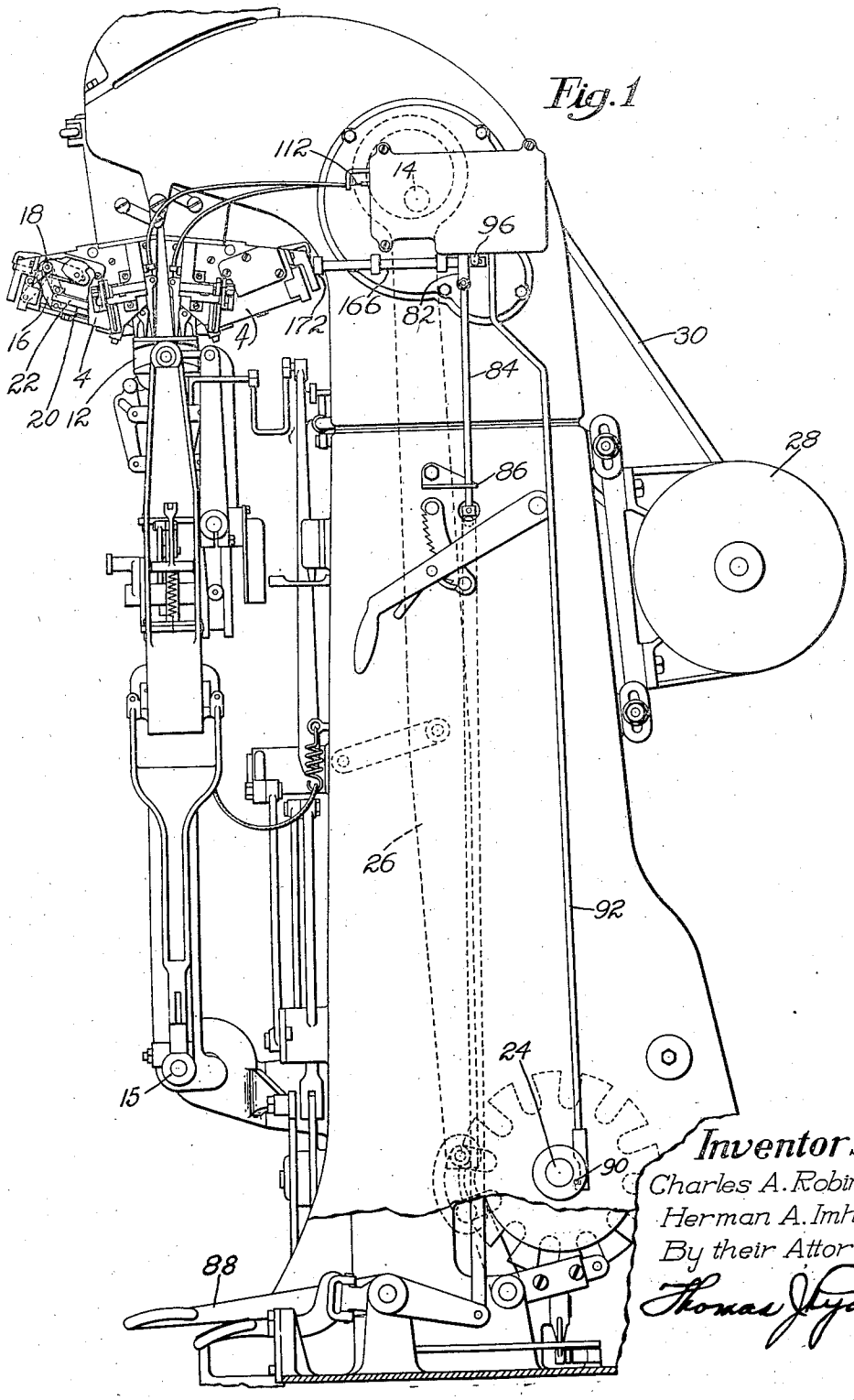
July 15, 1947. C. A. ROBINSON ET AL 2,423,852

