

No. 688,193.

Patented Dec. 3, 1901.

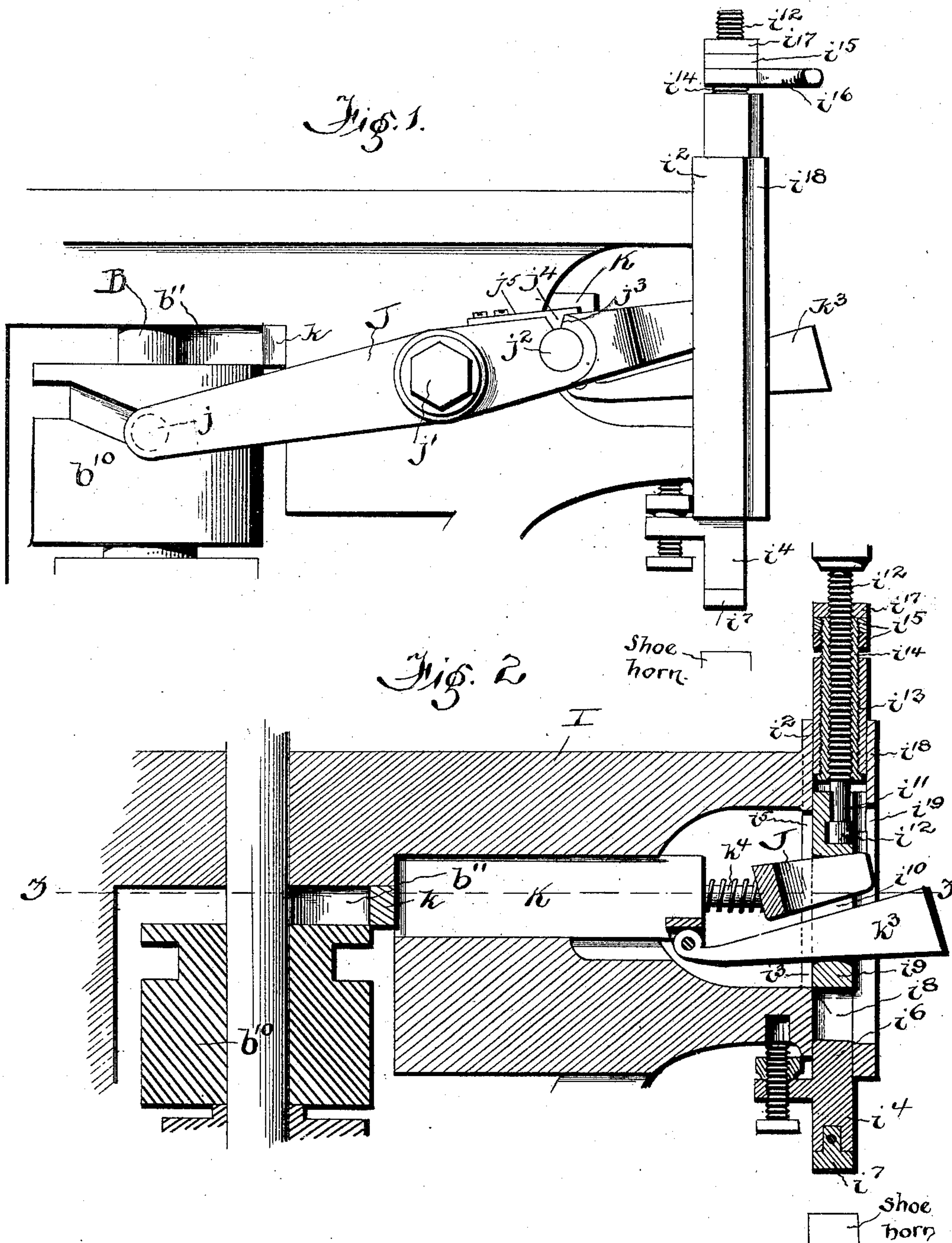
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PRESSER FOOT MECHANISM FOR SHOE SEWING MACHINES.

