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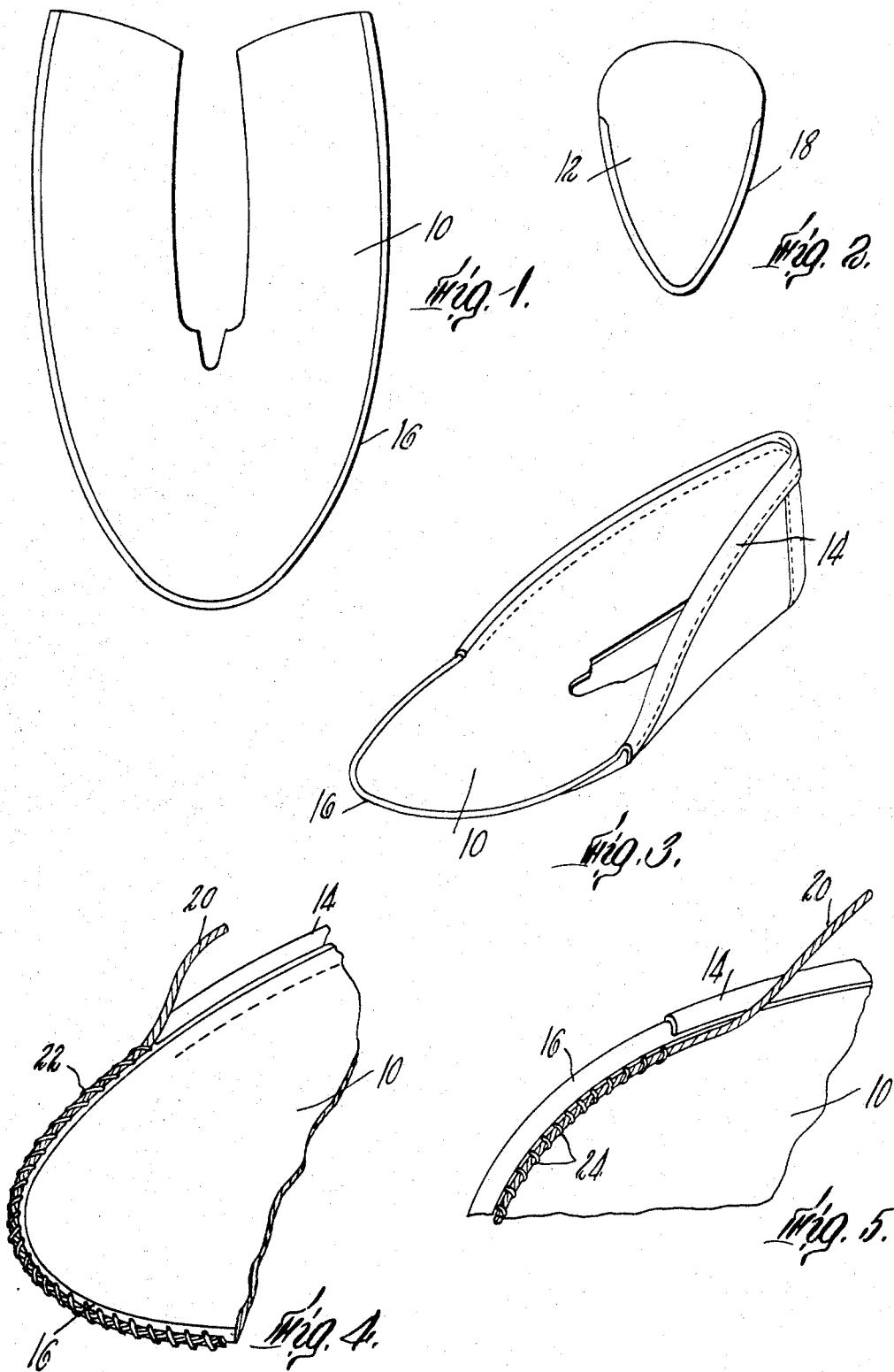
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3,414,923