MACHINE FOR USE IN THE MANUFACTURE OF SHOES

Filed May 7, 1945 4 Sheets-Sheet 1

Fig. 1



Inventors
Charles A. Robinson
Herman A. Imhof
By their Attorney
Thomas J. Ryan

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MACHINE FOR USE IN THE MANUFACTURE OF SHOES

Filed May 7, 1945 4 Sheets-Sheet 2

Fig. 2

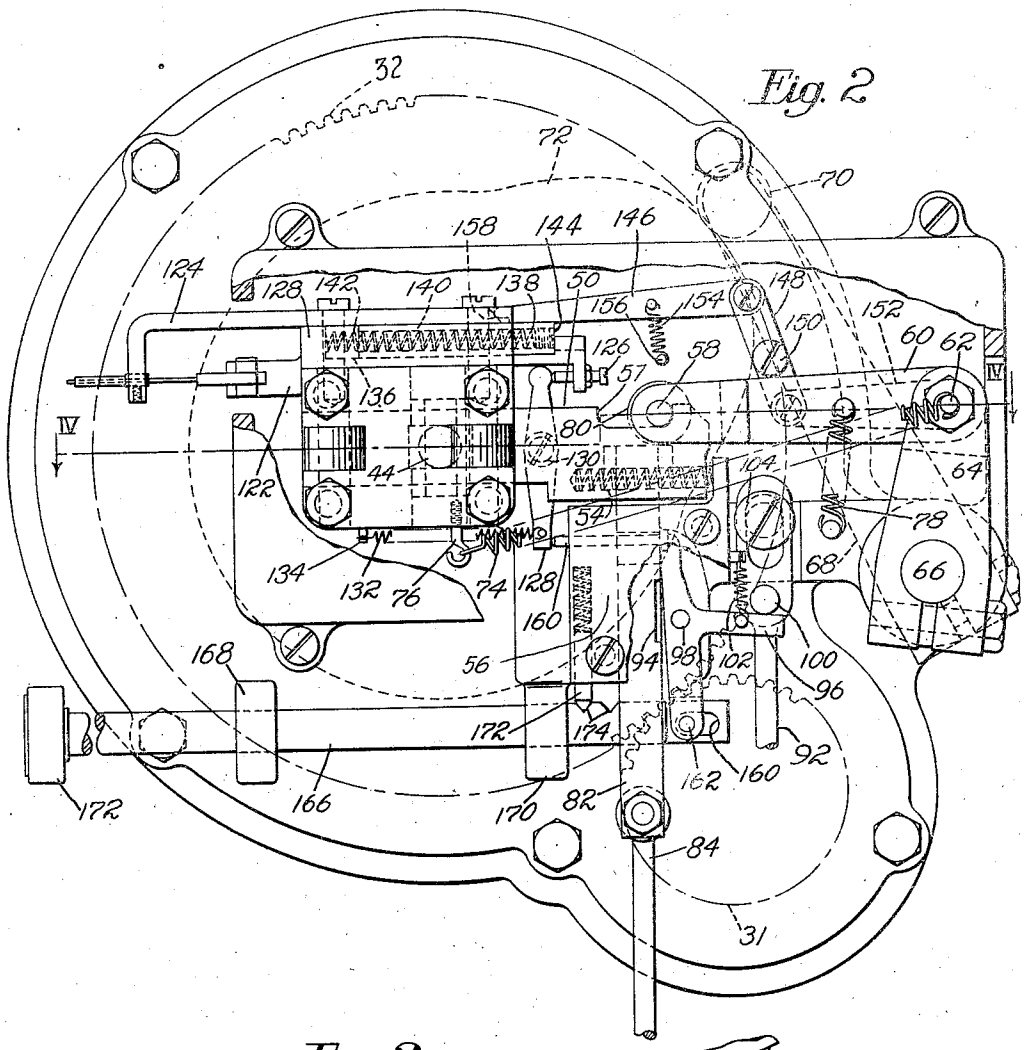
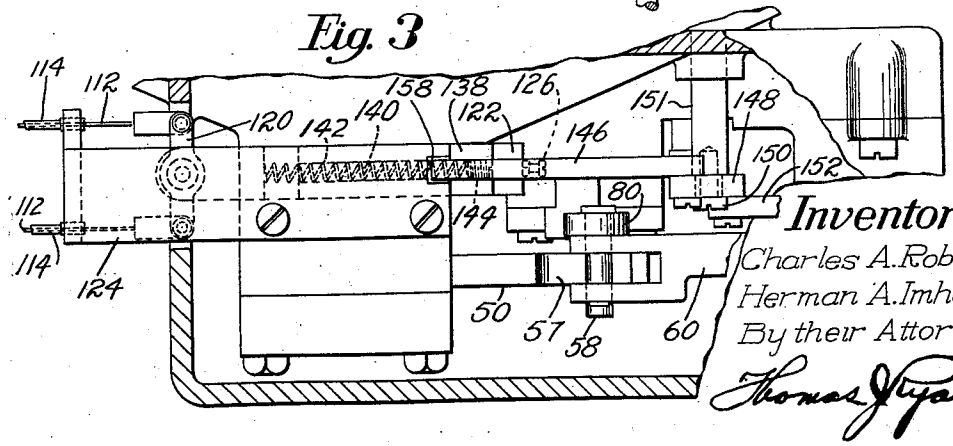


Fig. 3



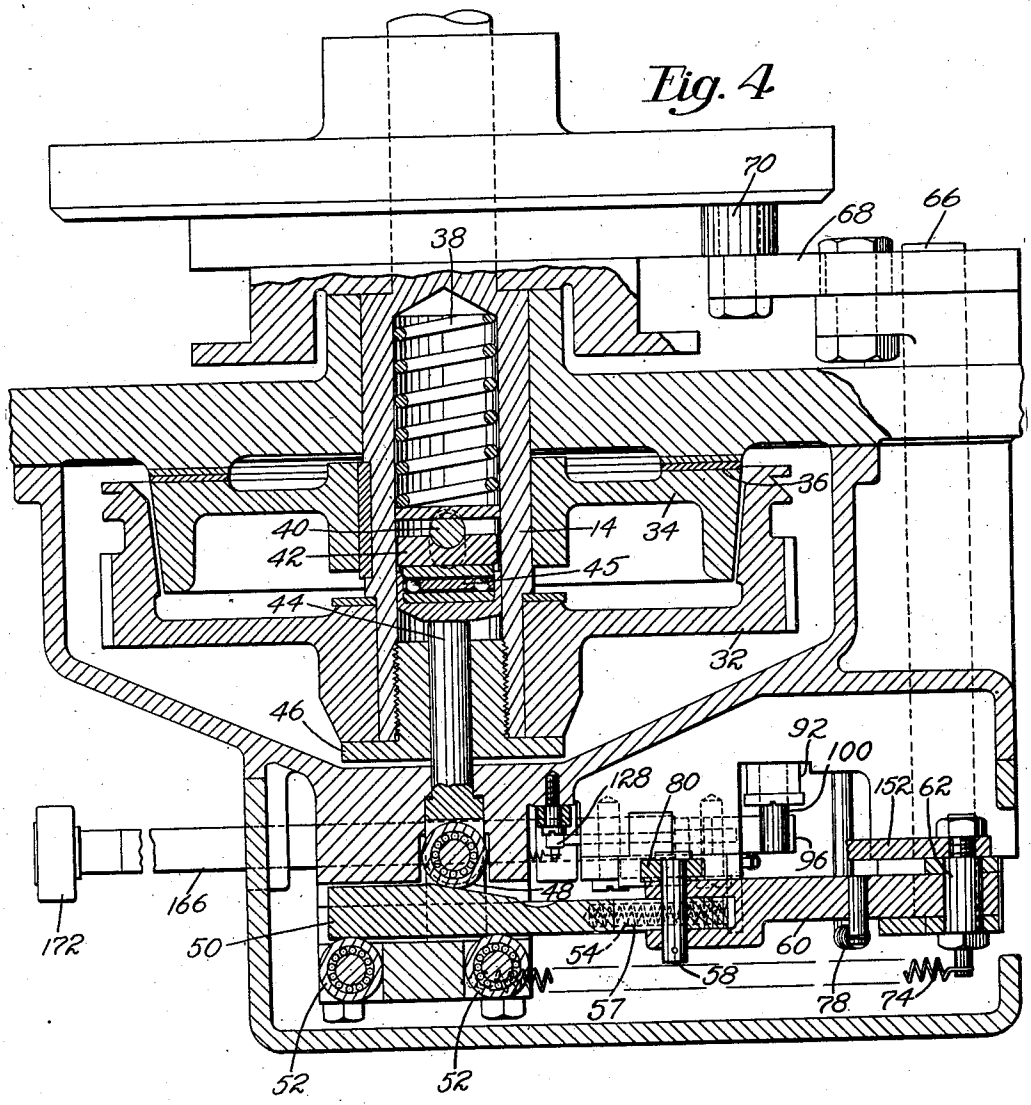
Inventors
Charles A. Robinson
Herman A. Imhof
By their Attorney
Thomas J. Ryan

