No. 884,471. PATENTED APR. 14, 1908.

F. W. CRAWFORD.

FORMING SHOE TONGUES.

APPLICATION FILED APR. 27, 1907.

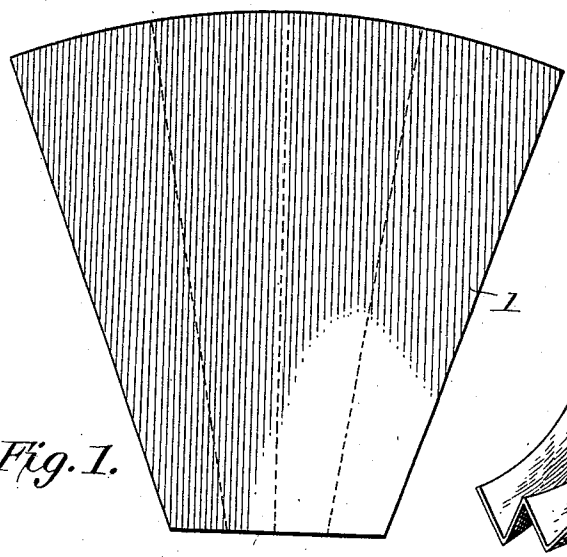


Fig. 1.

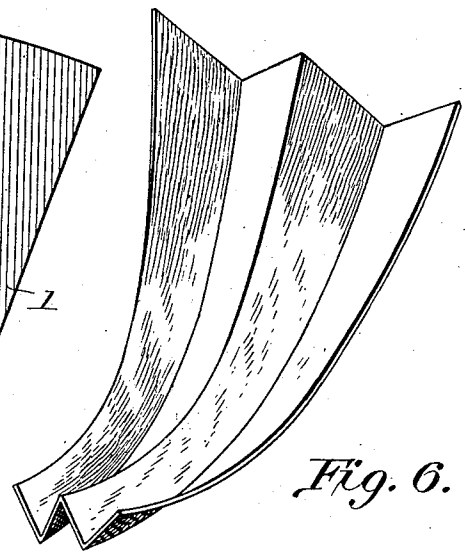


Fig. 6.

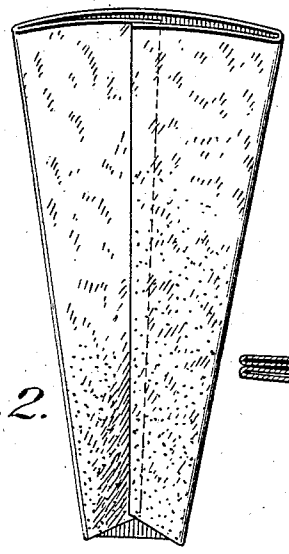


Fig. 2.



Fig. 7.

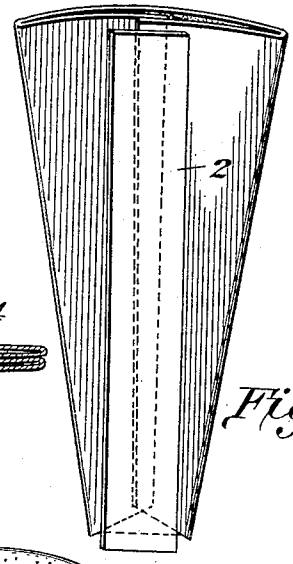
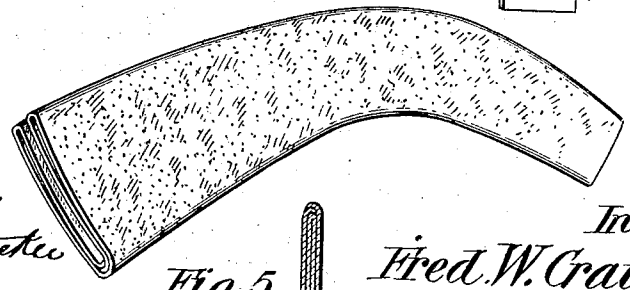


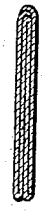
Fig. 3.

Fig. 4.



Witnesses:
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Fig. 5.



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UNITED STATES PATENT OFFICE.

