

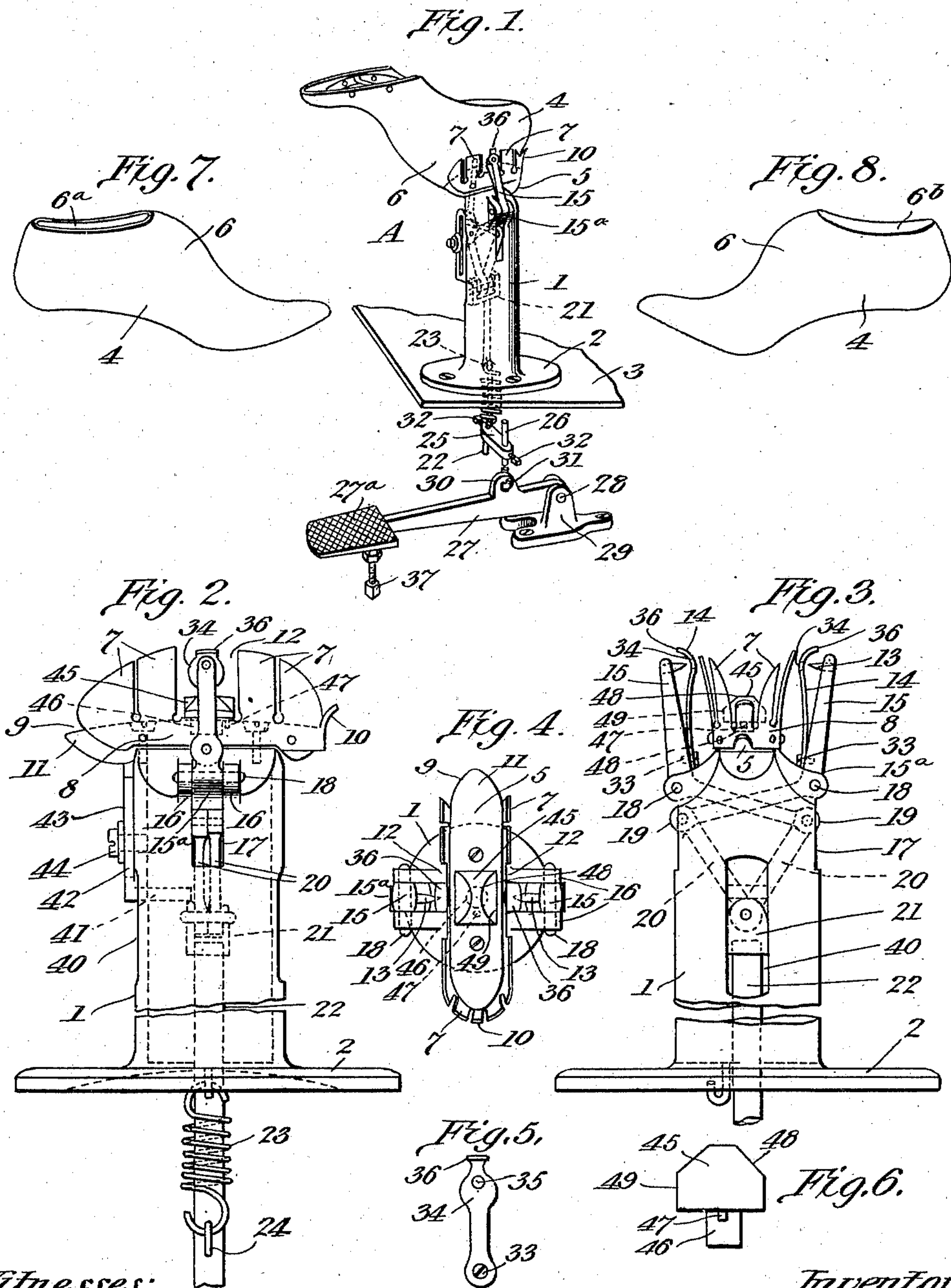
W. L. C. NILES.

RELASTING JACK.

APPLICATION FILED JULY 22, 1907. RENEWED MAY 21, 1910.

966,851.

