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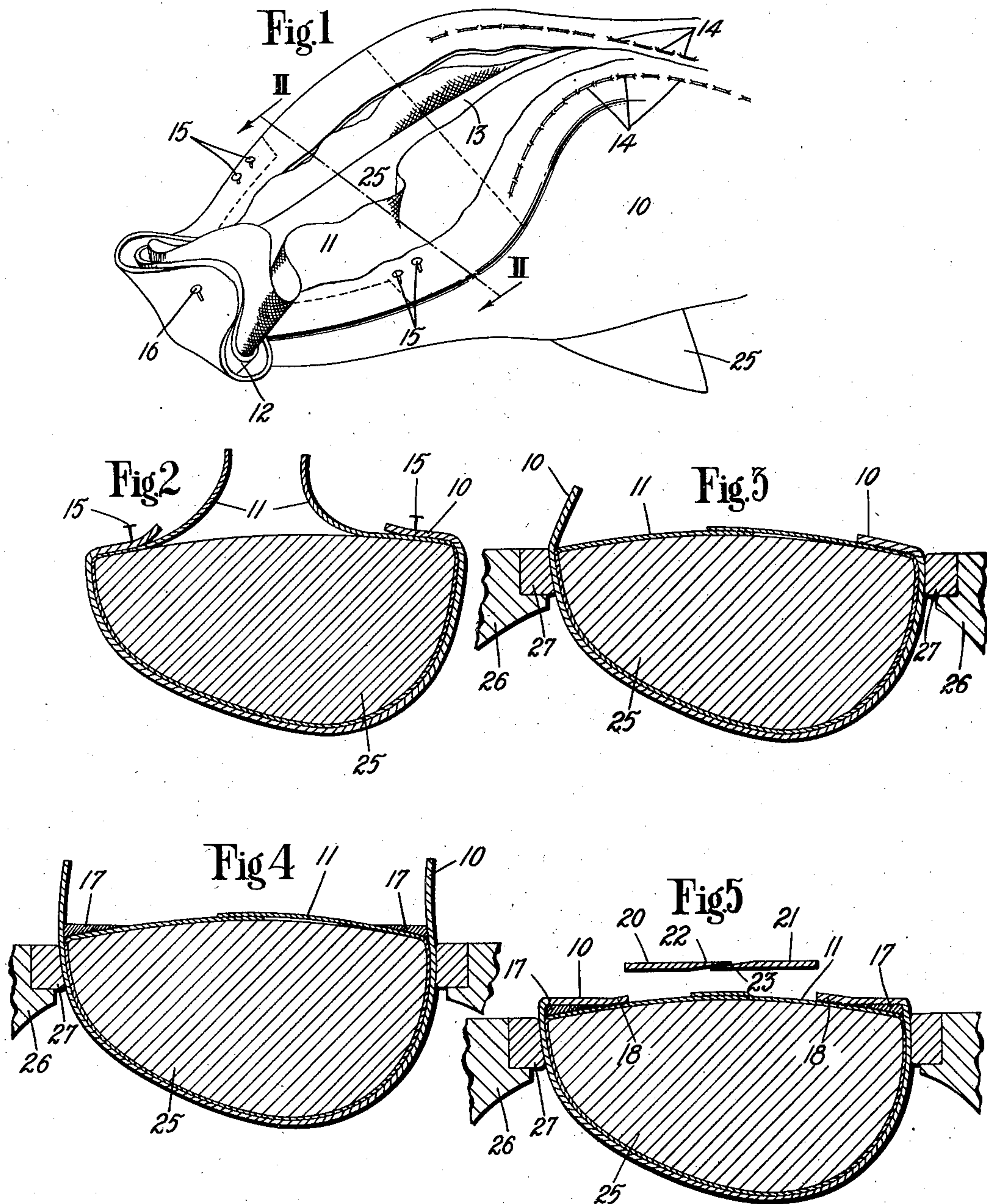
M. CUOZZO

