

M. BROCK.
 FORM FOR BOOTS AND SHOES.
 APPLICATION FILED MAY 26, 1904.

965,865.

Patented Aug. 2, 1910.

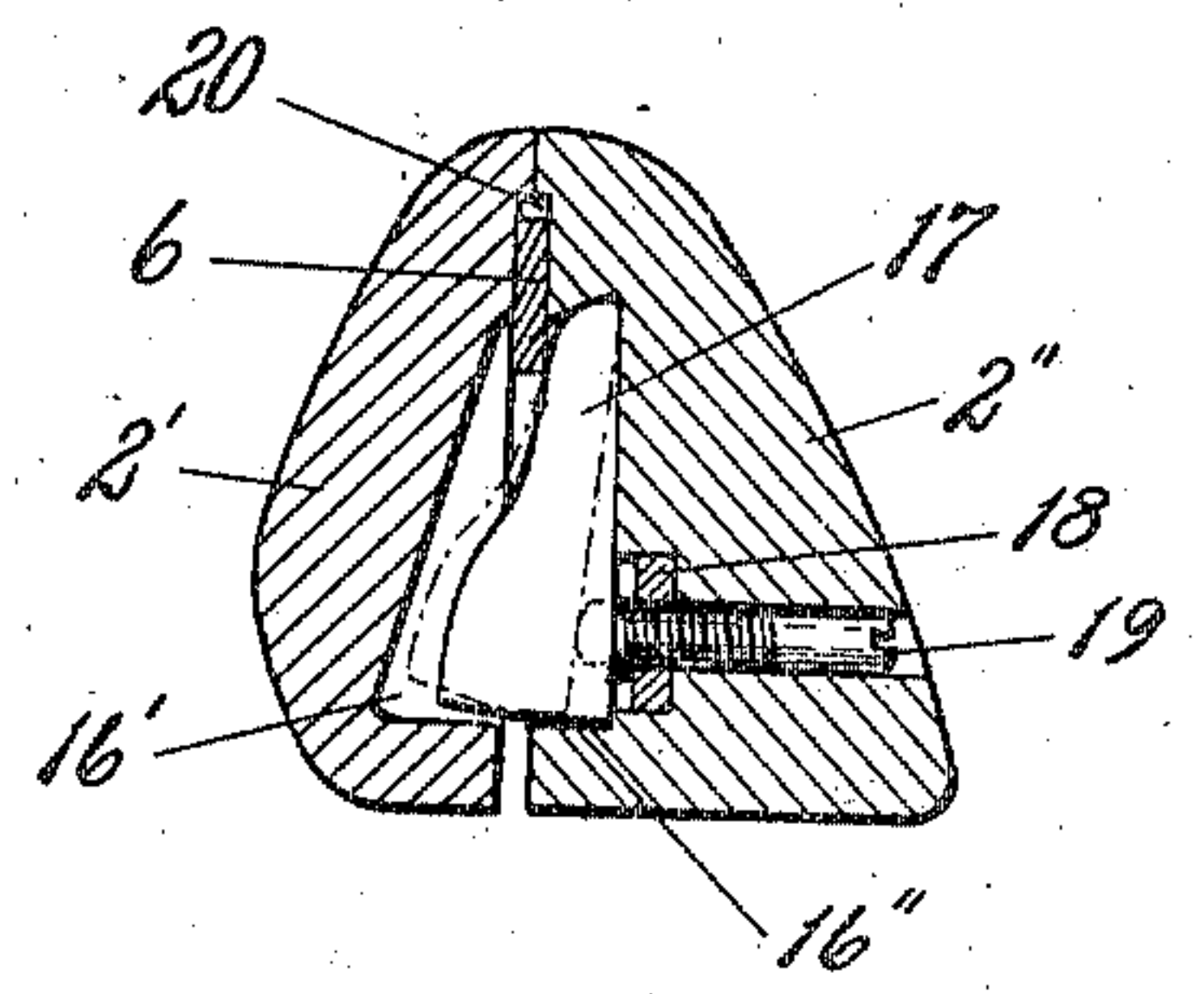


Fig. 4.

