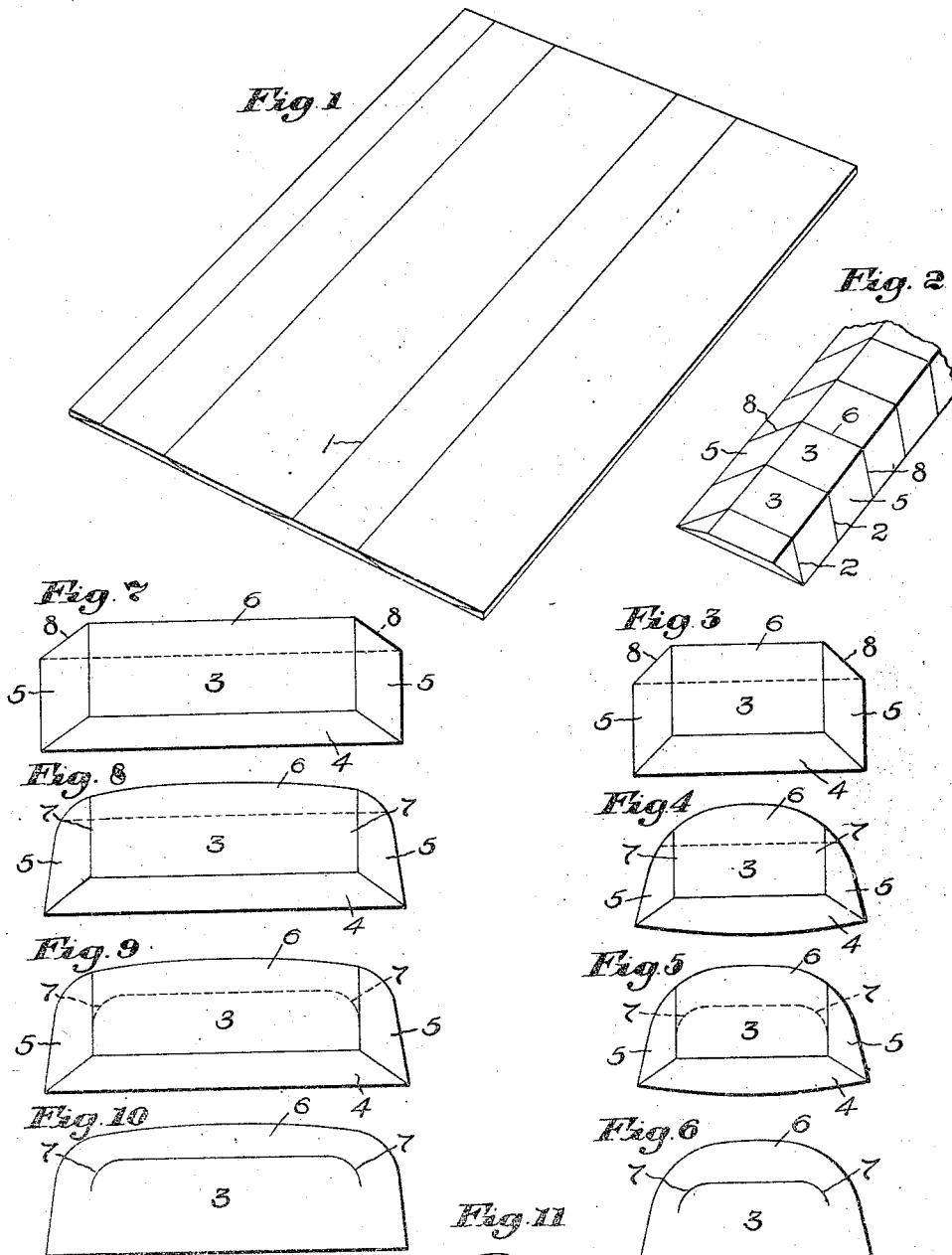


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ART OF PRODUCING SHOE STIFFENERS.
APPLICATION FILED APR. 1, 1908.

1,000,483.

Patented Aug. 15, 1911.



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UNITED STATES PATENT OFFICE.

WILLIAM B. ARNOLD, OF ABINGTON, MASSACHUSETTS.

