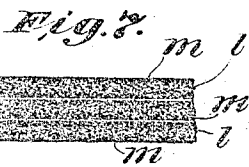
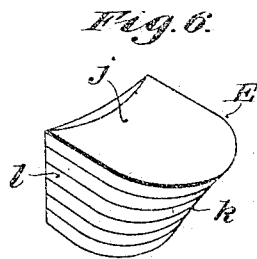
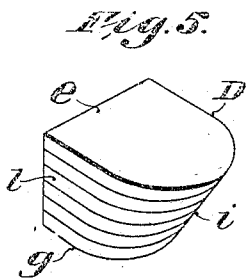
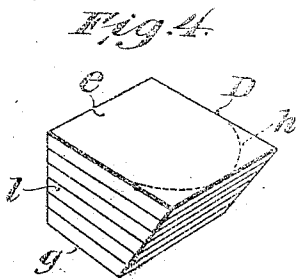
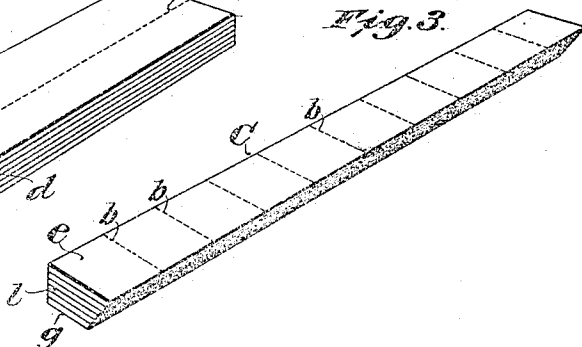
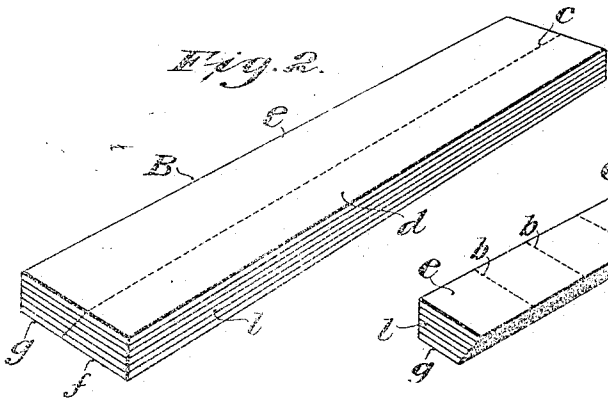
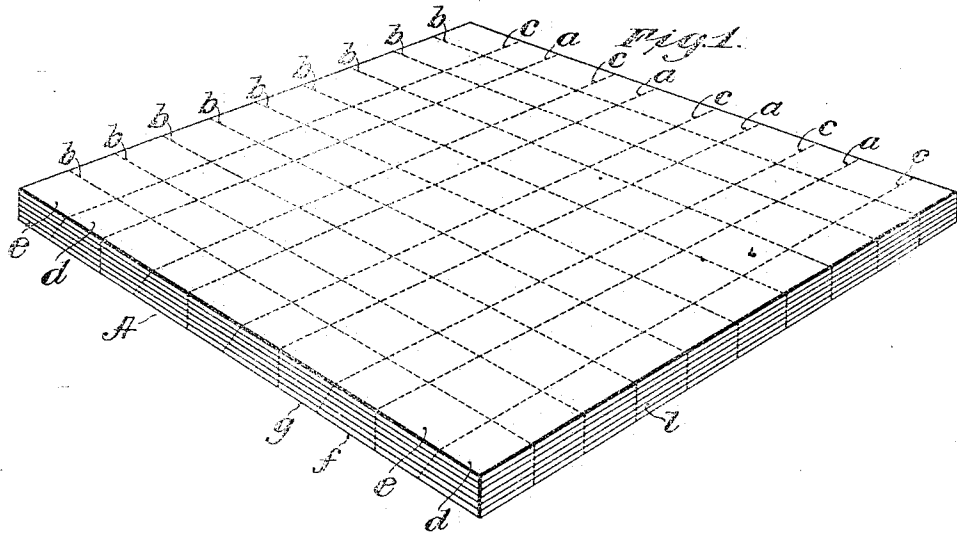


E. E. WINKLEY & J. C. SMITH.
 METHOD OF MAKING HEELS.
 APPLICATION FILED MAY 29, 1908.

1,121,702.