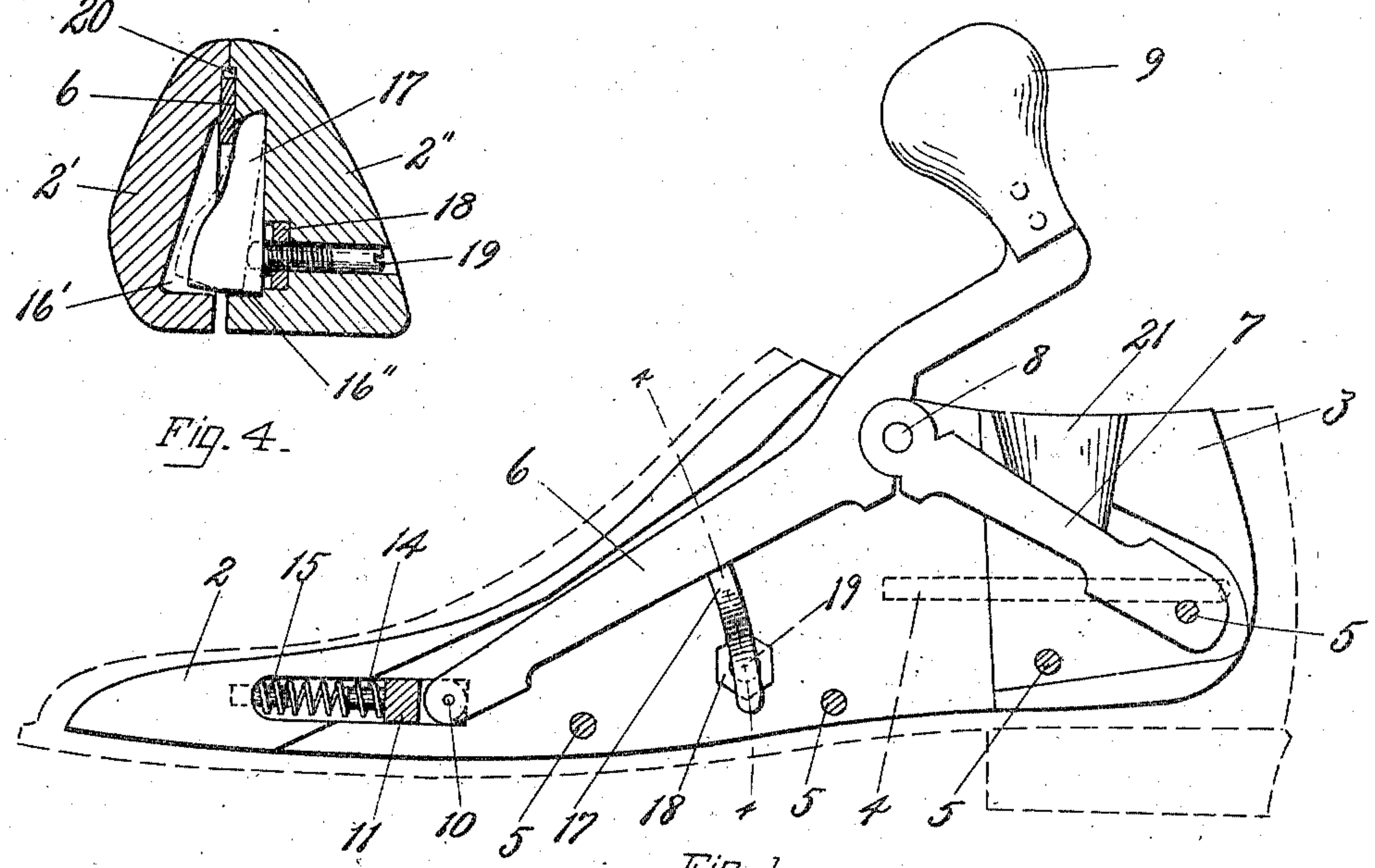


Fig. 1.