(Application filed Oct. 28, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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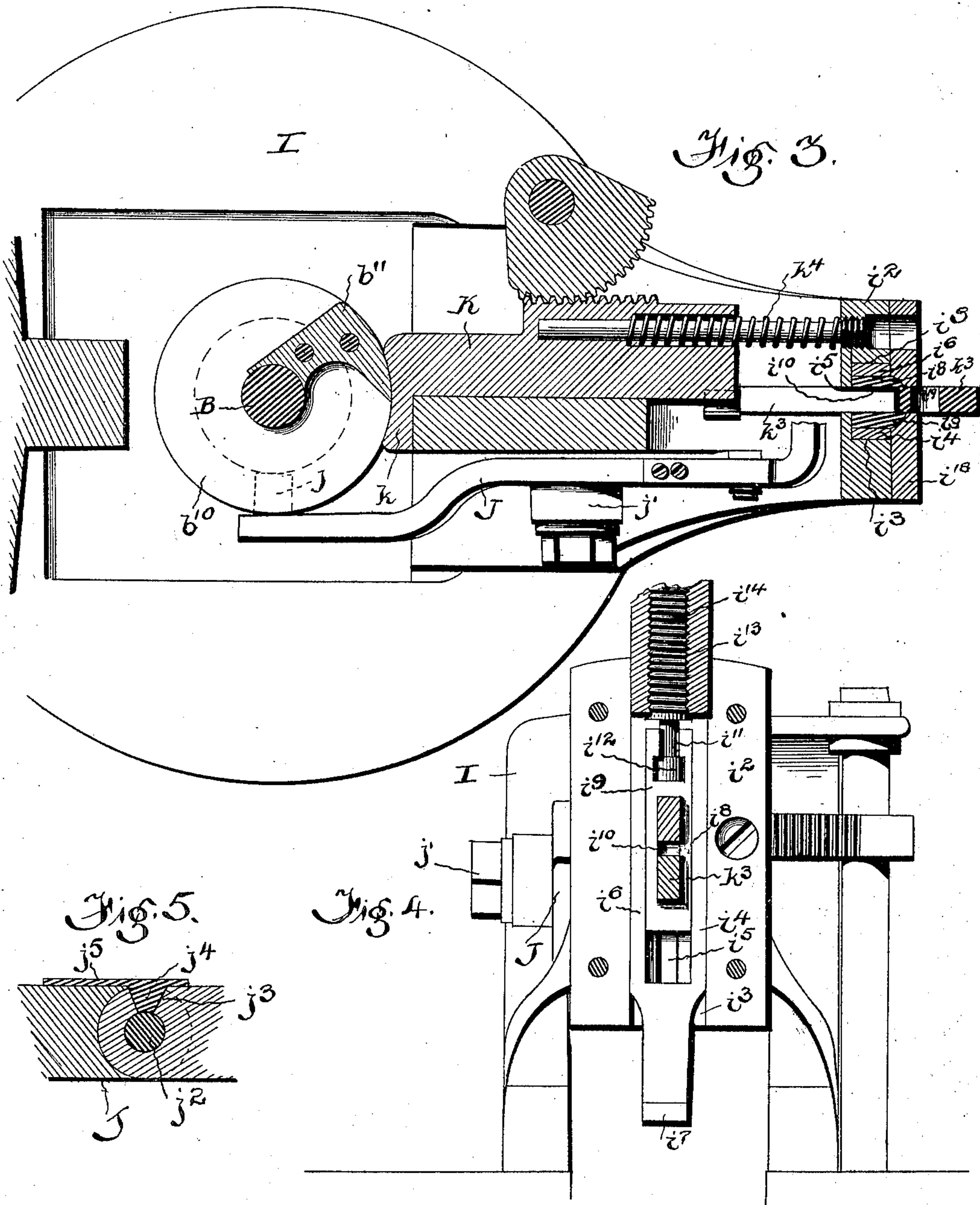
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(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

ENOCH NORMANCUT, OF MONTREAL, CANADA, ASSIGNOR TO THE COLUMBIA WIRE SEWING LOCK STITCH MACHINE CO., LIMITED, A CORPORATION OF MAINE.

## PRESSER-FOOT MECHANISM FOR SHOE-SEWING MACHINES.

SPECIFICATION forming part of Letters Patent No. 688,193, dated December 3, 1901.

Original application filed April 14, 1898, Serial No. 677,634. Divided and this application filed October 28, 1901. Serial No. 80,291. (No model.)

