METHOD OF MAKING LAMINATED LEATHER HEEL COVERINGS

Filed Oct. 24, 1961

FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

FIG. 6

PRIOR ART

INVENTOR.
CHARLES L. HOFFMAN

BY
Suzanne Ronsel, Min & Zina
ATTORNEYS
This invention relates to a method of making thin laminated leather heel covers for use in the manufacture of heels for ladies' shoes, and more particularly to an improved method of making such coverings in which the laminates are inherently symmetrical in appearance and the configuration of the finished heel covers insures an ideal fit when applied to Louisi heels.

In the manufacture of ladies' shoes, it is conventional practice to use covered wood heels because of the superior qualities and the advantages of wood heels such as lightness, uniformity of shape and finish and the fact that such heels can be made in a great variety of shapes and styles which would be impracticable to produce in heels built up of leather lifts. Of course, it is necessary to cover the wooden heels with a material of a desired type and design which would add to the aesthetic appearance of the shoe. An attempt has been made to provide a covering which simulates the conventional leather lift heels since these heels tend to harmonize with the finish of the sole of the shoe and are therefore extremely natural in appearance.

One method of obtaining this object has been to provide a cover of stacked or laminated leather veneer in which the leather heel cover for the rear and sides of the heel comprises a plurality of thin leather sections secured together in an abutting edge to edge relationship. Because of the particular configuration of heels for ladies' shoes such as the stylish Louis heel, it has been necessary to build the stacked leather veneer of special construction with close control of the particular configuration of each of the laminate strips to insure that the end product effectively covers all of the surface of the Louis heel. At the same time it is desirable to render the most pleasing appearance by having the lines of demarcation between the abutting logs generally parallel to each other and are horizontally positioned on the finished heel to give aesthetic appeal to the finished product.

One such method of forming such a laminated heel covering makes use of a process which includes the steps of preliminarily forming a stacked leather log of a desired semi-elliptical configuration with the strips of leather being cemented or otherwise adhesively attached to each other along their longitudinal axis. The strips are formed of a specific thickness and configuration and placed within a suitably designed elliptical mold to produce a finished log which when subjected to a skiving operation at right angles to the axis of the log results in the formation of a relatively thin heel covering having a desired configuration.

In the Louis heel which is used almost exclusively upon women's shoes, there is a difference in height between the rear and breast faces of the heel due to the forward pitch of the attaching face or seat of the heel. This pitch of the attaching face, together with the downward and forward slope of the rear surfaces of such heels make it necessary for the covers to have a substantial amount of curvature in their upper and lower edges in order to fit properly when applied to the rear and sides of the heel. Known methods of manufacturing a heel covering from stacked leather veneering, it has been necessary to insert thin, sharply tapered sections or strips of leather to compensate for the additional surface area caused by the downward and forward slope of the rear surfaces of the heel and the variation in thickness of the heel from top to bottom. In the formation of the logs of stacked leather sections it has been necessary to provide a number of these wedge strips which are normally highly tapered and do not extend the full width of the other strips making up the log. It can be appreciated that great care must be exercised both in the number of the strips used, and in the uniformity of taper so as to insure complete adhesive retention between the wedge-shaped strips and the remaining non-tapering strips making up the log structure. At the same time, the use of the wedge-shaped strips results in an end product in which the use of the tapered wedge strips are readily apparent from the lines of demarcation between the strips with these lines interfering with the overall aesthetic appearance of the finished product.

It is therefore a primary object of this invention to provide an improved method of forming a laminated leather heel covering in which the heel covering may be formed with a finished configuration enabling it to be more readily used on the highly stylish Louis heels.

It is a further object of this invention to provide an improved method for forming a laminated leather heel covering in which the need for wedge-shaped inserts within the laminate structure is abolished.

It is a further object of this invention to provide an improved method for forming a laminated leather heel covering which eliminates the need for any adhesive backing or support means for the relatively thin heel cover.

Other objects of this invention will be pointed out in the following detailed description and claims and illustrated in the accompanying drawings which discloses, by way of example, the principle of this invention in the best mode which has been contemplated in applying that principle.

FIGURE 1 in the drawings is a perspective view of the type of apparatus, in one form which may be used to practice the process of this invention.

FIGURE 2 is a front view, partially in section of the mold for forming a stacked leather log of a desired configuration for use in the present invention.

FIGURE 3 is a side view of a portion of the apparatus shown in FIGURE 1.

FIGURE 4 is a plan view of a stacked leather heel cover cut from the log shown in FIGURES 2 and 3 by the apparatus of FIGURE 1.