July 15, 1947. C. A. ROBINSON ET AL 2,423,852

MACHINE FOR USE IN THE MANUFACTURE OF SHOES

Filed May 7, 1945 4 Sheets-Sheet 3

Fig. 4



Inventors

Charles A. Robinson

Herman A. Imhof

By their Attorney

Thomas J. Ryan

July 15, 1947. C. A. ROBINSON ET AL 2,423,852

MACHINE FOR USE IN THE MANUFACTURE OF SHOES

Filed May 7, 1945 4 Sheets-Sheet 4

Fig. 5

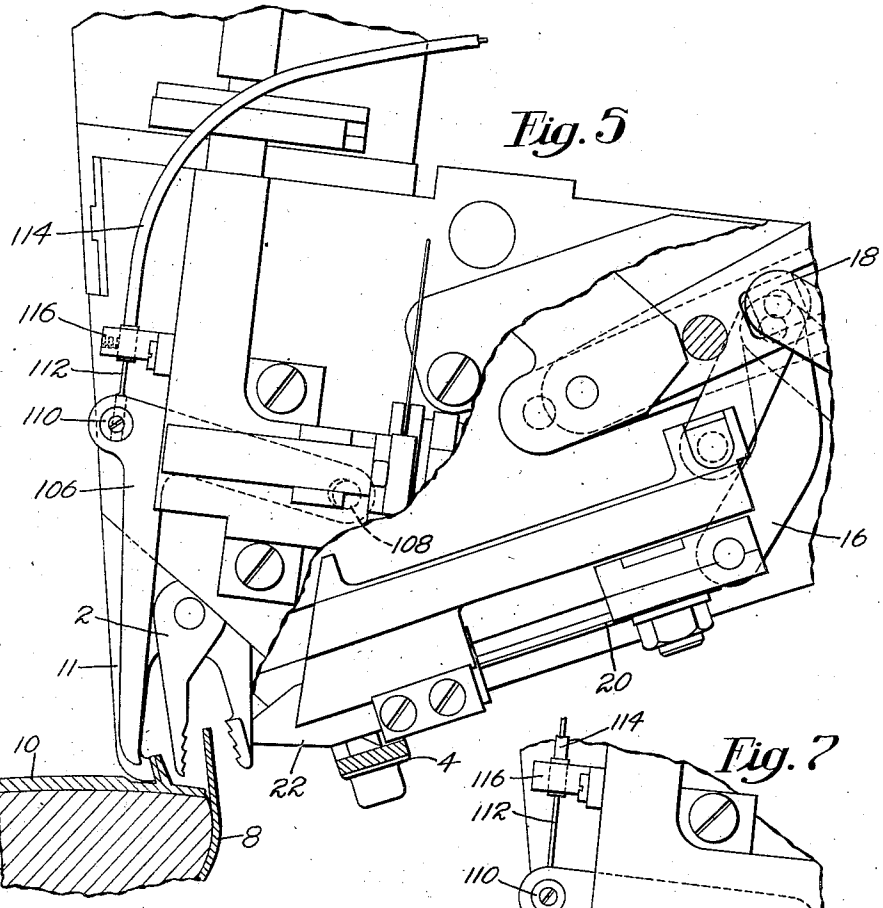


Fig. 7

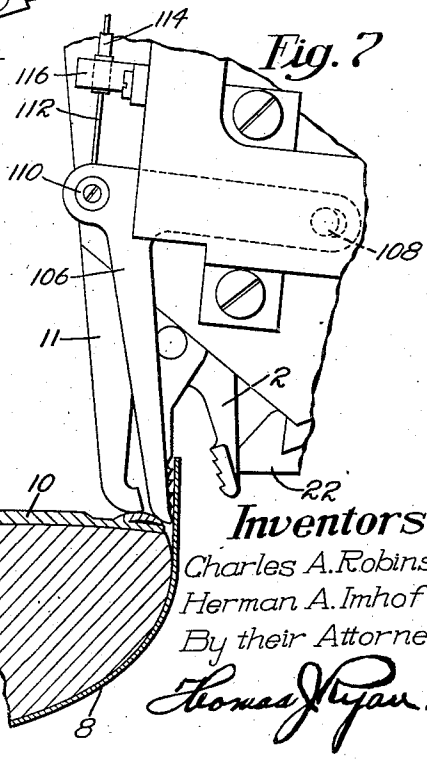
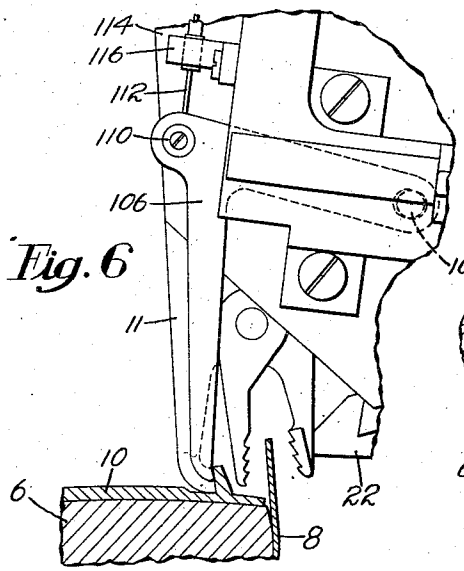


Fig. 6



Inventors
Charles A. Robinson
Herman A. Imhof
By their Attorney
Thomas J. Lyon.

