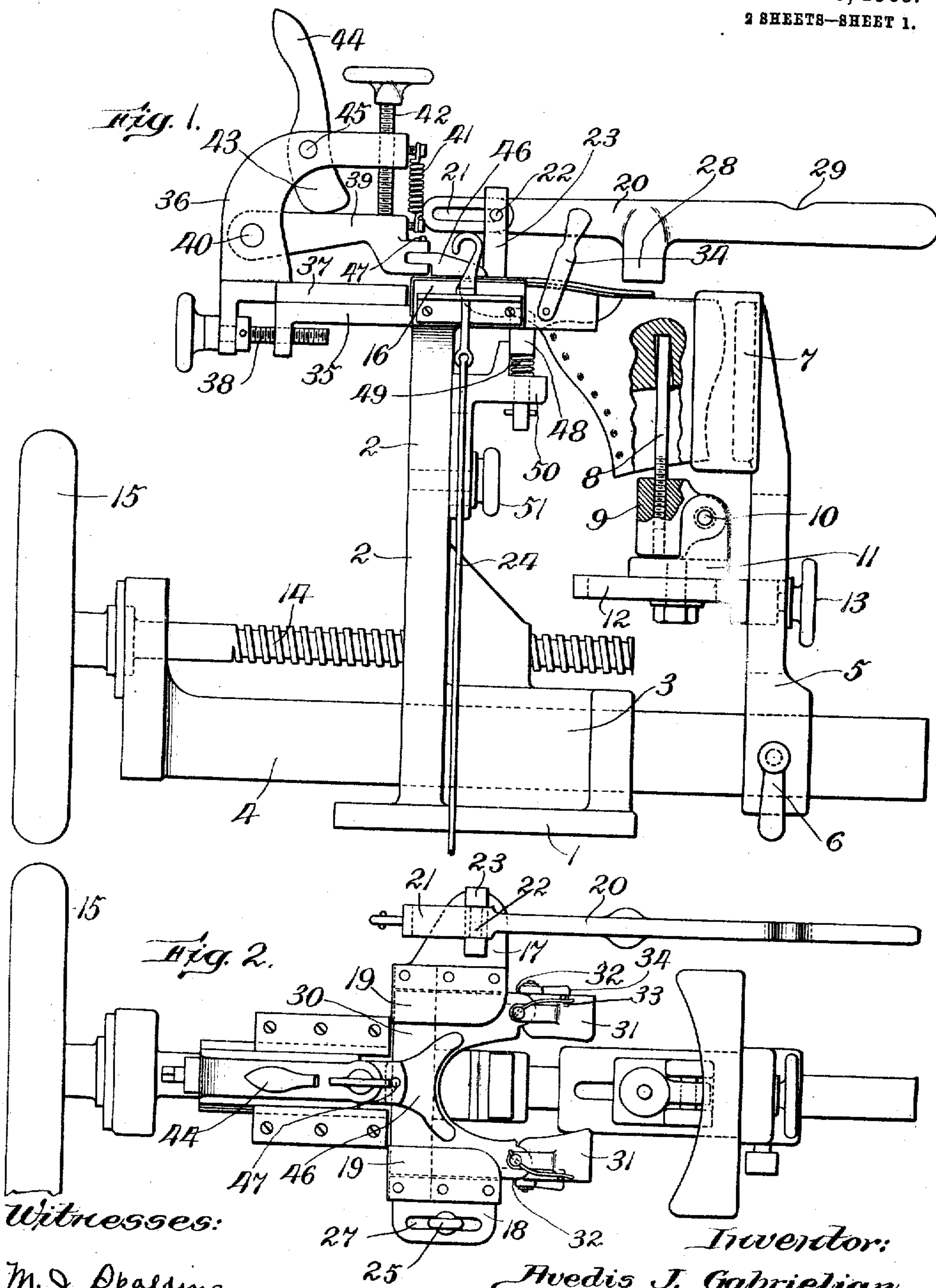


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LASTING MACHINE.
APPLICATION FILED JULY 29, 1907.

914,486.

Patented Mar. 9, 1909.
2 SHEETS—SHEET 1.



