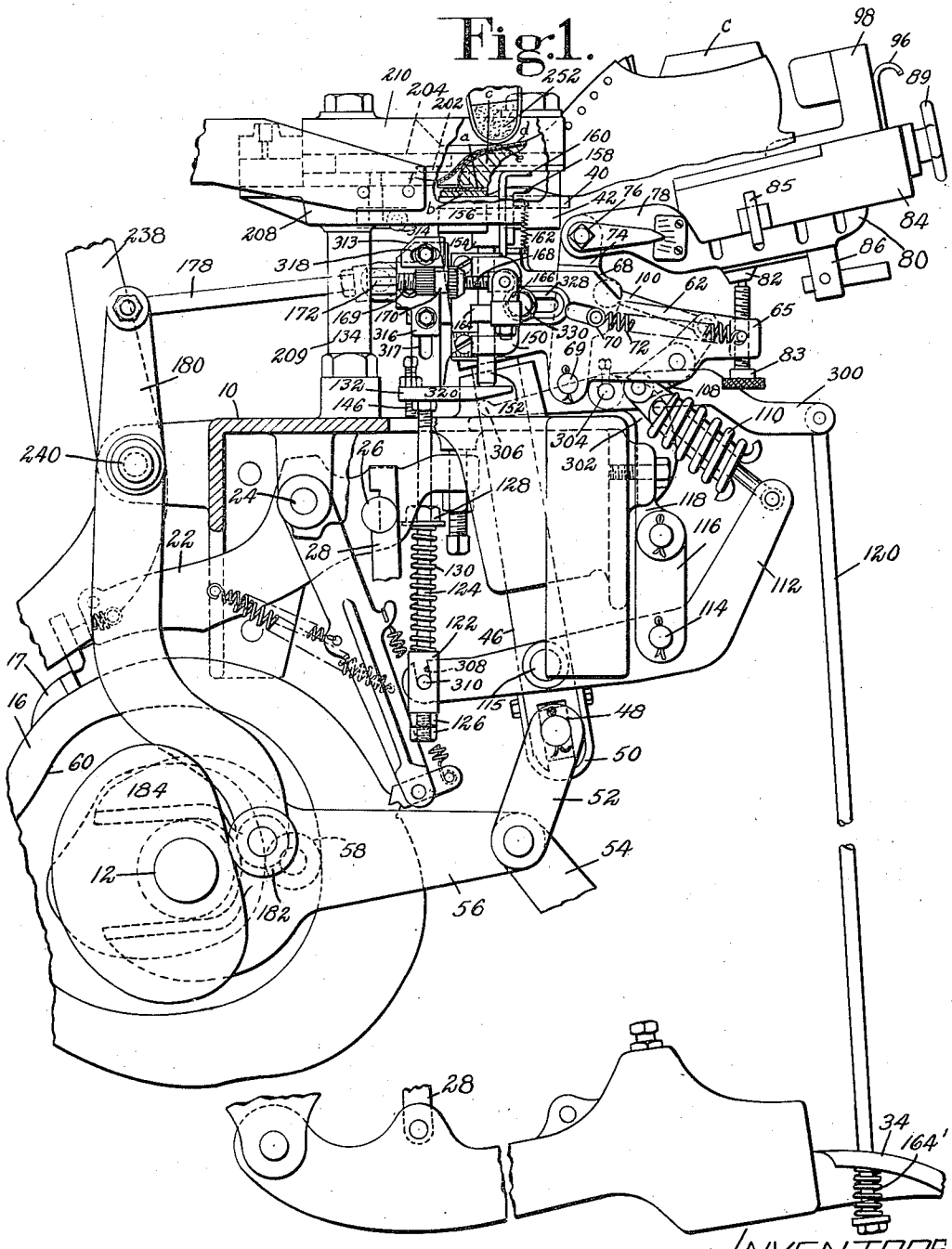
Dec. 31, 1940. A. C. EEK ET AL 2,226,754

MACHINE FOR OPERATING UPON STITCHDOWN SHOES

Filed March 15, 1940 4 Sheets-Sheet 1

Fig. 1.



INVENTORS.

Albin C. Eek

Edgar F. Hahn

By their attorney

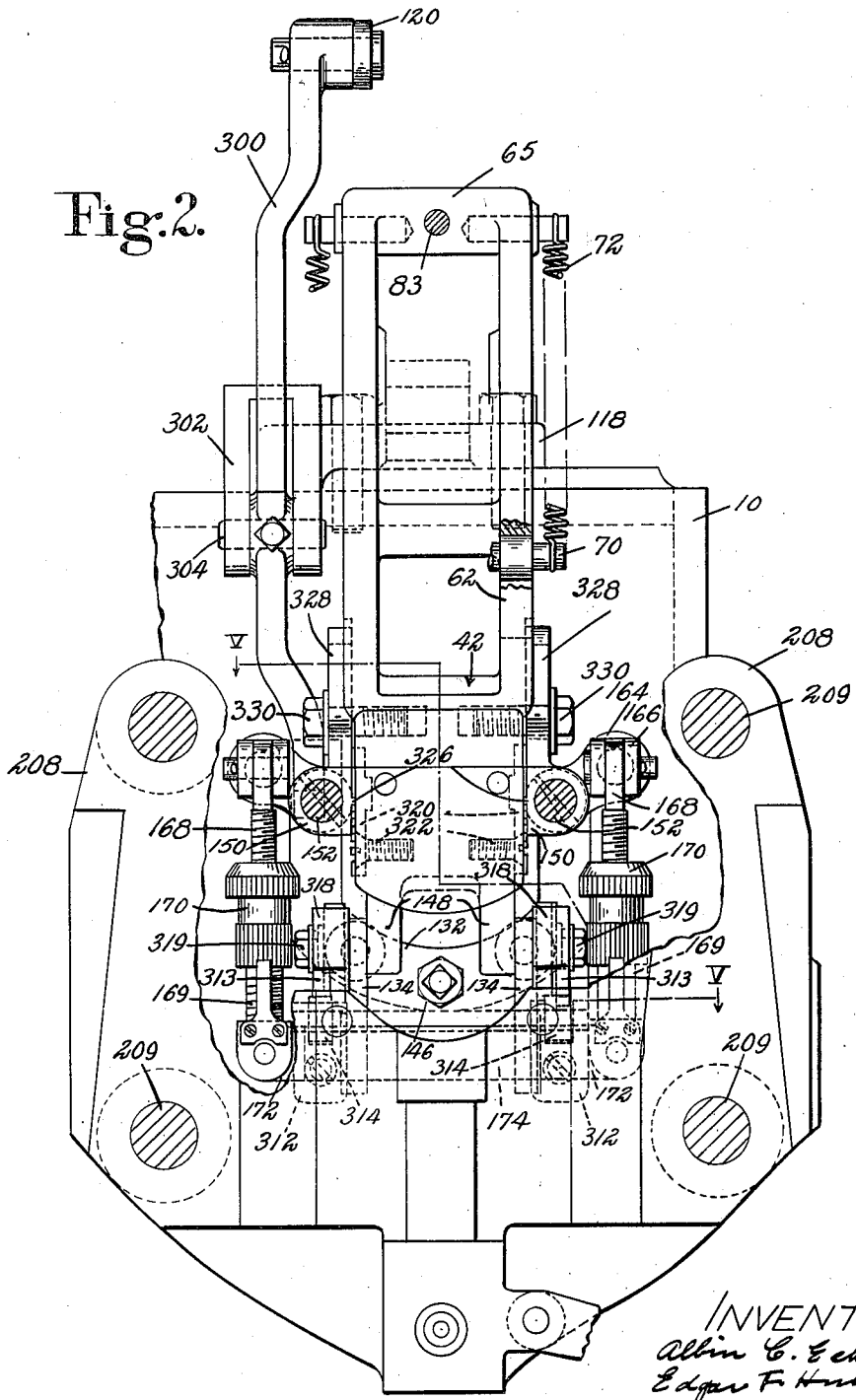
Victor Cobb.