ART OF PRODUCING SHOE-STIFFENERS.

1,000,483.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed April 1, 1908. Serial No. 424,468.

To all whom it may concern:

Be it known that I, WILLIAM B. ARNOLD, a citizen of the United States, and a resident of Abington, in the county of Plymouth and State of Massachusetts, have invented an Improvement in the Art of Producing Shoe-Stiffeners, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to the manufacture of heel counters, box toes and other stiffeners employed in the manufacture of boots and shoes, the aim of my invention being to economize and improve such manufacture.

My invention consists in certain features of novelty relating to the art of making such stiffeners, which will be best understood from a description of one embodiment of my invention illustrated in the accompanying drawings and which will be particularly described in the following specification.

In the drawings: Figure 1, in perspective, shows a sheet of leather or other suitable material, from which the stiffeners are to be formed, this figure indicating certain of the lines along which the material is severed or slit; Fig. 2, also in perspective, shows one of the strips formed by slitting or cutting as indicated in Fig. 1, and indicating the transverse lines along which the strip is severed to further reduce the material to blank form; Figs. 3, 4, 5 and 6 are views illustrating various steps in the production of the completed stiffener, in the present instance a box toe, from one of the blanks obtained by cutting as in Fig. 2; Figs. 7, 8, 9 and 10, similar views, where the stiffener to be formed is a heel counter; and Fig. 11, a perspective view of a complete stiffener, molded to shape, before introduction into the shoe.

In the particular embodiment of my invention selected for illustration herein, referring first to Fig. 1, I have shown a sheet, preferably though not necessarily of leather, and which ordinarily may be a side of sole leather roughly trimmed, but here shown as

truly rectangular for convenience and clearness of illustration. In accordance with my invention, I first slit this sheet along longitudinal and preferably parallel lines, the slits being in each case beveled. For the most economical manufacture these bevels should be alternately in opposite directions, so that the strips formed thereby will have their opposite edges oppositely beveled, the strips themselves presenting a greater width at one than at the opposite face. To be sure, the strips so formed present the grain face alternately at the narrow and at the wide faces, but this is not of material concern where the greatest economy of stock is desired. The strips formed by the longitudinal slitting are then (see Fig. 2) transversely severed, or substantially so, by cutting or slitting along preferably parallel lines 2—2, which are also beveled or inclined and, as shown, preferably similarly beveled so that the blanks 3 formed thereby are nested, so to speak, one overlapping the other.

Referring now to Fig. 3, which shows one of the blanks in plan view, it will be observed that the same at one, for example the top, face presents a straight bevel 4, with end bevels 5—5, while at the opposite face, along the edge opposite the bevel 4, the said blank presents a bevel 6. By varying the pitch of the slitting knife the width of the various bevels may obviously be varied as desired, according to the particular article which it is desired shall be made from the blank. The blank 3, beveled as in Fig. 3, is then died out to shape, as in Fig. 4, to form in the present instance a box toe, the shape of which may be varied as desired but which is herein shown as of customary shape. It will be observed that the box cut out as in Fig. 4 presents along its bottom edge, which is the edge having the greatest length, a straight bevel, which is the bevel 4 of the blank shown in Fig. 3. It also presents at its two sides straight bevels 5—5, which are the correspondingly numbered bevels of the blank, Fig. 3, and at its upper edge and opposite face presents another straight bevel, which is the bevel 6 of the blank 3, so that for the first time in the art,

so far as I am aware, I form a stiffener or a stiffener blank having an irregular or partially curved, desired outline with its edges, however, beveled along rectilinear lines 5 which are preferably perpendicular one to the other. Such stiffener or stiffener blank is, however, not claimed in this application. Where the bevels 4, 5 and 6 are of sufficient width the completed box or stiffener may be 10 died or cut from the blank and used without further beveling upon the skiving or other machine as is now required. Should it be desired, however, to reduce the prominence provided by the additional thickness at the 15 points 7-7 which, by reason of the curved outline of the stiffener, are brought nearer to the periphery thereof than where the bevel reaches in to a greater degree, such prominence may be reduced by compression, 20 which conveniently may be the compression ordinarily employed in shaping the stiffener either roughly or exactly to final shape, as illustrated in Fig. 11. In this case, a stiffener would be provided in which the thinned 25 or beveled edges would be in part cut and in part compressed.