FIGURE 5 is a perspective view of a Louis heel showing the finished stacked leather heel covering formed by the present invention and adhesively secured thereto.

In general, this invention is drawn to a method of forming a semi-ovoidal stacked leather heel covering from a log having generally semi-circular cross-sectional configuration including the steps of rotating a cutting tool about an axis perpendicular to the longitudinal axis of the semi-circular log and moving the log relative to the rotating cutting tool to effect engagement therewith. The cutting tool cuts an ovoidal slice from the semi-circular log, the slice forming the thin stacked leather veneer or covering for the rear and sides of a heel.

Referring to the drawings, there is shown in FIGURE 6 an apparatus for forming a conventional block log of thin leather strips composed of a plurality of elongated layers of sole leather stock or the like in which the grain or fiber extends width-wise of the layers, the layers being adhesively secured together in face-to-face relation of flesh to grain. The log indicated at 9 is formed of individual strips 12 of relatively constant thickness and extending completely across the mold consisting of
upper and lower members 14 and 16, respectively. In the past, in order to obtain the desired configuration the mold blocks 14 and 16 are given a semi-elliptical concave and convex faces 18 and 26, respectively. In addition, it has been necessary in the past to provide a number of inserts 22 also formed of thin leather strips but tapering from the center and being of a width somewhat less than the widths of the main leather sections described in suitable material such as pyroxylin cement between the layers, a suitable log is manufactured having a desirable configuration. It has been the practice to remove the log 10 from the mold sections and to form the individual stacked leather veneers or heel covers by cutting the log cross-wise of the layers in a plane transverse to the run of the fiber. It is apparent from viewing the cross-sectional portion of the log in FIGURE 6 that the use of elliptical mold sections 14 and 16 requires special care in the cutting and selection of the strips 10 and 12, and also requires the addition of wedge-shaped segments 22 to effect a desired finished configuration to the heel cover.

In the present invention, the log is formed exclusively of thin stacked leather strips in much the same manner as the apparatus shown in FIGURE 6 with the main exceptions being that the mold rather than being semi-elliptical shape is semi-circular and thus much easier to produce, and at the same time the need for specifically designed and measured tapered wedge sections is eliminated.

The same general method is used in the manufacture of the log for use in the present method of forming the ideal heel cover for a Louis heel, with the mold 30, FIGURE 2, consisting of an upper section 32 with a lower section 34. The lower section 34 includes a semi-circular groove 36 running longitudinally of the mold, which may be formed, of course, much easier than the elliptical cut-out section required in the construction of the prior art log shown in FIGURE 6. The upper section of the mold 32 may, if desired, have a cut-out portion which is merely a continuation of the semi-circular cut-out portion in the lower section 34. In this case a log 38 having a true semi-circular cross-section would result rather than one having the tapered side portions 40 as shown. However, in order to provide a heel covering having a configuration such that the minimum amount of overlap results when applied to the surface of a heel as indicated in FIGURE 5, the ideal configuration for the mold has been formed through experimental determination in FIGURE 2. As a result, the upper mold has a flattened horizontal, central portion 42 with tapered side portions 44. Suitable means indicated by the dotted lines 46 may be used for clamping the mold sections 32 and 34 together after the laminated leather strips 48 are positioned within the mold and suitable adhesive or cement is applied between these strips to insure that the strips will not separate during the veneering operation.

After the log 38 of desired configuration has been formed from the individual layers of sole leather stock, and the adhesive between the layers has hardened, the log 38 is removed from the mold 30 and is ready for the next step in the process of forming the semi-ovoidal heel covering.

The log 38 is positioned in a suitable clamp shown in FIGURE 1, which consists of an upper clamping member 50 and a lower clamping member 52 having opposite opposing cut-out portions of the same general configuration as that of the log. The log is positioned with its longitudinal axis generally horizontal, with the end of the log extending outward of the clamping means. In order to provide a semi-ovoidal configuration to the end product or veneer, the method of the present invention employs a rotating cylindrical tool which is adapted to engage the front surface of the log to provide a cut giving this desirable configuration. A suitable cutting tool may be provided in the form of a rotating cylinder 54 including a cutting edge 56. The cutting cylinder 54 rotates about an axis 58 which is at right angles to the longitudinal axis of log 38. The exact positioning of the axis 58 of the rotary cutting tool and the path in which it moves may be best seen in FIGURE 3 with respect to the longitudinal axis of the log 38. It is apparent that the longitudinal axis of the leather log 38 is off-set from the axis 58 of the cutter 12. By using a tool of this nature, the cutting action causes a variation in the thickness of the stacked leather veneer heel cover. The heel cover is relatively thin at a point near the bottom of the cover since the horizontally positioned log 38 is at a point very near a line drawn tangent to the rotating tool and parallel to the axis of the log 38. However, in the vicinity of the top of the log the thickness of the heel cover is much greater and of course the angle of inclination across the surface of the upper strip of the log is much greater at this point. It is apparent from viewing FIGURE 3 that if the bottom of the log is made tangent with a rotating cutting plate, the relative length of the heel cover at this point would be infinite and the thickness would be zero.