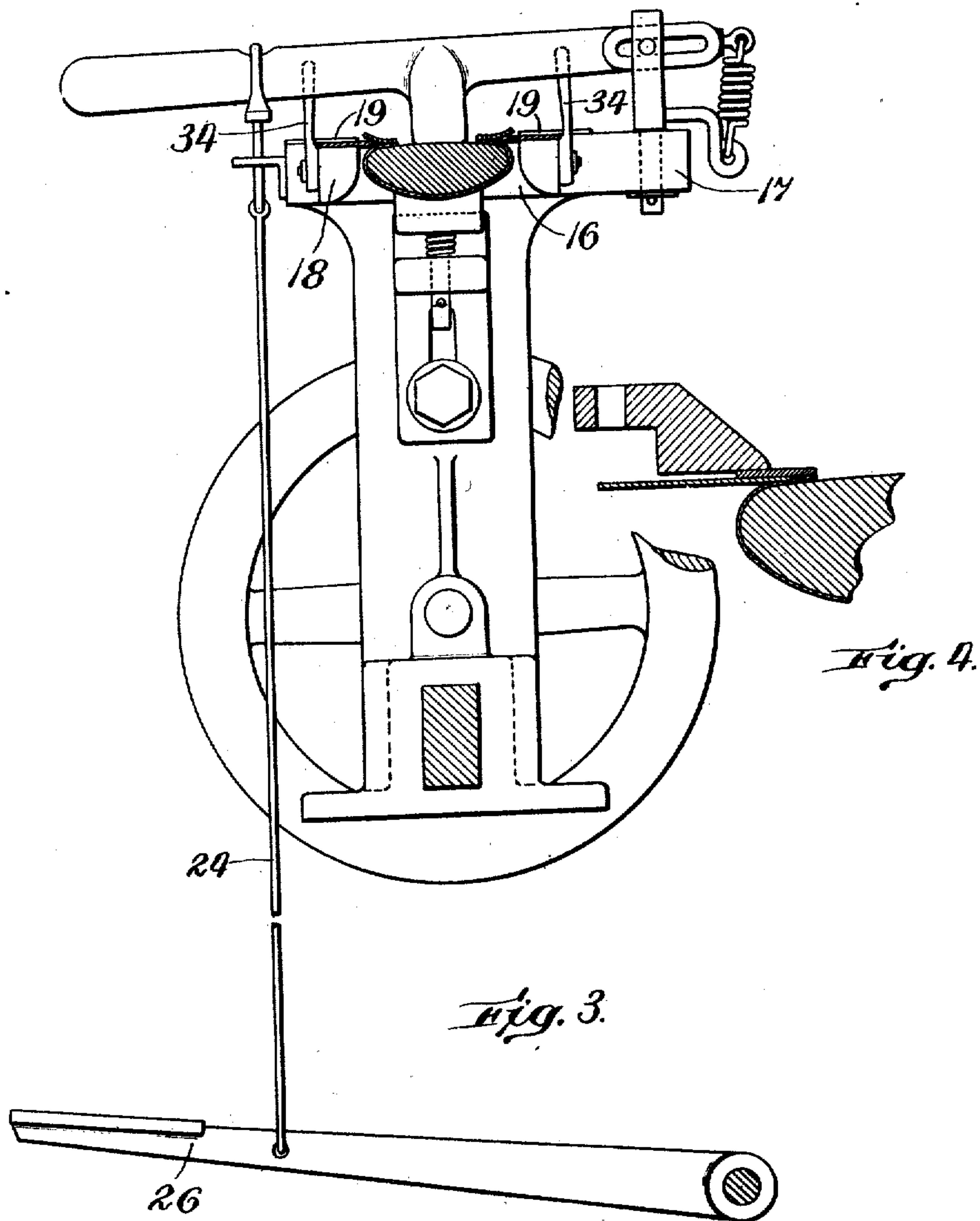
Witnesses:
M. J. Spalding
Edward Maxwell.

Inventor:
Hedis J. Gabrielian,
by Geo. H. Maxwell
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UNITED STATES PATENT OFFICE.

AVEDIS J. GABRIELIAN, OF BOSTON, MASSACHUSETTS.

LASTING-MACHINE.

No. 914,486.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed July 29, 1907. Serial No. 388,066.

To all whom it may concern:

Be it known that I, AVEDIS J. GABRIELIAN, a citizen of the United States, and resident of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Lasting-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

My invention relates to the lasting of a shoe constructed substantially as shown in my Letters Patent No. 821,935 of May 29, 1906, in which the welt and upper are sewed together before being lasted.

