Oct. 22, 1935. F. L. AYERS 2,018,245

ART OF SHOE STIFFENING

Filed May 6, 1933

Fig. 1.

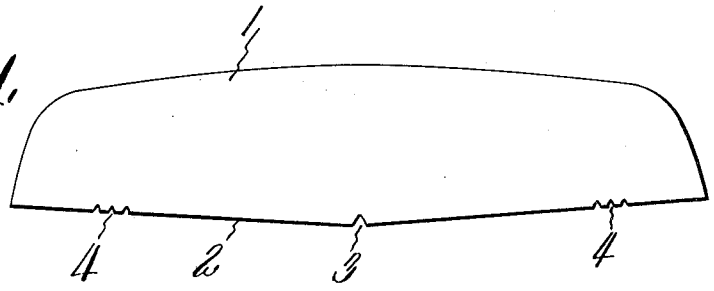



Fig. 2.

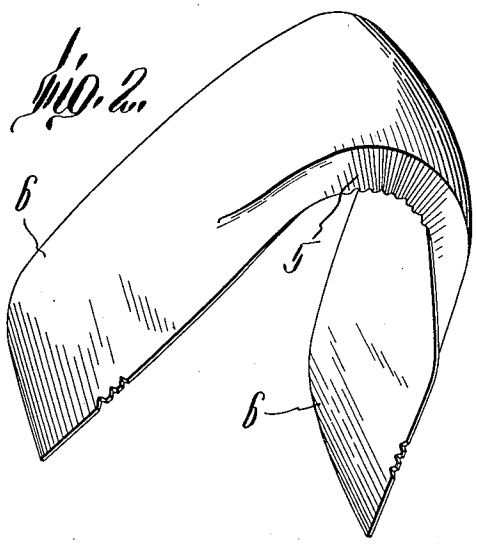



Fig. 3.

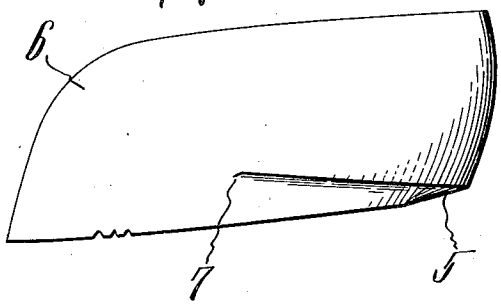



Fig. 4.

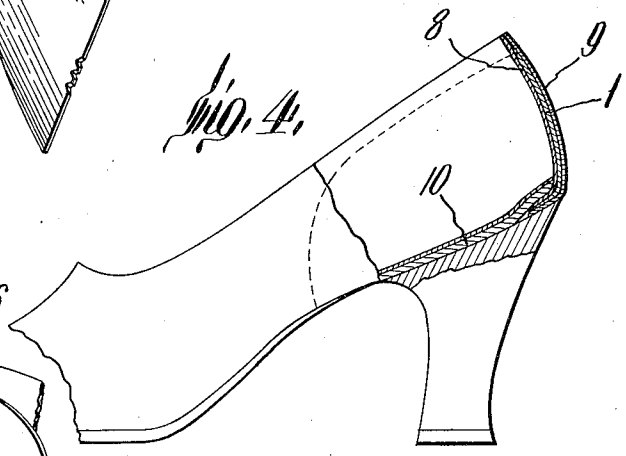
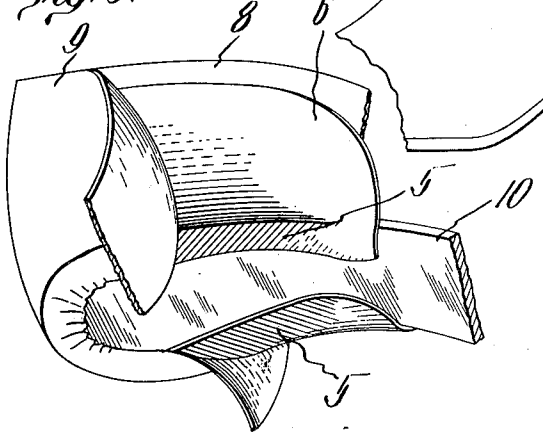



Fig. 5.




