 Expected Outcome:

1. To learn the lasting down shoe construction
2. One pair of sandal is made in this construction
3. To know how to maintain the quality for sandal.

CHAPTER TWO

2.1 Definition of Footwear:

Any foot covering in the form of shoes, boots, sandals, slippers or hoses used for utility and / or dress wear is termed as footwear. The term 'footwear' should not synonymous with 'shoes', which are simply one category of footwear; can be defined as low-cut footwear versus high tops or boots.

2.2 Why Footwear:

People have been wearing shoes for thousands of years, but the knowledge of who crafted the first shoe or where that creative act took place is lost in time. Still, it is not difficult to deduce why shoes came into being or why we continue to wear them. Nature in part necessitated their invention: since nature did not provide the human species with hard hooves, like the horse, or sturdy pads, like the cat, human ingenuity came up with the shoe – a means of protecting tender feet from cold, hot or wet environments, as well as from uncomfortable or hazardous surfaces. But we wear shoes for other reasons as well. From the earliest gleanings of footwear history from around the world, we know that shoes have always been status symbols, worn especially by persons of power and authority.

Over time, shoes transcended purely practical applications and became, as objects of beauty in themselves, essential fashion accessories. In many cultures, shoes have long been associated with religious practices. And specially designed shoes have also enable people to perform more effectively, whether their undertakings involve work, dance or sports.

Shoes have long served our basic needs and well-being but, just as important, they are intriguing sources of information about human identity throughout history. Who we are, what we do and where we live are all silently but effectively communicated by what we wear on our feet.

2.3 History and Development of Footwear through the Ages:

A fine shoe is now an essential part of fashionable dress. It can provide an accent to an outfit-whether witty, solemn, provocative or simply elegant. A right shoe is a crucial ingredient to a successful look.

In fact, in this fashionable world, a pair of shoe becomes an essential part of our costume design. Today a pair of shoe meets not only the basic need of our clothing but also reflects individual's personality. By seeing a pair of shoe, it can easily be told how fashionable a person is! Actually, like all clothes, shoes affect our self-esteem. If they stylish, we feel stylish; if they are smart we feel smartness.

But any body of us can guess exactly from and how man started wearing shoes? No exact statistical data have not found from any source about the starting date of men's wearing footwear. In fact it is the matter of thesis; it is the matter of research.

Various researches found various data about the starting date of using footwear. But no one of them is out of controverter. But all of them coincide in a point that the history of using men's footwear is the history of hundreds of thousands of years.

In 1991, hikers near the Italy Austria border came upon the body of a man who had been entombed beneath a glacier for 5.000 years. The amazingly well preserved 'iceman', who was nicknamed otzi, was still wearing leather foot coverings stuffed with straw. Spanish cave drawings, which date back some 15000 years, show

humans around their feet. From this data it can be easily assumed how old the history wearing footwear is!

Shoes remained basically utilitarian until the Greek and the Roman periods when they began to be regarded as items of clothing and vital parts of wardrobe. The Romans rarely went barefoot, and styling was important because certain pairs of shoes indicated social positions of the wearers. In the 13th century, stylish people started wearing shoes with long, pointed toes. The toe points are came so exaggerated that they were some times fastened to the knee by slender chains. Eventually the bizarre length were regulated by law as per law, members of royal families could wear toes, of one length and commoners another. This continued till the end of the 15th century.

Narrower, heeled shoe for women were trend during the region of Queen Elizabeth – 1 Men wore, soft, thigh-high boots with heels. The jack boot, a stiff boot favored by American planters in the colonies, appeared about 1665. The end of the 17th century brought renewed popularity to low shoes, with red heels, square toes, and enormous butterfly bows that were eventually replaced by huge buckles.

The 18th century bore the influence of French fashion. Decorated leather shoes or silk shoes on high heels set under the arch of the foot were in fashion. After the French revolution, enthusiasm for classic fashion brought back flat heels and sandals, and English style country clothes were worn with study boots. In Victorian England dainty feet were much admired. Slippers with square toes were fastened by ribbons that crossed at the ankle.

In the orient, tall shoes were the range. Monks and noblemen took to platform shoes, as did geishas. The shoes, called geats, rendered their wearers stiffer and more formal looking. Another fashion from the orient was the tabi sock. This separates the big toe from the other toes in order to accommodate the throng.

Geats were converted to sandals by the Japanese and by virtue of sandals one could determine the social status of a person.

Modern shoes, as we know them today, probably have their roots in Tudor and Elizabeth, England. Shoes were made with buttons, laces, and eyelet and in general, decorations of all kinds. Vestiges of these facets of shoe design are visible today. Prior to 1800 shoes were made by hand and fabrication was primitive. Very shortly thereafter and throughout the latter half of the 19th century, invention after invention bolstered the burgeoning shoe business. Modern mass production methods rapidly evolved and are currently in vogue.

The application of computer in shoe production took place towards middle of the 20th century. Today computer is used for last and shoe design, cutting, stitching lasting and finishing. Now shoe making is not a job of a traditional cobbler; it is an artistic creation of a fashion designer.