MOCCASIN MANUFACTURE

Filed Feb. 26, 1964

2 Sheets-Sheet 1



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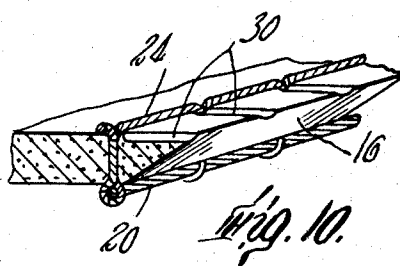
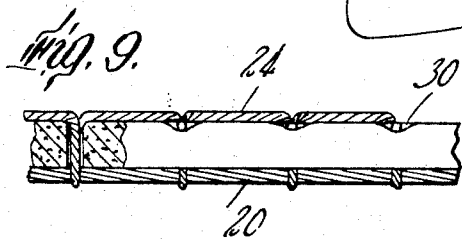
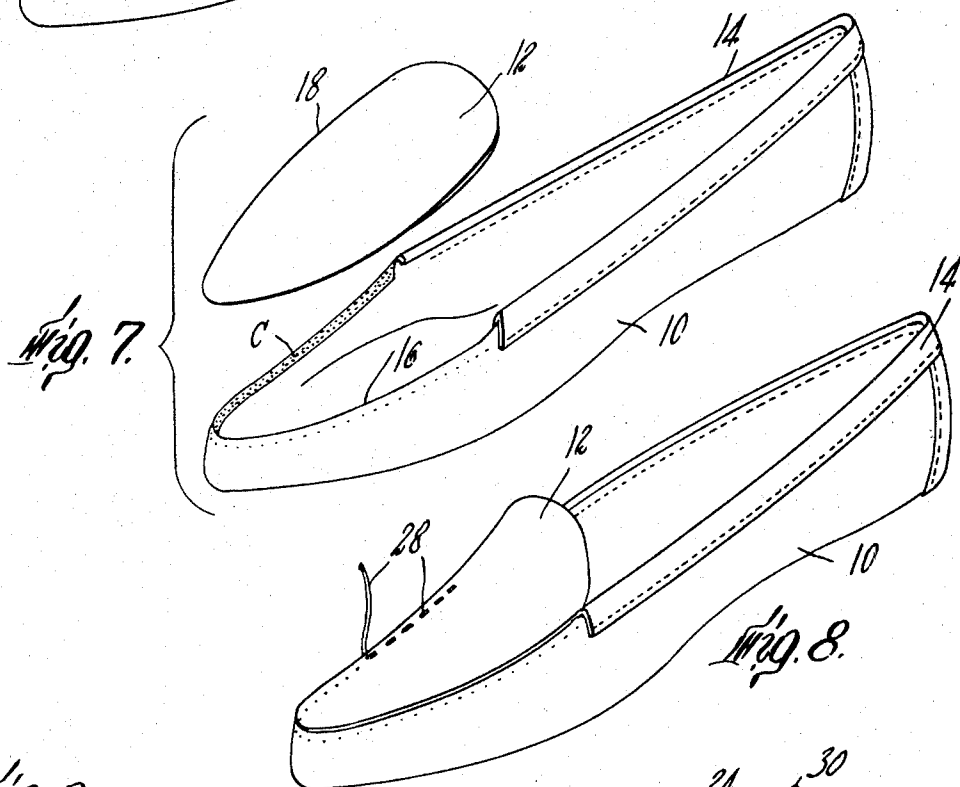
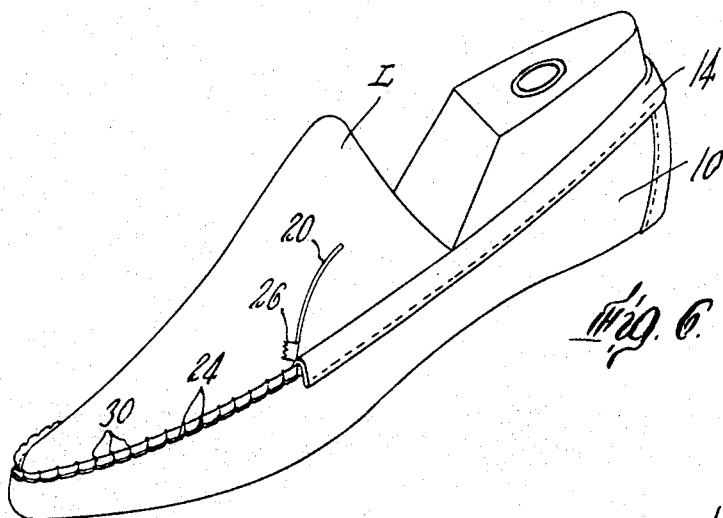
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2 Sheets-Sheet 2