Patented July 15, 1947

2,423,852

UNITED STATES PATENT OFFICE

2,423,852

MACHINE FOR USE IN THE MANUFACTURE OF SHOES

Charles A. Robinson, Salem, and Herman A. Imhof, Beverly, Mass., assignors to United Shoe Machinery Corporation, Flemington, N. J., a corporation of New Jersey

Application May 7, 1945, Serial No. 592,484

13 Claims. (Cl. 12—4)

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The present invention relates to machines for use in the manufacture of shoes, of the general type comprising devices for performing a series of operations along the bottom margin of a shoe and having a shoe supporting jack movable relatively to the operating devices to present the shoe properly as the operation is transferred along the shoe and, more particularly, the invention relates to improvements for such machines to prevent faulty operations of the devices on a shoe and to assist in effectively controlling the operations where it is occasionally necessary to perform operations individually in order to correct previous faulty ones.

The several features of the invention are herein disclosed as embodied in an automatic side lasting machine such as that illustrated and described in United States Letters Patent No. 2,201,866, granted May 21, 1940, and No. 2,252,325, granted August 12, 1941, upon the applications of Robert H. Lawson, and in an application for United States Letters Patent Serial No. 588,974, filed April 18, 1945, in the name of the present inventors. It is to be understood, however, that, except as stated in the claims, the several features of the invention are not limited to use in any particular machine of the general type hereinbefore referred to.

In the machine of the Lawson patents, the operating devices comprise side lasting gripper and stapling units for tensioning and fastening the marginal portions of a shoe upper to the rib of an insole, beginning at the breastline of the heel and continuing without manual intervention through a predetermined series of operations, until the toe of the shoe is reached. When the toe of the shoe is reached, a driving and stopping mechanism in the machine acts automatically to bring the machine to rest with the upper tensioning grippers disengaged from the shoe. In that machine, the stapling units are provided with spring actuated latch released staple drivers arranged to be raised in retracted position and to be released at the proper point in each cycle of lasting operations to insert and clinch each staple just before the upper is disengaged from the tensioning grasp of the grippers. To guide the lasting operation, the lasting units, of which there are two in number, acting simultaneously at opposite sides of a shoe, are separated yieldingly and provided with presser feet serving both as staple clinching anvils and also as abutment gages bearing against the inner surface of opposite lasting ribs on the insole to which the upper is stapled to guide the lasting units. The yielding separating force of the lasting units maintains the presser feet in properly spaced positions as the operation is transferred along the shoe.

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In some instances during operations of the patented machine, particularly with high arch shoes in which abrupt curvatures occur along the shank of a shoe, the presser feet may become accidentally disengaged from the rib of the insole, with the result that all subsequent operations on the shoe will be faultily performed, there being no means for bringing the presser feet automatically back into proper operative relationship to the insole rib of the shoe. Thus, one or more staples, corresponding to the number of operations remaining to be performed on the shoe, will be inserted and clinched, frequently entering a marginal portion of the upper so far from the insole as to miss the rib. The staple will then be faultily inserted and will fail to hold the upper in place. If a faulty stapling operation is detected before the series of operations on a shoe is completed and the machine is stopped by the operator, the presser feet may be re-engaged manually with the insole rib and the lasting operations on the shoe continued to completion in the usual way. After completion of the lasting operations the shoe may be returned to the position in which the operations were faultily performed and one or more correcting staples inserted as required. Such detection and correction of faulty lasting operations obviously requires the exercise of close observation and careful time-consuming manual control, whereas a primary purpose of such an automatic lasting machine is to eliminate the need for such observation and control.

To assist in inserting correcting staples, the machine of Patent No. 2,252,325 is provided with a separate operator or manually controlled treadle lever and suitable connections arranged to enable one or more lasting operations to be performed at a time without causing the machine thereafter to continue automatically through its regular series of lasting operations.

The machine disclosed in the present inventors' copending application has a novel and improved form of staple inserting driver mechanism, actuated positively as distinguished from being spring actuated and latch released as in the machine of the patents. To drive and clinch a staple with certainty in the machine of the application it is desirable to actuate the staple driver with a predetermined minimum speed of movement for the best results. If the staple driver is actuated with a slower speed of movement the resistance

offered by the shoe parts may prevent proper insertion of a staple, the momentum of the driver being insufficient to clinch the staple tightly. When under control of a single operation treadle lever such as in the patented machine, there is no certainty that the minimum speed of staple driver movement will be reached under manual control.

It is accordingly one of the objects of the present invention to provide an automatic shoe machine in which the difficulties above enumerated are avoided and particularly those difficulties relating to the necessity for close observation and careful manual control of the machine on the part of the operator either in detecting a faulty operation or in performing a single operation to correct the faulty one.

A further object of the invention is to simplify and improve the construction and manner of operation of the automatic side lasting machine disclosed in the patents and application above referred to in such a way that there will be less opportunity for the occurrence of improper lasting operations including the insertion of faulty staples and in which positively actuated staple drivers similar to those of the machine disclosed in the application may be utilized to set the individual staples under manual control without the possibility of actuating the staple driver at a speed slower than that required for proper stapling operations.

For accomplishing the above stated objects, the illustrated machine embodying the features of the present invention is equipped with devices constructed and arranged to act along the marginal portions of a shoe bottom to perform progressively a series of operations on a shoe, a shoe supporting jack, an operating shaft for said devices, a pattern cam shaft for the jack, a driving mechanism for rotating the shafts including a shifter member actuated through disconnectible connections from the operating shaft to throw the driving mechanism out of operation, and a manually actuated treadle member for disconnecting said connections to start the machine in operation in which means is provided for causing said connections to be connected whenever a faulty machine operation is performed, thus bringing the machine to rest immediately. In the illustrated machine there are two sets of devices, each comprising a gripper and a stapling unit and a presser foot engaging the inside surface of a rib on a shoe insole, and in accordance with this feature the means for disconnecting said connections is automatically responsive to a faulty operation of either set of devices.