2,183,671

FLEXIBLE SHOE

Filed Jan. 24, 1938

2 Sheets-Sheet 1



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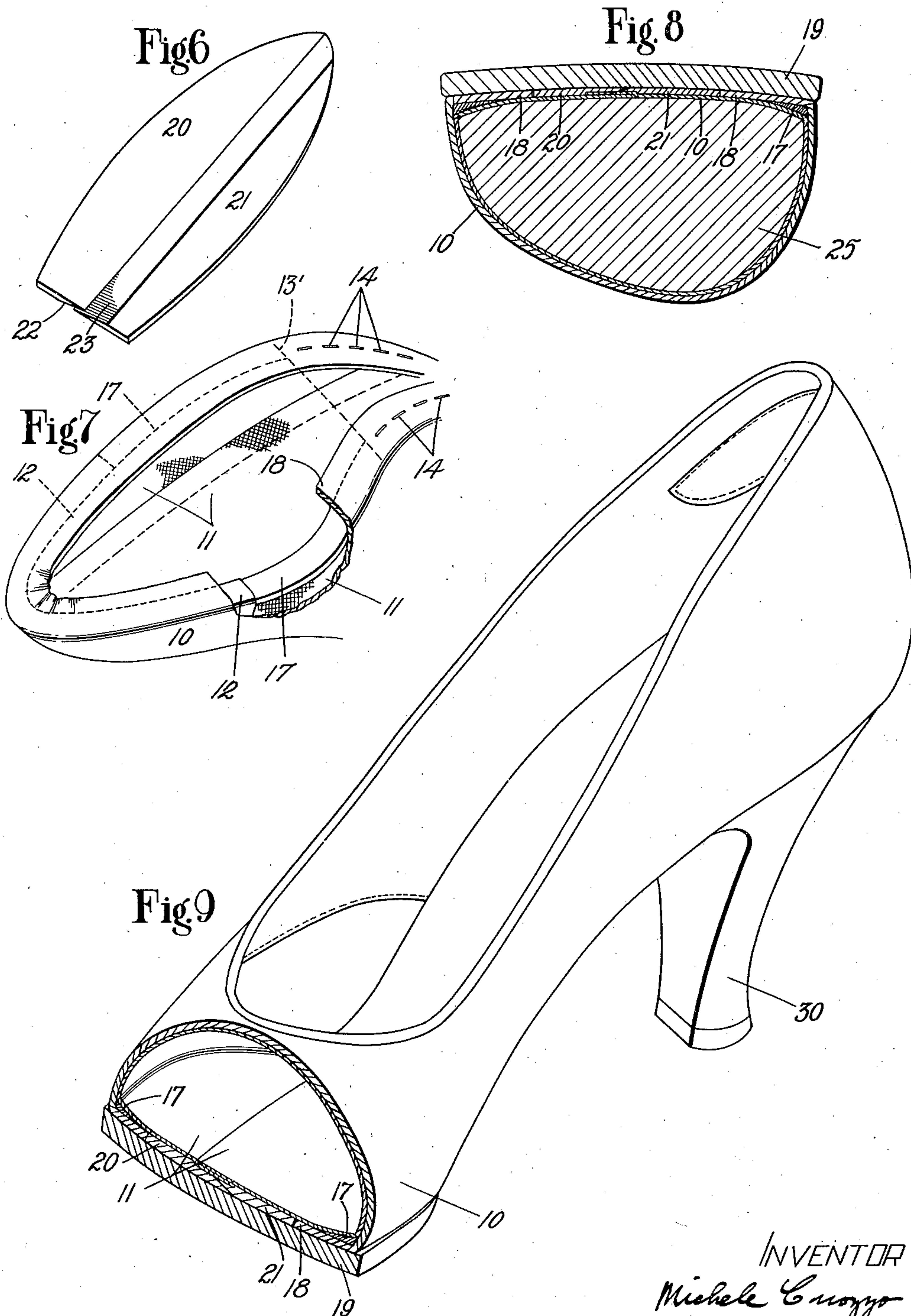
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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FLEXIBLE SHOE

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Application January 24, 1938, Serial No. 186,549

3 Claims. (Cl. 36—12)

My invention relates to flexible shoes and to the methods by which they are made and, more particularly, to that class of flexible shoes popularly known as "single-sole" shoes which are assembled and completed right-side-out on a single last.

As heretofore made, these so-called single-sole shoes have usually embodied full length insoles skeletonized at the ball areas to leave remaining forepart marginal portions which serve during the shoemaking operations as the means to which the upper parts of the shoes are lasted and secured, and thereafter serve in the finished shoe to reinforce the edges and preserve the lasted outline of the upper foreparts. Such insoles are usually made of leather and are expensive, the leather being commonly excised from the flesh surface of the outsole, thus requiring heavy outsole stock. In any case, the preparation of the skeletonized forepart portions of the insoles involves special and costly stockfitting operations.