1

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MOCCASIN MANUFACTURE
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ABSTRACT OF THE DISCLOSURE

A method of forming a moccasin forepart including a toe from an outer upper vamp element with an upper outer edge of one length turned inwardly and shortend for joining with a shorter outer edge of an outer upper plug element, including the steps of: sewing to vamp said element two control thread elements including a drawstring element applied to one side of the vamp element generally parallel thereto adjacent to its edge and an attaching thread element applied to the vamp element adjacent to its edge around said drawstring element maintaining said drawstring element in its position; molding said vamp element around the outside of a last by holding said outer edge of the vamp element on the last and pulling the ends of the drawstring element to shorten said outer edge of the vamp element to substantially the shorter length of the said plug element edge to be joined thereto, said control thread elements restraining said vamp element edge against excessive puckering and outward movement while it is being shortened by the drawstring element; and joining the shortened vamp element edge to the outer edge of said outer upper plug element by machine stitching.

My invention relates to the manufacture of footwear such as shoes, boots, sandals and slippers and is particularly concerned with an improved method or process for making footwear having the moccasin type of construction and appearance, particularly in the forepart of the shoe, but in some cases, in the heel section as well. This type of footwear may be made with or without an added sole, and/or heel to provide additional features of style, wear, support and comfort. Also, this construction is applicable to footwear made of leather, plastic, fabric, or any of the usual materials used in a footwear manufacture. As is well known, the original true or genuine moccasin was and is a shoe or slipper that has its bottom and sides ordinarily, but not necessarily, of one piece of leather or other suitable material, hereinafter called the vamp, which is joined along the edges of its forepart to the edges of a U-shaped piece or "plug" lying on the top of the forepart of the foot. Before joining these edges together, the patterns of the leather or other upper and plug materials involved are such that that section of the vamp edge which is to be joined to the plug edge is greater in overall length than the corresponding section of the plug to which it is to be joined, necessitating a shortening of that section of the vamp to a length approximately the same as the plug edge to which it is to be joined. This shortening may or may not be accompanied by a puckering of the vamp material, the nature and extent of this puckering depending somewhat on the compressibility of the vamp material, and the degree of shortening involved.

In known methods of making footwear having the genuine moccasin construction, prior to this invention it has been found difficult to shorten this vamp edge sufficiently and uniformly enough to permit machine sewing of the plug to the vamp along the moccasin seam. Consequently, the seam joining these edges has been traditionally sewn by hand, whereby the shortening of the vamp is effected by taking a longer needle spacing in the

2

vamp than in the plug, so that the vamp is gradually and progressively shortened and sometimes puckered as it is sewn to the shorter plug edge. This hand work requires a high degree of skill to perform properly. Moccasins of other than the genuine moccasin construction have been made by using patterns usually but not necessarily of multiple pieces where the vamp edges are essentially the same length as the plug edges to which they are to be joined, but in such constructions the cupping of the vamp which accompanies the edge shortening in the genuine moccasin is missing and the resulting product usually does not have the characteristic "look" or shape-retentive qualities after wearing that the genuine moccasin construction affords. The principal object of the present invention is to provide an improved method for the manufacture of footwear having a moccasin-type forepart, a method that is economical and rapid.