Patented Dec. 22, 1914



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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING HEELS.

1,121,702.

Specification of Letters Patent. Patented Dec. 22, 1914.

Application filed May 29, 1908. Serial No. 435,629.

To all whom it may concern:

Be it known that we, ERASTUS E. WINKLEY and JOHN C. SMITH, citizens of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Methods of Making Heels; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a method of making heels in multiple, and more particularly to making heels in multiple which, when finished, will be similar in appearance to heels made from a series of lifts, dinked out singly and then assembled. In order to obtain a pitch and yet save stock, the lifts are dinked out in graded sizes and assembled with the smallest on the top or tread end.

The term heel is used indiscriminately by persons skilled in the art of making shoes and parts thereof, when referring to individual heels, to indicate either a shaped heel, that is a heel prepared for application to a soled shoe, or a rough heel, which is hereinafter, for convenience, termed a heel block, that is a heel ready for the shaping operation. It is to be understood that the term heel is thus used throughout this specification.

The method of making heels from a series of graded lifts dinked out singly, while enabling the operative to approximate the pitch desired to be obtained without a later trimming is slow and laborious as the heels must be made singly. Also the large number of cutting dies required in the making is expensive, and furthermore in dinking out the lifts a greater waste of stock than is desirable is incurred.

The object of the present invention is to provide a method of making heels which, while preserving the advantage of producing a heel having initially the desired pitch, also allows of less waste of heel stock material than is incurred in making heels formed from dinked out lifts. The method of the present invention also effects a saving of time as the heels are made in multiple instead of singly which is distinctly advantageous. These advantages are particularly of value when making heels from the

cheaper heel stock materials other than leather.

The invention may be practised in connection with heel stock material of any character but preferably some such material as leather-board, or an analogous leather or paper composition, is used. For convenience in nomenclature the heel-stock material, of whatever character, will hereinafter be referred to as "leatherboard", simply. As a commercial article this leatherboard is supplied in sheets of comparatively large area, approximating the area of the hides used by leather manufacturers, and of a thickness, approximating the thickness of sole leather.

In the preferred manner of practising the invention a sufficient number of sheets of commercial leatherboard are superposed on each other to make heels of the desired height, and said sheets are secured together in any convenient manner, producing a "heel-forming block" to be cut up into a multiplicity of heels of equal height. Before being cut up the heel-forming block may if desired conveniently be laid out for cutting into separate heel blocks, as by marking with different series of lines extending parallel to the sides of the block. The lines of one series may be spaced apart a distance equal to the added mean lengths of two pitched heels, while the lines of another series running in another direction may be spaced apart a distance about equal to the width of a heel. In each of the spaces between each two lines of the first series there may be placed another parallel line so located as to leave on one side, between it and the adjacent parallel line, a space sufficient for the length of a heel-tread face, and on the other side a space sufficient for the length of a heel-seat face. The heel-forming block may be severed on the first two series of lines described, by cutting at right angles to the surface of the block, but the severance on the third series of lines described may be oblique to the surface of the heel-forming block. The obliquity of the last named cut, when so made, may be such that the heel-forming block is finally separated into a large number of single heel blocks of angular formation, having, however, one lateral face of each heel block chamfered or beveled off in a manner to provide the pitch of the heel. The single heel

blocks thus produced are then shaped, at the back, or beveled side, to a rounded surface the rounding of the heel requiring only the cutting away of the small portions at the corners thus effecting an even greater saving of stock than is permitted by the method of dinking out heel lifts in graded sizes and then assembling them into single heels.