*To all whom it may concern:*

Be it known that I, ENOCH NORMANCUT, a subject of the King of Great Britain, residing at Montreal, Province of Quebec, Dominion of Canada, have invented certain new and useful Improvements in Shoe-Sewing Machinery; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in shoe-sole-sewing machines, and has particular relation to mechanism for regulating and controlling the pressure of the pressure-bar on the shoe-sole during the sewing operation, being a divisional application of that filed by me April 14, 1898, Serial No. 677,634.

The object of the invention is to provide, primarily, a means for controlling the amount of pressure placed on the shoe-sole by the pressure-bar, said means preventing the application of excessive pressure. A further object is the provision of means for locking the pressure-bar in position after the amount of pressure has been regulated. Other objects will be hereinafter made clear.

To these and other ends the invention consists in the improved construction and combination of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings, in which similar characters of reference indicate similar parts in all of the views, Figure 1 is a side elevation of a portion of a sewing-machine head, showing the rocking-lever, its cam, and other necessary operating parts. Fig. 2 is a central longitudinal sectional view of the head. Fig. 3 is a horizontal sectional view taken on the line 3-3 of Fig. 2. Fig. 4 is a front elevation of the head with the face-plate removed. Fig. 5 is a detail sectional view showing a means for permitting the pressure of the rocking lever to be controlled.

In shoe-sewing machines of the type shown in said application above set forth, in which the needle operates from the shoe-horn, the

stitching being on the inner portion of the sole, a pressure-bar must be provided capable of withstanding the pressure of the needle while being inserted, and as the shoe-horn is held against a vertical movement to release this pressure when the work is to be fed the pressure-bar must be capable of a movement which will release the shoe from such pressure during the feeding movement. Hence the provision of a reciprocating pressure-bar. Owing to the fact that shoe-soles vary in thickness it will be readily understood that a fixed movement of the pressure-bar (normally an essential feature) will be disadvantageous where the thickness of the sole is excessive and that provision must be made for relieving the sole from the excessive pressure without changing the solidity of the pressure-resisting qualities of the pressure-bar when in position to hold the shoe during the stitching operation. It is the purpose of this invention to provide a structure of this character.

In the drawings, I designate the head of a shoe-sewing machine, having at its front a guide  $i^2$ , provided with a vertical slot  $i^3$  for the reception of the slidable pressure-foot  $i^4$ . The guide  $i^2$  is provided with a transverse slot  $i^5$ , which communicates with the vertical slot  $i^3$  and serves to allow of the passage of the pressure-bar lever (rocking lever) and the sliding wedge  $k^3$ , which serves to coact with the rocking lever to form a support for the pressure-foot  $i^4$ , as well as to control the length of movement of the upright needle, the latter function not being described herein, as it forms no part of the present invention.

The pressure-foot  $i^4$  consists of a slide-bar  $i^6$ , adapted to slide within the vertical slot  $i^3$ , and has its lower end provided with a removable pressure-plate  $i^7$ . The slide-bar  $i^6$  is also provided with a vertical slot  $i^8$ , within which is adapted to slide the adjustment-slide  $i^9$ , which is in turn provided with a vertical slot  $i^{10}$ , which communicates with the slot  $i^5$  in the guide  $i^2$ . The upper end of the adjustment-slide  $i^9$  is provided with a slotted opening  $i^{11}$ , having its lower end enlarged for the reception of the head of the adjusting-screw



$i^{12}$ , which serves to raise and lower the adjustment-slide  $i^9$  in the vertical slot  $i^8$ . The upper end of the sliding bar  $i^6$  is provided with a screw-threaded opening  $i^{13}$ , within which the pressure-releasing screw  $i^{14}$  is adapted to have movement, said screw  $i^{14}$  being provided with a screw-threaded opening within which the adjusting-screw  $i^{12}$  has its movement. Adjusting-nuts  $i^{15}$  are mounted on the said adjusting-screw  $i^{12}$ , one of which is provided with an operating-handle  $i^{16}$ . A suitable lock-nut  $i^{17}$  is provided to retain the adjusting-screw  $i^{12}$  in position after having been adjusted.

$i^{18}$  designates a removable face-plate provided with a vertical slot  $i^{19}$ , having communication with the slots  $i^5$   $i^{10}$ .