Patented Aug. 9, 1910.



Witnesses:

M. E. Adams.
Geo. N. Brown

Inventor,

Walter L. C. Niles

UNITED STATES PATENT OFFICE.

WALTER L. C. NILES, OF SAUGUS, MASSACHUSETTS.

RELASTING-JACK.

966,851.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed July 22, 1907, Serial No. 384,956. Renewed May 21, 1910. Serial No. 562,767.

To all whom it may concern:

Be it known that I, WALTER L. C. NILES, a citizen of the United States, and a resident of Saugus, county of Essex, and State of Massachusetts, have invented an Improvement in Relasting-Jacks, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings representing like parts.

My invention relates to a jack for holding a shoe form while the latter is inserted in or removed from a shoe, the jack being of the type known to the trade as a relasting jack. In the manufacture and preparation of shoes for sale, it is customary, especially with the better grade of shoes, to insert a shoe form or last in the shoe after the latter has been finished to preserve its shape. In inserting this form in or in removing it from the shoe, the latter is usually held or manipulated by one hand and the form by the other, requiring a greater expenditure of the energy and time of the operative than should be employed in such operation. To facilitate such operation and to economize the time and energy employed therein, my invention aims, generally, to provide a jack of novel construction and arrangement of parts, that will securely hold a form during its insertion in and removal from a shoe, permitting the operative to employ both hands upon the shoe for the effective, rapid, and easy manipulation thereof and the insertion or removal of a greater number of forms in a given time than was possible by the methods hitherto employed or in fact by any method known to me. The above, however, with other features and objects characterizing my invention will be best understood and appreciated by reference to the following description and accompanying drawings of a jack embodying one form of my invention and selected for purposes of illustration, the scope of the invention being more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view, with parts broken away, of a jack embodying a single and preferred form of my invention, showing a shoe form in place upon the jack; Fig. 2, an elevation, with parts broken out, of the right side of the jack shown in Fig. 1 and on a somewhat larger scale; Fig. 3, a rear elevation thereof; Fig. 4, a plan of the head of said jack;

Fig. 5, a detail to show one of the spring fingers for protecting the shoe upper and sides of the form; Fig. 6, a detail, showing in end elevation the pyramidal block employed for holding the sides of the form separated; and Figs. 7 and 8 are perspective views representing typical forms to which my invention is particularly, though not exclusively, adapted.

Referring to the drawings and to the particular embodiment of my invention selected for illustration therein, I provide a jack, represented *in toto* at A, Fig. 1, suitably formed to present a hollow column 1 and a preferably circular base 2, adapted to be secured to the top of a work bench or table 3, the hollow column housing the actuating mechanism, hereinafter described, by which a shoe form, 4, is held and released. At its head, said column has an approximately elliptical shaped block 5, Fig. 4, the upper face of which is of a shape corresponding to the top of the form employed, (see Figs. 7 and 8), and upon which the latter is supported and held in place while it is being inserted in a shoe or removed therefrom. For the proper positioning and seating of this form upon said supporting block 5, the latter is provided with suitable form guiding or gaging means, comprising, in the present instance, a series of vertically projecting spring tongues, 7 (Figs. 2-4), herein preferably formed by vertically slitting a band, 8, of spring metal, which is secured to the sides of the block and embraces the sides and heel portion thereof but leaves the front open as at 9, Fig. 4, to receive the crown or ankle portion of the form, as shown in Fig. 1.

The tongues, 7, embrace the supporting block on three sides thus presenting a sort of recess or socket to receive the top of form, the upper ends of said tongues flaring outwardly (Fig. 3) for readily directing the form to predetermined position on said block, a short tongue 10, Figs. 3 and 4, at the heel end of said block engaging and locating the heel end of the form, the curved instep or crown portion of the form extending forwardly from the open end 9, and the adjacent curved edge or top of the form (Figs. 7 or 8) fitting upon the curved front face, 11, Fig. 2, of the supporting block. The two side portions of said band, 8, are intermediately provided at their upper edges with notches, 12, Fig. 2, to present the sides