Dec. 31, 1940. A. C. EEK ET AL 2,226,754

MACHINE FOR OPERATING UPON STITCHDOWN SHOES

Filed March 15, 1940 4 Sheets-Sheet 2

Fig. 2.



INVENTORS
Albin C. Eek
Edgar F. Hurlbut
By their Attorney
Victor Cobb.

Dec. 31, 1940. A. C. EEK ET AL 2,226,754

MACHINE FOR OPERATING UPON STITCHDOWN SHOES

Filed March 15, 1940 4 Sheets-Sheet 3

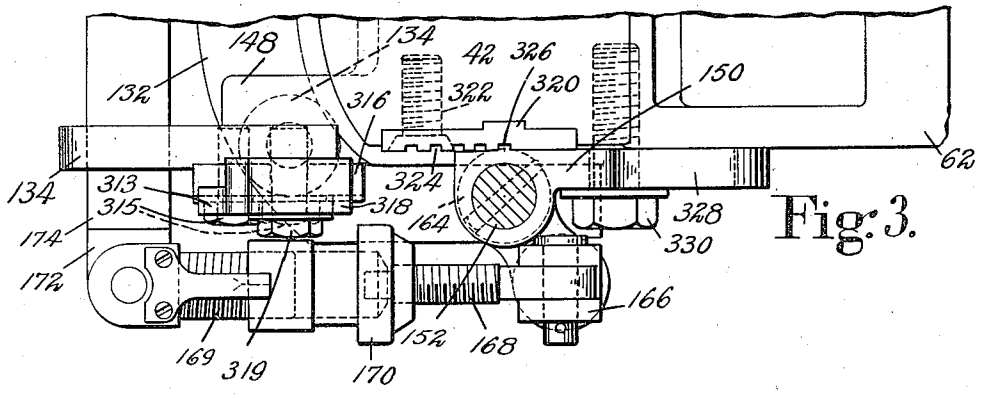


Fig. 3.