CHAPTER THREE

3.1 Market Justification for Designers and Pattern Makers:

The first stage in the manufacturing of footwear for a specified market is the creation and production of experimental designs. They are created to suit a particular market. Some basic features which characterize the different types of footwear design are as follows.

Casual and Informal Footwear:

These types of design are available for everyday wear. A wide range of colours, varying from dark to light colours can be used, and they can be easily matched with clothing.

Classic Smart Sandals:

The designs are worn on formal occasions. The sandals are elegant with high quality materials. The styles may be of the plain simple type. Generally are unadorned. Colors here are much somber, and on occasions the materials may have a glossy appearance.

Sports and Leisure Time Sandals:

Materials used in the range include leather, synthetic materials and cloth. Designs are generally bold and flamboyant and the colors of the materials vary. The choice of materials and the form of design will depend on the sandal construction and the intended market.

Of course fashion trends will affect design and footwear construction types. Information in relation to fashion trends can be obtained from a number of sources.

In Europe through a process of "pre selection shows" and "shoe fairs" which are held in a number of countries, new materials, components, style themes and general design trends are displayed. In this way, prevailing style trends and guidelines are highlighted. In countries which have a rich historical and cultural background, ideas can be drawn from significant periods in time such as the 1920s, 1930s, 1940s, and 1950s. Design features are also obtained from distant and more exotic regions.

A number of footwear fashion magazines are also produced at various times each year. These publications are generally highly priced glossy productions prepared for the use of the shoes designers as a source of ideas. They contain both drawings and photographs of shoes and pullovers.

However, the facilities that are available in Europe are not always available in developing countries. It is possible in some of those countries for a particular type of footwear to dominate the market for a long period, and fashion trends will rarely change in the process. This situation the local designers who are endeavoring to introduce new designs do so with reference to the historical and cultural background of the country. In this way originality and flair can be created for the domestic market. It also increases the potential for an export market.

The materials and accessories which can be obtained locally should be chosen. Natural raw materials from one country are often eagerly sought after by buyers from other countries. From an economic point of view, this approach makes it possible to maintain lower prices and to manufacture competitively priced products.

As stated previously, the initial stage in the manufacturing of footwear is the creation of designs. In the first instance, the designers create and produce drawings of each design, which are then passed on to the pattern cutter for pattern development.

However it is important to ensure that the designer is also capable of producing patterns. It is also necessary for the designer to have knowledge of the industrial manufacturing process involved, ranging from clicking to stitching and from lasting to finishing and the shoe room. This experience, in both cutting and manufacturing is required to ensure that all of the pitfalls and manufacturing problems they can be associated with faulty designs are avoided. The designer also required to be experienced in the art of identifying the quality of materials. The ability to be able to recognize the materials with just the right "feel" of softness, and the exact shade and texture to suit the design required is an asset.

In the early stage of design creations, it is necessary for the designer to co-ordinates with the tanneries, components, and last and accessories manufacturers in relation to sample supplies.

The production of designs needs to be continuous, as the industrial environment is characterized by marked competitiveness. The footwear industry is constantly creating and marketing new designs, there by encouraging the consumer to purchase the latest style trends. Individual creativity is essential. The acquisition of up to date knowledge must be pursued by the designer to ensure that it is his designs that are successful in the market place and are constantly being purchased by the consumers.

It is the function of the pattern cutter to produce a set of patterns for each design. The pattern maker must ensure that all the components fit perfectly and that no problems exist in relation to the manufacturing operation. Any adjustment or modifications in the patterns that are necessary to ensure a smooth flow of production must be performed by the pattern maker.

For Gent's Sandal:

A wide range of materials are used for gent's sandal manufacturing such as leather, synthetic, textiles. Various ranges of colors are also used for gent's sandal manufacturing. New designs include fashion bright beetle-crushes and a full range of casuals to accessories the best of new fashion clothing ranges. Fresh embroidery ideas and fashion colors give the range a distinctive new look. Prices and margins are as ever, extremely attractive.

The opinions of the purchasers that I have collected from the local market are given bellow:

NAME OF THE AREA –ELEPHANT ROAD

1) Buyer's name : G. M. Murshed Reza
2) Buyer's age : 25 years
3) Buyer's job : Private service
4) Buyer's income : 10000/= (monthly)
5) Target price : 300-350/=
6) Type of use : Casual types
7) Type of color : Reddish , bluish, Pink
8) Type of materials : leather
9) Type of construction : Open type
10) Useable season : Summer
11) Criteria

- It must be soft and flexible.
- It must be comfortable.
- Light weight.
- Well decorative.
- Water proof.
- Durable.

NAME OF THE AREA –ELEPHANT ROAD

1) Buyer's name : Habibullah Bahar
2) Buyer's age : 28 years
3) Buyer's job : Govt. service
4) Target price : 500-550/=

5) Type of use : All types
6) Type of color : Depends on choice
7) Type of materials : Leather
8) Type of construction : Close type
9) Useable season : All season
10) Criteria

- It must be soft and flexible.
- It must be comfortable.
- Light weight.
- Well decorative.
- Water proof.
- Durable.