Inventor
Fred L. Ayers
by Wright, Brown, Quinby & May
Attys

Patented Oct. 22, 1935

2,018,245

# UNITED STATES PATENT OFFICE

2,018,245

## ART OF SHOE STIFFENING

Fred L. Ayers, Watertown, Mass., assignor to Brown Company, Berlin, N. H., a corporation of Maine

Application May 6, 1933, Serial No. 669,702

2 Claims. (Cl. 36—68)

This invention relates to the art of shoe stiffening and more particularly to the stiffening or reinforcement of the rear or back part of the shoe by a stiffener element generally termed a counter.

Heretofore, two forms of counter have been in general use, one that is called the "flat" counter and the other the "molded" counter. The flat counter, which is usually composed entirely of leather, is customarily put into the highest grade of shoe, since after it has been "mulled" or softened in water and assembled with the shoe upper, the assembly can be conformed nicely to the shape of the last. The shoe is left on the last for a period of some days so that the counter may set permanently in its accurately conformed shape. A serious objection to the flat counter is the cost factor, because it has to be made from a good grade of leather and it must receive considerable careful manipulation by the shoemaker in being conformed properly to the last.

The molded counter is made from leather or leather-board. The aim of the manufacturer of this form of counter is to mold each counter exactly to the finished shape which it is to assume before it is assembled with the shoe upper. In such case, the operation performed in the shoe factory on the counter is simply one of dipping it into an adhesive composition which cements the shoe lining and the shoe upper stock to the counter. An advantage inhering in this form of counter is that the shoe-making period may be shortened for the reason that the counter needs no manipulation on the last and that once assembled with the shoe upper, the shoe, so far as concerns the counter, may be removed from the last as soon as complete drying of the adhesive has taken place. A serious objection to this form of counter is that it does not in all cases assume the last lines with the best accuracy. The reason why it does not so do in all cases is because most shoe factories do not carry molded counters of such a variety of contours and shapes as to fit lasts for all sizes and styles of shoes manufactured therein. Again, the counter manufacturer does not care to invest money in large numbers of molds whose differences are minute so far as concerns the contour and the shape of the counters produced thereby. In other words, the manufacturer of molded counters endeavors to satisfy the trade with a number of standard counters.

To sum up, therefore, the flat counter while giving the best results is difficult to manipulate and costly. The molded counter, on the other hand, is undesirable from the standpoint of fine shoemaking, but it is inexpensive and easy to assemble with the shoe upper.

Among the further qualities desired in a counter is resilient stiffness consistent with pliancy or flexibility such as makes for comfort to the shoe wearer. The resilience should be such that a deforming stress exerted on the counter and then removed will not cause permanent distortion of the counter. Yet the resilience or ability of the counter to recover from a distorting force should not militate against relatively free flexing of the counter to accommodate the movement of the wearer's foot. The flat, all-leather counter, which is molded with the shoe upper to the shape of the last, answers well these requirements to their very edge portions whereat they are skived to a feather edge so as to prevent discomforting and unsightly ridges being raised in the lining next to the foot or in the shoe upper stock. The molded counter possesses the desideratum of resilience, but an inevitable result of pre-molding is that it condenses the counter stock to a condition where it is too stiffly resilient. This is especially true when inferior grades of leather or leatherboard constitute the stock for the molded counter, although it is possible to produce even a molded counter possessing the requisite pliancy or flexibility.

In accordance with the present invention, I prepare what may be termed for convenience of designation a partially shaped counter whose shaping and conformation to completion may be readily and accurately effected after it has been assembled with a shoe upper and the assembly is put through lasting and the other shoe-making operations and which possesses the desirable qualities of both the flat form of counter and the fully molded form of counter. While some high grades of leather may be employed as the counter stock undergoing the treatment of the present invention, nevertheless the inventive principles apply more particularly to a counter stock consisting essentially of a felted fibrous base which has been impregnated with a suitable latex composition and then dried. Such a counter stock simulates leather in many important respects, including appearance, feel, residual porosity or "breathing" quality, toughness, pliability, etc.

With the foregoing and other features and objects in view, the present invention will now be described in greater detail with particular reference to the accompanying drawing, wherein

Figure 1 represents the flat counter blank serv-

ing as the starting element for the partially shaped counter of the present invention.

Figure 2 illustrates in perspective a partially shaped counter embodying the present invention.

Figure 3 is a side view of the partially shaped counter.

Figure 4 depicts a finished shoe containing the completely shaped counter, the stiffened rear part of the shoe being shown in section.

Figure 5 shows the stiffened rear part of the shoe in perspective, the upper stock being lifted away from the completely shaped counter so as to show up the latter to best advantage.