As hereinafter described, the faulty operation responsive means consists of a feeler in the form of a finger engaging the inside surface of the insole rib in close proximity to the point at which each operating unit acts and preferably the feeler finger for each operating unit is disengaged from the insole rib while the shoe is being moved and fed from one operating position to another. With this construction and arrangement the machine is brought to rest directly after a faulty lasting operation has been performed so that the operator will have the least possible difficulty in correcting the faulty operation. After coming to rest the machine may be adjusted manually to bring the positions of the shoe and the operating devices into a correct relationship for continued operations on the shoe. After the final operation of a complete series has been performed it is then possible to return the shoe to a position where the operating devices may correct the faulty lasting operation.

To facilitate the performance of a single correcting lasting operation, in accordance with a further feature of the invention, the illustrated machine is provided with a control member operable at the will of the operator to either one of two positions to cause a shifter member for the driving mechanism to be actuated by the treadle member and retained in actuated position either during a complete series of operations on the shoe or for the period of time only in which the treadle member is held actuated, the operating cam shaft being rotated at a regular operating speed to cause proper insertion and clinching of the staples and being brought to rest immediately thereafter whenever the treadle member is released. With such a control member the operator of the machine may start the machine in operation upon a shoe to correct one or more faulty operations where required, merely by actuating the starting treadle member without special precautions to avoid the insertion and clinching of staples with an insufficient minimum speed of staple driver movement. Also, in such a machine provided with positively actuated staple drivers correcting operations are as conveniently performed as in the patented machine.

While the invention has been disclosed as embodied in a machine having a pattern cam shaft, a shifter member actuated through disconnectible connections to throw the driving mechanism for the machine out of operation, and a treadle member for disconnecting said connections, the invention in its broader aspects is readily applicable to any type of automatic shoe machine having a shoe supporting jack in which means is provided to throw the driving mechanism out of operation in response to displacement of the guiding means for the shoe from proper operating relationship with the shoe.

With the above and other objects and features in view, the invention is described with reference to the accompanying drawings, and is defined in the appended claims.

In the drawings,

Fig. 1 is a view in right side elevation of an automatic side lasting machine embodying the several features of the invention, portions of the machine being broken away and illustrated in section;

Fig. 2 is a view in side elevation, on an enlarged scale, of a portion at the front end of the machine illustrated in Fig. 1, with parts of an enclosing cover removed to illustrate more clearly the operating mechanism;

Fig. 3, a sectional plan view of the parts illustrated in Fig. 2;

Fig. 4 is a partial sectional view of a portion of the driving mechanism and controls for the machine taken along the line IV—IV of Fig. 2;

Fig. 5 is a detail view, on an enlarged scale, illustrating particularly a portion of a lasting and stapling unit indicating its relationship to a shoe being operated upon during normal operation of the machine, a displacement responsive feeler being shown in retracted position;

Fig. 6 is a similar view of the same parts showing the feeler in active position; and

Fig. 7 is a similar view of the same parts illustrating the action of the feeler when an improper lasting and stapling operation occurs.

Except as hereinafter described the machine illustrated in the drawings is the same in all es-

sential particulars as the machine disclosed in the Lawson patents above referred to. The operating devices of the machine are similar to those of the inventors' copending application and consist of a pair of yieldingly separated side lasting grippers 2 and stapling units 4 arranged to act simultaneously along opposite bottom marginal portions of a shoe supported on a last 6. The shoe is illustrated as having an upper 8 and a channeled insole 10 to the rib of which the lasting allowance of the upper is tensioned and stapled by the machine. To resist the yielding separation of the lasting units each unit is provided with a gripper guiding presser foot 11 engaging the inside surfaces of the insole rib (see Figs. 5 to 7).

In the operation of the machine a shoe supported on the last 6 is secured to a shoe supporting jack 12 and the jacked shoe presented manually to the operating devices with the lasting units brought together until the presser feet engage the insole rib and the lasting grippers straddle the upper close to the breast line of the heel. After being properly presented to the machine the shoe is released from manual control and the machine started. Thereafter, a series of successive lasting operations are performed until the toe of the shoe is reached, at which time the operations are terminated, the jacked shoe is automatically disengaged from the operating devices and the machine finally brought to rest. During operation of the machine, the shoe is guided by the presser feet acting on opposite insole ribs, the jack swinging freely about a pivotal mounting 15 on which it is supported while the presser feet are moved toward and from each other according to the varying distances between the ribs.

The lasting and stapling units are actuated from an operating cam shaft 14 through suitable connections more fully described in the patents and application above referred to including a pair of toggles 16 and 18 for each stapling unit arranged to have their respective links moved into positions of alinement during each staple driving operation. The toggle 16 of each stapling unit is connected to operate a staple driver 20 and the toggle 18 is connected to operate a staple former 22. The pattern cam shaft for moving the shoe supporting jack 12 is indicated at 24 connected for intermittent rotary movement with the operating shaft 14 through an oscillating and longitudinally moving lever 26 within the frame of the machine.

The mechanism for driving the operating shaft is the same as in the patented machine and comprises a main clutch driven from a motor 28 through a belt 30 and a drive gear 31 (Fig. 2) on a belt driven countershaft. The main clutch consists of a driving member 32 having gear teeth meshing with the teeth of the gear 31 and is shown in Fig. 4 rotatably mounted at one end of the operating shaft 14 and a driven member 34 keyed to but slidable lengthwise of the operating shaft and provided with a braking surface 36 cooperating with a similar surface on the machine frame to bring the machine to rest whenever the driven member is disengaged from the driving member. To control the clutch 32, 34 the end of the operating shaft 14 on which it is mounted is formed with a central bore to receive a compression spring 38 acting between the inner end of the bore and a pin 40 passing diametrically through axial slots in the shaft 30 and into the hub of the driving member 32.