It is a principal object of my present invention, therefore, to provide an improved single-sole shoe devoid of any insole but having, nevertheless, adequate outline preserving means and a vamp lining which faces the interior of the shoe entirely about the forepart of the shoe bottom, said lining serving as the means to which the upper parts of the shoe are lasted and secured in the forepart preparatory to the attachment of the sole. Another principal object is to provide a simple and practical method of making my improved shoe. A further object is to provide a flexible shoe of this character having a soft and flexible ball tread construction, and to provide simple and readily assembled adjustable means for imparting this quality to the shoe. Other and further objects will appear from the following specification.

The invention will now be explained with reference to the accompanying drawings, in which

Fig. 1 is a perspective view showing the partly lasted forepart of a shoe having upper parts prepared in accordance with my invention;

Fig. 2 is a cross-sectional view taken approximately on line II—II of Fig. 1;

Fig. 3 is a view similar to Fig. 2 showing the manner in which the shoe is clamped during the forepart lasting operations and showing the lining lasted across the last bottom;

Fig. 4 is another view similar to Figs. 2 and 3 showing the shoe in a further stage of the lasting operations;

Fig. 5 is another similar cross-sectional view

showing the upper wiped over and secured in lasted relation to the lining and disclosing my adjustable cushion about to be applied;

Fig. 6 is a perspective view of the cushion, clearly showing the shape and relationship of the two parts in which it is formed;

Fig. 7 is a perspective view of the lasted assembly in the condition shown in Fig. 5;

Fig. 8 is a further cross-sectional view showing the completely bottomed shoe; and

Fig. 9 is a perspective view of the finished shoe, the toe portion being cut away to reveal the finished relationship of the parts in cross-section.

In carrying out my invention I provide an assembled upper 10 having a vamp lining 11 cut sufficiently full to extend completely around the forepart of the last, and having a toe box 12 of moderately stiff material, such as Celastic, located between the upper and the lining. A fiber shank and heel piece 13, hereinafter referred to as the "shank piece", is temporarily tacked over the shank and heel areas of the bottom of a last 25 and has a skived forward edge which is extended to coincide approximately with the ball line of the shoe rather than the break line thereof; the shank piece being otherwise of the type commonly embodied in a single-sole shoe construction.

The upper parts are then pulled over the last and permanently secured in lasted relation to the shank piece, as by cement and the staples 14 illustrated, and the forepart of the upper assembly is secured to the last by temporary pulling-over tacks 15, and one or more like tacks 16 at the toe. With the forepart in this condition, the shoe is clamped between jaw members 26—26 provided with cushioned faces 27—27 of rubber or other soft conformable material for frictionally engaging the upper at opposite sides of the forepart and clamping the shoe firmly while the fore part lasting operations, about to be described, are performed.

The tacks 15 are then removed and the full overlasted portions of the lining are smoothly and tightly wiped in over the last bottom from opposite sides of the shoe and joined in overlapping relation by adhesive along the central longitudinal portion of the last, thus providing a vamp lining continuous around the forepart of the last, substantially as shown in Fig. 3. The jaw members 26—26 may be the clamps of a suitable bed lasting machine and the wiping may be accomplished by the wiper members of such a machine, as will be readily understood.

The margins of the upper 10 may then be ce-

ment lasted in secured relation to the lining, as shown on the right in Fig. 3, the tack 16 being removed and the toe portion of the upper being lasted in a usual toe lasting operation after the forepart side margins are secured.

Thus lasted, it will be noted that the edges of the upper forepart are reinforced by the forwardly extending end portion of the shank piece and by the overlasted margin of the toe box reinforcement 12, these members constituting outline preserving means, leaving only short marginal portions at opposite sides of the ball unreinforced except for the reinforcement afforded by the lasting cement. For some types of shoes, such means will be found adequate, particularly if the cement used is inherently stiff and liberally applied, but I prefer to insert additional outline preserving means between the lining and the upper margin at these portions before permanently lasting the upper margin in relation to the lining. Thus I have shown in Fig. 4 short rand-like pieces of leather 17-17, wedge-shaped in cross-section, such as pieces of the waste rands commonly removed in reducing the edges of outsoles, although other material of other kinds and from other sources may be found suitable. These additional outline preserving pieces are adhesively secured to the lining with their outer edges abutting the upper and substantially flush with the edge of the last, the upper margin then being wiped in and lasted in secured relation to the lining by cement applied between the upper margin and the outline preserving means and, where the upper margin overextends said means, as at 18 in Fig. 5, between the upper and the lining.

Where additional reinforcement is used, such as the strips 17, it is unnecessary to extend the shank piece forwardly of the break line of the shoe provided the pieces 17 extend between the forward end of the shank piece and the rearward edge of the toe box lasting margin, and in Fig. 7 I have therefore indicated a usual shank piece 13' which extends only to the approximate break line of the shoe.

