No. 861,178. PATENTED JULY 23, 1907.

W. H. HOOPER.

WELT MARKING MACHINE.

APPLICATION FILED JAN. 16, 1906.

2 SHEETS—SHEET 1.

Fig. 1

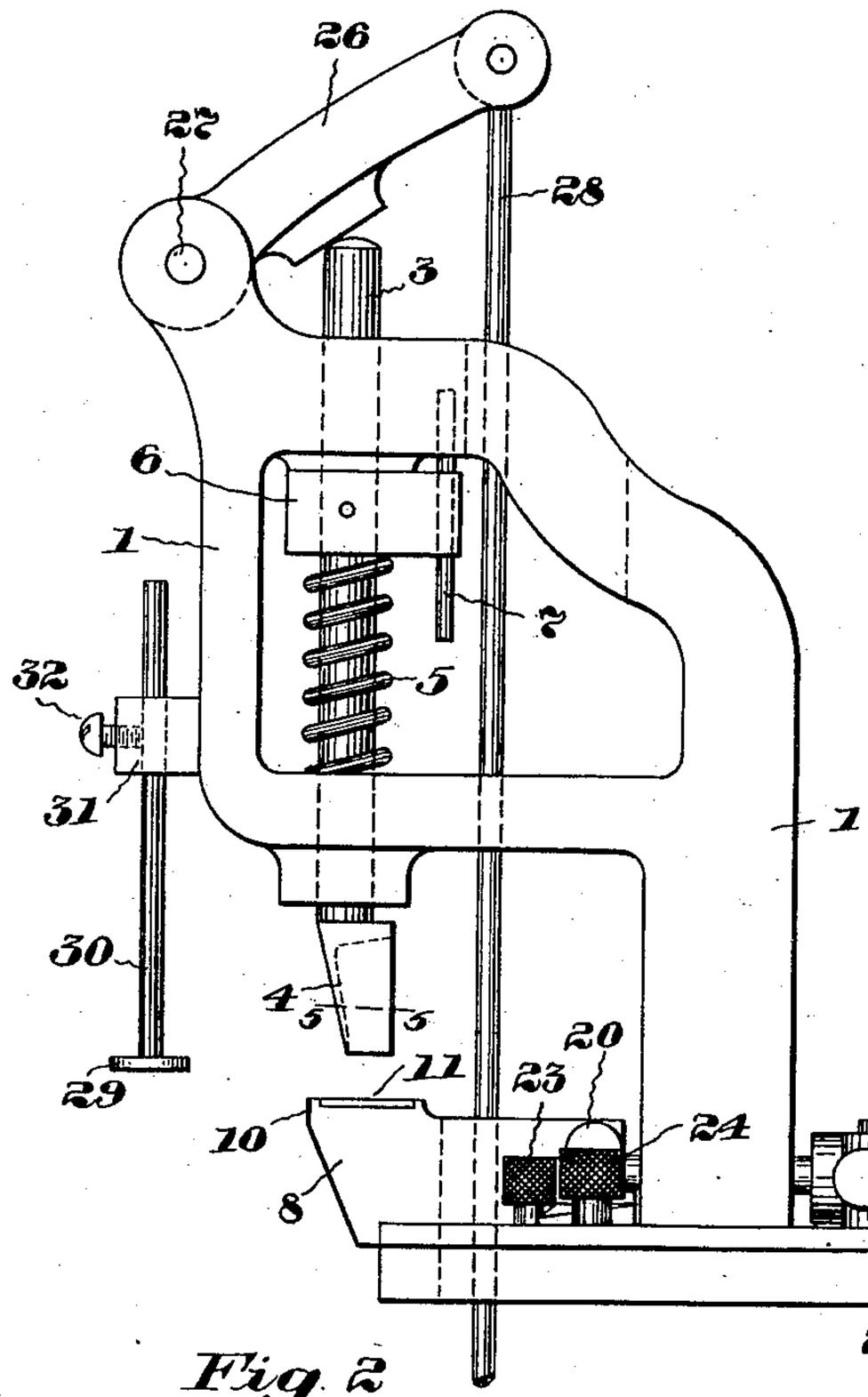
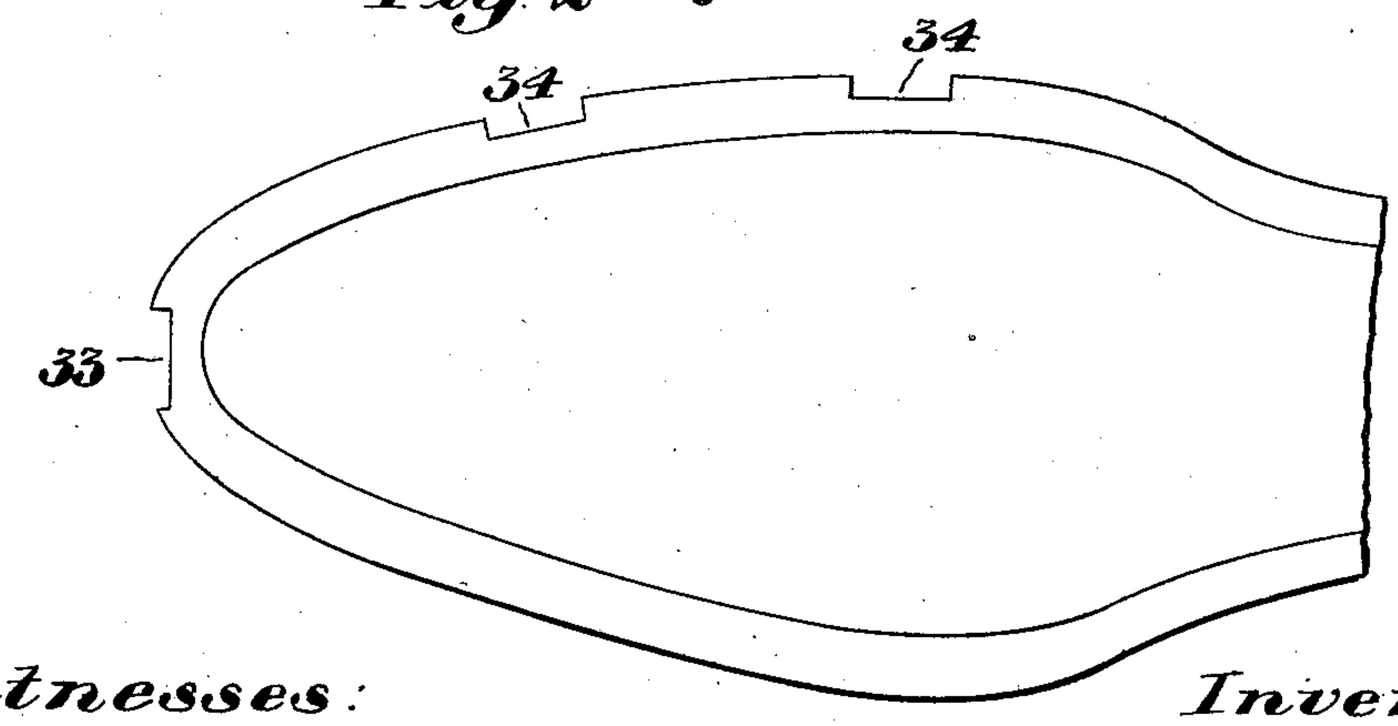