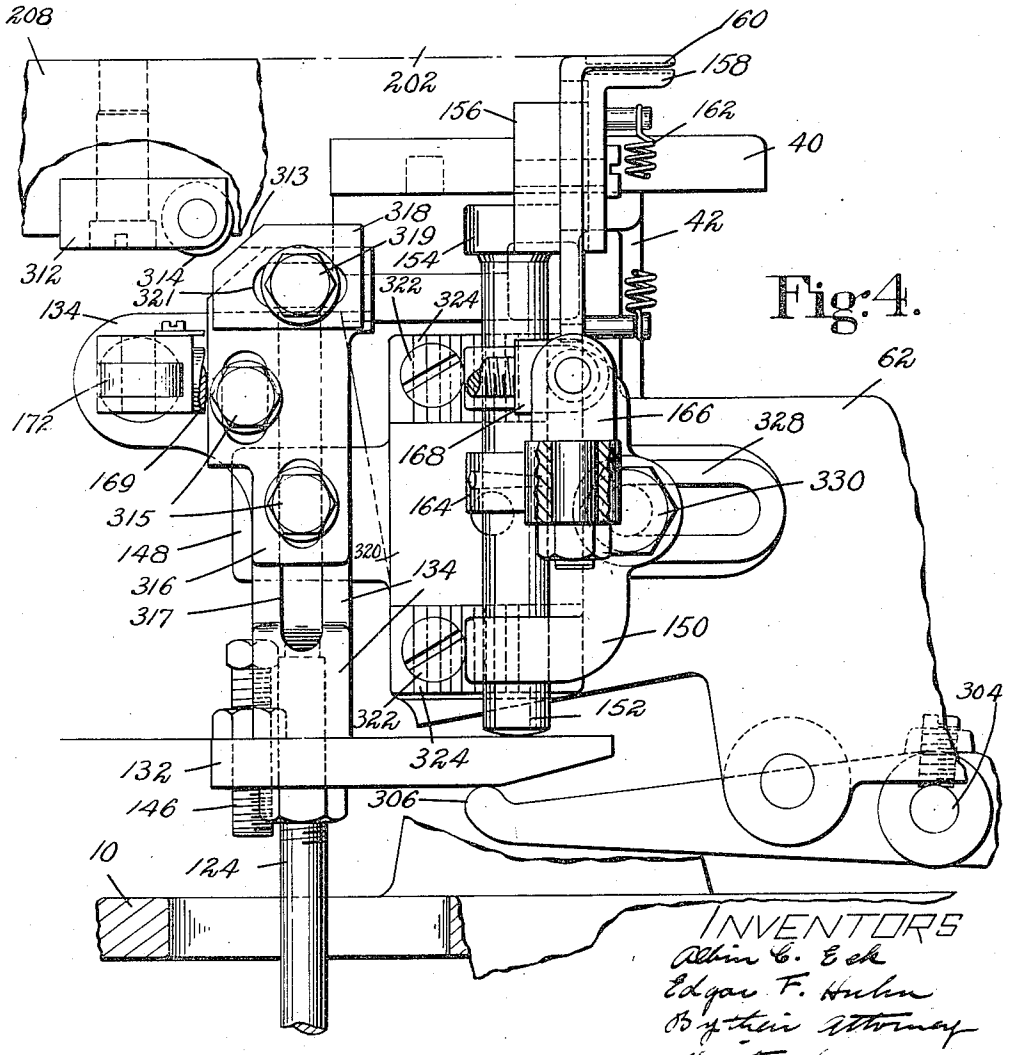


Fig. 4.

INVENTORS
Albin C. Eek
Edgar F. Hulin
By their attorney
Victor Todd

Dec. 31, 1940. A. C. EEK ET AL 2,226,754

MACHINE FOR OPERATING UPON STITCHDOWN SHOES

Filed March 15, 1940 4 Sheets-Sheet 4

Fig. 5.

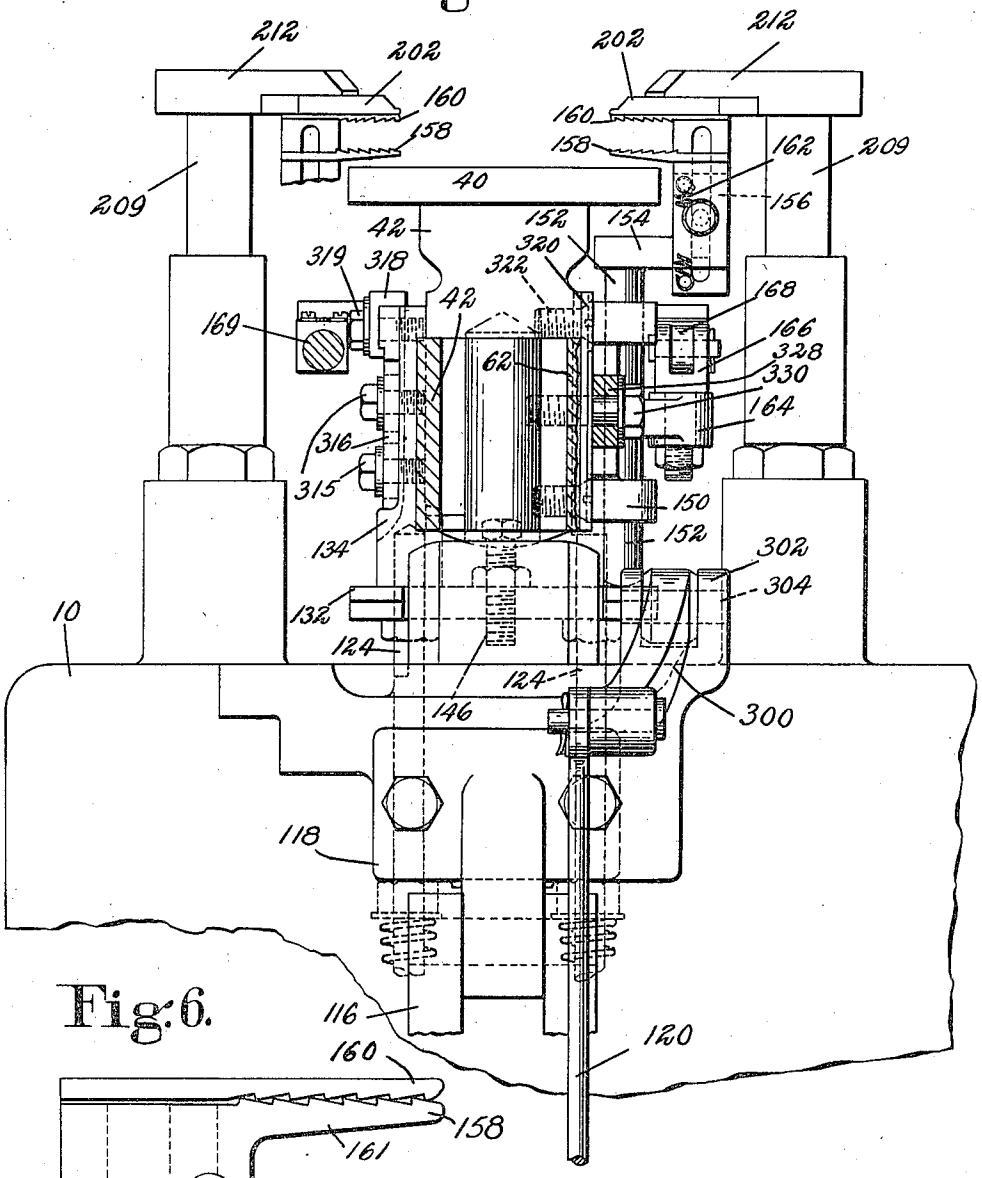
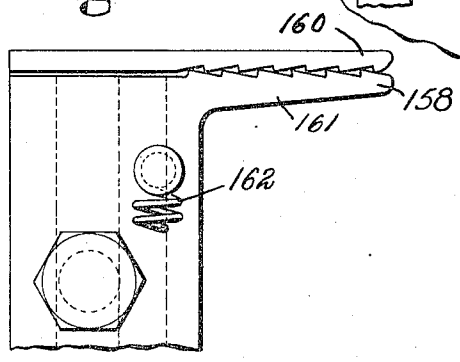


Fig. 6.



INVENTORS
Allen C. Eek
Edgar F. Hulse
By their attorney
Victor Cobb.