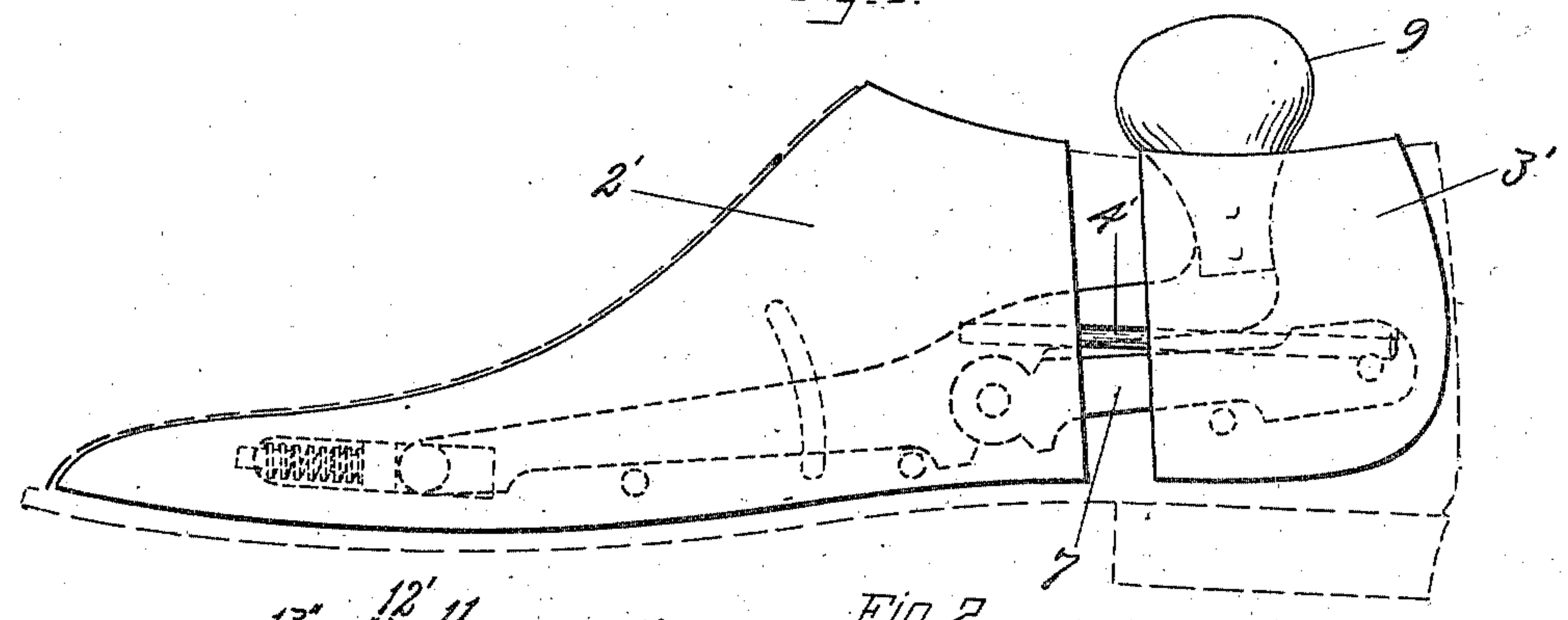


Fig. 2.