of the form to the action of suitable form grasping means, whereby the form is positively held in supporting relation upon its seat. Any desired construction of grasping means may be employed for this purpose, but I preferably provide one or more claw members, two being provided in the present instance, and preferably comprising gripping points, as the pointed pins 13, (Fig. 3), and herein shown as associated with cooperating spring tongues 14, carried by suitable bell crank levers 15. The grasping means may be operated to hold or release the form, as desired, as will be presently more particularly described. By this arrangement of the spring tongues, it will be apparent that the jack is provided with efficient means for gaging or positioning the top of the form relative to the supporting block, said tongues also preventing any lateral or rearward movement of the form, the pins 13 being adapted to hold said form in its seated position upon the jack during the operation of applying the form to or removing it from the shoe.

In the present instance, referring now to Fig. 3, each of said bell crank levers 15 is preferably fulcrumed at its elbow, 15^a, between suitable ears 16 at the head of the column and at the opposite sides and head of a vertical slot 17 in the walls of said column, the elbow of said bell crank being received in said slot and pivoted in and between said ears by means of a suitable pivot pin 18. By this construction, the approximately horizontal arms of the bell crank levers extend inwardly or are housed within the column, the opposite free ends 19 of each arm playing in the slot 17 at the opposite side of the jack, which directs its movements vertically. The vertical arms of the bell cranks are provided at their heads with the horizontal inwardly extending prongs or pointed pins 13, referred to, which are adapted to grasp or pierce the sides of the form and secure it upon the jack.

Any suitable means may obviously be employed for causing the desired inward movement of said pins, so that they may engage the positioned form and securely hold it in place, but I prefer the mechanism herein shown, wherein the horizontal arms of said bell cranks 15 are connected by links 20, Figs. 2 and 3, with a yoke block 21, carried at the head of a vertical rod 22. Vertical movement of this rod elevates or depresses said block and the connected links and bell crank arms, causing the vertical arms of the bell cranks and the form engaging pins carried thereby respectively to move from or toward the sides of the form and to release or to hold the same in its seated position on the jack. The rod is normally maintained elevated and the vertical bell crank arms and their pins 13 in outer releasing

position by means of a coil spring, 23, Fig. 2, connecting the base of the column with a pin 24 on the lower end of said rod. For depressing said rod 22, against the action of its elevating spring, to cause the grasping pins to swing inward to engage the sides of the form, it is connected through an adjusting block 25 with a similar rod 26 the latter being actuated through suitable operative controlled means, herein, preferably, a treadle 27 controlled by the operator's foot. In the present instance, this treadle is fulcrumed at 28, Fig. 1, to a suitable bracket 29, secured to the floor, the treadle having a vertical apertured ear 30 to which the lower hooked end 31, of the treadle rod 26 is hooked and its free end extending forward and provided with a usual tread 27^a by which it may be conveniently depressed. That the treadle connection may be made adjustable, the connecting block 25 is provided with vertical apertures respectively to receive the lower end of the rod 22 and the upper end of said rod 26, screw bolts 32 being tapped through the ends of said block and entering said apertures to engage and hold the ends of said rods in desired relative adjustment, thus permitting the treadle rod to be made longer or shorter. For preventing the points of said pins from catching in or injuring the shoe upper during the application of removal of a shoe, each of the vertical bell crank arms is provided with the spring tongue or finger 14, already referred to, which is secured at its lower end to said arm by means of a screw 33, the fingers extending vertically and curving inwardly, see Fig. 3, and then outwardly and normally overlying or covering the pointed ends of said pins 13. At their upper ends, these fingers are each provided with an enlarged flat portion or head 34 to engage the adjacent side of the shoe and are centrally apertured as at 35 to permit the pin 13 carried at the head of the carrying arm to be inserted therethrough and play freely therein. When said arms are moved toward the form, the heads of the fingers have a yielding clamping action upon the sides of the form, the pins playing through said apertures and grasping the adjacent sides of the form which their points enter positively to hold said form against movement relative to the jack.

