Aug. 17, 1948. L. B. HOOPER 2,447,070

METHOD OF MAKING LAST SHELLS

Filed Nov. 1, 1946

Fig. 1

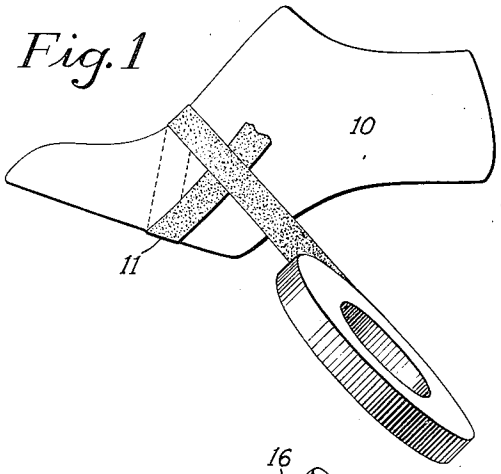


Fig. 2

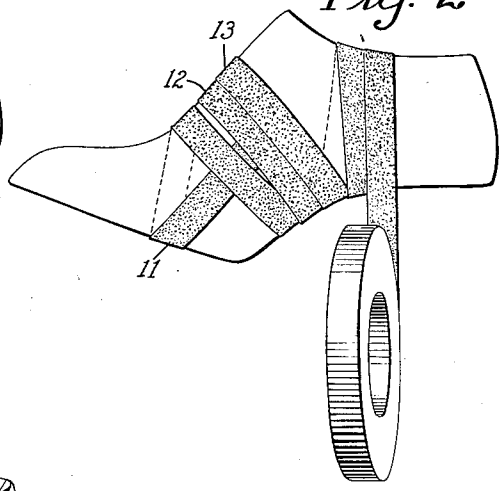


Fig. 3

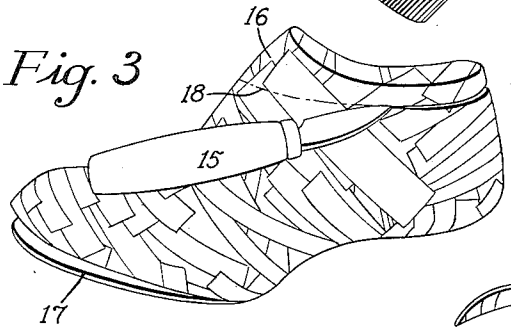


Fig. 4

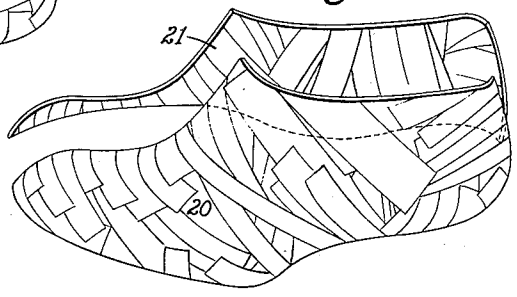
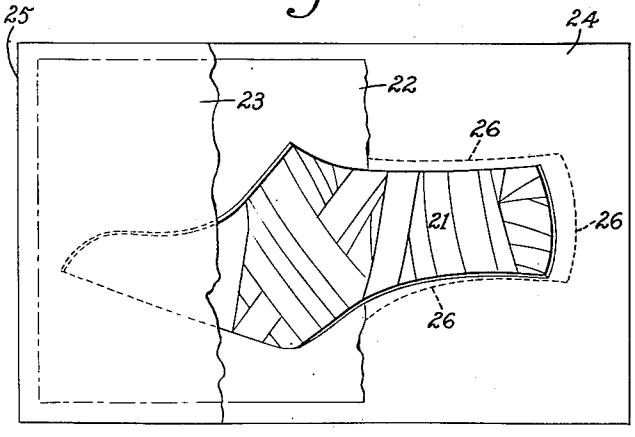


Fig. 5



Inventor

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By his Attorney

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METHOD OF MAKING LAST SHELLS

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Application November 1, 1946, Serial No. 707,201

5 Claims. (Cl. 33—6)

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The purpose of the present invention is to provide improvements in methods of making last shells with sticky tape. In some respects the method herein set forth is similar to that disclosed in an abandoned application of H. S. Lyness, Serial No. 523,443, filed February 22, 1944, for United States Letters Patent, but in other respects the two methods and their respective products are different.

A last shell made according to the method hereinafter described will not adhere to the last model on which it is made, but will fall away from the model without being peeled from it after being cut into sections. The lack of a bond of adhesion between the model and the shell avoids distorting and stretching the pattern sections of the shell prior to making impressions of them from shoe upper patterns.

Referring to the accompanying drawings,

Fig. 1 is a side elevation of a last model about which the second convolution of sticky tape is in process of being wrapped to initiate the development of a shell;

Fig. 2 is a similar view representing a later stage of the wrapping process;

Fig. 3 is a perspective view of a completed shell enclosing the model and being cut for removal of its top and bottom portions;

Fig. 4 is a perspective view of an empty shell minus its top and bottom portions and divided into two undistorted pattern sections in consequence of being cut at the back and along the top of the forepart, and

Fig. 5 represents an assemblage of elements for recording an impression of a pattern section of a shell.

In Figs. 1 and 2 a strip of adhesive tape is represented in the early stages of being wrapped girthwise around a last model 10 to form portions of a shell thereon. The tape may be made of thin, tough paper and must be coated on one side only with pressure-responsive cement. Moreover, to avoid adhesion to the model, the tape located in contact therewith must be wrapped sticky side out. The sticky side of the tape is indicated by stippling.