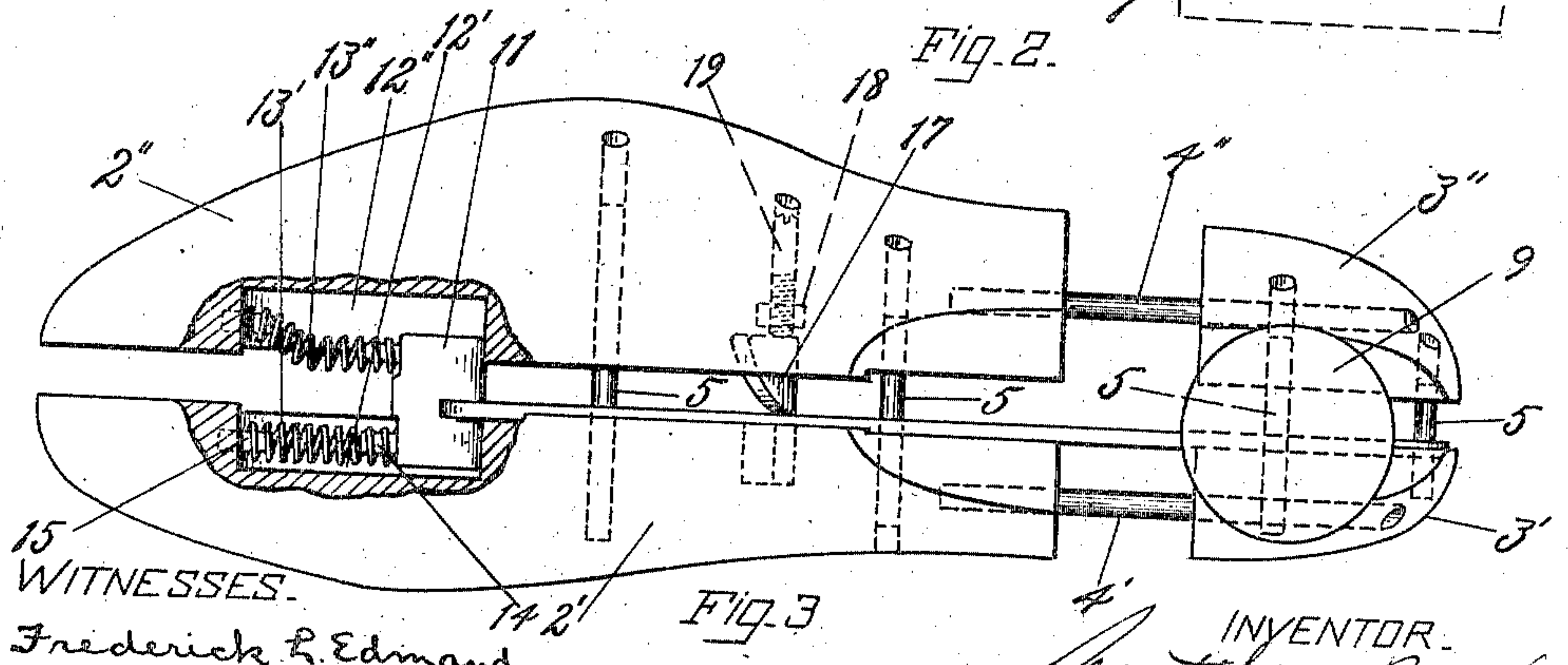


Fig. 3.

15
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UNITED STATES PATENT OFFICE.

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FORM FOR BOOTS AND SHOES.

965,865.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed May 26, 1904. Serial No. 209,947.

To all whom it may concern:

Be it known that I, MATTHIAS BROCK, a citizen of the United States, residing at Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain Improvements in Forms for Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to a device for filling out a boot or shoe and more particularly to a device adapted for use either as a follower, during the finishing operations in the manufacture of the shoe, or as a form or tree, by which the shape of the finished shoe may be preserved or restored. Shoes which have lost their shape through wear or dampness may be readily reshaped by means of such a form. Devices embodying the invention are also well adapted for use as display forms by means of which shoes may be exhibited to advantage. It may be employed in polishing shoes, or, indeed, for any other use where it is desired to fill out and support a shoe while some light operation is being performed upon it.

In order to avoid repetition in the further description of my invention I will refer to a device embodying my invention as a "form." Such a device is known in the art variously as a form, a tree, a follower, or a last, but it is obvious that I intend to include by this word "form" any device for filling out a shoe of the character above set forth by whatever term it may be described. Similarly, the term "shoe" is used generally to include boot, shoe, slipper or other similar foot covering.

In the preferred embodiment of my invention I make my form in a plurality of sections, which may be contracted to allow ready insertion into a shoe and then be expanded to fill it out and give it the proper shape. I provide, therefore, a longitudinally divided or split forepart and a heel-part which is also preferably, but not necessarily, divided longitudinally. By having both the parts expansible, the form fills out both the heel and the forepart of the shoe to give the whole shoe its proper shape.

An important feature of my invention is that the forepart is made to move bodily, relatively to the heel-part, in substantially

a straight line longitudinally. With such construction, after the shoe has been given its proper shape there is no danger of stretching it again out of this shape during the withdrawal of the form from the shoe, for the form is so much shortened when contracted that it may be withdrawn freely without pressing against the back of the shoe.