Stated briefly, I first insert the last, pulling over in usual manner the welt and upper on the last sufficiently to get them in approximately proper position. The upper is then tacked in usual manner to the last, the heel end of the upper being tacked down in usual manner to the heel end of the shank piece or a heel piece. My apparatus and method may also be used for lasting my shoe upper and attached welt to a usual innersole, and in the latter case the heel-part of the upper is tacked to the heel end of the innersole at this stage. Then, having placed the last and shoe upper in my machine, I adjust the latter so as to bring the toe of the upper close to the toe-lasting or toe-molding or shaping mechanism, pressing lightly downward at the same time upon the bottom of the last so as to lift the welt into a flat position by means of the supporting edges of the molding plate. The toe tack or tacks are then pulled, provided they have not been previously pulled, and the upper and welt, together with the contained last, are pressed forward against the edge of the molding plate so as to bring them into approximately accurate position and cause them to conform to the shape of the molding plate. Thereupon preferably a knife or blunt tool is run in between the last and the edge of the welt and upper so as to remove any wrinkles that may possibly be present. The forward edge of the welt at the toe is then clamped in place and the last and upper are pulled back so as to stretch all the looseness of the leather toward the toe. Then downward pressure is brought upon the last to distend this looseness upwardly and move the bot-

tom of the last into a plane just under the molding plate, whereupon the molding plate 55 and last are moved toward each other. As the molding plate rests against the seam which joins the edges of the upper and welt, this forward movement of the last stretches out all the loose leather and molds the upper 60 to the desired finished shape. Also, the side wings of the molding plate, provided they are used, are similarly moved in for accomplishing the same purpose along the sides of the shoe. The pressure which has been 65 holding the last down during the stretching movement is now relieved, as the molding plate and side portions thereof hold the parts in their shaped position, and the welt is beaten down to a perfectly smooth surface, 70 if not already sufficiently smooth, and the welt is tacked down on the last, or innersole, as the case may be, the toe portion thereof is released from its clamped position, the molding mechanism is backed off, and the last 75 and lasted shoe are put on the rack to dry. Thus, it will be seen that by my machine I accomplish at the same time the lasting, molding or shaping of the shoe and sides, and provide a smooth welt surface. This 80 reduces the number of machines necessary, makes it possible to simplify the mechanism considerably, and produces a shoe having the advantages set forth in my before mentioned patent. Instead of securing the welt 85 after the shoe is lasted, the welt is secured before the shoe is lasted, and forms an important aid in the lasting operation. No lasting pincers are necessary, and the usual wipers are not employed, so that the danger 90 of tearing the leather with pincers or injuring it with the hard sliding pressure of the wipers is obviated.

Further details of my invention will appear in the course of the following description, taken with reference to the accompanying drawings, in which I have shown one of many contemplated embodiments of the apparatus.

In the drawings Figure 1 represents in side 100 elevation the head, or operating portion of the machine, parts being broken away for clearness of illustration; Fig. 2 is a top plan view thereof, showing the parts ready to receive a shoe; Fig. 3 is a cross sectional view 105 showing a shoe being lasted; and Fig. 4 is a

sectional detail showing the shoe being clamped.