The spring is so arranged as to urge the driven member of the clutch towards the driving member thus establishing a driving relationship. To disengage the clutch members and to bring the machine to rest, the pin 40 is also engaged by a block 42 between which and a plunger 44 is disposed a thrust bearing 45. The plunger 44 passes loosely through a central opening in a nut 46 threaded into the end of the operating shaft 14 and is forked at its outer end to support between its forked portions a frictionless roller bearing 48 engaging a wedge-shaped shifter member 50. The forked outer end portions of the plunger 44 project beyond roller 48 and surround the sides of the shifter member, fitting within suitable guiding surfaces of the frame to prevent rotation of the plunger with the operating shaft 14. The thrust of the plunger on the shifter member is supported by frictionless rolls 52 mounted in the machine frame in spaced relationship along the shifter member at either side of the line of pressure along which the force of the spring 38 is exerted through the plunger. When the shifter member is moved to the right as viewed in Fig. 4, the clutch is disengaged and the machine brought to rest and when moved to the left the clutch is engaged and the machine started. To start the machine in operation the right end of the shifter member is drilled with a horizontal bore to receive a compression spring 54, the right end of which engages an upwardly extending arm of a plate 56 screwed to the frame of the machine. Expansion of the spring 54 forces the shifter member to the left and causes the machine to be started.

To actuate the shifter member in bringing the machine to rest, the upper surface of the member is formed with an open recess 57 (see Figs. 2, 3 and 4) to receive a pin 58 passing through the slotted end portions of a disconnectible connecting link 60, pivotally mounted on a bolt 62 carried by an oscillating arm 64 secured to a rock shaft 66. The rock shaft 66 is rotatably supported in bearings within the machine frame and carries at its inner end a cam lever 68 having a roll 70 engaging a cam 72 secured to the main operating shaft 14. The cam roll 70 is forced against the surface of the cam 72 by the action of a tension spring 74 stretched between pivot 62 and a stationary hook 76. The arrangement is such that during rotation of the operating shaft, after the pin 58 enters the recess 57, the shifter member is actuated against the force of the spring 54 to bring the machine to rest at a predetermined angular position of the operating shaft with the lasting and stapling units disengaged from the shoe.

The disconnectible link 60 is normally held downwardly in engagement with the recess in the shifter member 50, a spring 78 being connected between a pin on the link and a similar pin on the machine frame for this purpose. To disconnect the link 60 from the shifter member the pin 58 at its rearward end is headed and is surrounded by a roll 80 just above the upper end of a vertically slidable treadle actuated member 82 mounted within a slot in the frame of the machine. The lower end of the treadle member is pivotally connected to a treadle rod 84 guided in a plate 86 and arranged to pass through the machine frame downwardly to a pivotal connection with a starting treadle 88. Whenever the starting treadle 88 is depressed the treadle member is raised to engage the roll 80 and to force the

pin 58 out of the recess 56 thus disconnecting the shifter member from the cam lever 68. As soon as disconnection occurs the spring 54 expands and the shifter member is actuated to the left to start the machine in operation. After completion of a series of lasting operations on a shoe and a complete rotation of the pattern cam shaft 24, a pin 90 (Fig. 1) on the shaft 24 engages the hooked lower end of a stop rod 92 slidably mounted in the machine frame and arranged at its upper end to cause the treadle member again to be lowered so that the pin 58 of the disconnectible link 60 may again engage the recess of the shifter member.

To retain the treadle member in raised position throughout a complete series of lasting operations and to cause the pin 58 to be held disengaged from the recess 56, the central portion of the treadle member is notched at 94 to receive a lug on the upper end of a three-armed latch 96 pivotally mounted at 98 in the frame of the machine. When the treadle member is raised the latch lug enters the notch 94 and prevents the treadle member from being again lowered until the complete series of lasting operations is finished. When the stop rod 92 is depressed at the completion of the lasting operations the latch 96 is disengaged from the notch. For this purpose the upper end of the rod 92 has a horizontal projection 100 overlying a horizontal arm of the latch, the latch being yieldingly maintained in latched position by a spring 102 acting to raise the latch and force it into engagement with the notch on the treadle member. To guide the upper end of the stop rod it is slidably mounted on a shouldered screw 104 passing through the slotted upper end of the rod and threaded in the machine frame.

As has been stated, automatic means are provided in each lasting unit which is responsive to displacement of the operating devices during lasting operations from proper operating positions along the bottom marginal portions of a shoe to actuate the shifter member and bring the machine to rest after faulty operation on the shoe. The means responsive to displacement of the operating devices is best illustrated in Figs. 5 to 7 inclusive and consists of a feeler finger 106 of generally inverted L shape pivotally mounted at one end of its horizontal arm on a pin 108 secured in the frame of the associated lasting unit, passing through a slot in the feeler finger. At its lower end each feeler finger is arranged to engage the rib of the insole in close proximity to the point of engagement of the presser foot with the insole rib. The presser foot 11 for each stapling unit also serves as a staple clinching anvil against which the staple former and driver act so that to insure clinching of a staple in the insole rib the presser foot must engage the rib.

Each feeler finger 106 is arranged as closely as possible to each presser foot and so long as a presser foot engages the inner surface of the rib on the insole the adjacent feeler finger will be correspondingly guided as illustrated in Fig. 6, the presser feet being maintained in position against the insole rib by the yielding separation of the lasting units. If, however, a presser foot should engage the insole rib in such a way as to bent it against the insole as in Fig. 7 or become displaced from it for other reasons there will be nothing to hold the feeler finger in alinement with the presser foot. Continuous operation of the machine under these conditions would cause a staple to be inserted within the lasting allowance of the upper without entering the insole rib or without entering either the upper or the rib. Once having become displaced from proper engagement with the insole rib the lasting units would separate to their maximum allowable spaced relations and the displaced presser foot would continue in this relationship throughout the remaining operations of a complete series, so that no further proper lasting operations would be performed and there would be a likelihood of irreparable damage in the parts of the shoe. Accordingly, after the feeler finger 106 is displaced from the insole rib in response to an improper operating relationship of a lasting unit the machine is immediately brought to rest automatically, to enable the operator to reposition the shoe and the operating devices.