In the early stages of forming a shell the tape should be wrapped girthwise to insure close-fitting convolutions, and the latter should be conformed to the last and lapped or crossed one over another to an extent sufficient to bind them firmly against the last without being folded or wrinkled. The wrapping may be begun at any one of various points and may progress partly according to the demands of the shape of the

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model and partly according to the judgment of the operator. In the illustrated example, the first convolution 11 is partially overlapped and bound against the model by the second convolution 12, and the latter is partially overlapped and bound by the third convolution 13. When the wrapping has progressed to a stage such as that represented in Fig. 2 the partially formed shell of tape will have a sufficiently firm hold on the model to avoid being dislocated by continuing the wrapping, despite the total lack of adhesion of the tape to the model.

It is preferable to cover the major portion of the model with girthwise convolutions and thereafter cover the remaining bare portions with short individual strips of tape to avoid superposing too many layers, one on another, in some areas. The short strips also should be applied sticky side out, and some of them should be applied otherwise than girthwise to the ends of the model to facilitate conforming them to the model and lapping their ends over tape previously applied.

After the model has been entirely covered with at least one layer of tape applied sticky side out, another course or layer of the same kind of tape should be superposed on the tape previously applied to the heightwise surfaces of the model, to the end that those surfaces will be covered with at least two layers of tape at every point. The tape in the outer layer may be applied sticky side out or sticky side in, but preferably the latter because the pattern sections to be made from the shell should not be sticky on either surface. However, if the sticky side of any tape is exposed on the outside of the shell after the final strip has been applied, its sticky condition may be eliminated by dusting it with powdered talc or other surface-forming powder and rubbing the latter into the cement.

The omission of stippling in Fig. 3 indicates that the outer surface of the shell is non-sticky. In this condition the shell is ready to be marked with a lead pencil which may be used to draw guide lines on which the shell is to be cut with a knife 15 to sever the top section 16 and the bottom section 17. The line 18 represents one of these guide lines. Other guide lines (not indicated) may also be drawn on the heightwise surfaces of the shell where the latter is to be cut and divided according to style or pattern specifications. When the top and bottom sections have been completely severed they may be discarded as waste, and as the remainder of the shell is cut into pattern sections the latter will fall away

from the model without having been distorted or peeled from it. For the sake of disclosing the principles of the method quite simply, Fig. 4 represents the useful portion of a shell as having been divided into but two pattern sections **20** and **21**, but in practice it may be otherwise divided and sub-divided for removal from the model.

To obtain patterns from the pattern sections of a shell, the procedure may be the same as that disclosed in the aforesaid application Serial No. 523,443. For example, Fig. 5 illustrates an assemblage comprising a pattern section **21** of a shell and a sheet **22** of carbon paper (partly broken away) both interposed between the leaves **23** and **24** of a folder of pattern paper having but one fold **25**. The carbon-coated side of the carbon paper is against the lower leaf **24** of the folder, the outer or bulging surface of the pattern section is against the blank side of the carbon paper, and the upper leaf **23** of the folder (partly broken away for the sake of disclosure) covers the pattern section. This assemblage is ready to be fed from right to left between a pair of parallel cylindrical pressure rolls (not herein shown) of hard material by which the pattern section will be progressively brought to a straight line corresponding to the nip of the rolls, and thereby spread open to impress its outline on the lower leaf **24** through the medium of the carbon paper. The straightening effect produced by the pressure rolls will bend the upwardly curved margins of the pattern section toward the carbon paper as they approach the nip of the rolls where the impression of the outline will be recorded on the lower leaf **24** as indicated by dotted lines **26**.

Since both surfaces of the pattern section are non-adhesive the latter will free itself readily from the carbon paper and the leaf **23** of the folder. The impressions made on the pattern paper may be cut therefrom and used as master patterns from which other patterns may be obtained with or without being graded.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. The improved method of making a last-shell which consists of wrapping a last model in strips of tape each having a sticky side and a non-sticky side by applying the tape sticky side out to the entire surface of the model, lapping some portions of the tape so applied over other portions previously applied, and superposing additional strips of such tape on those engaging the model until all portions of the shell on the heightwise surfaces of the model include at least two layers of tape bonded one to another by adhesive without being bonded to the last.

2. The improved method of making a last-shell which consists in wrapping a last model initially in girthwise convolutions of tape having a sticky side and a non-sticky side by applying said convolutions successively and sticky side out and conforming them progressively to the model, thereafter covering bare portions of the model with individual strips of such tape also applied sticky side out and partially overlapping tape previously applied, and thereafter superposing additional strips of such tape on those engaging the model until portions of the shell on the heightwise surfaces of the model include at least two layers of tape bonded one to another by adhesive without being bonded to the model.

3. The improved method of making a last-shell which consists in wrapping a last-model initially in girthwise convolutions of tape having a sticky side and a non-sticky side by applying said convolutions successively and sticky side out and conforming them progressively to the model, thereafter covering bare portions of the model with individual strips of such tape also applied sticky side out and partially overlapping tape previously applied, and thereafter superposing additional strips of such tape sticky side on the tape previously applied to the heightwise surfaces of the last until those surfaces are covered with at least two layers of tape.

4. The improved method of making a last-shell which consists in wrapping a last-model initially in girthwise convolutions of tape having a sticky side and a non-sticky side by applying said convolutions successively and sticky side out and conforming them progressively to the model, thereafter covering bare portions of the model with individual strips of such tape also applied sticky side out and partially overlapping tape previously applied, and thereafter applying a powder of non-sticky surface-forming material to the tape previously applied to the heightwise surfaces of the last.

5. The improved method of making a last-shell which consists in covering the entire surface of a last-model with strips of tape each having a sticky side and a non-sticky side by placing only the non-sticky side thereof against the model, and thereafter superposing additional strips of such tape on the sticky side of the tape engaging the heightwise surfaces of the model.

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