Another feature of importance is the means for separating the sections of the form laterally. It is desirable that the form, when expanded to operative position within a shoe, shall be of a definite width, and therefore the means for separating the sections should act positively without yielding. In the form embodying the present invention the width of the expanded form is predetermined and the upper will not be forced beyond its proper place relative to the edge of the outer sole, even when the leather is wet and capable of being stretched easily. The mechanism which I employ separates the sections of the form a distance which does not depend upon the condition or character of the material of the shoe. In the embodiment of my invention illustrated, I place a toggle between the sections which is connected to the fore and heel parts and also located to cooperate with a wedge, cam or cam lug in one of the sections in such a manner that, by the straightening of the toggle, the form is expanded simultaneously both longitudinally and laterally. In order to provide for adjustment I preferably make the forepart yieldingly movable, relatively to the heel-part, so that the form may accommodate itself to slight variations in the lengths of different shoes. I have also shown means, such as a screw, to adjust the wedge or cam lug to vary the width of the form in its expanded position.

My form is compact and may be conveniently packed with no parts projecting and liable to injury. To this end, a recess is made in the heel-part to receive the knob or hand piece usually provided upon the operating toggle. Hence when the form is inserted and expanded in a bal shoe there is no handle projecting into sight.

Other features of the invention, including various combinations of parts and details of construction, will now be described in connection with the accompanying drawings forming part of this specification. My

invention, however, is manifestly not limited to these specific details, but its scope and essential features will be clearly set out in the appended claims.

5 Referring now to the drawings, which show a preferred embodiment of my invention: Figure 1 is a side elevation of the form with one half removed, the pivot block being shown in section. The parts are illustrated in their contracted position, in which position the form may be inserted readily into a shoe, the shoe being indicated by dash lines; Fig. 2 is a side elevation of the complete form in operative position filling out the shoe, the springs in the forepart being somewhat compressed; Fig. 3 is a plan view of Fig. 2 with the springs released and the forepart cut away to show the pivot block; and Fig. 4 is a transverse section of the complete form on line 4-4 of Fig. 1.

As illustrated, my form comprises a forepart 2 and a heel-part 3 movable on guide pins 4' and 4'' toward and from each other in substantially a straight line. The forepart is composed of two sections 2' and 2'', and the heel-part of corresponding sections 3' and 3'', the sections of each part being movable toward and from each other in substantially straight lines upon guide pins 5. It is not essential that the heel-part be divided, although such construction is preferable in order that the heel of the shoe, as well as the toe, may be kept in shape. Where the heel-part is made in one piece, the pin 4'' is received in a slot in either the heel-part or the forepart to permit the lateral movement of section 2'' relative to section 2'.

The mechanism for expanding the form comprises a toggle made up of two levers 6 and 7 pivoted at 8, the lever 6 being extended backwardly and provided at its rear, upwardly-turned end with a knob or hand-piece 9, as shown. The lever 7 is pivoted to the heel-part upon one of the guide pins 5 while lever 6 may be connected at its front end to a similar fixed pivot. I prefer, however, to make one of these pivots yielding, so that the form may be adjustable according to the length of the shoe. Hence, in practice, I mount lever 6 upon pivot 10 in a slot in a block 11. This pivot block is adapted to move longitudinally in recesses 12' and 12'' in the forepart sections, but is normally pressed rearwardly by springs 13' and 13''. Projecting pins 14 and 15 may be located on the block 11 and at the forward ends of recesses 12' and 12'' to positively retain the ends of the springs in place, but these pins are not essential. Also, one spring only for the pivot block may be of sufficient strength, in which case the spring 13'' may be dispensed with. Nevertheless, when this spring 13'' is used it readily bends, as shown in Fig. 3, to allow the lat-

eral separation of the forepart sections. It will be noted that the toggle is connected to the forepart toward its forward end and that the pivots 5 and 10 are in a line extending longitudinally of the form approximately parallel to the line in which the heel-part moves with reference to the forepart as the form is contracted or expanded. By such construction there is little tendency of the parts of the form to bind upon the guide pins 4', 4''.