NAME OF THE AREA –MOUCHAK MARKET

1) Buyer's name : Md. Afzal Hossain
2) Buyer's job : Business
3) Buyer's income : 20000/= (monthly)
4) Target price : 700-1000/=
5) Type of use : Casual types
6) Type of color : Red , Yellow, Green
7) Type of materials : Leather, textile
8) Type of construction : Sandal type
9) Useable season : All season
10) Criteria

- It must be soft and flexible.
- It must be comfortable.
- Light weight.
- Well decorative.
- Water proof.
- Durable
- The inner side of the shoe will be smoother than the outside.

NAME OF THE AREA –Dhaka New Market

1) Buyer's name : Md. Nasim Haider
2) Buyer's job : Private service
3) Buyer's income : 8000/= (monthly)
4) Target price : 300-350/=

5) Type of use : Casual
6) Type of color : Reddish , bluish
7) Type of materials : Synthetic
8) Type of construction : Open type
9) Useable season : All season
10)Criteria

- It must be soft and flexible.
- It must be comfortable.
- Light weight.
- Well decorative.
- Water proof.
- Durable.

NAME OF THE AREA –Dhaka New Market

1) Buyer's name : Ishtiaque Sattar
2) Buyer's job : Govt. service
3) Buyer's income : 10000/= (monthly)
4) Target price : 600-700/=
5) Type of use : Causal types
6) Type of color : Reddish , bluish
7) Type of materials : Leather
8) Type of construction : Close type
9) Useable season : All season
10)Criteria

- It must be soft and flexible.
- It must be comfortable.
- Light weight.
- Well decorative.
- Water proof.
- Durable.

3.2 Materials:

For upper:

Leather will probably always be used in quality gent's sandal. It has a natural conformability, plus the important quality of breath ability (moisture absorption and ventilation).

In recent years an increasing use of man-made upper materials has appeared in l quality sandals. At this moment open type sandal are available.

I have selected thick but soft leather for sandal making. The characteristics of this leather are given bellow:-

- Tough resistance.
- High scuff resistance.
- Water proof.
- Permeable to both air and water vapors.
- Light, dust & mud fast.
- Easily washable without any deterioration in quality.

For lining:

I have also chosen leather for lining. Because,

- Water vapour permeability.
- Durability.
- Water resistance
- Comfortable

For Insole:

An insole is the foundation of the shoe, its function in the shoe, Its function in the finished shoe is to take up moisture in the form of perspiration from the foot.

It is one of the most important component .In most of the shoe constructions, it is the base to which only the upper and the bottom of the shoe are attached. There are different types of insole such as:

1. Leather board
2. Fibre board
3. Cellulouse board, etc.

I have done my sandal insole with cellulose board.

These are the following quality required in an ideal insole:

- It should be strong enough to enable an adequate bond to be made with and rigid enough to resist movement in wear and support the foot.
- It should be able to retain a firm feather edge
- It should a clear appearance and be durable enough

- It should be moulded easily
- It should be cut cleanly and be dimensionally stable
- It should be good adhesion property
- It must have heat resistance
- To absorb moisture readily and dry out quickly
- Flexilibility
- Uniformity of substance
- Light weight

For platform cover: Synthetic

Bottom: Steel

Thread: Nylon (30/3 & 60/3)

Needle: 134 needle system (LR)

Velcro: Non-woven (Polyester)

Adhesive:

There are many kinds of adhesive used by me according to requirement that has been described in the sole and upper preparation such as: Latex, polychloroprene, polyurethane etc.

CHAPTER FOUR

4.1 The Purpose of Gent's Last:

The last is a vital factor for any type of shoe because it gives the appropriate shoe shape for men's foot. The purpose of last for sandal is given bellow-

- The last is an abstract copy of the foot in wood. One of its function that leather components can be given plastic form.
- The last corresponds to the favored fashion trend for sandals.
- The last which determines both the internal dimensions and the external shape of the shoe is prepared in accordance with the measurement taken and always in pairs.
- The last takes place of the customer's foot while the shoe is being constructed and it already has the characteristics of the selected type of shoe.

4.2 Development of the Last:

In relation to shoe manufacturing, lasts are a necessity, because they determine the size, fit and shape of the shoe. Theoretically the best shape would be the copy or of the foot. However, lasts are not exactly the same shape as the foot. The design of the last will be decided both by fashion requirements and the anatomy of the foot.

A shoe manufacture who produces shoes in bulk, will require all of the information that may be available regarding the size of feet in the segment of the market in which he is involve in. consequently with the last manufacturer, he will initiate a foot survey programmed to obtain all of the necessary data in the country where the shoes will be marketed. The results of the survey should provide the footwear and last manufacturer with sufficient information to produce a pair of model size lasts. Shoes manufactured on those lasts, will be tested on a number of feet. In the final analysis, a complete range of last sizes and fittings required to satisfy the market should be available.