The inner movement of the pins 13 is preferably made adjustable, by means presently to be described, so that when they are operated to hold the form upon its seat they preferably shall not pass through the sides of the form, but shall enter only far enough to secure a firm grip upon its sides, thus preventing it from moving either vertically or laterally. It is obvious, however, that the movement of the pins 13 may be so adjusted as to cause them to puncture the sides

of the form, if such movement is found desirable. I thus provide what I term "piercing" means for holding the form in place and wish it to be understood that as used
 5 "herein" the terms "piercing or pierce" are used in a broad sense to include any device that enters the top portion or sides of the form either partially or so as to pass through said sides as may be most advantageous. When the pins are moved outwardly, particularly when operated to puncture the sides, the resiliency of the fingers 14 retards outer movement of the pierced portion of the form and aids in withdrawing the pins from gripping contact with the form thus releasing the latter to permit its removal from the jack. The outwardly curved or projecting portions 36 of said fingers cover said pins so that in drawing on
 10 or removing the shoe, the upper or its lining is prevented from catching in the points of said pins, the jack thus being provided with means for protecting the shoe upper and to an extent also, the form against injury as by scratching, tearing, etc. The jack is also provided with suitable means for adjusting or limiting the in and out movements of the bell crank pins, the inner or form engaging movement being limited, in the present instance, by regulating the depression of the treadle rod, which obviously controls the inner movement of said pins. As here shown, this adjustment or limitation is provided by means of a treadle stop, consisting
 15 of a vertically adjustable screw bolt 37 adapted to strike the floor, said bolt being tapped into the bottom of the treadle 38 and retained in adjusted position by a lock nut. By this construction, the stop screw may be turned and its position thus adjusted to arrest the depression of the treadle at any point, so that the inner grasping or piercing movement of the pins may be regulated at will. For regulating or adjusting
 20 the outer or releasing movement of said bell crank arms and hence of said pins 13, the front wall of the column, in the present instance, is provided with a vertical slot 40, through which projects the short horizontal arm 41 of an L shaped stop 42, the vertical arm of which extends vertically above said arm 41 and is slotted longitudinally, as at 43, to receive the threaded shank of a clamping screw 44, which is tapped into said
 25 column. By turning this screw, the stop may be unclamped and elevated or depressed, raising or lowering the inwardly projecting arm 41. The end of this arm overlies and is adapted to be engaged by the head of the yoke block, 21, and prevent further upward movement thereof, thus preventing further outer movement of the vertical arms of the bell cranks and said pins, as will readily be apparent from an inspection of Fig. 3, wherein the end of the stop

arm 41 is shown as limiting the further upward movement of said yoke block, 21.

My invention is particularly, though not exclusively, adapted for use with the typical forms 4 represented in Figs. 7 and 8, Fig. 7, 70 showing a hollow body of desired pattern having its top 6 open as at 6^a, while Fig. 8 represents the form as provided with its top, 6, closed as at 6^b, said forms being substantially similar in construction to those shown and described in my former Patents, Nos. 594551, and 785115 to which reference may be had if desired. I furthermore desire it to be understood that any desired type of form may be employed and that the term form, as used herein and in the claims, is used generically or in its broad sense to include any type of shoe pattern for giving shape to the shoe, such, for example, as the forms and lasts in common use and is not limited to the specific type shown herein for illustrative purposes only. 85

When using a form of the open top type, represented by Fig. 7, I provide means for preventing the sides from collapsing or moving inward when grasped or pierced by the pins 13, said means, in the present instance comprising a pyramidal shaped block 45, Fig. 6, removably and centrally located (Fig. 4) upon the supporting block 5 by means of pins or studs 46, 47, Fig. 6, depending from said block 45, said studs fitting into cooperating sockets in the upper face of said supporting block, 5. 90 95

The width of the block 46 is approximately the same as the distance between the opposite sides of the form, at the top thereof, so that when the form is seated upon the jack the slanting faces 48 of said block direct said sides into predetermined position between the vertical sides 49 at the base of said block and the positioning tongues 7 and thereby prevent subsequent lateral movement of the sides of the form, particularly when the grasping pins 13 are operated, by depression of the treadle, to grasp or to pierce the same for holding the form on its seat. 100 105 110