Fig. 2



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2 SHEETS—SHEET 2.

Fig. 3

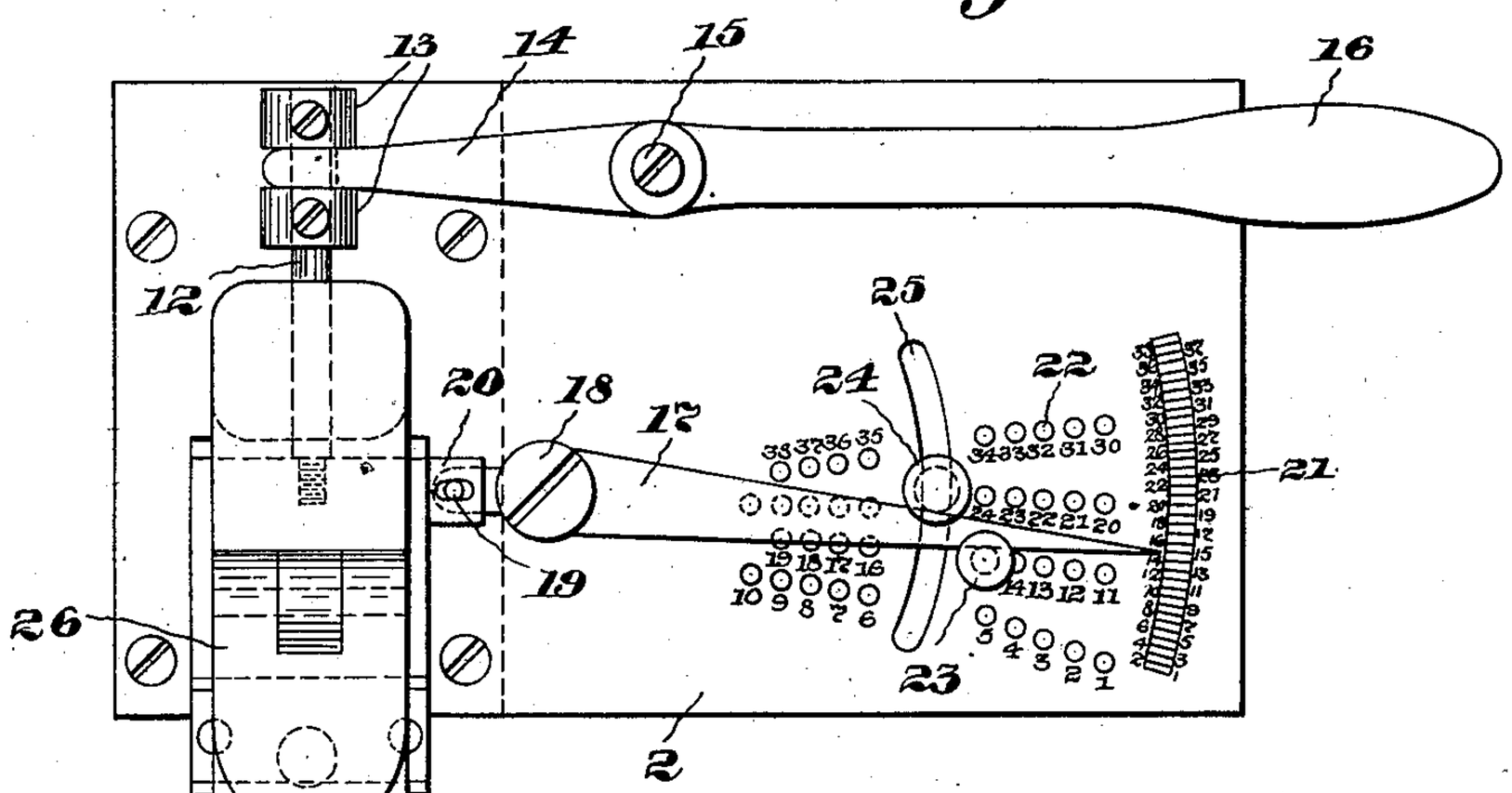

Fig. 5

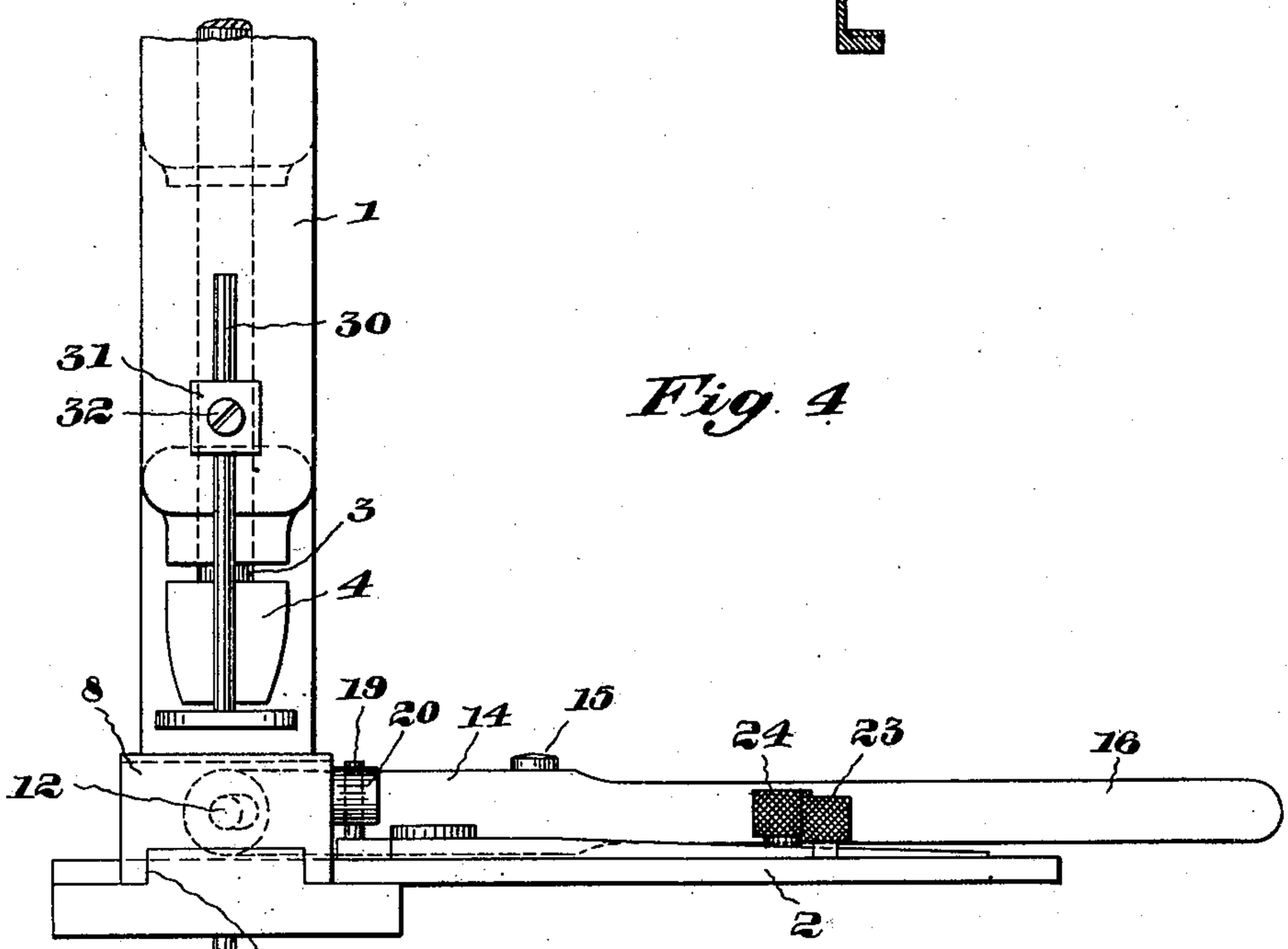

Fig. 4

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UNITED STATES PATENT OFFICE.

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WELT-MARKING MACHINE.

No. 861,178. Specification of Letters Patent. Patented July 23, 1907.

Application filed January 16, 1906. Serial No. 296,322.

To all whom it may concern:

Be it known that I, WILLIAM H. HOOPER, a citizen of the United States, residing at Swampscott, in the county of Essex and State of Massachusetts, have invented an Improvement in Welt-Marking Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In the manufacture of boots and shoes, where the sole extensions particularly at the outer sides are considerable, the general effect of the shoe to the eye, depends largely upon the accuracy of the outline of the sole, and also upon the balance or position of the sole relative to the lasted upper.

It is recognized that a perfectly true outline and one which shall be uniform in a large number of shoes of a given size or style can best be obtained by dying out the soles before they are laid or applied to the uppers. The dies being accurate, of course all soles cut therefrom must likewise be accurate and uniform. Furthermore, a channel cut from the edge of the died-out sole presents likewise a true curve or line, consequently the line of stitching which follows the channel will present a proper and harmonious effect, when viewed with relation to the sole edge adjacent to it. Soles previously died-out are also much more economical, because the sole stock can be cut to better advantage. One of the principal difficulties, however, encountered in the use of died-out soles may be illustrated in the case of its application to a welted upper. The welt when applied