A related object is to provide such a method to manufacture footwear having the genuine moccasin forepart construction without sacrificing appearance or quality of the articles produced.

Another object of this invention is to provide a method for uniformly shortening the edge of a piece of leather or similar material for use in manufacturing a moccasin toe or for like purposes in leather working.

These objects are met by performing certain steps outlined immediately below and described in detail at later points herein with respect to an exemplary moccasin type shoe:

- (1) Shaping the vamp and shorteneing the entire vamp edge, to a large degree by compression, where it will be joined to the plug, this shortening preferably being done against a form or last by using two critically tensioned control thread elements, for example, a draw string applied to one side of the vamp adjacent its edge preferably by a line of stitching spaced evenly from the vamp edge, which stitching overlies the surface of the vamp edge on the opposite side from the draw string. This stitching combined with the draw string restrains the vamp edge and limits the degree of puckering, while allowing the vamp edge to be compressively shortened. At the same time, the vamp edge is pressed inwardly against the form or last while it is being shortened by the draw string to a dimension and shape; substantially the same as that of the edge of the plug to be joined thereto;
- (2) Fitting and holding the entire vamp and plug edges, preferably skived to a sharp point, at least with their inside surfaces together in contacting position to be joined;
- (3) Permanently joining the fitted plug and vamp together near their edges preferably by stitching extending between their outer surfaces across their contacting surfaces; and
- (4) Finally shaping the completed article, if this is desired or required for the particular kind of footwear being produced.

Other objects, advantages and further details of the method of this invention in a preferred form as applied to the manufacture of an exemplary moccasin type shoe will be evident from the following description, taken with the accompanying drawings in which:

FIG. 1 is a plan view showing the inside of an exemplary main body or vamp blank, in the flat, from which a moccasin type shoe will be made;

FIG. 2 is a plan view showing the inside of a corresponding plug blank piece, in the flat, to be used with the vamp piece of FIG. 1 in making the exemplary moccasin type shoe;

FIG. 3 is a perspective view showing the vamp of FIG. 1 with its ends joined together and a piece added at the

3

back to form the heel portion of the upper, and a collar or cuff added to what will become an ankle opening at the top of the shoe;

FIG. 4 is an enlarged perspective like a portion of FIG. 3, showing one way of slidably securing a shortening draw string to the partially formed vamp;

FIG. 5 is an enlarged perspective of a portion of the partially formed vamp showing another and preferred way of slidably securing a draw string near the plug-joining edge;

FIG. 6 is a perspective view showing the vamp applied to a shaping form or last and the vamp edge shortened where it will be jointed to the plug, by tightening the draw string;

FIG. 7 is an exploded perspective of a shoe body with shortened and set vamp edge and a plug therefor, about to be fitted and held together at their edges;

FIG. 8 is a perspective view of a vamp and plug fitter and held together and in the process of being permanently joined at their edges to complete the upper;

FIG. 9 is a magnified edge side view of a vamp, partly in section, showing a further improvement detail used with the arrangement of FIG. 5; and

FIG. 10 is a sectional top perspective view of the improved vamp edge of FIG. 9.

The method of this invention will be described in connection with the manufacture of a leather shoe of the moccasin type by way of illustrative example. It is spoken of as a shoe because it is intended to have a separate outer sole and a heel that may be added later following completion of the shoe upper or body. The present method may with equal facility be used in the manufacture of true moccasins or slippers having the bottom of the vamp serve as the outer sole.

