G. N. THOREL.

MACHINE FOR MAKING SEAMLESS GALOSHES AND UPPERS FOR BOOTS AND SHOES.

APPLICATION FILED MAY 4, 1910.

967,586.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

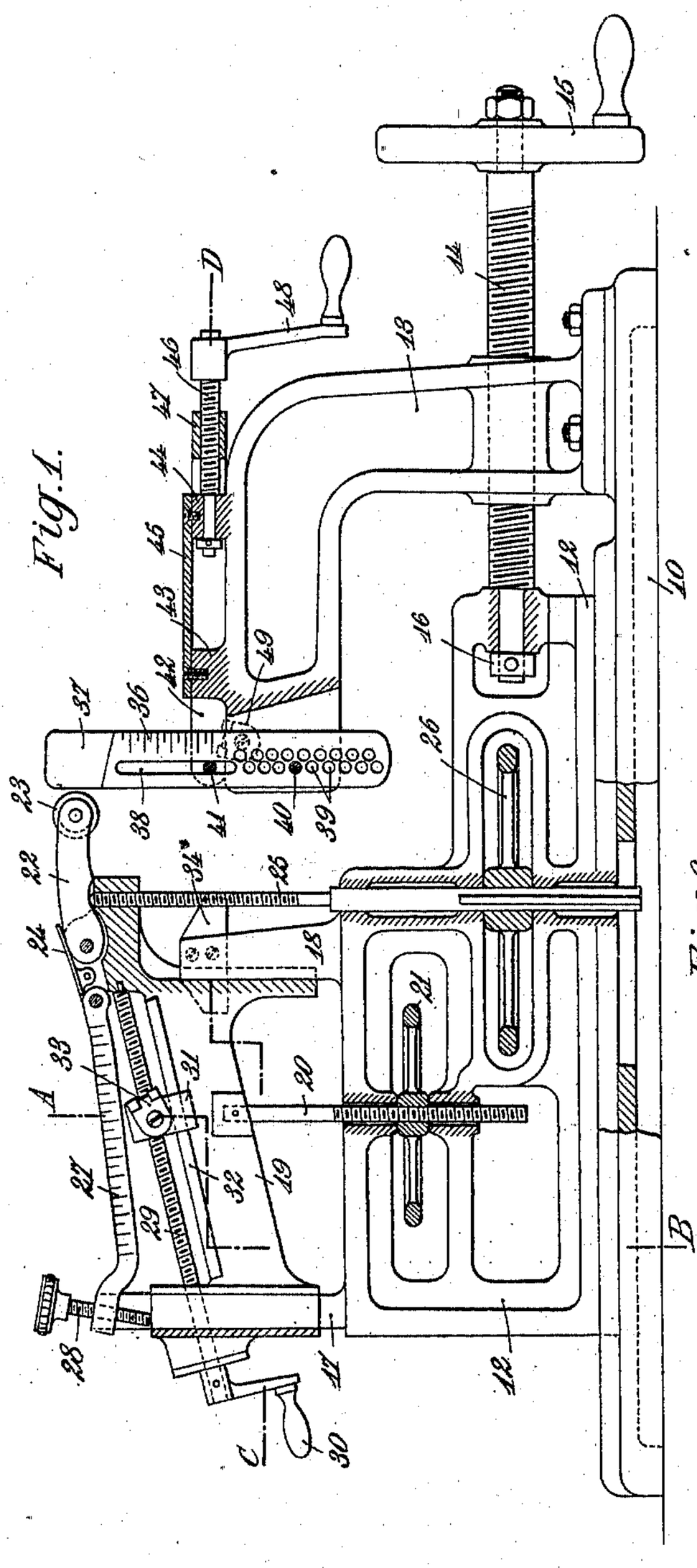
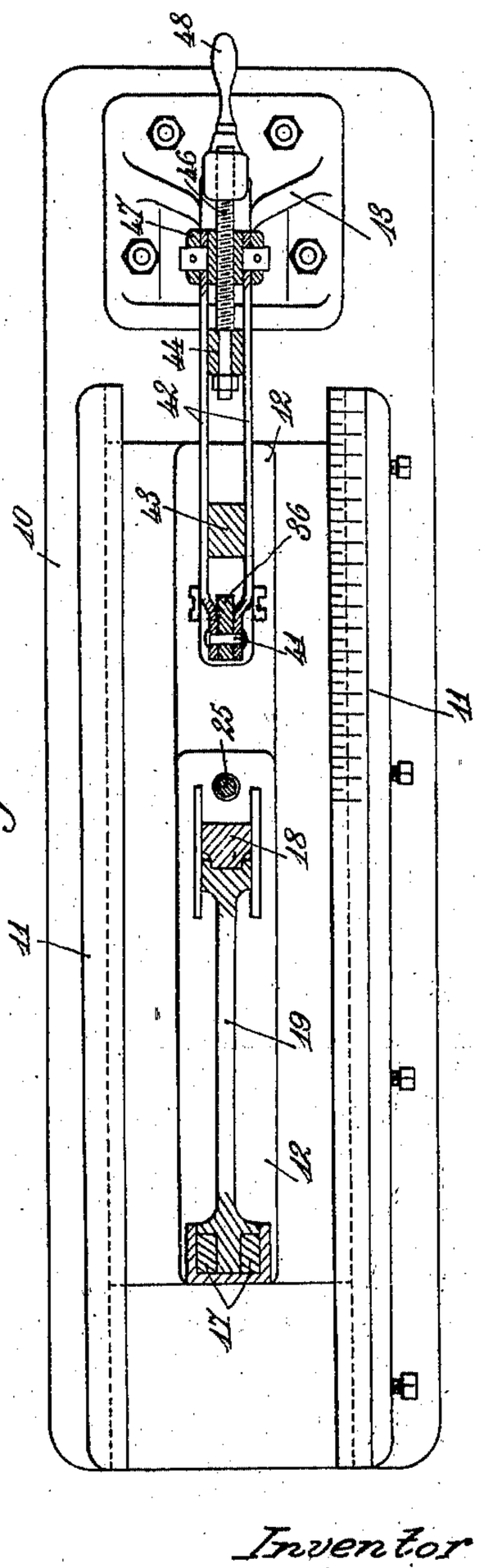