For bringing the machine to rest when the feeler finger is displaced from the insole rib of a shoe in response to an improper lasting operation the central angular portion of each feeler finger is pivotally connected at 110 to the lower end of a Bowden wire 112 slidingly arranged within a sheath 114 secured at one end within a clamp 116 screwed to the frame of each lasting unit. The other end of the Bowden wire 112 for each lasting unit is pivotally connected to one end of an equalizing lever 120 (see Fig. 3) centrally pivoted to a slide 122 mounted within a guideway parallel to and just above shifter member 50. The corresponding ends of the Bowden wire sheaths 114 are connected to a plate 124 secured to the machine frame. The slide 122 has projecting downwardly from its right end a lug supporting a set screw 126 arranged to engage the upper rounded end of a lever 128 fulcrumed on the machine frame at 130. The lower end of the lever 128 is connected with a tension spring 132 stretched between the lever and a stationary pin 134. The spring 132 urges the rounded end of lever 128 against the set screw 126 in a direction to cause the feeler fingers 106 to be disengaged from the rib on the insole. This is the position as shown in Fig. 5 assumed by the feeler fingers during feeding movement of the shoe between successive lasting operations.

To re-engage the feeler fingers with the insole rib at the end of each feeding movement before a new lasting operation begins the slide 122 has formed therein a guideway 136 of limited length between the ends of which is located a sliding block 138 having a central passage 140 to receive a spring 142. The spring 142 is compressed against a plug 144 threaded into one end of the passage 140 and at its other against a shoulder at the end of the guideway 136. The action of the spring 142 is to urge the block 138 to the right against the right end of the guideway 136. When each feeding movement of the shoe is terminated the sliding block 138 is acted upon by the notched end of an arm 146 pivotally mounted on a lever 148 rotatable on a bolt 150 threaded into the end of a stud 151 projecting from the machine frame (see Fig. 3). To actuate the lever 148 its lower end is connected through a link 152 to the bolt 62 on the oscillating arm 64. The notched end of the link 146 is pressed yieldingly against the end of the sliding block 138 by a tension spring 154 connected between the arm and a pin 156 on the machine frame. When the notched end of the arm engages the sliding block 138 it moves the block to the left and urges through the spring 142 the slide 122 to which the Bowden wires are connected in the same direction until the connected feeler fingers 106 en-

gage the insole rib. As soon as this occurs movement of the slide 122 is arrested and the block 138 continues to move yieldingly against the resistance of the spring 142. As the arm 146 reaches the limit of its leftwise movement its notched end engages an inclined surface 158 on the plate 124 raising the notched end from engagement with the block 142 so that the block is free to return to its original position on the slide 122.

If either of the presser feet 11 becomes displaced from the rib of the insole the corresponding feeler finger 106 will immediately move out of alinement with it when the sliding block 138 is moved to its extreme right-hand position. Under these conditions the slide 122 will be moved by the spring 142 beyond its normal position. When the slide is so moved the set screw 126 engaging the lever 128 will cause the lever to swing on its fulcrum to bring the lower end of the lever against a pin 160 slidingly mounted in the frame of the machine and passing through a transverse slot in the treadle member 82 with its right end disposed to engage the uppermost arm of the latch 96. Upon continued movement of the slide 122 the pin 160 will disengage the latch from the treadle member causing the treadle member to be released and the machine brought to rest. After the machine is brought to rest the operator may restore the shoe and the lasting units to proper operating relationship and start the machine again in operation.

After the series of operations on the shoe is completed and if it is found that a faulty staple has been inserted or that a repetition of any of the lasting operations is desirable for other reasons, the present machine is provided with means for enabling the operator to start the machine in operation to insert a single pair of staples or to continue the operations indefinitely, so long as the treadle is held actuated manually. If the operator removes his foot from the treadle 82, however, the machine will immediately come to rest so that full control of the operations may be obtained.

To these ends a downwardly extending arm of the latch 96 is provided with a pin 162 pressing loosely through a slot 164 in the rearward end of a selectively actuable control member 166 in the form of a sliding bar supported in bearings 168 and 170 carried by the frame of the machine. The forward end of the bar 166 has attached to it a handle button 172 disposed in a convenient location for manipulation by the operator. When the button 172 is drawn forwardly it swings the latch 96 to disengage the treadle member 82 so that it no longer is able to hold the treadle member in a position to disconnect the link 60 from the clutch-operating slide 50. Thus the machine may be maintained in operation only by holding the treadle depressed. To retain the rod 166 in its forward latch releasing position the rod is provided with a pair of notches 174 along its upper surface into which the wedge-shaped lower end of a spring-pressed plunger 172 may enter selectively, the plunger holding the rod frictionally from movement in either direction. When the rod is returned to its rearward position the plunger 176 moves from one notch to the other to hold the rod in that position.

The nature and scope of the invention having been indicated and a particular embodiment thereof having been described, what is claimed is:

1. A machine for use in the manufacture of shoes, having devices provided with gripper guiding means for performing a series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and jack during operations on a shoe, driving mechanism for rotating the operating shaft and pattern cams, and a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, in combination with means responsive to displacement of the guiding means relative to the shoe for actuating the shifter member to bring the machine to rest.

2. A machine for use in the manufacture of shoes, having devices provided with guiding means for performing a series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and jack during the operation on the shoe, driving mechanism for rotating the operating and the pattern cams, a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, disconnectible connections driven from the operating shaft for actuating the shifter member to disconnect said connections and to throw said mechanism out of operation, and a manually actuated treadle member for disconnecting said connections, in combination with a latch for retaining the treadle member in a position to disconnect said connections, and means responsive to displacement of the guiding means from proper operating relationship to the shoe to release the treadle member from the latch.

3. A machine for use in the manufacture of shoes, having devices provided with guiding means for performing a series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and jack during the operation on the shoe, driving mechanism for rotating the operating and the pattern cams, a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, disconnectible connections driven from the operating shaft for actuating the shifter member to disconnect said connections and to throw said mechanism out of operation, and a manually actuated treadle member for disconnecting said connections, in combination with a latch for retaining the treadle member in a position to disconnect said connections, and a feeler finger on said devices engaging the shoe and acting in response to displacement of the guiding means from proper operating relationship to the shoe to cause the driving mechanism to be thrown out of operation.