In the manufacture of footwear of the type used here as an example, only two principal pieces are usually required for the main body or upper. These may be called the vamp 10, shown in plan view in FIG. 1, and the plug 12, shown in plan view in FIG. 2. These figures of the drawings show the inner faces of the pieces in flat condition as they might appear after being cut from the leather or other sheet material being used for the shoe. Other pieces may be used, such as cuffs, backstays, trim, etc., but these are not the principal or main pieces of the shoe upper. The inner surface of the vamp may be and preferably is skived at its outer edge to a sharp point in a usual fashion and the outer U-shaped edge of the plug also may be and preferably is skived, at least where it is expected to be joined to the vamp, so that a neat seam will be produced. According to one usual practice in making shoes, the heel portion of the vamp is completed as by an added piece or a back seam or in any other suitable fashion and an edge trim or cuff 14 is applied around that portion of the vamp which will become the sides and back of the ankle opening. This leaves the entire front portion of the outer edge of the vamp blank free and exposed, this being the area indicated by the number 16 in FIG. 1 of the drawings. It is this outer edge that is to be secured to the outer U-shaped edge 18 of the plug to complete the moccasin toe. It is to be noted that the vamp edge 16 is considerably longer than the plug edge 18 is to be joined to it. At the start, the heel is usually formed and the cuff added. It is at this stage of manufacture that the method of the present invention begins.

Shaping toe and shortening vamp edge

Instead of progressively stitching and shortening the vamp edge to match the plug edge by hand sewing and gathering or puckering as formerly, the method of the present invention starts with the step of shaping or molding the vamp and shortening the entire vamp edge where it will be joined to the plug. In the exemplary shoe construction shown, this shaping of the vamp and shortening of the vamp edge is accomplished by applying a draw string 20 to the edge of the vamp, positioning the shoe

4

vamp on a form or last L and then pulling on the draw string to shape or mold the vamp and vamp edge evenly around the last as indicated generally in FIG. 6. The outer free edge of the vamp body is turned upwardly and is molded and shortened by holding it inwardly around and against the form or last.

When using a draw string to shape the vamp and shorten the vamp edge, the draw string 20 may be secured and guided slidably at or near the edge of the vamp and preferably spaced inwardly therefrom as by overedge stitching 22 shown in FIG. 4, this type of stitch preferably being accomplished by machines readily available. However, it is preferred that the draw string is secured and guided positively along such an inwardly spaced position generally parallel to the vamp edge by using as a shortening stitch a machine-made lock stitch in which the draw string 20 constitutes the bobbin thread with the tension of the threads set so that the bobbin thread does not go into the material at all but lies on one side as seen in FIG. 5, the guide threads 24 constituting the needle thread of this two-thread machine stitch. If desired, this shortening stitch may be made by adjusting the tension of the threads so that the needle thread will act as the draw string, the bobbin providing the guide thread loops. The draw string is preferably of heavy "Dacron" cord or an equivalent. The guide thread lock stitch loops 22 or 24 are critically tensioned to hold the draw string against the material but permit it to slide through said lock stitch loops and along the vamp surface. The requirement is to hold the vamp securely and properly against a form or last while restraining its outer surface from outward movement away from said form or last and so, compressively to shorten the entire length of the vamp edge, without undesirable bunching, puckering, or stretching at some point or points.

In this shaping and edge shortening step the leather may need to be wet or "mulled" first so that it may be readily formed and worked, before placing the shoe vamp on the form or last. Incidentally, the last used need not be a complete last but may be a form that serves to support and shape only the toe portion of the shoe where the vamp edge is to be shortened. Some types of material may not require the wetting before molding or shortening of the edge, and in such cases the wetting is of course eliminated.

Setting shortened edge

Assuming that the leather or other vamp material has been wet or otherwise is in a state to be shaped and shortened, after it is applied to the last or form and the draw string is pulled tight to force the edges into the approximate dimension and shape desired to fit the plug, the entire shortened edge is set or held in its desired shortened dimension and shape. Before setting, the edge 16 should be carefully checked to be sure it is of substantially the same length and approximately the same shape as the plug edge 18 that will be joined thereto. Guide markings may be provided on the form to indicate when the proper shaping and shortening is reached. In the exemplary shoe, a desired shortening by tightening a draw string is shown in FIG. 6 and the setting of the edge is started by the temporary application of a clip 26 at each end of the tightened draw string to hold the draw string in place in tightened condition. Instead of the clips 26, staples, studs, or knots may be used to hold the draw string in position. A drop of a suitable plastic cement also has been found useful to hold the end of the draw string.