Of course, technical and stylistic details are also taken into account during last manufacture, heel height and toe springs are important factors. The outline of a last is regular, with a sharp edge around the seat and forepart, which will contribute to a clearly defined feather edge on the finished shoe. The last is normally deeper at the font than the foot to avoid pressure from the shoe on the large toe.

Prototypes are usually made of wood. In manufacturing units which produce lasts, designers and pattern makers, design and manufacture prototypes. This process is carried out in accordance with the information provided to them fashion experts who review and interpret fashion trends. Lasts can be made either of wood or plastic.

Wooden Lasts:

Fig: 01

The types of wood which are most widely used to make lasts are hornbeam, maple, common beach, walnut and plane. They are chosen because of their structural substance and consistency. These allow an easy processing, because of their lightness, good seasoning and reasonable costs.

Since wood suffers the effects of ambient humidity variation, the finished last is coated with a polyester-based layer that makes it waterproof. This operation is carried out to avert the danger of changes in the size of the last, particularly in the length and fitting, due to physical agents.

The designing process starts from a wooden block and requires the following tools:

1) A set of files
2) Quick-setting filler
3) Measuring instruments (measure tape, caliper rule, graduated scale to measure heel volumes and heights)
4) Different types of sandpaper
5) Cutting tools (hand saws, sawing machines, cutters)
6) Punching tools (sets of punches)

7) Hammer, pliers, nails.

The wooden block is shaped so as to determine its final volume with the filler, sandpaper and files.

To change the height of the heel, cuts are made on the joint girth (instep); then, wedges have to be inserted in those cuts to make the height of the heel higher or lower.

Because of the fragility of wood along the edges, and in view of the use of the last in pattern grading with the pantograph, tacks are affixed all along the contour of the last to get the consistency of a metal object. An aluminium plate is nailed to the bottom of the tip of the last for reinforcement purposes.

To plate the last on the pantograph, holes are drilled (with a drill); one hole is drilled in the fore end of the tip, slightly lengthwise and two are drilled in the back part, in the middle, with respect to the heel line. This operation must not be carried out on the last which will be used by the designer and pattern-maker.

At the end of the manufacturing process, prototypes are numbered progressively with serial numbers and the length (in cm) of the joint girth relating to the fitting is marked, usually on the outer side of the last.

Last samples are stored in a store, arranged according to their numbering and divided into types (men's lasts, ladies lasts, babies' lasts).

I have selected this type last for making the babies shoe.

LASTS: They are made of two parts so as to ease their fitting into the shoes (see the manufacturing process of the real moccasin) or their extraction.

The different kinds of lasts are given below:

Solid or Compound Lasts:

♪ Scope block lasts.
♪ Hinges lasts (arc, fasten).

Fully or partially plated lasts:

♪ Fully plated lasts.
♪ Lasts with plating from the waist to the heel; with point plating.
♪ Lasts with heel plating only.

A small sleeve, known as the last thimble, is usually inserted in the top heel end and provides an opening for last pegs during the assembly and manufacturing operations. Through thimbles exist and are used in the manufacture of to be fixed.

The main feature of court shoe lasts is that they are fully covered with leather. Thus, a good line and shape are required. The profile of the heel in particular must never be too big. In the middle part of the last, the shape and profile of the insole waist must have an average curve; the heel and the insole waist must merge smoothly with the sole which shall not absolutely influence the instep (fitting) of the last, especially when the shape of the tip of the last is modified. These features become even more important when high heel lasts are used.

The classic last is marked by a rounded off tip and by a medium height heel.

4.3 International Grading System:

There are three international grading systems to measure the length and the width of the last

Measurement of the length of the last:

a) European grading system (Paris points)

Unit of measurement: The French point: 6.66 mm (i.e. 2/3 of 1 cm).

b) English grading system

Unit of measurement: The English size corresponding to 8.46 mm. that is to say 1/3 of an inch. (1 in. = 2.54 cm).

c) American grading system

Unit of measurement: The American size corresponding to 8.46 mm. that is to say 1/3 of an inch. (1 in. = 2.54 cm).

The right measurement is taken, by measuring from the heel end to the insole end with a tape measure.

Foot and last Measurement

Foot Measuring:

(A) Feet are measured for a variety of purposes. A bespoke shoemaker requires information about his customer's feet so that he can either have lasts made or can fit up lasts chosen from his stock in order that the footwear made on them will satisfy the fit and comfort needs of that particular customer.

(B) A manufacturer producing footwear in bulk requires sufficient information about the feet of the segment of the market that he seeks to satisfy, for him to be able to produce a range of lasts in sufficient sizes and fittings on which he can make a number of styles which will satisfy the needs of the largest percentage possible of that market segment for the lowest cost in last plant, equipment and finished stocks of his and the retailer's stock-room.

(C) The retailer needs to measure his customer's feet in order that he can select from his shelves the footwear that, when tried on the customer's feet, will produce an acceptable fit.