B designates the operating-shaft of the machine, extending vertically through the body and head thereof, and on which is mounted a side cam  $b^{10}$ , within which one end of a pivotally-mounted rocking lever J is adapted to have operating connection by means of a suitable pin and roller-stud  $j$ , operating in the grooved face of the cam. The opposite end of the lever J extends forwardly into and through the slots  $i^5$ ,  $i^{10}$ , and  $i^{19}$ , the adjustment-slide  $i^9$  normally resting on the upper face of the forward end of said lever. Between the pivotal pin  $j$  of the rocking lever and the front end thereof the lever is provided with a hinged joint  $j^2$ , the construction being such as to form an opening  $j^3$ , having oppositely-inclined sides at the top of the lever, this opening  $j^3$  being adapted to receive a suitable friction-block  $j^4$ , normally held in contact with the inclined sides of the opening by means of a spring  $j^5$ .

To the top of the cam  $b^{10}$  is secured a suitable wiper-cam  $b^{11}$ , which is adapted to ride against the face of a wiper  $k$ , formed on the end of a slide K, mounted to have longitudinal movement in the head I. Pivotaly connected to the front end of the slide K is a sliding wedge  $k^3$ , the front end of which extends through the slots  $i^5$ ,  $i^{10}$ , and  $i^{19}$  below the front end of the rocking lever J. In order that the slide K may have a quick action when released from contact with the wiper-cam  $b^{11}$  I provide an actuating-spring  $k^4$ , which serves to force the slide K toward the shaft B.

As shown in the drawings, the front end of the lever J and the sliding wedge  $k^3$  practically fill the slot  $i^{10}$  when the pressure-bar  $i^4$  is in its upper position, which is when the side cam  $b^{10}$  begins its period of rest. This serves to hold the pressure-bar  $i^4$  above the work to be done and allows of the insertion of the work on the shoe-horn or permits of the feeding of the work between stitches. As the cam  $b^{10}$ , carrying the wiper-cam  $b^{11}$ , is rotated the wiper-cam  $b^{11}$  contacts with the wiper  $k$  and causes the slide K and the sliding wedge  $k^3$  to be moved forward against the action of the spring  $k^4$ , thus releasing the adjustment-slide  $i^9$  from its locked position. After this is done the rocking lever J is oscillated on its pivot  $j'$  by means of the roller connection  $j$  riding up the inclined face of the groove in the cam  $b^{10}$ , this movement of the rocking lever serving to force the pressure-bar downward on the face of the sole which is to be sewed. As the thickness of the sole is sometimes greater than the distance between the upper face of the shoe-horn and the lower face of the pressure-bar when the latter is in its lowermost position, to some extent, and as the movement of the rear end of the lever J is the same in all cases, where this is the case an excessive pressure would be applied on the face of the sole and destroy the even surface by indenting. To prevent this, the hinged joint  $j^2$  is provided, as above described, this construction enabling the rear end of the rocking lever J to move upward to its upper position while the lower face of the pressure-bar rests on the sole of the shoe without increasing the pressure on the sole, the front end of the lever remaining stationary, the block  $j^4$  being forced upward against the action of the spring as the roller  $j'$  passes up the inclined face of the groove on the cam  $b^{10}$  and when the pressure on the sole exceeds the resistance of the block  $j^4$ , which resistance is regulated by the shape of the opening. After the roller  $j'$  has passed up the inclined face of the cam  $b^{10}$  and the pressure of the lever is applied to the pressure-bar the wiper-cam  $b^{11}$  passes beyond contact with the wiper  $k$ , and the spring  $k^4$  forces the slide K rearward until the inclined face of the sliding wedge  $k^3$  binds against the lower face of the lever J and the lower face of the slot  $i^{10}$ , forming a member between the rocking lever and the pressure-bar which contacts with both, and thereby providing practically a solid portion against which the pressure of the upright needle is exerted. There is therefore a locking of the pressure-bar in position, and which remains unbroken until the wiper-cam again comes into contact with the wiper  $k$  on its next revolution, it being understood, of course, that an upward movement of the pressure-bar takes place when the roller  $j'$  passes again to its low position on the cam  $b^{10}$ , this movement raising the rocking lever, wedge, and pressure-bar.

I do not limit myself to the precise construction of automatic pressure-regulating device herein described, but claim the right to use any suitable mechanism for that purpose.

Having thus described my invention, what I claim as new is—

1. A machine for sewing shoes comprising a head; a pressure-bar mounted to have a vertical movement therein; a rocking lever having a fixed movement on said head, adapted to reciprocate said pressure-bar; and a frictional pressure-regulating mechanism mounted in said rocking lever, whereby the pressure of said pressure-bar will be automatically regulated.