As shown in Figure 1, a flat counter blank 1 may be cut or died out from suitable counter stock, preferably an artificial leather consisting essentially of a rubber-impregnated, felted fibrous foundation of the character already described. The bottom edge of the blank 2 may be notched at its center 3 and at the regions 4 somewhat removed from the side edges to afford the usual indicia of the size of the counter. It is preferable that all the marginal edges of the flat blank be skived as ordinarily. The blank is first partially shaped in a suitable mold to possess merely the general outline of a counter, which, as best shown in Figure 2, includes a bottom flange 5 corresponding to the heel seat of the shoe. The gradual turn from the flange 5 to the substantially unbent front end portions 6 may, as best seen in Figure 3, be completed at a point 7 located approximately midway between the extreme back line of the counter and its front edges. The flange may, however, continue to a point farther removed from the extreme back line of the counter, but it is preferable that the front end portions remain substantially unbent from the front edge to a point removed at least about one-third of the distance from the front edges of the counter to its extreme back line. The flange 5 affords a stop or limiting guide which enables the shoemaker to seat the counter quickly and accurately on the heel portion of the last. The unbent front edge portions 6 extend in a divergent relation to each other, as shown in Figure 2, and this permits the shaping of the counter to be completed on a wide variety of sizes and styles of lasts.

Before being incorporated into the shoe upper, the partially shaped counter is preferably dipped into a bath of suitable adhesive composition, preferably an aqueous adhesive composition, such as rubber latex, compounded with suitable stiffening agents of the nature of dextrin or starch paste, animal glues, water-soluble gums or the like. The composition of the bath of adhesive, for instance, the compounded rubber latex, may be controlled so as to impart to the completely shaped and set stiffener in the shoe the desired degree of stiffness. The immersion of the partially shaped counter into the adhesive bath need be only a momentary one such as ensures a wetting and coating of its surfaces with adhesive.

The counter while still wet with adhesive is assembled between the lining 8 and the upper stock 9 of the shoe upper and the assembly is lasted and put through the other customary shoe-making operations to produce a finished shoe, as depicted in Figure 4. In consequence of these operations, the bottom flange 5 is completed and made to lie snugly against the insole 10 and the front end portions and the rest of the counter made to assume faithfully the last lines, as illustrated in Figure 5.

An important advantage of my invention is that it makes possible the use of only a single pre-shaping mold for the production of partially shaped counters of such character that they can be used advantageously in all sizes of shoes and styles of lasts. It is, however, preferable to provide two standard pre-shaping molds, one for a lower range of sizes and another for an upper range of sizes. For instance, in the case of women's shoes, one mold may be designed for partially shaped counters to be used in shoes up to a size of about 6½, and another mold for partially shaped counters to be used in shoes of a size greater than 6½. Another advantage realized by my invention is that excessive pressures are unnecessary either during the partial shaping operation or during the last stage of shaping or conformation that takes place on the last during customary shoe-making operations. This is particularly true when the counter stock is an artificial leather such as I preferably employ. In molding counters to completion in a single step, as heretofore practiced, such artificial leather undergoes a diminution of thickness under such heavy pressure as must necessarily be applied in such case. Since a certain finished thickness is demanded, a greater thickness of counter stock is necessary at the start in such case; and such extra material increases the stiffness of the counter to an objectionable degree. Accordingly, the practice of my invention is particularly useful when it is desired to preserve the bulk and flexibility of the counter stock at a maximum.

I claim:—

1. A partially shaped counter composed essentially of a felted fibrous base impregnated with rubber and having a bottom flange only at the region corresponding to the heel seat, the front end portions being substantially unbent and extending in divergent relation to each other, said rubber-impregnated base being possessed of residual porosity or "breathing" quality and being readily and accurately moldable in the lasting operation to the shape of the last after only a short immersion in an aqueous bath.

2. A partially shaped counter composed essentially of a felted fibrous base impregnated with rubber and having a bottom flange at the region corresponding to the heel seat, the front end portions being substantially unbent from the front edge to a point removed at least about one-third of the distance from the front edge of the counter to its extreme back line and said front end portions extending in divergent relation to each other, said rubber-impregnated base being possessed of residual porosity or "breathing" quality and being readily and accurately moldable in the lasting operation to the shape of the last after only a short immersion in an aqueous bath.

FRED L. AYERS.