We have probably heard of shoe salespeople who claim that they can judge that length of a customer's foot by simply looking at it. The same people also claim that they have learned to estimate the probable amount of elongation by the feel of the foot. Estimation of width has become a matter in instinct to them. Such salespeople are invariably working with a limited range of shoes made over lasts whose features are known to them.

Such an attitude towards the fitting of shoes is a risky one and should not be followed by competent shoe salespeople.

We should not operate on the trial and error system. The fitting of shoes is not a minor job but one which carries great responsibility.

Because we cannot make major alterations to shoes like you can with other articles of wearing apparel, we must therefore approach your job with an attitude of responsibility not called for in any other area of the wearing apparel field.

To help we give the best possible fit, measuring devices have been made available to us. These devices are not completely accurate, but act as a guide to the

intelligent shoe salesperson. They are not to be taken lightly, as they can be of considerable help to us, particularly when we run into a difficult fitting problem. Combined with our own desire to do the best we can for our customer, measuring devices can be of value to us.

Foot fitting:

1. When a retailer buys his stock he selects from the manufactures a range of styles, which, he believes, will meet the appearance, performance and price needs of the customers he serves.

2. He also chooses those styles in a range of sizes and fitting that will enable him to meet their fit requirements.

3. To help he selects quickly the correct size and fitting for a particular customer he uses a foot measuring device, or foot gauge.

4. A good manual foot gauge includes a size (length) scale; plus a girth measuring tape which can be aligned correctly to the true joint angle of both left and right feet.

5. Electronic foot gauges measure length and width automatically, displaying fitting on a panel.

6. When fitting footwear a set of rules should be applied.

(A) Foot gauges are only a guide. They measure only two dimensions, and indicate which size and fitting is likely to fit correctly.

(B) Both feet must be measured.

(C) The larger should be fitted.

(D) When using a manual foot gauge, body weight must be off the feet.

(E) When using an electronic foot gauge body weight must be on the foot being measured.

(F) The foot must be correctly positioned on the foot gauge.

(i) The stool must be in line with the leg.

(ii) The heel must be right back to the pillar.

(iii) The angle between leg and foot must be 90 degrees.

(iv) The foot must be correctly aligned.

Adults:

Fashion dictates that women's shoes are in general lower cut in the vamp than teenage children's shoes. Thus an easy tension across the joints is necessary to keep the shoe on the foot. The ball of the foot must fit snugly into the ball position of the shoe. Top-line clip and heel grip must also be firm.

Many shoes being made in America and England are made to the measurements of the Brannock fitting device, based on heel-to-ball measurement. This system recognizes that feet of the same overall length need different length shoes in order that the arch of the foot shall be correctly fitted and the ball of the foot correctly positioned in the shoe.

CHAPTER FIVE

5.1 Working Procedure of the Sandal:

Masking:

At first I have selected the appropriate last. Then I took a roll of masking tape that widths is 15mm.

Procedure:

Apply a strip of tape down the centre of the front and down the back of the last.

- Now apply the tape length ways (two times) both inside & outside of the last that acts as a beam bar.
- When the length ways strips have been applied then apply the tape width ways from the toe portion. These
- Strips should also be overlapped and continue through the vamp portion.
- From the vamp position apply tape half ways through the centre line. It is done both side of the last at a time to avoid wrinkle.
- The next step is to trim the waste tape foam the bottom of the last, right up to the feather edge.
- Now centre lines can be applied. The simplest way is to stretch a length of masking tape out on cutting board and draw a straight line down the middle.
- This can then be applied down the centre of the forepart, in a straight line from the centre of the top of the cone to the toe.
- The spare tape can be torn off and positioned down the back centre.
- Mark vamps point and counter point.
- Then drawing the design on the last.

Bottom Masking:

- Take the 15mm width masking tape and give three beam on the insole (the waist portion, toe portion & middle of the insole portion).
- Apply length ways strips to cover the full insole. These strips should also be overlapped.

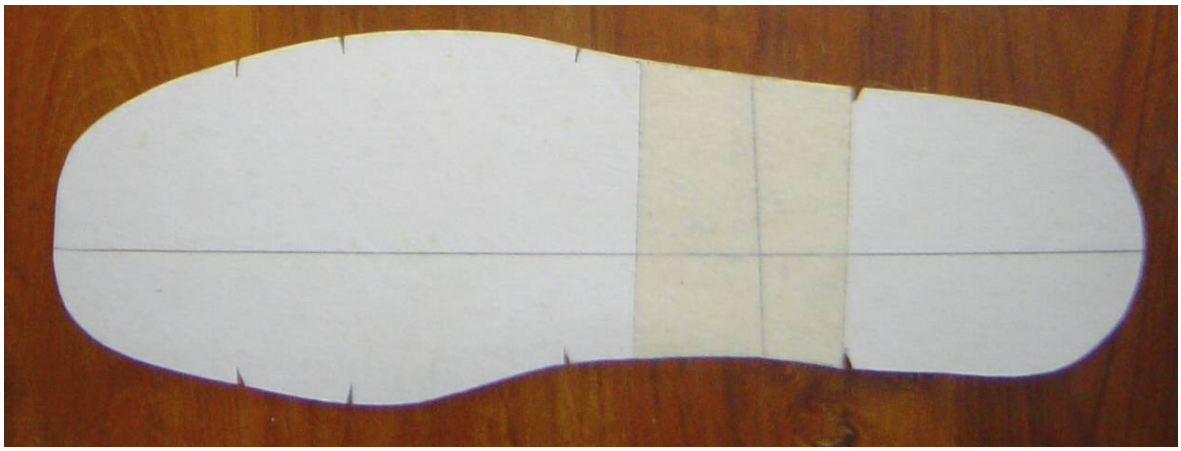
- Now mark the feather edge of the last by a pencil.
- Cut through the feather edge by a knife.
- Remove the waste tape from the upper of the last
- Mark the centre point of the insole in toe and back portion.
- Mark the insole according to the upper.