On a suitable base plate 1 adapted to be secured to any convenient pedestal or stand-
ard, is an upright 2 and bracket 3, in which
reciprocates a jack-carrier or last-support 4
carrying a jack 5 at its rear end adjustably
secured by a hand nut 6, and provided at its
upper end with a heel rest 7 and heel spindle
or pin 8, having threaded adjustment in a
block 9 loosely pivoted at 10 in a support 11,
adjustable in a slotted arm 12 secured ad-
justably in place by a hand nut or wheel 13.
The carrier or slide 4 is operated by a screw
14, having threaded engagement with the
upright 2, and operated by a hand wheel 15
so as to move the jack 5 forward and back-
ward as the most convenient means for se-
curing the relative movement of the shoe
and last with relation to the remaining por-
tions of the lasting mechanism. At the
upper end of the upright 2 is a cross head or
top 16 which projects forward and laterally
at its back side at 17 and at 18 at its front
side to receive opposite guide plates 19, and
to support at its back side a presser bar or
arm 20, whose slotted end 21 slides freely on
a pin 22 of a post 23, pivotally mounted in
the part 17. At its front side 18 the cross
head supports not only the plate 19 but a
treadle rod 24, having a hook 25 at its upper
end, and a treadle 26 at its lower end, said
rod being movable laterally in a slot 27.
The presser bar has a presser foot or block
28 to engage the shoe bottom, and is capable
of being movably engaged by the hook 25
adjacent its outer end at 29, according to the
requirements and convenience of the oper-
ator. Beneath the slides 19 I mount a
molder or shaping plate 30, whose side por-
tions or wings 31 are herein shown as loosely
pivoted at 32 to the main part of the molder
or shaping plate, and normally held with an
outward tendency by any convenient means,
as by a spring 33. These side wings are
operated by any convenient means, either
separately or together, small hand levers 34
being herein shown for swinging up into en-
gagement with the outer edges of the wings
to crowd the same forward into lasting posi-
tion to operate the same as already de-
scribed in connection with the main opera-
tion of the shaping plate or molder 30. The
molder 30 is made as a thin plate and is re-
movable, so that it can be used for a left
shoe with the side up shown in the drawings,
and for a right shoe when reversed with the
opposite side up, it being understood that
the shape of the plate controls the shape of
the shoe, and must correspond substantially
to that of the last. It is mainly for permit-
ting this use of the same mechanism for both
rights and lefts that I have given the last-
supporting portion of the jack practically
universal movement, so that the heel end of

the last may be freely moved or swung to-
ward one side or the other as desired. The
receiving slot of block 9 in support 11 is wide
enough to permit lateral sliding of the block
9, which can also tip in the same direction
because of the loose pivoting at 10, see dotted
lines Fig. 1, and can tip in the opposite direc-
tion on said pivot. The cross head 16 also
projects rearwardly at 35 to support an
overhanging bracket 36 having dovetailed
engagement therewith at 37, and adjustable
by means of a hand screw 38, said bracket
carrying a clamping arm 39 pivoted at 40
and normally held by a spring 41 against an
adjustable stop 42, and given quick down-
ward movement by the cam end 43 of a
hand lever 44 pivoted at 45. The forward
clamping foot or end 46 of the clamping de-
vice is pivoted and removably held in place
by a pin or screw 47, so that it may be
swung slightly horizontally to the right or
left to fit a right toe or left toe, as the case
may be, and to permit a different shape to be
substituted according to the various styles
of toes lasted, and also to permit a slight
lateral swing. The toe of the shoe is yield-
ingly supported by a toe rest 48, loosely sup-
ported on a spring 49 in a bracket 50, ad-
justably held by a clamping nut 51 against
the adjacent part 2.

In use, the shoe upper, having been pulled
over a last by hand as already explained, is
placed in the machine, as shown in Fig. 1, the
heel spindle or pin 8 occupying the heel of the
last, and the toe resting on the toe rest 48.
The hand wheel 15 is then rotated over to the
left, thereby pulling the shoe and molding
mechanism together until the toe lasting or
shaping plate 30 engages the shoe upper all
about the toe beneath the welt, which rests
down upon the top of the forming edge of
said plate 30. The operator meanwhile
swings the presser 20 over the forepart,
bringing slight downward pressure to bear,
so as to get the bottom edge of the last ap-
proximately even with the shaping edges of
the molder 30, preferably catching the hook
25 over the handle of the presser so as to op-
erate the latter by the foot, removes the last-
ing tacks, if any, from about the toe, and
runs a knife or blunt tool under the welt and
upper around the edge of the last, so as to re-
move all wrinkles or tendency of the leather
to form plaits. He then turns the hand
wheel 15 over farther to the left, until the
edges of the molder 30 press the upper hard
against the last. He then quickly shifts
over to the right the handle 44 of the cam
lever 43, which instantly clamps the toe por-
tion of the welt between the clamping block
46 and the molder 30. Thereupon the hand
wheel is turned in reverse direction so as to
back the jack 5 away a short distance to the
right, and the operator pulls rearwardly on
the last so as to stretch all loose leather for-