It should of course be understood that a sheet of leatherboard of a thickness equal to the desired height of heel could be utilized instead of building up the heel height by the use of a plurality of thinner sheets, the formation of the single heel blocks being proceeded with in the manner just described. The composition of leatherboard is such, however, that it has practically no grain or long fiber and for this reason, in trimming it to shape, the surface being cut is liable to tear out, thus impairing the smoothness of the surface and spoiling the article being operated on. In rolling the sheets of leatherboard the pressure on the material hardens it for a short distance inward from the two surfaces and thus brings the surface particles of the composition into intimate contact, the correlation being such that this portion of the material can be readily cut without tearing out. If then, a number of quite thin sheets of leatherboard are used in building up the desired height of heel, throughout the heel height there will be portions of the composition formed of two of these hardened surfaces in contact thereby providing at short intervals a surface that can be trimmed without being torn out. The effect is to strengthen the entire lateral surface of the heel, so that it can be successfully shaped without danger of spoiling its surface.

Although excellent results can be obtained by shaping or trimming with a cutting stroke acting in a direction substantially parallel to the surface of the sheets forming the heel block, it is preferred that the cutting stroke be in a direction transverse to the planes of said surfaces or across the lifts. When cutting in this direction the liability to tear out the lateral surface is minimized owing to the substantially continuous extent of hardened material in the path of the stroke of the cutter.

The present invention consists in the method of making heels in multiple, the preferred manner of practising which is hereinafter described and defined both broadly and in detail in the appended claims.

The invention may readily be practised by hand using any convenient form of hand cutter, or, if found desirable, suitable power actuated devices may be used.

The invention will be most readily understood by a reference to the accompany-

ing drawings, illustrating the preferred manner of practising the invention, in which:

Figure 1 shows a perspective of a heel-forming block built up of a plurality of sheets of leatherboard and suitably marked for cutting into single heel-blocks; Fig. 2 shows a perspective of one of a number of elongated blocks into which the heel-forming block of Fig. 1 is first separated; Fig. 3 shows a perspective of one of the halves into which the elongated block of Fig. 2 is separated; Fig. 4 shows a perspective of one of the multiplicity of single angular heel-blocks finally produced from a severance of the heel-forming block of Fig. 1; Fig. 5 shows one of the angular heel-blocks of Fig. 4 which has been shaped to a rounded surface at the back; Fig. 6 shows a perspective of one of the shaped heel-blocks of Fig. 5 after having been compressed; and Fig. 7 is a cross-section of a series of sheets of leatherboard illustrating the hardened surfaces produced by rolling the leatherboard into sheets.

In the preferred method of practising the invention, a plurality of sheets of leatherboard *l* are superposed on each other face to face, and are secured together in any convenient manner, for instance by nailing at intervals, but preferably by gumming the sheets and applying sufficient pressure to cause them to adhere to each other. The heel-forming block, indicated generally by *A*, may then be marked for cutting into single heel-blocks. In the event that the heel-forming block is marked the preferred manner of marking is illustrated in Fig. 1, and, as there shown, three different series of lines are used. The first series of lines, indicated by *a a a*, extend parallel to each other and also parallel to two opposite sides of the heel-forming block. These lines are spaced apart at a distance about equal to the mean lengths of two heels for a reason which will hereinafter appear. The second series of lines, indicated by *b b b*, extend parallel to each other and also parallel to the other two sides of the heel-forming block, therefore extending across the lines *a* and at right angles to said lines. The third series of lines, indicated by *c c c*, extend parallel to the lines *a*. Each of the lines *c* is so spaced between two of the lines *a* that there is left on one side, between the line *c* and the adjacent line *a*, a space or face *d* sufficient for the length of a heel-tread face, and on the other side a space or face *e* sufficient for the length of a heel-seat face.

The heel-forming block *A* may be marked for cutting, and then severed, in any suitable or convenient manner to produce the single heel blocks shown in Fig. 4. In one