Fig: 02

Insole standard:

- The insole is separated from the last and flattened on pattern paper.
- Then cut through the bottom profile edge
- Mark the center point of toe position and heel position
- Add the two center point and mark the 1/3 of this line
- Draw a perpendicular line towards that line in that 1/3 position
- Cut 1mm from the perpendicular line and attach the two parts with masking tape
- The insole is ready for the manufacture

Fig: 03



Upper standard making:

- A design is sketched on the last.
- Cut down the pattern and completely through the centre line. This should be done very carefully.
- Now flatten the pattern on the cutting board
- Now the design is developed well.

Fig: 04

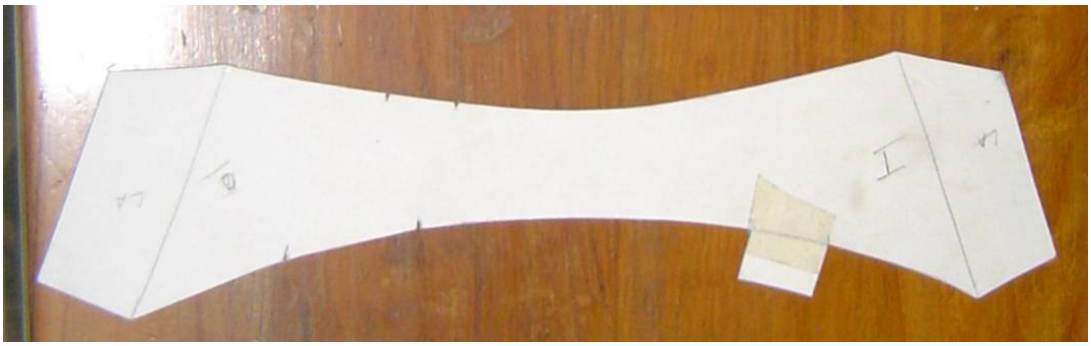
The sectional patterns are following:

First Strap:

Fig: 05

Second Strap:

Fig: 06



Joining Strap:

Fig: 07

Belt:

Fig: 08

Fig: 09

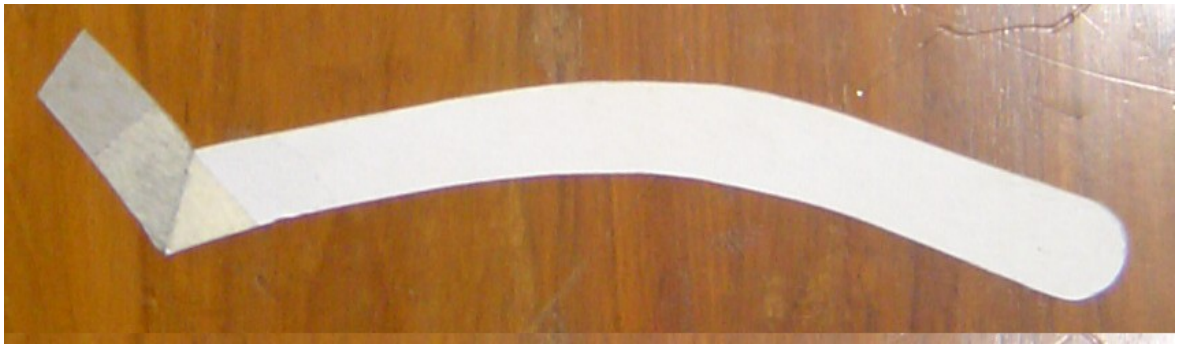


Fig: 10

Lining Making:

- ❖ No lining standard use.
- ❖ According to the upper the lining is completed.

Fig: 11

Cutting:

Clicking is the traditional word for cutting.

Clicking Room is the name given to the part of the factory where the different parts for the shoe are cut from leather or other materials.

Clicker is the name given to the operative who does the actual cutting out. The origin of the word is obscure but the most acceptable explanation is the fact that when a hand cutter's knife leaves the board on the completion of a cut it makes a distinct clicking noise.