The method of the present invention for making a semi-ovoidal heel covering from a laminated leather log having a semi-circular cross-sectional configuration advantageously provides a heel covering having a thickness which is greater at the end of the cover adjacent the tip of the heel as at 60, FIGURE 3, than that portion of the cover indicated at 59 lying adjacent the top of the heel in the vicinity of the shoe proper. FIGURES 4 and 5 show the position of these portions of the heel covering when the heel cover is adhesively attached to the wooden Louis heel 62. FIGURE 1 shows one form of apparatus that may be used in the manufacture of heel covers under the method of steps of this invention. The log 38 is clamped between members 50 and 52 which are held together by the horizontal support means 66. The T-shaped end portion 68 of block 52 cooperates with the adjoining block 64 to act as a slide for allowing the two block members 50 and 52 to move in unison as indicated by arrow 70 across the upper surfaces of support 66 to move the log 38 into the path of the rotating cylindrical cutter 54. In this case, the axis 58 of the rotating cutter 54 remains fixed and the work piece moves into contact with the rotating cutter. As a result, a slice 72 of the log 38 is removed from the log with the slice 72 being semi-ovoidal in form and having a configuration allowing it to embrace the heel 62. FIGURE 5, while at the same time insuring that the lines of demarcation 74 between adjacent leather strips lie generally parallel to the upper surface of the wooden Louis heel 62 to provide a pleasing appearance that is highly desirable in the trade. It is apparent from viewing FIGURE 5, that the dimensions of the log 38 and the specific configuration axis both to provide this pleasing appearance to the finished product and at the same time to provide sufficient overlap 76 around the top of the heel 62 and overlap 78 about the sides of the heel adjacent the breast 80. The heel covering or slice 72, FIGURE 4 has sufficient area to completely cover the rear and sides of the heel 62 but is insufficient to cover the breast 80. Normally in the construction of shoes, the sole includes a portion which is split or skived so that a portion may be utilized to cover the breast 80 of the heel after the overlap 78 has been affixed to the edges of the breast 80 of the log giving the completely covered wooden heel 62 a most pleasing appearance.

The present method of manufacturing a semi-ovoidal heel covering from a generally semi-circular cross-sectional log of stacked leather laminations is not intended to be limited to a cutting operation as indicated by the apparatus shown in FIGURE 1. It is apparent that the semi-ovoidal end product is formed primarily by the use of a rotary cutting tool which rotates about an axis which is perpendicular to the longitudinal axis of the stacked leather log with the longitudinal axis of the log being off-set from
the axis of the rotating cutter and the plane of the base section of the log lies closest to the axis of the rotating cutter. The rotating cutter now may take one of several forms and instead of a rotating cylinder having a one-edge acting as a cutter, an identical end product would result with the cutter in the form of a longitudinally extending flat blade which is caused to rotate about an axis parallel to the longitudinal axis of the blade and positioned to intercept the log as the log is moved incrementally forward into the path of the rotating blade. Of course, after the blade has passed completely through the log, the log must be moved incrementally forward or the rotating cutter blade must be moved incrementally toward the stacked leather log to effect the next slicing operation. The particular apparatus for providing the desired sequence of events forms no part of this invention. It is important only that there is no movement of the log during the actual cutting operation.