ward to the toe. The wheel 15 is again rotated over to the left, and the presser is at the same time forcibly depressed, said two movements coöperating to bring the shaping edge 5 of the molding plate 30 just above the bottom of the last and to move the last forward beneath said plate, the latter operating, through its engagement against the welt seam, to crowd the welt inwardly over the 10 bottom of the last sufficiently to last the upper. This combined inward and upward stretching movement on the leather (it being understood that the downward pressure of the presser results in an upward pull on the 15 leather by the shaping plate) results in shaping perfectly the toe portion of the upper. The edges of the side wings are placed beneath the welt at the sides of the shoe, and the handles 34 are then turned up, with the 20 result that the side wings are quickly and firmly pressed forward strongly against the welt seam, thereby quickly and effectually shaping and molding this portion of the forepart of the shoe. The welt is then tacked in 25 the usual manner to the last, the handles 34 are turned back, releasing the side wings of the molder, the presser is unhooked and swung out of the way, the jack is backed away by turning the hand wheel 15 over to the right, and the shoe is disengaged from the 30 molding plate. The lasted shoe is then removed and put on the rack to dry or set in usual manner.

If my method is used for lasting a shoe upper in connection with a usual innersole, it 35 will be understood that an iron bottomed last is employed, so that when the tacks above mentioned are driven through the welt they are caused to clench on the under side of 40 the innersole, thereby holding the welt and innersole together in the lasted shoe.

If the operator has been lasting right-foot shoes, and it is desired to change to lasting 45 lefts, the plate 30 is simply slid out from its holding recess, turned the other side up, and reinserted. Then, when a shoe and its upper are put in position, the heel portion of the shoe is swung around to the necessary extent 50 to cause its toe portion to occupy the proper relation to the molding plate, and the operation proceeds as before. It will be observed that the heel rest 7 of the jack is curved for this purpose, and it will be understood that it is cushioned or padded to prevent injury 55 to the heel of the shoe. If a different shape of toe is to be lasted, the plate 30 is removed, and a similar plate having its inner curve conforming to the new style is inserted. If a 60 change is a radical one, the clamping block 46 is also changed, and a different clamping block having a new shape is inserted. The practically horizontal movement of the presser enables the operator to direct the pressing movement thereof in practically any 65 direction, according to the requirements of

the work. The heel post is given the delicate adjustment shown in order that the angle of the forepart may be accurately determined thereby, as I have found this to be the most 70 handy means of accomplishing this purpose.

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

1. A lasting machine, comprising shoe molding and shaping mechanism having a 75 shaping edge adapted to enter between the welt and upper along the welt seam joining said welt and upper on a last, supporting means to support the last with the side edges at the bottom of the last in the same plane as 80 the shaping edge of said shaping mechanism between the welt and upper along the welt seam, operating means for said molding and shaping mechanism, including means to press the welt seam hard between said side 85 edges of the last on one side of the seam and the molding and shaping mechanism on the other side of the seam, for forcibly and permanently bringing the seam to the exact contour of the side edges of the bottom of 90 the last, means for thereafter relatively moving the last and said molding and shaping mechanism in a direction transverse to the bottom of the last until said shaping edge has brought said pressed and shaped welt 95 seam to a plane above the bottom of the last, thereby stretching the upper, and means for thereafter forcibly moving the last and its upper and the molding and shaping mechanism relatively toward each other until the 100 shaped welt seam and the upper have been stretched inwardly over the bottom of the last into position for receiving a sole.

2. A lasting machine, comprising molding and shaping mechanism having a shaping 105 edge adapted to enter between the welt and upper and shape the shoe on a last by pressing against the welt seam, means for clamping the toe portion of the welt, means permitting a limited pulling away from each 110 other of the shoe and its upper and said clamping means and the welt held thereby, for stretching the upper forwardly on the last toward the toe, and means for relatively moving in a vertical direction the last and 115 upper and the molding mechanism while the edge of the latter is in supported engagement beneath the welt, whereby the fullness caused by said stretching of the leather is laid smoothly about the forepart of the last. 120

3. A lasting machine, comprising molding and shaping mechanism having a shaping edge adapted to enter between the welt and upper and shape the shoe on a last by pressing 125 against the welt seam, means for clamping the toe portion of the welt, longitudinally yielding supporting means for the last capable of yielding in the direction of the last when the latter is pulled away from the clamping means and the welt held thereby, 130

for stretching the upper forwardly on the last toward the toe, means for relatively moving in a vertical direction the last and upper and the molding mechanism while the edge of the latter engages the welt seam and supports the welt, whereby the fullness caused by said stretching of the leather is laid smoothly about the toe of the last, and means for causing a forcible inward pressing movement of the molding mechanism with relation to the last and upper, stretching the welt and upper over the edges of the last in position to be tacked to the bottom of the last.