to a shoe is always wider than is necessary to reach to the outer edge of the sole, in order to provide for inaccuracies in insole channeling, lasting and welting, the surplus being subsequently trimmed down to the line of the desired sole. When therefore the welt shoe is turned bottom up to receive the outsole, the outline of the welt is not reliable by which to lay the sole nor can the outline of the upper be seen by the operator, because concealed under the welt. Consequently the sole must be laid blindly or by feeling or guess work with the result that inaccuracies have been found to be so great as to prohibit the commercial use of such soles in welted work. Of course if the sole is laid even slightly to one side of its proper position, there being no surplus to trim off to correct the error, the entire effect is permanently destroyed. This has led to the general use of what are known as block soles which are nothing more nor less than unshaped sole blanks of sufficient size to permit of considerable variation in the cutting of the sole therefrom and which may be laid without substantial accuracy. After laying these blocks, the soles are trimmed down, by what is known as a rough rounder, to a shape approximating that of the lasted upper by the use of a guide which follows the upper, the channel being cut simultaneously with the rough rounding. The rough rounding operation is one of the most skilled in the art of shoemaking and at best is unsatisfactory largely because the rough rounded outline does not follow accurately the outline of the upper or last and if it did follow accurately the upper outline, it would exhibit defects in the latter due to imperfect lasting or otherwise, whereas, a correctly cut or died sole properly laid would tend to neutralize and correct the wrong effect produced by the defectively lasted shoe. Any use of block soles involves, of course, a large waste.