Obviously, by the depression of the toggle, in the construction so far described, the forepart and the heel-part are separated longitudinally in a straight line with a yielding pressure. Preferably, however, I provide, also, means for simultaneously separating the sections laterally. Near the longitudinal center of the form the foregoing sections are provided with recesses 16' and 16''. A wedge or cam lug fits into recess 16'' and is adapted to cooperate with the toggle to separate the sections. Assuming the form to be in its contracted position (Figs. 1 and 4), as the toggle is straightened the lever 6 travels down the wedge 17. Since the toggle bears against the inside of sections 2' and 3' the other sections 2'' and 3'' are forced laterally therefrom, by the action of the wedge, to the position shown in Fig. 3. Therefore the depression of the toggle to, or just beyond, its dead center position expands the form longitudinally with a yielding pressure and, at the same time, expands it laterally with a positive pressure. The toggle then holds the form in its expanded or operative position. As indicated in Fig. 1, the wedge 17 may be curved longitudinally so as to have the form of an arc of a circle whose center is the pivot point 10 when approximately at a mean position. Thus there is comparatively little longitudinal travel of the lever 6 relatively to the wedge 17. The effect would be nearly the same if the wedge 17 and its recess 16'' were made straight and inclined so as to have the form of the chord of the circle corresponding to the arc shown. The recess 16' may be of any shape suitable to receive the wedge in the contracted position of the form.

The drawings show means for adjusting the wedge 17 whereby the extreme width of the form when expanded may be varied. A rectangular nut 18 is countersunk in a recess back of recess 16''. Screw 19, threaded through this nut, bears at its end upon wedge 17. By turning the screw, the position of the wedge may be changed from that shown in Fig. 4, by full lines to that shown by dotted lines, or to any intermediate position. If desired the upper end of the wedge may be pivoted in its recess 16'' upon a transverse pin. In practice, however, this is unnecessary since the wedge is made to fit snugly in its recess and the force exerted by

lever 6 upon the wedge holds its upper end against the back of the recess, instead of forcing it out. Nevertheless, as a precaution, I undercut the upper end of the recess for the reception of the end of the wedge, and thus provide against possible accidental displacement. The adjustment just described, although preferable, is not essential, and where a cheaper form or follower is desired the wedge may be fixed in position.

Instead of the screw 19, or between it and the wedge 17, I might insert a spring in any convenient manner, but, for the reasons above stated, I prefer to separate the sections with a positive pressure and to a predetermined width, and therefore do not ordinarily use such a spring.

In addition to the single wedge in the forepart, a second wedge, to cooperate with lever 7, may be placed in heel-part section 3.

My invention is not limited to a heel-part which is separable from the forepart, for the heel-part may be made in sections integral with the corresponding forepart sections, or it may be dispensed with entirely. In the latter case, the rear lever 7 of the toggle, being then unnecessary, would be omitted also, but the pivoted front lever 6 would spread the forepart sections by cooperating with wedge 17, as in the construction illustrated.

In order that the forepart sections may come into contact and present an unbroken top surface in their contracted position I recess the sections slightly, as shown at 20, leaving bearing ribs along the top edges, as shown in Figs. 1 and 4. The heel sections are similarly recessed. In this way space is provided for the toggle levers when the laterally movable sections are brought together.

The heel sections are shown as provided with a hole or recess 21 in which the lower part of the knob 9 is seated when the form is expanded. This gives a neat appearance to the form and makes it compact and convenient for packing.

In the above description I have set forth many details which are not essential parts of my invention. Some of the novel features may be embodied in a form in which other features herein described are omitted. It is therefore obvious that many modifications of the construction shown may be made which would be clearly within the scope and spirit of my invention.

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

1. A form, having substantially the shape of a shoe and comprising a forepart and a heelpart movable toward and from each other, a toggle for causing such relative movement, said toggle consisting of two

levers pivoted to each other, one of the levers being pivoted also to the forepart toward its forward end and the other lever to the heelpart, and a plurality of guides to prevent relative rotation of said parts and to compel the movement to be in substantially a straight line approximately parallel to a straight line connecting the outer pivots of the toggle.

2. A form, comprising a forepart and a heel-part, a yielding block in the forepart and a toggle, of which one of the legs is pivoted to the block and the other to the heel-part, so that the forepart and heel-part may be moved relatively to each other by the operation of the toggle.