Patented Dec. 31, 1940

2,226,754

UNITED STATES PATENT OFFICE

2,226,754

MACHINE FOR OPERATING UPON STITCHDOWN SHOES

Albin C. Eek, Webster Groves,, and Edgar F. Huhn, Cape Girardeau, Mo., assignors to United Shoe Machinery Corporation, Borough of Flemington, N. J., a corporation of New Jersey

Application March 15, 1940, Serial No. 324,160

20 Claims. (Cl. 12—14)

This invention relates to machines for operating upon the end portions of shoes, and is illustrated as embodied in a machine for working the foreparts of stitchdown shoe uppers into lasted position and for pressing outturned flanges thereof against the projecting margins of soles. More particularly, the present invention is concerned with improvements for making machines of the type shown, for example, in Letters Patent of the United States No. 1,861,832, granted June 7, 1932, and No. 1,955,730, granted April 24, 1934, on applications of William C. Baxter, more convenient and easier to operate and more flexible in their adaptability to different sized shoes, as well as for improving their operation in general. The herein illustrated embodiment is shown in connection with the construction disclosed in the latter patent. However, it is to be understood that the several features of this invention are of general utility in machines for working an upper over a last by a wiping operation.

Under some conditions the operation of machines of this type is somewhat taxing to the operator, and the initial closing of the upper-gripping means, to take hold of the upper materials prior to tripping the machine, is more or less awkward. This is due to the fact that in initially closing the upper-gripping means the heel abutment is also moved toward the shoe against the action of a return spring, and that in tripping the machine to initiate the power cycle a treadle rod spring, which must be strong enough to effect the aforesaid heel abutment movement, is compressed.

An object of this invention is, therefore, to relieve the operator of some of the effort required for operating machines of this type and to facilitate the initial closing of the upper-gripping mechanism. With this object in view, an important feature of this invention consists in novel mechanism for closing the upper-gripping means on the outturned portions of the upper of a shoe and for initiating the power cycle of the machine without moving the heel abutment. The arrangement is such that during the subsequent power cycle the heel abutment is moved to hold the shoe against end-embracing wipers and the upper-gripping means are further operated by power.

In the machines illustrated in the Baxter patents, above mentioned, the upper-gripping means are arranged to grasp the outturned upper materials with a frictional grip and, as the toe portion of the shoe is moved upwardly through the wipers, are gradually moved to a position where they will not interfere with the wipers when the upper materials are compressed against the extension of the outsole. During this movement of the gripping means, the upper material slips through the gripping means and eventually is entirely withdrawn therefrom. If the upper materials extend unequally on opposite sides of the toe portion of the shoe, as sometimes happens, they may be released from the gripping means on one side of the shoe while they are still held by the gripping means on the opposite side. This results in an uneven pulling of the upper materials over the last.

Another object of this invention is, therefore, to avoid the difficulty just mentioned and to insure that the upper materials will be evenly pulled down on the last and properly tensioned during the wiping operation. Accordingly, a further feature of this invention consists in the provision of upper-gripping means arranged to grasp positively and hold securely the outturned upper materials together with adjustable mechanism operable, preferably upon movement of the gripping means away from the shoe, to open all of the gripping means at the same time for releasing the upper materials at all points around the toe portion of the shoe simultaneously so that unequal pulling of the upper materials over the last is avoided. The construction is such that, by appropriately varying the time of releasing the upper materials, the amount of pull exerted by the gripping means on the upper materials may be nicely controlled.

It is also an object of this invention to make machines of the aforementioned type more readily adaptable for operating upon shoes of widely varying sizes. In accordance with this object there is provided, as a further feature of this invention, means for mounting the upper-gripping devices for longitudinal adjustment in the machine in such a manner that the position of the upper-gripping devices longitudinally of the shoe may be readily varied without, however, altering their position in a direction toward or away from the shoe.

These and other features of the invention will be best understood from the following detailed description of the preferred embodiments thereof shown in the accompanying drawings and will be pointed out in the appended claims.

In the drawings,

Fig. 1 is a side elevation of the major part of a machine embodying the invention;

Fig. 2 is a plan view of the upper portion of the machine shown in Fig. 1 with certain parts

omitted and others broken away to show elements of the upper-gripping mechanism;

Fig. 3 is a plan view similar to that of Fig. 2 but showing the elements on one side of the machine only and at an enlarged scale;

Fig. 4 is a side view of the upper-gripping mechanism;

Fig. 5 is a front elevation of the upper portion of the machine with certain parts omitted or broken away and others shown in section substantially on lines V—V of Fig. 2; and

Fig. 6 is an enlarged elevation of one of the upper-gripping devices.

In the drawings, the machine is illustrated as operating upon a stitchdown shoe which, when completed, will have three soles, but it is to be understood that the machine is equally well adapted for use on other types of stitchdown shoes. At the time the toe-lasting operation is performed, the shoe comprises an insole *a*, a middle or first extension sole *b* secured to a last *c* on which are assembled an upper *d* and a lining *e*. The lining *e* is represented as having been wiped in and secured to the insole by cement prior to the attachment to the last of a middle sole *b*. The shoe is also provided with a stiffener or box *f* inserted between the upper and the lining. In accordance with the usual shoemaking practice, the upper and lining have been pulled over and secured temporarily to the insole by partially driven tacks before the middle sole was applied, the shoe being allowed to remain in this condition until the upper has set upon the last. Before being presented to this machine the temporary tacks are pulled, the lining secured to the insole, and the middle sole *b* attached to the last bottom.

To facilitate an understanding of the following detailed description of the machine herein illustrated its general organization and manner of operating will be first briefly outlined. The shoe is placed by the operator on an upwardly moving head assembly, which includes a shoe-supporting plate **40** for the forepart of the shoe and a longitudinally-movable back stop or heel abutment **98**. The projecting margin of the upper material is positioned by the operator within upper-gripping means, to be more particularly described below, which are arranged to grasp the forepart of the upper material. During the upward movement of the head, which is initiated by depressing a treadle **34**, the forepart of the shoe is moved heightwise relatively to a pair of end-embracing wipers and the upper wiped thereby into accurate conformity to the forepart of the last, being tensioned during at least the early part of this wiping action by means of the upper-gripping means which are arranged to release the upper at a predetermined point in the wiping action. Before the shoe-supporting plate reaches the limit of its upward movement the upper-gripping means have been withdrawn beyond the limits of the extension sole *b* and the upper material is tucked under the edge of the last by an advancing and closing movement of the wipers. The upper material is now held between the lower surface of the wipers and the upper surface of the extension sole and a further upward movement is now imparted to the head so as to apply a molding pressure to the outturned margin of the upper, pressing and molding it to the projecting margin of the extension sole and into the vertex of the angle between the sole and the side of the last, the machine coming to rest with the work under this molding pressure.