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FORMING SHOE-TONGUES.

No. 884,471. Specification of Letters Patent. Patented April 14, 1908.

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To all whom it may concern:

Be it known that I, FRED W. CRAWFORD, a citizen of the United States, residing at North Adams, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in the Art of Forming Shoe-Tongues, of which the following is a specification.

The present invention relates to improvements in the art of shaping flexible material and particularly to the forming or crimping of shoe tongues.

Shoe tongues are ordinarily formed by passing the tongue blank through a suitable shaping or crimping machine, such, for example, as is exhibited in the well-known Lockett crimping machine, in which the straight folded blank is subjected to a crimping or shaping operation which gives it the permanent "set" or curvature desirable in order that the tongue may conform to the curve of the instep or ankle. Heretofore it has been customary to take a truncated segment, fold the three edges back upon the body of the blank until they are brought parallel to each other, and then secure these edges by stitching or sewing. The folded and stitched blank is then passed through the crimping machine and is thereafter opened by ripping out the stitches which hold the free edges together. This confining of the free edges of the blank is necessary in order that there may be no slipping of the various plies of the folded blank past one another under the action of the crimping instrumentalities, which obviously would result in a distorted and useless product, as the tongue must, to be of use, issue from the crimping machine in regular shape.

The stitching of the loose edges of the blank preparatory to the crimping operation and the ripping out of the stitches after the crimping operation takes considerable time and skilled labor, and the present improvement in the art has for its object to eliminate,—first, the stitching of the free edges; and second, the resultant necessity of ripping out the stitching after forming of the tongue.

I have discovered that if the free edges of the folded blank be confined by a binding or keeper, which incloses the free edges and laps upon the stock to some extent, that the assembled blank and keeper may be passed through the crimping machine and the desired shape given to the stock without distorting or moving the various plies relative to each other,—this result being due to the fact that the frictional engagement between the keeper which incloses the free edges of the blank and the stock, is sufficient to hold the free edges and the plies of the blank in their proper relative positions during the crimping operation and prevent slipping and consequent distortion of the plies of the blank during the crimping operation. I have also discovered that with the tongue blank folded as hereinafter described, with its edges slightly overlapping, if placed upon the crimper or folding machine with its parallel and overlapped edges facing the crimper blade the binder is not an absolute necessity for the reason that the frictional engagement of the overlapped edges when tightly gripped or held by the crimper blade is sufficient to prevent displacement of the several folds or plies as the blank is forced down through the jaws; this method in which the keeper is dispensed with necessitating, however, the crimping of the tongue wrong-side-out, so that it must be turned before attaching to the shoe. I have discovered also that where the tongues are formed of extra thin stock it is feasible to crimp two tongues at one time by folding them in the manner hereinafter described, if the blanks be placed with their respective overlapped edges facing each other so that one acts as a binder or keeper for the other.

In the drawings herewith I have illustrated in a conventional way the various steps of my process, from the blank to the finished product, omitting the instrumentalities for crimping the blank, as these may obviously be of different types and are immaterial so far as the present improvement is concerned.

In the said drawings:—Figure 1 is a plan view of the blank from which the tongues are to be formed. Fig. 2 is a plan view of the blank, having its side edges folded in the manner to be followed in practicing my process. Fig. 3 is a plan view of the blank having the keeper or binder in position over the edges. Fig. 4 is a perspective view of a tongue formed from the blank shown in Fig. 2. Fig. 5 is a cross-sectional view of a folded tongue. Fig. 6 is a perspective view of a

shaped and opened tongue. Fig. 7 is a sectional view of two tongues laid one upon the other for crimping in duplicate or pairs.

Referring to the drawings by numerals, like numbers indicating like parts in the several views,—1, indicates the blank of which the tongue is formed;—this tongue being in the usual and conventional shape for forming "bellows" tongues, although it is obvious that any shape desired may be had.