After the lasting cement has set, the shoe may be released from the clamps 26 and a tread sole 19 attached, either directly or by means of an interposed welt. Preferably and as shown, the sole is cement attached, the cement further assisting in preserving the lasted outline of the forepart. However, in order to increase the comfort of the wearer, I prefer to insert a soft cushion or pad into the shoe bottom before attaching the tread sole and I have provided a simple two-part pad, used here as a filler for the ball tread area lying forwardly of the shank piece and inwardly of the over-lasted edges of the upper.

As best shown in Fig. 6, my improved pad consists of two separate longitudinally extending parts or sections 20 and 21 of felted sheet material divided by a bevel cut, the bevel being on a long angle to permit adjacent edges 22 and 23 of the respective parts to be overlapped varying distances without materially varying the over-all thickness of the pad at the overlapping portions. In placing the pad sections, their curved outer edges are laid to fill the desired space and the beveled inner edges of the sections are overlapped more or less, as the case may be, depending upon the width of the shoe. In this way, pad sections of given standard sizes may be used for various widths of foreparts, the width of the overlap being less in the case of a wide shoe than in the case of a narrow one.

After attachment of the tread sole 19, a heel 30 is attached and all necessary operations to finish the shoe, including removal of the last, are performed in the usual manner to produce a highly flexible and comfortable single-sole shoe substantially as illustrated in Fig. 9.

If desired, the order of the shoemaking steps may be somewhat varied from the sequence above recited. For instance, the forepart lining may be lasted and joined before the shank and heel portion of the upper are secured to the shank piece, or before the shank piece is mounted on the last. Also where the toe of the shoe is lasted in a bed machine having the usual pins for engaging the last, I prefer to secure the toe portion of the lining under the toe plate of the bed laster and last the toe portion of the shoe before joining the lining over the last bottom at the ball portion, as otherwise the recesses in the last for engaging the pins would be covered. Therefore I desire to have it understood that the sequence of steps recited may be varied, at least to the extent indicated, without departing from my invention as defined in the following claims.

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

1. An unwelted single-sole shoe comprising a shank piece, an upper having its margin secured to the shank piece in the heel and shank portions of the shoe and having a full vamp lining, said lining extending across the bottom of the shoe from opposite sides thereof and having its opposed marginal portions overlapping and adhesively connected together along a central longitudinal portion of the forepart, the forepart margin of the upper being connected in secured relation to said lining, a rand strip of wedge-shaped cross-sectional contour within the shoe overlying the forepart margin of the upper, said strip having a thick outer edge and a thin inner edge and extending to reinforce the edge of the shoe, and a tread sole cement attached in underlying relation to the upper margin.

2. An unwelted single-sole shoe comprising a shank piece, an upper having its margin secured to the shank piece in the heel and shank portions of the shoe and having a full vamp lining, said lining extending across the bottom of the shoe from opposite sides thereof and having its opposed marginal portions overlapping and connected together along a central longitudinal portion of the forepart, the forepart margin of the upper being connected in secured relation to said lining, outline preserving means within the shoe overlying the forepart margin of the upper and extending to reinforce the edge of the shoe, and a tread sole secured in underlying relation to the upper margin, said outline preserving means comprising a skived integral end portion of said shank piece extending forwardly of the break line of the shoe and terminating adjacent the ball line thereof, the margin of a box toe reinforcement extending about the toe portion of the shoe, and short rand-like pieces of leather, wedge-shaped in cross section and located between said shank piece and said box toe reinforcement, said strips being arranged with their relatively thick edges outermost and abutting and providing internal support for the upper.

3. An unwelted single-sole shoe comprising a shank piece, an upper having its margin secured to the shank piece in the heel and shank portions of the shoe and having a full vamp lining, said lining extending across the bottom of the shoe

from opposite sides thereof and having its opposed marginal portions overlapping and connected together along a central longitudinal portion of the forepart, the forepart margin of the upper being connected in secured relation to said lining, outline preserving means within the shoe overlying the forepart margin of the upper and extending to reinforce the edge of the shoe, and a tread sole secured in underlying relation to the upper margin, said outline preserving means

comprising the margin of a box toe reinforcement extending about the toe portion of the shoe and stiffening strips extending from the rearward edge of said reinforcement to the forward end of said shank piece between the margin of the upper and said lining at opposite sides of the ball portion, said strips having thick outer edges abutting and supporting the upper and having thin inner edges underlying said lining.

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