Figs. 7 to 10, inclusive, illustrate the corresponding steps in the formation of a heel counter, and in Fig. 11 the lower and 30 thinned edge of the stiffener is shown as inturned, to form the usual stiffener seat. It will be observed that practically no stock whatsoever is wasted in the production of stiffeners in the manner herein provided for. 35 The only waste that exists is that due to the change in outline of the stiffener from the blank 3 shown in Fig. 3, but it will be noticed that even the blank is approximately shaped like the completed article, its lower edge 40 being straight and presenting right-angled corners and its upper edge having its corners clipped at 8-8 so that the waste here is reduced to a minimum and, because the waste at these points is of the thinned or beveled 45 stock, is still further reduced.

My invention permits ordinarily more than ninety per cent. of the original stock or blank to be actually utilized in the completed articles therefrom and the result is that a 50 better quality of stock may be used to the improvement of the article in which it is incorporated at the same or less cost as compared with stiffeners made in accordance with the prevailing methods.

55 Having described my invention, what I claim and desire to secure by Letters Patent is,

1. That improvement in the art of producing shoe stiffeners without substantial 60 waste of stock which consists in slitting a sheet into strips along longitudinal, straight, substantially parallel cuts and alternately on opposite bevels, slitting the strips so 65 formed transversely at substantially right angles on bevels of like general direction,

thereby to produce a blank having at one face a beveled bottom and two beveled sides and at its opposite face a beveled top, then dieing or cutting out the blank on lines confined to said four beveled edges and then 70 molding or fashioning the blank into final shape.

2. That improvement in the art of producing shoe stiffeners without substantial 75 waste of stock which consists in slitting a sheet into strips along longitudinal, straight, substantially parallel cuts and alternately on opposite bevels, slitting the strips so formed transversely at substantially right angles on bevels of like general direction, 80 thereby to produce a blank having three beveled edges at one face and its fourth beveled edge at the opposite face, the blank being substantially rectangular excepting for the cut away corners at the said fourth beveled edge, then dieing or cutting out the 85 blank on lines approximating the shape of said cut away corners and the three beveled edges meeting thereat and then molding or fashioning the blank into final shape. 90

3. That improvement in the art of producing shoe stiffeners without substantial waste of stock which consists in slitting a sheet into strips along longitudinal, straight, 95 substantially parallel cuts and alternately on opposite bevels, slitting the strips so formed transversely at substantially right angles on bevels of like general direction, thereby to produce a blank having three beveled 100 edges at one face and its fourth beveled edge at the opposite face, the blank being substantially rectangular, excepting for the cut away corners at the fourth beveled edge, then dieing or cutting out the blank on 105 lines confined to said fourth beveled edge and approximating the shape of said cut away corners, and then molding the blank into final shape.

4. That improvement in the art of producing shoe stiffeners without substantial 110 waste of stock, which consists in slitting a sheet into strips along longitudinal straight lines and alternately on opposite bevels, slitting the strips so formed transversely on 115 right lines on bevels of like general direction, to form stiffener blanks beveled on four sides along rectilinear lines, dieing or cutting a plurality of said beveled edges into the approximate desired form and then 120 molding or fashioning the blank into final shape.

5. That improvement in the art of producing shoe stiffeners without substantial waste of stock, which consists in slitting a 125 sheet into strips along longitudinal, substantially straight parallel cuts and alternately on opposite bevels, slitting the strips so formed transversely at substantially right angles on bevels of like general direction, 130 thereby to produce a blank having at one

face a beveled bottom and two beveled sides
and at its opposite face a beveled top, then
dieing or cutting out the blank along lines
penetrating the said beveled portion of said
5 blank and at least mainly limited thereto,
and finally molding or fashioning the blank
in final shape.

In testimony whereof, I have signed my
name to this specification, in the presence of
two subscribing witnesses.

WILLIAM B. ARNOLD,

Witnesses:

FREDERICK L. EMERY,
ROBERT H. KAMMLER.