mode it is severed first along the lines α , which will produce a number of elongated blocks B, shown in Fig. 2, each of a width, as before stated, equal to the mean lengths of two heels. The next step in the production of single heel-blocks may be the severance of the elongated block B by a central longitudinal cut to divide it in halves. The longitudinal cut mentioned is along the line c on said block, and the plane of such cut is preferably oblique to the surface of the sheets of leather-board used in building up the heel-forming block. The obliquity of the cut on the line c is such, that when the elongated block B is severed, there is left on the face of said block opposite the face d a face f of a width sufficient for a heel-seat face, and opposite the face e a face g of a width sufficient for a heel-tread face. A severance of the elongated block B on the line c and in the oblique plane indicated will therefore produce two blocks similar to the block C of Fig. 3. The obliquity of the cuts on the lines c not only provide for the pitch of the heel, but also effect a great saving of material. It is obvious that where the cuts on the lines c are made at right angles to the surface of the sheets of leather-board, it would be necessary that the elongated blocks B be of a width equal to the combined length of two heel-seat faces instead of merely the mean lengths of two heels, and that, except for heels of a limited pitch, a large amount of material would be wasted in trimming the heel blocks thus produced in a manner to obtain the desired pitch. In the next step, each of the blocks C is severed, in any suitable or convenient manner, on the portions of the lines b extending transversely across said blocks forming finally the single heel-blocks D of angular formation, shown in Fig. 4.

The pressure placed upon the sheets of leatherboard l has been merely sufficient to cause said sheets to adhere to each other, and has not been sufficient to compress the sheets together in the manner in which the heel blanks made from dinked out heel lifts are compressed before they are incorporated in a shoe. It is desirable, however, that the heel-blocks be given such a compression before they are incorporated in a shoe. It is obvious that owing to the angular formation of the single heel-blocks D, they cannot be placed in a heel-compressing machine until they have been shaped to some extent to the general form of a commercial heel-blank. The next step, therefore, in the manufacture of heels by this method is to shape or trim the lateral faces of the backs of the heel-blocks D to a rounded surface. This may be done by trimming on the dotted line h of Fig. 4, which produces the rounded back surface indicated at i in Fig. 5. The heel-

blocks after shaping are ready to go to a heel-compressing machine having the ordinary form of dies, such, for instance, as that shown in the patent of E. A. Tripp, No. 776,875, of December 6, 1904. This machine properly compresses the shaped heel-block shown in Fig. 5, and its dies are formed in such manner as to produce a commercial heel-blank E, such as shown in Fig. 6, having a heel-seat j , a concave lateral surface k at the back, and any other characteristics which may be found desirable. As the character of the shaping step may vary in accordance with the views of the different manufacturers it is contemplated that the single heel blocks can be produced at one point and shipped to the various factories where the blocks may be shaped by the manufacturers to suit their individual requirements. The heel-blank E is thereafter manipulated as is usual with heel-blanks made by any other method, in the steps of incorporating in the shoe and finishing.

The composition of leatherboard is such that it is difficult to trim without tearing out owing to the lack of grain or long fiber in the composition used in making the leatherboard. In rolling leatherboard material into thin sheets, the surfaces of the sheets are somewhat hardened, as indicated by m in Fig. 7, and this hardening renders much more certain a cutting of the leatherboard which will leave a smooth surface. When the thin sheets of leatherboard are placed face to face, as in building up the heel-forming block A, two of the hardened surfaces m are brought in contact at intervals throughout the height of the block. With thin sheets the intervals are very short and there is formed practically a continuous hardened surface through the heel-forming block from top to bottom. Therefore, when trimming, a smooth surface is more apt to be obtained by cutting with a stroke acting transversely to the surfaces of the sheets of leatherboard than if the cutting stroke acted parallel to said surfaces, for the reason that in the latter case there would be continuous streaks of hard and softer substance, the latter of which may tear out and thus spoil the surface being cut. In shaping the single heel-blocks D, therefore, by trimming on the dotted lines h , they are preferably trimmed with a cutting stroke acting transversely of the heel-seat and tread-face of the heel-block, and across the lifts formed by the severed portions of the sheets of leatherboard. Excellent results can be obtained, however, when using the thin sheets of leatherboard, by cutting in a direction parallel to the surface of the sheets.

It will be apparent to those skilled in the art that it is not at all necessary to the practice of the method of making heels herein

described to mark the heel-forming block preliminary to the cutting operation. Nor is it necessary to cut the heel-forming block of Fig. 1 or the block of Fig. 2 exactly in the sequence of steps described. For instance, the block Fig. 2 may be severed into double blocks along the lines of cut corresponding to the dotted lines *b* (Figs. 1 and 3). The double blocks may then be divided into single heel blocks along lines corresponding to the dotted line *c* (Figs. 1, 2 and 3.)