These are the following requirement defect should be checked before at the moment of leather upper selection:

- Ticks
- Skin disease
- Growth mark
- Wrinkle
- Looseness
- Vein mark
- Long mark
- Marks
- Mosquito bite
- Grain damage

Technical matter:

- Thickness
- Crack
- Color Stress
- Elasticity
- Shininess
- Softness/hardness

Qualities of a Good Clicker:

- Good reasoning ability

- Spatial perception
- Color realization
- Decision making

Skiving:

Skiving is the reduction in thickness of certain edges of upper components to:-

- Improve the appearance of the finished upper.
- To avoid discomfort in wear.
- Reduce bulkiness.
- To aid construction.

The reduction in substance is usually made on the flesh side of the material leaving the grain side complete. There various types of skive such as-

I. Raw edge.
II. Lapped skive.
III. Folded skive.
IV. Lasting skive.
V. Corner skives.

But, here I need only lapped skiving. The specification is given bellow-

Area of skiving	**Width**	**Depth**
Underlay skive	8mm	½ of the material
Open raw edge	2mm	1/3 of the material

Then attach the upper and lining.

Fig: 12

Closing:

Closing is the title given to the preparation and fitting together and finishing off of the cut components to produce an upper ready for lasting.

When the cut section arrives in the closing room they are progressed through the operation in preparation, fitting together and finishing off in a particular sequence. The closing sequence will obvious vary from style to style.

Specification of stitching:

- Types of stitch - Lock stitch
- Stitch density - 4/cm
- Types of thread - Nylon
- Top thread - 30/3
- Bottom thread - 60/3
- Needle point - LR
- Needle system - 134

Now trim the extend edge of the upper and insole that have created after stitching.

Upper preparation:

- Rough surface of the lasted margin to remove the grain layer of leather
- Remove dust from the surface
- Absorbent upper leather such as split may require two coats of adhesive application
- Apply adhesive: Adhesive must be applied evenly, If the layer is thick it will trap the
- solvent and may lead to poor bonding- For Nuback finished leather PU or neoprene
- adhesive is used
- Ensure a minimum time of 5 minutes between each coat of adhesive
- Allow a minimum drying drying time of 15 minutes before full pressing

Sole preparation: PVC (Blended)

- Scour surface lightly
- Use of brushing operations to remove all traces of dust
- Apply special MEK primer by brush
- Ensure a minimum of 10 minuets between wiping and cementing
- Apply poly urethane adhesive
- It is important that the cemented sole be allowed to dry for at least of 30 minuets before sole pressing
- Heat reactive the adhesive film to 85-90 degrees Celsius
- Press immediately; keep the shoe under pressure for 13 seconds or longer

Heat Setting:

Heat setting helps lasted uppers retain their shape by relaxing the internal stresses that would otherwise tend to pull them back to their original flat shape.
But here, in my sandal, heat setting is not essential.

Delasting:

The upper fitted last is kept sometimes in open air to confirm its shape and then delasting the sandal.

Finishing:

After burning the thread, the edge of the sandal is inking and then the sandal is brushing and polishing.

Usable socks:

Fig: 13

I have used the soft and flexible split leather and EVA sheet for socks.

5.2 Usable tools:

Patter n cutting will be more successful if suitable tools, equipment and materials are obtained before starting. The following lists will give some guidance:

- Pencil.
- Knives.
- Dividers.
- Awl.(picker)
- Ruler.
- Cutting board.
- Pattern paper.
- Masking tape(with 15mm)
- Marker pen.

5.3 Usable components:

- Leather. (various color)

- Last.
- Thread.(various color)
- Socks (split leather)
- Adhesive(neoprene

5.4 Usable machine:

- Skiving machine.
- Flat bed sewing machine
- Post bed sewing machine.
- Zigzag sewing machine
- Heat setting machine.

5.5 Project Work Sample:

The sandal that I have made is given from the following page:

Fig: 14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CHAPTER SIX

6.1 DESIGN SPECIFICATION SHEET:

Designer: Syefuddin Mohammad Hassan Khan

Name of the design: Gent's Sandal

Last: 334 (Wooden)

Sizes:09

Date: 24/08/2006

Design Specification for upper:

Materials	Location	Origin	Tanning	Grain	Finish	Colour	Thickness	Print
Leather	1st Strap	Cow	Chrome		Semi Aniline	Black	2.5 mm	
Leather	2nd Strap	Cow	Chrome		Semi Aniline	Black	2.5 mm	
Leather	Joining Strap	Cow	Chrome		Semi Aniline	Black	2.5 mm	
Leather	Belt	Cow	Chrome		Semi Aniline	Black	2.5 mm	

Design Specification Lining:

Materials	Location	Origin	Tanning	Colour	Thickness
Leather	1st Strap	Cow	Chrome	Beidge	0.8 mm
Leather	2nd Strap	Cow	Chrome	Beidge	0.8 mm
Leather	Joining Strap	Cow	Chrome	Beidge	0.8 mm

Design Specification for Sock:

Construction type	Materials of sock	Thickness	Colour	Attaching process
Full	EVA Sheet	1.5 mm	Yellow	Adhesive