Preferably, as in the machines of said prior patents, the present machine is duplex in type and the operating instrumentalities above described constitute only one side or unit thereof. When this unit is brought to rest with the shoe under pressure, a second shoe may be similarly treated in the other unit of the machine while the first shoe remains under pressure. In order to release the shoe, the operator again depresses the treadle **34**, whereupon the parts are restored to initial position, the abutment **98** being pulled outwardly by the action of springs to open a space at the rear end of the shoe. Thus, ample clearance is provided for removal of the shoe and for the introduction of another shoe of the same size without any adjustments being made.

Proceeding now to a detailed description of the illustrated machine, elements which are common thereto and to the machine shown in the aforementioned Baxter Patent No. 1,955,730, will be described only generally, and reference may be had to said patent for a more complete and detailed description of these elements and their mode of operation.

The operating instrumentalities of this machine are mounted on a frame **10** in which is journaled a shaft **12** carrying a clutch disk **16** (see Fig. 1). Cooperating with a stop projection **17** on the clutch disk is a stop lever **22** pivoted to the frame at **24** and provided with a tripping pin **26**. A vertical tripping bar **28** is connected to a treadle **34** and the arrangement of these parts is such that upon final depression of the treadle the stop lever is moved away from the stop projection and the clutch disk permitted to turn through one-half of a revolution. The clutch mechanism associated with plate **16** may be substantially that disclosed in United States Letters Patent No. 1,674,085, granted June 19, 1928, on an application of Ballard and Seely, to which reference may be had for further explanation of this part of the machine.

The shoe-supporting plate **40** is mounted on the top of a head **42** which is in turn supported on a shaft **46** journaled in the frame for upward sliding movement therein. At its lower end this shaft is slotted to receive a sliding block **48** held in place by a strap **50** and secured to a toggle link **52**. A second toggle link **54**, connected to an adjustable and yielding support, not shown, is pivoted to the link **52** and with it to a cam bar **56**. The cam bar carries a roller **58** riding in a cam track **60** in the clutch disk. Upon revolution of the clutch disk, as above described, the cam bar is moved to the right, as viewed in Fig. 1, thus straightening the toggle formed by links **52** and **54** and elevating the shaft **46** and shoe-supporting plate **40** carried thereby.

Extending from the head **42** are side plates **62**, connected at their outer ends by a cross bar **65**, and pivoted between these side plates at **69** is an upstanding rocker member **68** carrying a cross pin **70** and having a head **74** swiveled thereto. Hinged to this head on a pin **76** are spaced arms **78** of a bed piece **80**. The bed piece extends forwardly from the rocker and has mounted thereon a slide **84** provided with a quick adjustment latch **85** and a clamping screw **86**. The bed piece is supported on the swiveled head **82** of a screw **83** carried by the cross bar **65** so that it may be angularly adjusted about the pin **76** and also may have lateral swinging movement on the swiveled head **82**. The heel abutment **98** is slidable in the slide **84** and is provided with a split nut (not shown) for engaging an adjusting screw

controlled by a hand wheel 89. An operating handle 96 for the half nut is provided and by lifting the same the heel abutment may be moved along the slide and approximately positioned with respect to the heel end of the shoe the toe portion of which is to be shaped by the machine. Upon release of the operating handle, a spring means (not shown) brings the half nut into operating engagement with the adjusting screw (not shown) and finer adjustment of the position of the heel abutment on the slide may be made by means of the hand wheel 89.

A link 100 connects the rocker member 68 to one end of a lever 108 which is resiliently connected by a yieldable link 110 to one end of an operating lever 112. The operating lever is pivotally connected at 114 to downwardly extending links 116 carried by a bracket 118 and also is pivotally connected to the shaft 46 at 115. When the shaft 46 is moved upwardly by the straightening of the toggle formed by the links 52 and 54, as previously explained, the operating lever 112 is rotated on its pivot 114 in a clockwise direction, as viewed in Fig. 1, and, as a result of this rotation, the rocker member 68 is turned in a counterclockwise direction and the heel abutment is first moved to the left to take up the initial clearance and then yieldingly urged against the heel of the shoe through the action of the yieldable link 110. A spring 72, connected to the cross pin 70 carried by the rocker member, operates to return these parts to their original positions in a second cycle of operation of the machine, during which the lever 112 is turned back to the position shown in Fig. 1.

Wiper members 202 are secured to wiper carriers 204 mounted in a wiper head 206 which is supported on the frame 10 by standards 209. A cover plate 210 is positioned over the wiper carriers, and mechanism (not shown) is provided to connect the wiper carriers and their wipers to a wiper-operating lever 238. Blocks 212 are carried by the cover to provide support for front portions of the wipers. The wiper-operating lever 238 is pivoted at 240 to the frame and is provided with a roller (not shown) for engaging an operating projection on the clutch disk 16. The operation of the wipers, whereby they partake of an advancing and closing movement at a certain point in the operation of the machine, is the same as that of the machines shown in the aforementioned Baxter patents and need not be further described. A toe pad 252 is provided to hold the upper material closely against the upper part of the toe portion of the last during the wiping operation.

Turning now to a consideration of the upper-gripping means with which the present invention is more particularly concerned, the operating lever 112 is provided at its left-hand end with an upwardly extending slot 308 which receives trunnion pins 310 carried by two blocks 122. Slidably mounted in these blocks are two upwardly extending rods 124 (see Fig. 5) which are urged upwardly through the blocks 122 by springs 130 operating against adjusting nuts 128. Stop nuts 126 are provided to limit the upward movement of these rods.