3. A form, comprising a forepart and a heel-part in combination with a toggle for moving said parts relatively to each other, said toggle consisting of a hand lever yieldingly pivoted to the forepart, and a second lever pivoted to the heel-part and to the hand lever at an intermediate point.

4. A form, having the general outline of a shoe and comprising a forepart and a heel-part, a toggle, the legs of which are pivoted respectively to the fore and heel parts, the forward leg of the toggle extending backwardly and being provided with a knob or hand piece and the heel-part having a recess to receive the lower part of the knob.

5. A form, comprising a longitudinally divided forepart composed of separable sections and a heel-part movable toward and from the forepart, in combination with a toggle connected to the forepart and heel-part respectively, one of said connections being yielding, and means cooperating with said elements whereby the sections of the forepart are separated from each other and from the heel-part.

6. A form, comprising a longitudinally divided forepart composed of separable sections and positively acting means, including a lever constructed and arranged to have a limited movement, for separating the sections laterally along their entire length a predetermined distance, whereby the form when in expanded position in a shoe shall have a definite width independent of its length.

7. A form, having the general outline of a shoe, comprising a longitudinally divided forepart composed of separable sections and a heel-part, in combination with means for separating the forepart sections laterally along their entire length a predetermined distance, whereby the form when in expanded position in a shoe shall have a definite width whatever the distance between the forepart and the heel-part.

8. A form, having substantially the shape of a shoe and comprising a longitudinally divided forepart composed of two laterally

separable sections and a heel-part guided to move in substantially a straight line toward and from the forepart, in combination with devices acting substantially simultaneously to separate the forepart sections both from each other and from the heel part.

9. A form, comprising a sectional forepart and a heel-part in combination with devices to separate the sections of the forepart with a positive pressure and the forepart from the heel-part with a yielding pressure and a plurality of guides to control the directions of the movement.

10. A form, comprising a forepart composed of laterally separable sections and a heel-part, a pair of levers forming a toggle connecting the forepart and heel-part, a wedge or cam lug on one of the forepart sections in position to be engaged by the toggle, whereby each of the forepart sections will be moved relatively to the other and to the heel-part by the operation of the toggle.

11. A form, comprising laterally separable sections, a wedge or cam lug on one section, a lever pivoted to and acting upon the other section and adapted to engage the wedge to separate the sections.

12. A form, comprising separable sections, an adjustable wedge or cam lug on one section, means connected to the other section and adapted to engage the wedge to separate the sections, and means to adjust the wedge.

13. A sectional form, comprising forepart and heel-part and having when expanded approximately the shape and length of the shoe in which it is intended to be used and divided longitudinally for its entire length, together with means for spreading the form laterally to a predetermined width.

14. A form, comprising a divided forepart and a divided heel-part movable relatively to each other, and a single means for simultaneously spreading both of said parts laterally.

15. A form, comprising a divided forepart and a divided heel-part, in combination with devices arranged to be moved by the user for expanding said form both longitudinally and laterally.

16. A form, comprising a forepart and a heel-part, each composed of separable sections, means for moving the forepart longitudinally relatively to the heel-part and for simultaneously separating the sections of both the heel and fore parts, said means comprising guides, a fixed pivot in the heel-part, a spring-pressed pivot in the forepart, a toggle the two legs of which are mounted respectively on the said pivots, and a wedge on one of the forepart sections adapted to be engaged by the toggle as it is straightened.

17. A form, comprising a longitudinally divided forepart composed of separable sections which are movable as a whole toward and from each other, a plurality of guiding pins extending from one section to the other to compel the relative movement of the sections to be in substantially a straight line, and manually operable means including a lever provided with a handle for effecting the separation of the sections constructed and arranged to be grasped and moved by the user while the form is in a shoe.

18. A form, comprising a longitudinally divided forepart composed of separable sections movable as a whole toward and from each other, guiding means to compel such movement to be substantially in a straight line, and manually operable means including a lever, a handle therefor and a cam for effecting or controlling relative movement of the sections in both directions.

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

MATTHIAS BROCK.

Witnesses:

FREDERICK L. EDMONDS,
ARTHUR A. RUSSELL.