A standard wooden heel configuration known as the Loui heiel is used throughout the industry. The heights of the heel, as conventionally used are the 2 1/2” Louis heel and the 3” Louis heel. In the formation of a heel covering having a desired configuration, the particular size of the heel must of course be considered in the formation of the log 38. In order to provide enough surface area to adequately cover the heel with a minimum of overlap and at the same time to use only the lines of demarcation 74 between the strips 48 run generally parallel to the plane of the top of the heel, the formation of the blocks 32 and 34 and the configuration of the strips are carefully controlled. For example, to provide a covering having the desired finished configuration and having enough surface area to adequately cover a 3 1/2” heel, it was found that the extreme height at the center of the log 38 be 3” as indicated by the arrow having dimension A in FIGURE 2. The basic circular configuration given to the bottom block 34 is provided by drawing a semi-circular line about a 4 1/4” radius designated by arrow R. The width W required at the upper flat portion forming the base of the log was found to be 2”. In order to effect an end configuration which would substantially wrap about the upper portion of the heel, it was found necessary to provide a full circular configuration to the main portion of the log from the outer extremity inwardly toward the base a distance E of 1 1/4”. The vertical distance D which is 1 1/4” provided a diagonal line F which is 1 1/4” long reaching from the base to the point of intersection with the bottom peripheral curve. It was also found by experiment that if the heel cover is to be used with 2 1/2” Louis heel, the actual height of the laminated log 38 along a line drawn vertically through the axis of the log is equal to the dimension indicated by arrow B and is 2 1/4”. It is apparent therefore that a segment indicated at X is added to the outer periphery of the main body to provide for the increase in overlap as well as a segment indicated at Y near the base portion to take care of the 1/4” increase in height between the 2 1/2” and 3” Louis heel. In general the addition of these laminate strips is all that is required with the cutting operation in any case taking place in the manner indicated in FIGURES 1 and 3 to achieve a semi-ovoidal end product from a semi-circular cross-sectional log. A desirable construction for a 3” Louis heel cover consists of 12 or more thicknesses of leather varying in width from 2” to 6” and having a suitable taper to conform to the 4 1/4” diameter indicated by arrow T. The resulting end product has ample allowance to adequately cover the surface of the Louis heel as well as assuring that there is an additional amount of overlap required for securement to the top and breast of the heel.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a preferred method, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated to accomplish the method and in the specific operation to obtain the desired end product may be made by those skilled in the art without departing from the spirit of the invention.

It is the intention therefore, to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. A method of forming a semi-ovoidal leather heel covering from a generally semi-circular leather log comprising the steps of rotating a cutting tool about an axis perpendicular to the longitudinal axis of said semi-circular leather log, and moving said log relative to said cutting tool to effect engagement therewith whereby said cutting tool cuts an ovoidal slice from said semi-circular log.

2. A method of forming a semi-ovoidal leather heel covering from a generally semi-cylindrical laminated leather log comprising the steps of rotating a cylinder forming a cutting tool about its axis, positioning said log at right angles to said cylinder axis with the axis of said log offset from the axis of said cylinder, and moving said cylinder across said log to remove a thin slice therefrom to form a semi-ovoidal laminated heel covering.

3. A method of forming a semi-ovoidal leather heel covering from a generally semi-circular laminated leather log comprising the steps of rotating a cylindrical cutting tool having a cutting edge formed by one end of said cylinder about its axis, positioning said log with its longitudinal axis at right angles to the axis of said cylindrical cutting tool, moving said log transversely of its longitudinal axis into the path of said cutting edge of said cylindrical cutting tool, moving said log along its longitudinal axis incrementally toward said rotating cylindrical cutting tool whereby a plurality of semi-ovoidal leather heel coverings are sequentially cut from said moving log.

4. A method of forming a laminated leather heel cover comprising, adhesively securing, a stack of thin leather strips of desired configuration to form a laminated log of generally semi-circular cross-section, rotating a cutting tool about an axis perpendicular to the longitudinal axis of said log, and incrementally advancing said log into the path of said rotary cutting tool with the longitudinal axis of said log being offset from the axis of said rotating cutting tool whereby a plurality of semi-ovoidal heel coverings are formed sequentially from said log.

5. A method of forming a semi-ovoidal leather heel covering from a generally semi-circular laminated leather log comprising, rotating a cylinder having one end acting as a cutting edge about its axis, positioning said log at right angles to said cylinder with the longitudinal axis of said log offset from the axis of said cylinder, moving said log laterally toward said rotating cylinder to effect removal of a thin-ovoidal slice of leather from said semi-circular laminated leather log, returning said log to its initial lateral position out of the path of said rotating cylinder, incrementally advancing said log along its longitudinal axis and again moving said log transversely into the path of said rotating cylinder to effect the subsequent removal of another slice having a semi-ovoidal configuration.

6. A method of forming a semi-ovoidal leather heel covering from a generally semi-circular laminated leather log comprising the steps of rotating a cutting tool about its axis, positioning said log at right angles to said rotating cutting tool with the longitudinal axis of the log offset from the axis of said rotating cutting tool, moving said rotating cutting tool into the path of said log to remove a thin semi-ovoidal slice therefrom and then moving said rotating cutting tool out of the path of said log, moving said cutting tool relative to said log an incre-
mental distance with said cutting tool out of the path of said log and subsequently moving said rotating cutting tool again into the path of said log to effect the sequential cutting of a second semi-ovoidal thin slice from said generally semi-circular-laminated leather log.

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