Those skilled in the art will readily recognize that the method of making heels herein described affords an organized method of manufacture of heels of the cheaper heel stock materials which is very simple, and enables the heels to be produced with greater economy, while yet retaining in the product the more desirable qualities of heels manufactured from the more costly materials.

What is claimed as new, is:

1. The method of making heels in multiple which consists in building up a heel-forming block by superposing on each other a plurality of thin sheets of heel stock material, securing said sheets together, then severing said heel-forming block into trapezoidal prisms forming single heel blocks by cutting through said block on right lines in planes transverse to the surfaces of said block, a portion of said cuts extending obliquely to said surfaces to provide the pitch of the heel, and then shaping said single heel blocks to a rounded surface at the portion of the heel formed by the oblique cuts.

2. The method of making heels in multiple which consists in building up a heel-forming block by superposing on each other a plurality of thin sheets of heel stock material, securing said sheets together, then severing said heel-forming block into trapezoidal prisms forming single heel blocks by cutting through said block on right lines in planes transverse to the surfaces of said block, a portion of said cuts extending obliquely to said surfaces to provide the pitch of the heel, and then shaping said single heel blocks to a rounded surface at the portion of the heel formed by the oblique cuts by trimming with a cutting stroke acting transversely of the planes of the upper and lower faces of said blocks.

3. The method of making heels in multiple which consists in building up a heel-forming block by superposing on each other a plurality of thin sheets of heel stock material, securing said sheets together, then severing said heel-forming block into a plurality of elongated blocks of a width equal to the added mean lengths of two pitched heels, then severing each of said elongated blocks in halves by a central longitudinal

cut in a plane oblique to the surfaces of said sheets, then severing each of the halves so formed into single heel blocks by transverse cuts, and then shaping to a rounded surface, the beveled, lateral faces of said single heel blocks, formed by said oblique cuts.

4. The method of making heels in multiple which consists in taking a sheet of heel stock material of extended area and of a thickness equal to the desired height of heel, severing said sheet into trapezoidal prisms forming single heel blocks by cutting there-through on right lines in planes transverse to the surfaces of said sheet, a portion of said cuts extending obliquely to said surfaces to form the heel pitch, and then shaping to a rounded surface the beveled, lateral faces of said single heel blocks, formed by said oblique cuts.

5. The method of making heels in multiple which consists in building up a heel-forming block by superposing on each other a plurality of thin sheets of heel stock material, securing said sheets together, then severing said heel-forming block into trapezoidal prisms forming single heel blocks by cutting through said block on two series of right lines extending at an angle to each other and in planes transverse to the surfaces of said block, and then shaping said single blocks to a rounded surface at the back of the heel.

6. The method of making heels in multiple which consists in building up a heel-forming block by superposing on each other a plurality of thin sheets of heel stock material, securing said sheets together, and then severing said heel-forming block into trapezoidal prisms, of equal size, by these series of right line cuts in planes transverse to the surfaces of the said block, forming single heel blocks, each having substantially vertical sides, a vertical breast, and a slanted back, one of said series of cuts forming the vertical sides, a second the vertical breasts, and a third the slanted backs, each of the back-forming cuts lying intermediate adjacent breast-forming cuts, the distance between said adjacent breast-forming cuts being substantially equal to the added mean lengths of two heels of any given size.

7. The method of making heels in multiple which consists in building up a heel-forming block by superposing on each other a plurality of thin sheets of heel stock material, securing said sheets together, and then severing said heel-forming block into single heel blocks, of equal size, each having substantially vertical sides, a vertical breast, and a slanted back providing the pitch of the heel, by a series of parallel heel-breast-forming cuts perpendicular to the surfaces of said block and spaced apart a distance equal to the added mean lengths of two

heels of any given size, a series of parallel heel-pitch-forming cuts oblique to the said surfaces each cut lying midway between adjacent cuts of the first series, and a series of
5 parallel heel-side-forming cuts perpendicular to the said surfaces and at right angles to said first-named series.

In testimony whereof we affix our signatures, in presence of two witnesses.

ERASTUS E. WINKLEY.

JOHN C. SMITH.

Witnesses:

ANNIE C. RICHARDSON,

WARREN G. OGDEN.