If the leather or other material has been wet or treated previously, it is then allowed to dry or force to dry for about one-quarter of an inch inwardly at the edge while being held on or off the last in its shortened condition, so that the shortened edge will be set and hold its dimension and general shape. Of course, the drying or setting could be carried beyond one-quarter of an inch from the edge but this is all that is required before the next step in manufacture takes place.

Vamp bodies in this state may be accumulated in quantity for later joining of a stock of plug pieces thereto, each of these bodies having its outer free edge at the toe portion formed upwardly and inwardly over the rest of the body and having its entire length evenly shortened and held to a fixed length substantially shorter than its original length to match the uniform lengths of the edges of the plugs to which they are to be joined.

Fitting and holding vamp and plug together

With the vamp edge now shortened along its entire length as above described, and set or held in its shortened condition, the draw string 20 with the guiding threads 22 or 24 and clips 26 (if used) may be removed from the vamp. The vamp and plug are then fitted together around their entire edges to be joined and are held together in this position. A preferred method of accomplishing this holding is by first applying an adhesive cement C to the shortened edges of the vamp or to the edges of the plug or to the edges of both vamp and plug. After application of the cement to the edge or edges, the parts are carefully fitted together in the position in which it is desired that they be permanently secured, and are pressed together. The cement temporarily holds the pieces in their final position so that they may be later permanently joined by stitching, if stitching is to be used for the permanent fastening at this seam.

Permanent joining of vamp and plug

If a cemented permanent seam is desired, a permanent type joining cement is selected and the fitting and holding step is simply followed by a complete curing of the cement material being used, this curing being carried on by processes and equipment suitable to the particular permanent joining cement selected.

In making a moccasin toe with stitching, the fitting and holding step is followed by permanently joining the plug and vamp together by stitching 28 extending between the outside surfaces of the plug and vamp across their contacting surfaces, using a machine for accomplishing the stitching, there being conventional machines available that may be modified so as to do this with facility. Of course, hand stitching 28 could be employed at this stage but it could be performed by an operator relatively untrained because the uniform gathering and shortening of the vamp edge has already been accomplished throughout its length and the two parts are previously fitted and temporarily held by the cement in their relative positions for permanent joining. After completing the joining between vamp and plug, the ends of the seam may be strengthened by bar tacking or a whip stitch applied at the corner of the plug and vamp by hand or by machine in the usual way.

Final lasting

In finishing the shoe, the completed shoe body is placed in a mulling chamber in unlasted condition to temper the leather and put some moisture back in it. This final forming may not be necessary depending upon the material from which the shoe is made, but when it is required or desired, the final last may be placed in the shoe after mulling and the shoe body may be force dried under heat in a much shorter time than if the shoe were completely soaked. The shoe may be air dried on the last in a somewhat longer period.

When a draw string stitched to the vamp is used to shorten the vamp edge, and when the draw string and its guide stitching are removed after the shortened edge has been set, any draw string holding thread holes that may be left in the leather may be covered or hidden by the final stitching or sewing used to secure the two parts together. However, the draw string and its supporting and guiding thread need not be removed after edge shortening but may be left in place throughout the fitting and holding step, and removed or trimmed off after permanently joining the vamp and plug together at their edges, with the

permanent joining seam or stitching made inwardly of the thread that holds the draw string. For a novelty decorative seam, the draw string and holding thread may be left in place on the finished shoe and provide an ornamental bead.