2. A machine for sewing shoes comprising



a pressure-bar; a rocking lever for imparting movement to said pressure-bar; means for imparting movement to said lever; and means for automatically relieving the excess pressure placed on said pressure-bar by said lever.

3. A machine for sewing shoes, comprising a head; a pressure-bar mounted to have a vertical movement therein; means for reciprocating said pressure-bar vertically; and means for automatically relieving the excess pressure caused by the thickness of the shoe-sole.

4. A machine for sewing shoes, comprising a head; a pressure-bar mounted to have a vertical adjusted movement therein; means for adjusting the position of said pressure-bar vertically in said head; means for imparting a vertical reciprocating movement to said pressure-bar; and means for automatically relieving the excess pressure caused by the thickness of the shoe-sole.

5. A machine for sewing shoes, comprising a head; a pressure-bar mounted to have a vertical movement therein; means for reciprocating said pressure-bar vertically; means for automatically relieving the excess pressure of said pressure-bar caused by the thickness of the shoe-sole; and means for locking said pressure-bar in position after being reciprocated.

6. A machine for sewing shoes, comprising in its construction a head; a pressure-bar mounted to have a vertical movement therein; means for reciprocating said pressure-bar vertically within said head; means for automatically relieving the excess pressure of said pressure-bar caused by the thickness of the shoe-sole; and means for automatically locking said pressure-bar in a fixed position after being reciprocated.

7. A machine for sewing shoes comprising a head; a pressure-bar mounted to have a vertical movement therein; a rocking lever pivotally connected to said head and adapted to reciprocate said pressure-bar vertically; means for automatically relieving the excess pressure of said pressure-bar caused by the thickness of the shoe-sole; and means for automatically locking said pressure-bar in fixed position relative to said rocking lever after having been reciprocated.

8. A machine for sewing shoes, comprising a head; a pressure-bar mounted to have a vertical movement therein; means for reciprocating said pressure-bar; means for relieving the excess pressure of said pressure-bar caused by the thickness of the shoe-sole; and means for locking said pressure-bar in position after being reciprocated.

9. A machine for sewing shoes, comprising a head; a pressure-bar mounted to have a ver-

tical movement therein; means for adjusting the position of said pressure-bar; means for reciprocating said pressure-bar; means for relieving the excess pressure from said pressure-bar caused by the thickness of the shoe-sole; and means for automatically locking said pressure-bar in fixed position after the same has been reciprocated.

10. A machine for sewing shoes comprising a head; a pressure-bar mounted to have vertical movement therein; an adjustment-slide adjustably mounted in said pressure-bar; means for reciprocating said pressure-bar and said adjustment-slide; means for automatically relieving the excess pressure of said pressure-bar caused by the thickness of the shoe-sole; and means for locking said pressure-bar and said adjustment-slide in fixed position after having been reciprocated.

11. A machine for sewing shoes comprising a head; a pressure-bar mounted to have a vertical movement therein; an adjustment-slide adjustably mounted in said pressure-bar; a rocking lever pivotally connected to said head and adapted to reciprocate said adjustment-slide and said pressure-bar; means for automatically relieving the excess pressure of said pressure-bar caused by the thickness of the shoe-sole; and means for locking said rocking lever in fixed position in said adjustment-slide.

12. A machine for sewing shoes comprising a head; a pressure-bar mounted to have a vertical movement therein; means for actuating said pressure-bar; means for adjusting the position of said pressure-bar; and means for relieving the excess pressure placed on said pressure-bar.

13. A machine for sewing shoes comprising a head; a pressure-bar mounted to have a vertical movement therein; means for actuating said pressure-bar; means for regulating the position of said pressure-bar; and means for automatically equalizing the pressure of said pressure-bar, regardless of the thickness of the shoe-sole.

14. A machine for sewing shoes comprising a head; a pressure-bar mounted to have vertical movement therein; a rocking lever having a fixed movement on said head and adapted to reciprocate said pressure-bar; and means connected to said rocking lever for automatically equalizing the pressure applied to said pressure-bar by said rocking lever.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ENOCH NORMANCUT.

Witnesses:

J. A. MARION,  
T. MYNARD.