4. A machine for use in the manufacture of shoes, having devices provided with guiding means for performing a series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and jack during the operation on the shoe, driving mechanism for rotating the operating and the pattern cams, a shifter member connected to said mechanism and

movable in opposite directions to throw said mechanism into and out of operation, and disconnectible connections driven from the operating shaft for actuating the shifter member to disconnect said connections and to throw said mechanism out of operation, in combination with a slide, a block yieldingly connected to the slide, means for actuating the block during each operation of the machine in a direction to cause the slide to throw the driving mechanism out of operation, and a feeler finger on said devices engaging the shoe and acting to prevent movement of the shifter member from throwing the driving mechanism out of operation so long as the guiding means remains in proper operating relationship to the shoe.

5. A machine for use in the manufacture of shoes, having devices provided with guiding means for performing a series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and jack during the operation on the shoe, driving mechanism for rotating the operating and the pattern cams, a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, and disconnectible connections driven from the operating shaft for actuating the shifter member to disconnect said connections and to throw said mechanism out of operation, in combination with a feeler finger on said devices engaging the shoe, a block for actuating the feeler finger, means for actuating the block to cause the feeler finger to be disengaged and reengaged with the shoe during each operation of said devices and to move the feeler finger in response to displacement of the guiding means from proper operating relationship to the shoe to cause the shifter member to be actuated.

6. A machine for use in the manufacture of shoes, having separate sets of devices for performing a simultaneous series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said sets of devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and the jack during operations on a shoe, driving mechanism for rotating the operating cam shaft and pattern cams, and a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, in combination with means responsive to improper operation of either set of said operating devices for actuating the shifter member to bring the machine to rest.

7. A machine for use in the manufacture of shoes, having separate sets of devices for performing a simultaneous series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said sets of devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and the jack during operations on a shoe, driving mechanism for rotating the operating cam shaft and pattern cams, and a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, in combination with a feeler finger for each set of devices, a slide for causing the shifter member to be moved in a direction to throw the driving mechanism out of operation, an equalizer on said slide connecting the feeler fingers to the slide, and means for actuating the slide in response to displacement of a feeler finger to cause the shifter member to throw the driving mechanism out of operation.

8. A machine for use in the manufacture of shoes having devices provided with guiding means engaging the marginal portions of a shoe bottom to perform an operation progressively along the shoe, a shoe supporting jack, an operating cam shaft, and driving mechanism for rotating the cam shaft, in combination with means responsive to displacement of the guiding means from proper operating relationship to the marginal portions of the shoe bottom to throw the driving mechanism out of operation.

9. A side lasting machine for shoes having ribbed soles, having lasting devices provided with upper stretching grippers arranged to impart an updraw movement away from the sole of a shoe presented to said devices, and guiding means acting along the rib of the sole to locate the upper grippers in position to receive the edge of the shoe upper, a shoe supporting jack, an operating cam shaft for the lasting devices, and driving mechanism for rotating the cam shaft, in combination with means responsive to a displacement of the guiding means from the rib of the sole to throw the driving mechanism out of operation.

10. A machine for use in the manufacture of shoes, having devices for performing a series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and jack during the operation on the shoe, driving mechanism for rotating the operating shaft and pattern cams, a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, a stop cam driven by the operating shaft and disconnectible connections for actuating the shifter member from the cam to disconnect said connections and throw said mechanism out of operation within a single cycle of operations of the operating devices, and a manually actuated treadle member for disconnecting said connections when the machine is in a position of rest, in combination with a control member operable selectively to one of two positions to cause the treadle member either to retain the disconnectible connections disconnected during a complete series of operations along the shoe or for the period of time only in which the treadle member is manually held actuated.

11. A machine for use in the manufacture of shoes, having devices for performing a series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and jack during the operation on the shoe, driving mechanism for rotating the operating shaft and pattern cams, a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, a stop cam driven by the operating shaft and disconnectible connections for actuating the shifter member from the cam to disconnect said connections and throw said mechanism out of operation within a single cycle of operations of the operating devices, and a manually actuated treadle member for disconnecting

said connections when the machine is in a position of rest, in combination with a control member operable selectively to one of two positions to cause the treadle member either to retain the disconnectible connections disconnected during a complete series of operations along the shoe or for the period of time only in which the treadle member is manually held actuated, and a stopping connection actuated by the pattern cams for rendering the control member inoperative to cause the disconnectible connections to be retained in disconnected condition.

12. A machine for use in the manufacture of shoes, having devices for performing a series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and jack during the operation on the shoe, driving mechanism for rotating the operating shaft and pattern cams, a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, a stop cam driven by the operating shaft and disconnectible connections for actuating the shifter member from the cam to disconnect said connections and throw said mechanism out of operation within a single cycle of operations of the operating devices, and a manually actuated treadle member for disconnecting said connections when the machine is in a position of rest, in combination with a control member operable selectively to one of two positions to cause the treadle member either to retain the disconnectible connections disconnected during a complete series of operations along the shoe or for the period of time only in which the treadle member is manually held actuated, and means actuated by improper operation of the operating devices for rendering the control member in operative to cause the disconnectible connections to be retained in disconnected condition.

13. A machine for use in the manufacture of shoes, having devices for performing a series of operations progressively along the bottom margin of a shoe, an operating cam shaft and connections for actuating said devices, a shoe supporting jack, pattern cams and connections for controlling the relative positions of said devices and jack during the operation on the shoe, driving mechanism for rotating the operating shaft and pattern cams, a shifter member connected to said mechanism and movable in opposite directions to throw said mechanism into and out of operation, a stop cam driven by the operating shaft and disconnectible connections for actuating the shifter member from the cam to disconnect said connections and throw said mechanism out of operation within a single cycle of operations of the operating devices, and a manually actuated treadle member for disconnecting said connections when the machine is in a position of rest, in combination with a control member operable selectively to one of two positions to cause the treadle member either to retain the disconnectible connections disconnected during a complete series of operations along the shoe or for the period of time only in which the treadle member is manually held actuated, and a stopping connection actuated by the pattern cams upon improper operation of the operating devices to render the treadle control member inoperative to cause the disconnectible connections to be retained in disconnected condition.

CHARLES A. ROBINSON.
HERMAN A. IMHOF.

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