Design Specification for Platform Cover:

Construction type	Materials	Thickness	Colour	Attaching process
Full	Synthetic	0.5 mm	Black	Adhesive

Design Specification for Velcro and Ring:

Use as	Location	Colour	Length	Width	Material

Velcro	Back side belt	Black	4.5 cm	1.8 cm	-
Ring	Join to 2nd Strap	Silver	2.5 cm	0.4 cm	Steel

Specification for Adhesive:

Operation	Type	Drying time
Folding	Neoprene	10-15 min
Temporary attaching	Latex/Rubber Solution	5-10 min
Lasting	PU	10-15 min
Sole attaching	PU	10-15 min

Specification for Skiving:

Use as	Location	Type	Width
Upper	1st Strap	Open Raw Edge	2 mm
	2nd Strap	Open Raw Edge	2 mm
	Joining Strap	Underlay	10 mm
	Belt	Underlay	10 mm
Lining	1st Strap	Open Raw Edge	2 mm
	2nd Strap	Open Raw Edge	2 mm
	Joining Strap	Underlay	8 mm

Design Specification for Stitch:

Location	Number of rows	Dist. of the 1st stitch From The edge	Dist. of the 2nd stitch From The edge	Stitch length	Stitch type
1st Strap	2	1.5 mm	5 mm	2	Lock Stitch
1st Strap + Joining Strap	2	1.5 mm	5 mm	2	Lock Stitch
2nd Strap	2	1.5mm	5 mm	2	Lock Stitch
2nd Strap + Joining Strap	2	1.5 mm	5 mm	2	Lock Stitch
Joining Strap	1	1.5 mm	-	2	Lock Stitch
Belt	1	1.5 mm	-	2	Lock Stitch
Belt + 2nd Strap	2	1.5mm	5 mm	2	Lock Stitch

Design Specification for Thread and Needle:

Location	Thread							Needle		
	Position	Color	Ply	Twist	Materials	T.K.T. No	Consumption	System	Size	Point
1st Strap	Top	White	3	Z	Nylon	30/3		134	90	LR
	Bottom	White	3	Z	Nylon	60/3				
1st Strap + Joining Strap	Top	White	3	Z	Nylon	30/3		134	90	LR
	Bottom	White	3	Z	Nylon	60/3				
2nd Strap	Top	White	3	Z	Nylon	30/3		134	90	LR
	Bottom	White	3	Z	Nylon	60/3				
2nd Strap + Joining Strap	Top	White	3	Z	Nylon	30/3		134	90	LR
	Bottom	White	3	Z	Nylon	60/3				
Joining Strap	Top	White	3	Z	Nylon	30/3		134	90	LR
	Bottom	White	3	Z	Nylon	60/3				
Belt	Top	White	3	Z	Nylon	30/3		134	90	LR
	Bottom	White	3	Z	Nylon	60/3				
Belt + 2nd Strap	Top	White	3	Z	Nylon	30/3		134	90	LR
	Bottom	White	3	Z	Nylon	60/3				
Velcro	Top	Black	3	Z	Nylon	60/3		134	90	LR
	Bottom	Black	3	Z	Nylon	60/3				

Design Specification for Insole:

Insole board				
Use as	Material	Material type	Thickness	Colour
Insole board	Fibre	Non Woven	3 mm	Gray

Design Specification for Sole:

Material	Type	Colour	Shape
PVC	BLENDED	Black	Unit

CHAPTER SEVEN

7.1 Conclusion:

After investigation and analysis the market of gent's sandal I have tried to make the sandal with the fulfillment of customer's requirements. But sometimes the customers want some requirements on sandal which is harmful for men. So, I have avoided those requirements. To maintain good quality footwear we should check the following things very carefully:

- It is most UN acceptable and dangerous to have any kind of pin inside the shoe.
- Any long scratch mark.
- Any black stain in a base or brown color shoe.
- Upper should not be very in left and right side.
- Wrinkle
- Color variation in different part.
- Lift is loose position.
- Out sole is fractured.
- Fractured scratch.
- Left and shoe are in different size.
- Out sole on heel are in loose position.
- Belt size is different in a pair.
- Buckle and zipper should be accurate.
- Wrinkle in lining.
- Body weight makes the shoe wrinkle.
- Dust stick to the upper

During the production of the sandal I have found some advances and limitations which are given below:

7.2 Findings:

- I have never used any metallic trim for the sandal that I have made for gents because it may occurs-

  a) Metal may produce rust.
  b) It makes painful for foot at any time.
  c) Sometimes it may produce over weight
  d) Sometimes it may produce scratch on the skin.

- For the production of this type sandal, there are a few machines are required which can reduce the cost of the shoes.
- Very few labors are needed for the production which also reduces the cost of the shoes.
- The produced shoe is flexible and soft.
- For the production of this type shoes can be required small place.

7.3 Limitations:

The limitation of my project work is given bellow:

- I have used only one pair of last.
- I have tried for matching the thread with the upper, but I could not acquire 100% success.

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