The blank shown in Fig. 1 is first folded along its medium line, and is then folded so as to bring the blank to the form shown in Fig. 2, namely, with its free edges folded into parallel and slightly lapped position. The blank folded as described and as shown in Fig. 2 may then be introduced into the crimping machine with its lapped edges facing the crimper blade and as the jaws of the machine act upon the blank the grip of the crimper blade on these overlapped edges will create sufficient frictional engagement between the overlapping portions to prevent the slipping or displacement of the several plies of the tongue and insure its issuance from the machine in proper form, as shown in Fig. 4. When the blank is put into the machine in this manner it will issue in reversely folded condition so that it must be turned before attaching it to the shoe, as will be clear from inspection of Fig. 4, in which the blank has been folded in the manner just described so that the unfinished surface of the stock is the outside of the tongue and the overlapped edges form the inner plies of the tongue as shown.

The tongue may be crimped in the opposite manner from that just described so as to avoid the necessity of turning by placing a binder or keeper 2 (see Fig. 3) over the lapped edges of the blank, the said keeper being of considerable width in order that there may be sufficient frictional engagement between the keeper and the blank to prevent slipping of the plies during the crimping operation and in this case the binder and overlapped edges of the blank face the jaws of the crimping machine. Under this method of crimping the blank will issue from the machine in the form shown in Fig. 5 in which it will be observed the lapped edges of the blank occupy the reversed position from that shown in Fig. 4, namely, they lie outside of the middle folded portion and there is no necessity for turning the tongue prior to attaching it to the shoe.

In Fig. 7 I have illustrated the arrangement of blanks where extra thin tongue stock is used and it is feasible to crimp a plurality of blanks at a time, and in this embodiment of my invention the blanks folded with their edges lapped, as shown in Fig. 2, will be arranged with their overlapping edges facing each other, in which condition the plurality of blanks may be passed to the crimping machine and one blank will serve as a keeper for the other, it being observed that the upper blank 4 will be crimped in the manner in which the blank shown in Figs. 3 and 5 is crimped, namely, in proper condition for attachment to the shoe without turning; while the lower blank 3 will be crimped in the manner shown in Figs. 2 and 4, and must be turned prior to attaching it to the shoe.

I have found that tongue blanks having their edges lapped and with or without a loose keeper inclosing said edge, in the manner described, may be readily crimped, and the product has all the shapeliness and finished appearance of tongues produced under the old method, which involves the labor of preliminarily stitching the loose edges, and after the crimping operation ripping out this stitching,—and it is obvious that a marked saving of time and labor is effected by following my improvement.

While I have described my improvement in connection with the crimping of tongues for shoes, it will be understood that by so doing I do not limit my improvement to this particular adaptation, as the showing and disclosure here is merely for illustrative purposes and it is obvious that the improvement may be applied in any art where it is desirable to temporarily bind or hold the edges of flexible material which are to be subjected to a shaping operation and prevent distortion or imperfect shaping of the goods, and I do not, therefore, limit myself to any of the details herein shown and described except in so far as I am limited by the art to which this invention belongs.

Having fully disclosed my invention, I claim:

1. That improvement in the art of forming shoe tongues, which consists in folding a blank so as to overlap its free edges and secure a frictional engagement between them, and then subjecting the said blank to a shaping or crimping operation.

2. That improvement in the art of forming shoe tongues, which consists in folding a blank so as to bring its free edges into parallelism, lapping said parallel edges upon each other, confining said paralleled and lapped edges by a flexible keeper which covers said edges and extends over and in frictional contact with the folds or plies of the blank, and then subjecting said assembled blank and keeper to a shaping or crimping operation.

3. That improvement in the art of forming shoe tongues, which consists in folding a blank so as to bring its free edges into substantial parallelism, confining said edges by a keeper, and subjecting said assembled blank and keeper to a shaping or crimping operation.

4. That improvement in the art of forming or crimping flexible material, which consists in folding a blank, confining the free edges of

the blank by a keeper, and then subjecting the assembled blank and keeper to a shaping or crimping operation.

5. That improvement in the art of forming shoe tongues, which consists in folding a plurality of blanks with their free edges overlapping, assembling said blanks with their overlapped edges facing each other, and then subjecting the assembled blanks to a shaping or crimping operation.

In testimony whereof, I affix my signature in the presence of two witnesses.

FRED W. CRAWFORD.

Witnesses:

HUGH P. DRYSDALE,

WILLIAM H. WOODHEAD.