In operation, the operative takes a shoe form of desired type, inverts it, and forces its top face or the edges thereof into position upon the supporting block 5, the flaring ends of the spring tongues 7, directing the form into proper relation with said block, the heel portion of the form being brought against the short tongue 10, at the heel end of the jack. Having thus seated the form on the jack, the operative next depresses the treadle, correspondingly to depress the horizontal arms of the bell cranks. By this movement, the vertical arms and the pointed grasping pins are simultaneously caused to swing inward and grasp or pierce the sides of the form and firmly hold it upon its seat, the points of said pins moving inward 115 120 125 130

through the apertures in said spring fingers 14 to cause the latter subsequently to move therewith and to cooperate with said pins in grasping and holding the form. Maintaining the treadle depressed, a shoe is next drawn over the form and the latter fully inserted and forced to place, both hands of the operative preferably being employed for this purpose, thus permitting the form to be effectively and rapidly applied to the shoe. The form being fully inserted in the shoe, the treadle is released, the coil spring 23 then operating to elevate the treadle rod and swing the grasping pins outward, thus releasing the form to permit its removal simultaneously with the shoe in which it is contained.

Any number of forms may be successively applied to the jack and each inserted in a shoe in the manner described and with a natural and rapid movement, which obviously requires much less expenditure of energy and results in a greater economy or saving of time than by the methods hitherto employed.

In removing the form from a shoe, the latter is first inverted and the top of the contained form placed in its supporting position upon the jack in the manner described, the tongues 7 entering between the sides of the shoe upper and said form, while the projections 36 protect the upper, the treadle then being depressed to cause the grasping pins 13 and their cooperating form-protecting, apertured spring fingers 14 firmly to hold the form upon the jack. The shoe is then pulled off by a forward movement. The treadle is then released and the form thus released removed from the jack. The jack is then ready to receive another form and the operation may be repeated and similarly operated until the forms have been removed from as many shoes as desired.

My invention obviously is not limited to the particular embodiment herein selected for purposes of description and illustration nor to the specific details of construction and arrangement, the same being capable of modification within wide limits without departing from the spirit and scope thereof.

Claims—

1. A jack provided with means for supporting a hollow shoe form, grasping means adapted to engage the said form for securing it to said jack, and cooperating means for preventing collapsing movement of said form during the action of said grasping means.

2. A jack having a support adapted to receive a shoe form having an open top portion, grasping means for engaging said top

portion to secure the form to said support, and means connected with said support to engage said top portion to prevent collapsing movement of the sides of the form while secured by said grasping means.

3. In a jack of the type described, a form support adapted to receive the top edges of an open top shoe form, grasping means operatively related thereto for engaging the top portion of said form to hold the latter upon said support, and a centrally supported device on said support for preventing collapsing movement of said sides during the action of said grasping means.

4. A holder for hollow shoe forms comprising means operable upon and engaging one side of said form for grasping and holding the same and means cooperating therewith and engaging the other side of said form for preventing collapsing movement thereof during the action of said grasping means.

5. In a jack for holding shoe forms, a seat adapted to receive the top of said form having means projecting vertically from the sides thereof to embrace the side portions of said top, laterally movable arms provided with pointed members adapted to grasp the sides of said top above said seat, and operating means therefor, the whole constructed and arranged to hold said shoe form upon its seat while a shoe is being applied thereto or removed therefrom.

6. In a jack of the type described, the combination of a seat shaped to conform to the top of a shoe form and provided with members projecting vertically from the sides thereof for positioning and preventing lateral displacement of said form, with a plurality of pointed members movable laterally relative thereto for holding said form upon its seat and to permit slipping a shoe over said form or removing it therefrom.

7. A jack provided with a shell like seat presenting a cup shaped receptacle to receive the top of a shoe form placed in an inverted position thereon and a plurality of arms each provided with pointed means having slight movement toward and from the sides of said form for grasping its sides above said jack seat to secure it thereon, the whole constructed and arranged to permit a shoe to be placed upon or removed from said form.

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

WALTER L. C. NILES.

Witnesses:

SIDNEY F. SMITH,
GEORGE C. HIGGINS.