FIGS. 9 and 10 show a further improvement in one step of the method of shortening an edge, especially when using a lock stitch like that of FIG. 5 to provide the guide and support for a draw string. The machine producing the lock stitch in this refinement is equipped with a small dull blade segment or rounded edge attached to the needle bar and extending horizontally from a position close to the needle outwardly in a direction at right angles to the line or course of stitches 24 being produced. This blade or edge is set at such a height with respect to the needle end that at the same time the needle stitch is made and when the full depth of stroke of the needle is reached, the blade or edge will press upon and squeeze the material against the sewing table or anvil of the machine and form one of a series of regularly spaced indentations or grooves 30 in the face of the vamp material next to the needle hole. Each impressed groove 30 extends at right angles from a position near the line of stitches 24, opposite the draw string 20, to the edge, as seen in FIG. 10. Thereafter, when the draw string is tightened in shortening the edge, the indentations cause the edge to fold more readily at these points, producing a uniform puckering or gathering of the edge that is remarkable in its smoothness and regularity.

As will be evident from the foregoing description, certain aspects of this invention are not limited to the particular details of the principal or preferred method set forth as an example, and it is contemplated that various and other modifications and uses of the method of this invention will occur to those skilled in the art. It is therefore intended that the appended claims shall cover such variations, modifications and uses as do not depart from the true spirit and scope of the invention.

What is claimed as new and is desired to be secured by Letters Patent of the United States is:

1. A method of forming a moccasin forepart including a toe from an outer upper vamp element with an upper outer edge of one length turned inwardly and shortened for joining with a shorter outer edge of an outer upper plug element, including the steps of

machine sewing to said vamp element two control thread elements including a drawstring element applied to one side of the vamp element generally parallel thereto adjacent to its edge and an attaching thread element applied to the vamp element adjacent to its edge around said drawstring element maintaining said drawstring element in its position, molding said vamp element around the outside of a last by holding said outer edge of the vamp element on the last and pulling the ends of the drawstring element to shorten said outer edge of the vamp element to substantially the shorter length of the said plug element edge to be joined thereto, said control thread elements restraining said vamp element edge against excessive puckering and outward movement while it is being shortened by the drawstring element, and joining the shortened vamp element edge to the outer edge of said outer upper plug element by machine stitching.

2. A method as claimed in claim 1 wherein:

said machine stitching extends between the outer surfaces of the plug and vamp elements across their contacting surfaces, and is generally parallel to and spaced from their joined edges providing an exposed joined edge free of crossing stitching.

3. A method as claimed in claim 2 wherein:

said control thread elements are removed from said vamp element after forming said vamp element.

4. A method of forming a moccasin forepart including a toe from an outer upper vamp element with an upper

7

outer edge of one length turned inwardly and shortened for joining with a shorter outer edge of an outer upper plug element, including the steps of

machine sewing to said vamp element two control thread elements cooperating in a machine lock-stitch relationship including a drawstring element applied to one side of the vamp element generally parallel thereto adjacent to its edge and an attaching thread element applied to the other side of the vamp element adjacent to and spaced from its edge with intermittent surface portions of said attaching thread element lying along said other side of said vamp element generally parallel to said vamp element edge and loop portions connected between said surface portion extending through said vamp element and around said drawstring element maintaining said drawstring element in its position providing an exposed vamp element edge free of crossing thread elements,

molding said vamp element around the outside of a last by holding said outer edge of the vamp element on the last and pulling the ends of the drawstring element to shorten said outer edge of the vamp element to substantially the shorter length of the said plug element edge to be joined thereto, said control thread elements restraining said vamp element edge against excessive puckering and outward movement while it is being shortened by the drawstring element, and

joining the shortened vamp element edge to the outer edge of said outer upper plug element by machine stitching extending between the outer surfaces of the plug and vamp elements across their contacting surfaces, and generally parallel to and spaced from their joined edges providing a joined edge free of crossing stitching.

8

5. A method as claimed in claim 4 wherein:

said vamp and plug upper element edges are skived and butted to one another and

said control thread elements are removed from said vamp element after the forming of said vamp element.

6. A method as claimed in claim 5 further including impressing a series of grooves in the surface of said vamp element simultaneously with the application of said lock-stitched thread control elements, with said grooves extending to the edge of said vamp element at right angles to said thread control elements.

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