The rods 124 extend upwardly through openings in the frame and are secured to a horseshoe-shaped member 132 through which they project. The projecting portions 134 of these rods are flattened (see Figs. 2 and 4), and bear against projections 140 of the head 42. Resting on the horseshoe member, which is provided with a stop screw 146, are shafts 152 journaled in supporting brackets 150. At their upper ends the shafts 152 are provided with arms 154 having extensions 156 to which upper-gripping means are secured. The upper-gripping means in the herein illustrated machine each consists of a lower jaw 158, fixed to arm 154, and an upper jaw 160 which is urged away from the lower jaw by a tension spring 162 (see Figs. 4 and 6). The horseshoe member 132 is movable upwardly and such upward movement causes the shafts 152 to slide through their supporting brackets 150 and to close the pincer jaws 160 and 158 by engagement of the former against the lower surfaces of the wipers 202. It will be observed that the lever 112 serves as a connecting means or linkage means which operates through springs 130 to elevate the rods 124 and element 132 to exert a closing force on the gripping means during the power cycle. The slot 308 provides a lost motion connection affording overtravel for the rods 124 with respect to the lever 112 so that the gripping means can be initially closed by mechanism to be presently described.

Pinned to each of the gripper-operating shafts 152 are arms 164 each carrying a swiveled block 166 in which is pivoted one end of a threaded rod 168. Threaded on the rods 168 are adjusting sleeves 170 which at their opposite ends are also threaded to rods 169. The rods 168 and 169 are provided with right- and left-hand threads, respectively, so that on turning of the sleeves 170 the links thus formed may be shortened or lengthened. These links (see Figs. 2, 3 and 4), are swiveled to the outer ends 172 of a crossbar 174 which passes through forwardly extending portions of the flattened extensions 134 of the rods 124. Also connected to the bar 174 is a rod 178 (see Fig. 1) which is pivoted to the upper end of a lever 180 journaled at 240 on the frame and carrying at its lower end a cam roller 182 cooperating with a cam 184 secured to the clutch disk 16. On rotation of the clutch disk the lever 180 is turned in a counterclockwise direction, thus moving the bar 174 rearwardly of the machine and operating through the links formed by the screw-threaded elements 169 and 168 to swing the pincer jaws 160 and 158 outwardly away from the shoe to exert a pull on the upper materials gripped thereby and to bring the pincers into a position to clear the extension sole *b*.

The mechanism for elevating the horseshoe-shaped member 132 to initially close the pincers will now be described. Journaled at 304 on an extension 302 of the bracket 118 is a lever 300 which is connected to a treadle rod 120 and at its opposite end 306 engages one arm of the horseshoe-shaped member 132 (see Figs. 1 and 4). At its lower end the treadle rod 120 passes through the treadle 34 (shown in part) and is connected thereto by a spring 164'. The spring 164' is of just sufficient strength to overcome the opening force of the pincer springs 162 and permit the operator to close the pincers on the upper material with a fair degree of tightness by lifting the horseshoe-shaped member 132 bodily. During this preliminary depression of the treadle to close the pincers the rods 124 are raised and trunnion pins 310 ride up in the slot 308. None of the other operating instrumentalities of the machine are moved, however, and hence there is no resistance to this treadle movement except that caused by the closing of the pincers on the upper material. Thus, there is no interference with the operation of closing the upper-gripping

means and the operator can more or less feel the gripping action of the pincers as he closes them on the upper material. On further treadle depression, after the pincers have been brought into a preliminary gripping position, the spring 164' yields further, and enough to cause a tripping of the clutch by taking up the lost motion between the rod 28 and the pin 26, whereby the power cycle of the machine is initiated. As this spring is relatively light, tripping is accomplished with very little effort on the part of the operator. During the power cycle the lever 112 is turned in a clockwise direction to bring the heel abutment 98 against the shoe and to pick up the blocks 122 to apply a closing force to the pincers through the springs 130.

In the illustrated machine only two sets of pincers or upper-gripping means are shown and these are arranged at opposite sides of the toe portion of the shoe. However, it is to be understood that another pair of pincer sets may be mounted on the extended portions 134 adjacent the front of the toe portion of the shoe in the manner disclosed in the aforementioned Baxter patents. When such toe pincers are used they are closed by the elevation of the horseshoe member 132, and are withdrawn from the shoe, and into a position to clear the extension sole, by the rod 178 which is connected to the extended portions 134. The movement of the pincers or upper-gripping means in the present machine to tension the upper materials during the wiping action is, therefore, essentially the same as in the previously mentioned Baxter constructions. However, in the present construction the pincers are provided with teeth 161 of such a character as to positively grip the upper material so that no slippage can occur, and provision is made for opening the pincers to release the upper material at a predetermined point in the operation of the machine. The means for opening the pincers will now be described.

The extensions 134 are slotted at 317 and mounted thereon for vertical adjustment are plates 316, secured in adjusted position by bolts 315 (see Figs. 3, 4 and 5). Slidable horizontally on the upper ends of these plates are cam elements 318 slotted at 321 and held in adjusted position by bolts 319. Roller supports 312 carrying rollers 314 are secured in the lower surface of the wiper head 208 (see Fig. 4) in position to engage the beveled edges 313 of the cam elements 318 as the horseshoe-shaped member 132 is moved to the left or rearwardly by the rod 178 during the upward movement of the shoe through the wipers 202. By suitable adjustment of the position of the cam elements 318, both vertically and longitudinally, the pincers 160 and 158 may be made to open to release the upper material at any desired point in the upward movement of the shoe through the wipers. Thus, since the upper material is positively gripped by the pincers during the upward movement of the shoe-supporting plate 40, by suitable timing of the release of the upper material, any desired amount of tension can be applied to the upper material during the wiping action, and, as the upper material is simultaneously released at all points around the toe portion of the shoe the possibility of unequal pulling of the two sides of the upper over the last is obviated.