Among its objects, the present invention aims to overcome the difficulty above pointed out, and is directed to the facilitation of adjustment of sole leather and uppers when they are initially assembled, the invention consisting of means whereby some part of or associated with an upper may be given a definite demarcation to which the sole leather in any of its usual forms may be referred so as to admit of a ready and accurate adjustment.

For purposes of illustration, yet without limitation thereto, the invention will be shown and described herein as employed in making on a welt of a welted upper, a mark to which may be referred for adjustment the edge of a previously shaped or died-out sole blank.

In the drawings,— Figure 1 is a side elevation of one form of welt marking machine embodying the features of my invention. Fig. 2 is a bottom plan view of a welted shoe showing the notched welt prior to the application of the outsole blank; Fig. 3 is a plan view of the marking device shown by Fig. 1; Fig. 4 is a front elevation of so much thereof as is necessary to show the relative position of certain gages, and Fig. 5 is a cross-sectional view of the welt marking or notching tool.

In the apparatus here selected for illustrating my invention the device for marking or notching the welt consists of a frame 1, mounted upon a base plate 2, which may be secured to a work-bench or other support in any desired manner. Mounted in the frame is a vertically reciprocating plunger 3, which carries at its lower end a suitable welt marking device, shown as a notching device 4, the same being held normally in elevated position by a spiral spring 5 surrounding the plunger and interposed between a portion of the frame 1 and the block 6, secured to the plunger. The block 6 furthermore, is extended somewhat to the rear and is drilled to receive a guide pin 7 on the frame-work of the machine and which prevents rotation of the marker plunger 3 in its bearings, so that the marker will be maintained always in the same relative position with respect to the other working parts. Beneath the welt

marking or notching device 4 is a work support or table 8 which is adjustably mounted upon the base-plate 2 (see Figs. 1 and 4) being guided thereon by a rib 9 (Fig. 4) extending from front to rear thereof.

The work support is provided with a suitable cutting plate or anvil 11, which is preferably made of soft metal in order to prevent dulling of the cutting or marking device 4, if such device is used or injury to the welt marker, which may be used instead thereof.

To operate the plunger 3 with respect to the work support 8, it is engaged at its upper extremity by an arm 26, pivoted at 27 on the top of the machine frame and operable by means of a treadle rod 28.

The welt to be marked or notched is laid upon the work rest. The front edge 10 of the work support 8 constitutes one gage against which the shoe upper, adjacent the inseam of a lasted shoe may be positioned to determine the position at which the notch or mark shall be made upon the welt and thus to determine the position of the outsole when laid by said marks or notches.

For the purpose of convenient adjustment of the gage face 10, with respect to the marker or cutter 4, the table is provided with a rearwardly extending stem 12 (Figs. 3 and 4) having mounted upon the rear extremity thereof adjustable collars 13, between which is received one extremity of an adjusting lever 14, pivoted at 15 upon the base of the machine, and provided with a handle 16 extended to one side within easy grasp of the operator.

To determine accurately the required position of the front gage face 10 for shoes of different sizes and styles, said table has connected therewith at its righthand side (Fig. 3) a scale pointer 17, pivoted at 18 upon the base plate 2, and connected by a pin and slot connection 19 with a lug 20 on the side of said support. Upon the base 2 adjacent the outer extremity of the scale pointer 17 is a scale 21 graduated to correspond to the various sizes and styles of shoes to be operated upon. Beneath the pointer and also in the base plate 2 is a series of apertures or peg holes 22 adapted to receive a removable peg 23, which when in position in one of the perforations 22 will form a stop for the shifting pointer 17 and thereby indicate accurately the position of the work support and its gage face 10, it being understood that the perforations 22 are positioned with relation to the graduations of the scale 21 and are similarly marked so that the operator can quickly determine the required position of the peg 23 to properly position the pointer 17.

To hold the pointer 17 and consequently the work support 8 in its adjusted position, a second movable peg 24 is provided, which slides in a slot 25 in the base plate 2 and may be clamped in any position therein by means of a threaded nut (not shown) upon its lower extremity which bears against the under face of the base plate 2.