4. A lasting machine, comprising a support adapted to receive a last and shoe upper having a welt sewed thereto, a molding and shaping plate having an edge contour corresponding approximately to the edge of the last and adapted to fit against the welt seam between the welt and upper, a presser movable into position to engage the bottom of the last for cooperating with the before mentioned parts in producing relative vertical movement between the last and its welt, means for horizontally moving the last and upper with relation to said molding and shaping plate, lateral plate portions connected respectively to the opposite ends of said shaping plate for engaging the sides of the upper beneath the welt, and means for pressing said lateral plate portions inwardly toward each other for shaping and molding the side portions of the shoe.

5. In a lasting machine, a toe molding and shaping plate, pivoted side plates adjacent the opposite ends of said toe plate for engaging the sides of the last, and operating handles arranged to move in sliding engagement with said pivoted side plates for forcibly crowding them inwardly between the welt and upper for stretching the latter over the last.

6. In a lasting machine, positive clamping means for unyieldingly clamping the welt at the toe of the shoe, a presser bar swiveled at one side of the shoe to swing across the bottom of the shoe, said bar having a presser foot to engage the shoe bottom and being freely movable longitudinally and laterally into engagement with any desired portion of the shoe bottom, and foot operated depressing mechanism provided with means for detachably engaging the free end of said bar for pressing said presser foot forcibly on the shoe bottom.

7. In a lasting machine, a toe shaping and molding plate in position to engage the shoe against the welt seam and beneath the welt, a clamping arm pivotally supported above said plate, an adjustable stop for limiting the upward movement of said clamping arm away from said plate, a spring normally maintaining said arm in engagement with

said adjustable stop, and a hand lever moving in opposition to said spring for actuating said clamping arm to immovably clamp the welt at the toe of the shoe.

8. In a lasting machine, a toe shaping and molding plate, a bracket overhanging said plate, a clamping arm pivoted at its rear end in said bracket and projecting over said plate, a stop adjustably mounted in the overhanging end of said bracket to limit the upward movement of the arm away from said plate, means normally maintaining the arm in engagement with said stop, and a cam lever pivoted in said overhanging bracket in engagement with said arm to move the latter away from said stop into clamping engagement with the toe of the shoe.

9. In a lasting machine, a toe shaping and molding plate, a bracket overhanging said plate, means for adjusting said bracket forward and backward with relation to said plate, a clamping arm pivoted at its rear end in said bracket and projecting over said plate, a stop adjustably mounted in the overhanging end of said bracket to limit the upward movement of the arm away from said plate, means normally maintaining the arm in engagement with said stop, and a cam lever pivoted in said overhanging bracket in engagement with said arm to move the latter away from said stop into clamping engagement with the toe of the shoe.

10. In a lasting machine, means to support a last and shoe in position to be lasted, a cross-head extending transversely of the length of the shoe at the toe end of the machine, a shaping and molding plate removably supported by said cross-head and projecting forwardly beyond the same in position to engage the toe of the shoe beneath the welt, opposite slides provided at the ends of said cross-head for receiving and retaining said plate, a presser bar mounted on a vertical pivot at the rear end of said cross-head and provided with a presser block in position to engage the bottom of the shoe when the arm is swung on its pivot transversely of the shoe, the opposite end of said cross-head having a slot extending approximately lengthwise of the shoe, a treadle rod supported in said slot and a hook at the upper end of said rod above the slot for detachably engaging the free end of said presser bar.

11. In a lasting machine, means to support a last and shoe in position to be lasted, a cross-head extending transversely of the length of the shoe at the toe end of the machine, a shaping and molding plate removably supported by said cross-head and projecting forwardly beyond the same in position to engage the toe of the shoe beneath the welt, a rearward projection extending from said cross-head, an overhanging bracket

mounted to slide longitudinally in said projection, a hand wheel and screw adjustably connecting said bracket and projection, a clamping arm pivoted on said bracket above
5 said projection, a clamping foot removably pivoted in the front end of said clamping arm to swing horizontally slightly to the right or left to fit a right toe or left toe as the case may be, and means for moving said arm

and foot into unyielding clamping relation 10 with said plate.

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

AVEDIS J. GABRIELIAN.

Witnesses:

GEO. H. MAXWELL,
M. J. SPALDING.