Referring to Figs. 2, 3 and 4, the supporting brackets 150, which carry the pincers 160 and 158, are adjustably mounted on the head 42 in the following manner. The upper and lower portions of each supporting bracket 150 are provided with vertically extending ribs 326 which are adapted to be positioned in any one of a plurality of vertically extending and corresponding grooves 324 provided in the upper and lower parts of plates 320 secured to opposite sides of the head 42 by screws 322. The supporting brackets 150 are clamped against the head by means of bolts 330 arranged in an extended portion 328 which is slotted to permit each supporting bracket 150 to be positioned with its ribs 326 in any one of the grooves 324. When it is desired to move the pincers to adapt the machine for operating on smaller sized shoes the bolts 330 are released and the supporting members 150 moved to place their ribs 326 in the appropriate grooves 324. This, of course, results in swinging the pincers carried by the arm 164 inwardly. However, by suitable adjustment of the sleeves 170 the pincers can be returned to their proper position widthwise of the shoe to accommodate their new location.

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

1. In a machine for shaping the end portion of a stitchdown shoe to its last, the combination with end-embracing wipers, a shoe carrier relatively movable with respect to the wipers for presenting a shoe thereto, means for gripping outturned portions of the upper of a shoe, and power means for moving said carrier and operating said gripping means, of means for closing said gripping means on said outturned portions of the upper operable independently of the operation of said gripper-operating means.

2. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination with end-embracing wipers, a shoe carrier relatively movable with respect to the wipers for presenting a shoe thereto, abutment means movable into engagement with the heel portion of the shoe to hold it yieldingly against the wipers, means for gripping outturned portions of the upper of a shoe, and power means for operating said carrier, said abutment means and said gripping means, of means for closing said gripping means on said outturned portions of the upper operable without moving said abutment means.

3. In a machine for shaping the end portion of a stitchdown shoe to its last, the combination with end-embracing wipers, a shoe carrier relatively movable with respect to the wipers for presenting a shoe thereto, means for gripping outturned portions of the upper of a shoe, and power means for moving said carrier to pass the end portion of said shoe through the wipers and for applying a closing force to said gripping means, of means for closing said gripping means and a lost-motion connection between said power means and said gripping means constructed and arranged to permit closing of said gripping means on said outturned portions of the upper prior to the operation of said power means.

4. In a machine for shaping the toe portion of a stitchdown shoe to its last in combination with end-embracing wipers, a shoe carrier relatively movable with respect to the wipers for presenting a shoe thereto, abutment means movable into engagement with the heel portion of the shoe to hold it yieldingly against the wipers, means for gripping outturned portions of the upper of a shoe, and power means for moving said carrier to pass the toe portion of said shoe through said wipers operable to move said abutment means

into shoe-engaging position and to apply a closing force to said gripping means, of means for closing said gripping means and a lost-motion connection between said power means and said gripping means constructed and arranged to permit closing of said gripping means on said outturned portions of said upper prior to the operation of said power means.

5. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end-embracing wipers, a shoe carrier relatively movable with respect to said wipers for presenting the toe portion of a shoe thereto, gripping means for grasping outturned portions of the upper of said shoe adjacent its toe portion and for tensioning said upper during at least a portion of the period of operation of said wipers, connecting means operable upon movement of said carrier to exert a closing force on said gripping means, power means for moving said carrier and for operating said connecting means, and means operable independently of said connecting means for closing said gripping means on said outturned portions of the upper.

6. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end-embracing wipers, a shoe carrier relatively movable with respect to said wipers for presenting the toe portion of a shoe thereto, abutment means movable into engagement with the heel part of the shoe for holding said shoe yieldingly against said wipers, gripping means for grasping outturned portions of the upper of said shoe adjacent its toe portion and for tensioning said upper during at least a portion of the period of operation of said wipers, connecting means operable upon movement of said carrier to hold said abutment yieldingly against the heel portion of said shoe and to exert a closing force on said gripping means, power means for moving said carrier and for operating said connecting means, and means operable independently of said connecting means for closing said gripping means on said outturned portions of the upper.

7. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end-embracing wipers, a shoe carrier relatively movable with respect to said wipers for presenting the toe portion of a shoe thereto, abutment means movable into engagement with the heel portion of the shoe for holding said shoe yieldingly against said wipers, gripping means for grasping outturned portions of the upper of said shoe adjacent its toe portion and for tensioning said upper during at least a portion of the period of operation of said wipers, connecting means operable upon movement of said carrier to hold said abutment yieldingly against the heel portion of said shoe and to exert a closing force on said gripping means, power means for moving said carrier and for operating said connecting means, means operable independently of said connecting means for closing said gripping means on said outturned portions of the upper, and means associated with said independently operable means for initiating action of said power means after said gripping means have been closed.

8. In a machine for shaping the toe portions of stitchdown shoes to their lasts comprising end-embracing wipers, a shoe carrier, means for gripping outturned portions of the upper adjacent the toe portion of a shoe, and power means for operating said carrier and said gripping means, the combination of an element movable to close said gripping means, yieldable means connecting said element to said power means so that said element will be moved by said power means to close said gripping means, said yieldable means being arranged to permit an over-travel of said element in a direction to close said gripping means prior to the operation of said power means, and means for moving said element in the direction of said over-travel to close said gripping means.

9. In a machine for shaping the toe portions of stitchdown shoes to their lasts comprising end-embracing wipers, a shoe carrier, means for gripping outturned portions of the upper adjacent the toe portion of a shoe, a yieldable abutment for said shoe to hold its toe portion against said wipers, and power means for operating said carrier, said gripping means and said abutment means, the combination of an element movable to close said gripping means, yieldable means connecting said element to said power means so that said element will be moved by said power means to close said gripping means, said yieldable means being arranged to permit an over-travel of said element in a direction to close said gripping means prior to the operation of said power means, and means for moving said element in the direction of said over-travel to close said gripping means.

10. In a machine for shaping the toe portion of a stitchdown shoe to its last, in combination, a frame, end-engaging wipers mounted on said frame, supporting means movable heightwise to present the toe portion of a shoe to said wipers, an abutment movable into engagement with the shoe to hold it yieldingly against said wipers, operating means for moving said supporting means and said abutment, gripping means cooperating with said wipers for grasping the outturned upper of said shoe adjacent its toe portion, linkage means associated with said operating means for exerting a closing force on said gripping means and for moving said abutment when said supporting means is moved, and means for moving said gripping means to closed position on said outturned upper independently of, and in advance of, said linkage means prior to the operation of said operating means, said linkage means being constructed and arranged to pick up said gripping means upon movement of said supporting means by said operating means.

11. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of a frame, end-embracing wipers mounted on said frame, a shoe carrier relatively movable heightwise with respect to said wipers for presenting the toe portion of a shoe thereto, abutment means movable into engagement with the heel of said shoe for holding said toe portion yieldingly against said wipers, said carrier comprising a projecting member, power means connected to said projecting member for moving said carrier, a lever pivoted to said frame and to said projecting member and yieldingly connected to said abutment so that upon movement of said projecting member by said power means said abutment is moved into yielding engagement with the heel portion of said shoe, gripping means for grasping outturned portions of the upper of said shoe including means having a yieldable connection with said lever, said yieldable connection being constructed and arranged to provide for over-travel of said gripping means in a closing direction prior to the movement of said lever and to allow said lever to pick up said element and exert a closing force on said gripping means upon

movement of said carrier by said power means, and means for closing said gripping means independently of said lever.

12. In a machine for shaping the end portion of a stitchdown shoe to its last, the combination of a frame, end-embracing wipers mounted on said frame, a shoe carrier relatively movable heightwise with respect to said wipers for presenting the end portion of a shoe thereto, abutment means movable into engagement with said shoe for holding it yieldingly against said wipers, said carrier comprising a projecting member, power means connected to said projecting member for moving said carrier, a lever pivoted to said frame and to said member and yieldingly connected to said abutment so that upon movement of said projecting member by said power means said abutment is moved into yielding engagement with the shoe, gripping means for grasping outturned portions of the upper of said shoe including means having a yieldable connection with said lever, said connection being constructed and arranged to provide for overtravel of said gripping means in a closing direction prior to the movement of said lever and to allow said arm to pick up said element and exert a closing force on said gripping means upon movement of said carrier by said power means, and means for closing said gripping means independently of said lever, said last-named means being operable to initiate the operation of said power means after said gripping means have been closed.

13. In a machine for shaping the end portion of a shoe to its last, the combination with end embracing wipers, and a shoe carrier relatively movable with respect to said wipers for wiping the end portion of the upper over the last, of means for positively gripping portions of the upper of a shoe adjacent said end portion to tension the upper during said relative movement of said carrier, and means for releasing said gripping means at a predetermined point in its tensioning action.

14. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end embracing wipers, a shoe carrier relatively movable heightwise with respect to said wipers for wiping the end portion of the shoe upper over the last, means for taking hold of outturned portions of the upper adjacent the toe portion of the shoe to tension the upper materials on the last during said wiping of the upper, and means for simultaneously releasing said outturned upper portions at a predetermined point in the wiping of the upper.

15. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end embracing wipers, a shoe carrier relatively movable heightwise with respect to said wipers for wiping the end portion of the shoe upper over the last, means for positively gripping outturned portions of the upper adjacent the toe portion of said shoe to tension the upper material on the last during the wiping of the upper, and means for simultaneously releasing said outturned upper portions at a predetermined point in the wiping of the upper.

16. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end embracing wipers, a shoe carrier relatively movable heightwise with respect to said wipers for wiping the toe portion of the shoe upper over the last, means for taking hold of outturned portions of the upper materials adjacent said toe portion of the shoe to tension the upper on the last during said wiping of the upper, said means comprising gripping devices arranged on each side of said carrier, means for effecting movement of said gripping devices away from the shoe during said relative heightwise movement of said carrier to exert a pull on the upper materials, and means operable to open said gripping devices simultaneously after a predetermined amount of movement thereof.

17. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end embracing wipers, a shoe carrier including a sole supporting plate and relatively movable heightwise with respect to said wipers for wiping the toe portion of the shoe upper to its last, upper-gripping means positioned on opposite sides of the carrier adjacent to said sole supporting plate and arranged upon closing to positively grasp outturned portions of the upper to tension the upper materials during the wiping of said upper to its last, means for closing said gripping means on said outturned portions prior to the initiation of said relative heightwise movement, and means for opening said gripping means to release said outturned portions simultaneously after a predetermined tension has been applied to the upper materials.

18. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end embracing wipers, wiper supporting means, a shoe carrier including a sole-supporting plate and relatively movable heightwise with respect to said wipers for wiping the toe portion of the shoe upper to its last, upper-gripping means positioned on opposite sides of the carrier adjacent to said sole-supporting plate and arranged upon closing to positively grasp outturned portions of the upper during the wiping of said upper to its last, means for closing said gripping means prior to the initiation of said relative heightwise movement, means for moving said gripping means away from said toe portion during said relative heightwise movement to tension the upper materials on the last during the action of said wipers, and means carried by said wiper-supporting means and adapted to engage portions of said gripping means during movement of said gripping means away from said toe portion for opening said gripping means to release said outturned upper portions simultaneously after a predetermined tension has been applied to the upper materials.

19. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end-embracing wipers, a shoe support movable heightwise of the shoe relative to the wipers, gripping means for grasping outturned portions of the upper at opposite points on each side of the shoe to tension the upper on the last during said relative heightwise movement of the support, and means for varying the position of said gripping means lengthwise of the machine.

20. In a machine for shaping the toe portion of a stitchdown shoe to its last, the combination of end-embracing wipers, a shoe carrier movable heightwise of the shoe relative to the wipers for wiping the upper to the last, power means for moving said carrier, means for grasping and exerting a pull on outturned portions of the upper adjacent opposite points on the side of the shoe during said wiping of the upper, said means comprising upper-gripping devices arranged on each side of the shoe and mounted on the carrier,

said devices being movable sidewise and away from the shoe, connecting means associated with said power means for causing sidewise movement of said devices as the shoe is moved through the wipers, and means for effecting lengthwise adjustment of said gripping devices on the carrier to vary their position with respect to the shoe, said connecting means being constructed and arranged so that the sidewise position of said gripping devices can be maintained during said lengthwise adjustment thereof.

ALBIN C. EEK.
EDGAR F. HUHN.