To determine the position of the plane of the sole of the shoe and consequently that of the welt with respect to the marker or knife 4, a suitable gage 29 is provided just in front of the work support (Fig. 1) and supported by a shank 30 in a lug 31 upon the machine frame 1, which gage may be fixed in any adjusted position by a suitable clamping screw 32 in the lug 31.

In practicing the marking operation the toe of the lasted and inverted shoe is placed by the operator against the gage face 10 of the front of the work support 8 with the welt overlying said table in the path of the marker 4 and with the face of the insole bearing against the under side of the gage 29, whereby the welt is accurately positioned with respect to the marker 4. In the absence of the insole gage 29 the position of the plane of the shoe to be marked would be entirely at the judgment and eye of the operator, and the position of the mark or cut upon or within the welt might vary with the varying positions of different shoes, and thereby produce variations in the position of the mark or cut with respect to the outline of the shoe selected as a standard.

In practice the welt is preferably notched at the point 33 (Fig. 2) at the toe of the shoe and at one or more points 34 upon the inner side thereof, the bottoms of the notches being the gages to which the died-out sole may be laid. The shaped sole blank is then laid to these notches and thereby becomes accurately positioned with respect to the selected outline of the lasted shoe, by or with reference to which the notches were cut.

As will be observed in Fig. 2 the distance of the bottom of the cut or mark 33 from the upper is slightly more than that of the marks 34 upon the inner side, since the projection of the sole at the inner side should ordinarily be less than at the toe, and to accomplish this variation it is necessary where but a single marker or plunger is used, to adjust the gage face 10 of the work support 8 to different positions with respect to the marker in marking the toe and side marks respectively. This may be done by the use of a plurality of positioning pegs 23 in the holes 22 of the base plate 2, so arranged that the operator by shifting the handle 16 of the lever 14 may bring the pointer 17 against one or the other of such positioning pegs 23, at will, being sure, however, that the work support is held firmly by the lever 14 in either of its adjusted positions. A more convenient manner of accomplishing the same results, however, is by the use of two separate and independent marking devices, one alongside of the other, adjusted to properly mark or notch the toe and the sides of the welt, respectively, the device being, however, in all other respects the same as that here described.

In the preceding discussion, the marks to which the sole leather is referred have been conveniently described as applied to a welted upper. Evidently, however, the marks might be applied to uppers which are not welted, as, for example, to uppers having their edges outturned preparatory to making a stitch-down shoe, and such construction is intended to be embraced by the claims. It is evident, of course, that the machine hereinbefore described may be changed in many particulars, as will be evident to those skilled in the art, without departing from the proper scope of the invention, which is of a pioneer character and intended to be thus defined by the claims.

Claim—

1. The combination with means for marking the welt of a shoe to determine the position of the outsole thereon, of a gage movable for determining the positions of the successive marks with respect to a given contour of the shoe.

2. The combination with means for notching the welt of a shoe while on the last to determine the position the out-

sole is to occupy thereon, of a gage movable to determine the position of successive notches with respect to the shoe contour.

3. The combination with means for marking or notching the welt of a shoe to determine the position the outsole is to occupy thereon, of adjustable gages coöperating with the upper of a lasted shoe and the face of the insole respectively to determine the position of said marks with respect to the shoe contour.

4. The combination with means for marking the welt of a shoe to determine the position of the outsole thereon, of a work support provided with a movable gage face to determine the position of the marks with respect to a given outline of the shoe.

5. The combination with means for marking the welt of a shoe to determine the position of the outsole thereon, of an adjustable gage for determining the position of the marks with respect to a given outline of a shoe.

6. The combination with means for marking the welt of a shoe to determine the position the outsole is to occupy thereon, of a gage for determining the plane of the welt with respect to said marking means during the marking operation.

7. The combination of means for producing position determining marks on the extension edge of a shoe by which to properly assemble a sole thereon, a gage for defining the location of said marks with reference to the shoe contour and means for changing the relative position of the gage and marking means.

8. In a shoe marking machine the combination of means to mark an extension edge of a shoe to facilitate adjustment of sole leather with respect to the upper, with adjustable means for determining positions for successive marks at different distances from the general contour of the upper.

9. The combination of means to make an elongated mark on an extension edge of a shoe along substantially the line of the intended trend of a sole edge, with means to determine the distance of said mark from the upper contour.

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

WILLIAM H. HOOPER.

Witnesses:
DANIEL W. COLBY,
FREDERICK L. EMERY.