Fig. 3.



Witnesses
E. Schallinger
R. Wendt

Inventor
Georges N. Thorel
by F. Singer
Atty

G. N. THOREL.

MACHINE FOR MAKING SEAMLESS GALOSHES AND UPPERS FOR BOOTS AND SHOES.

APPLICATION FILED MAY 4, 1910.

967,586. Patented Aug. 16, 1910.

2 SHEETS—SHEET 2.

Fig. 2.

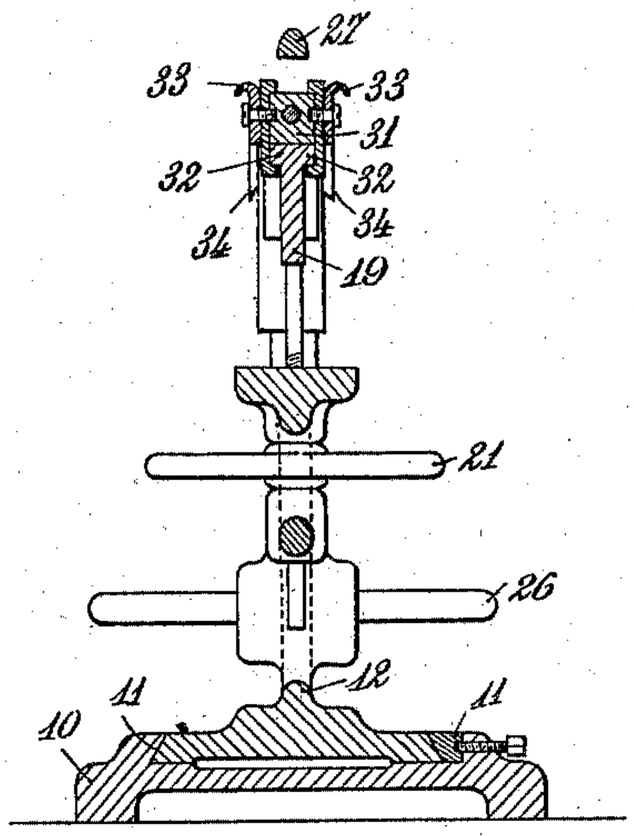


Fig. 4.

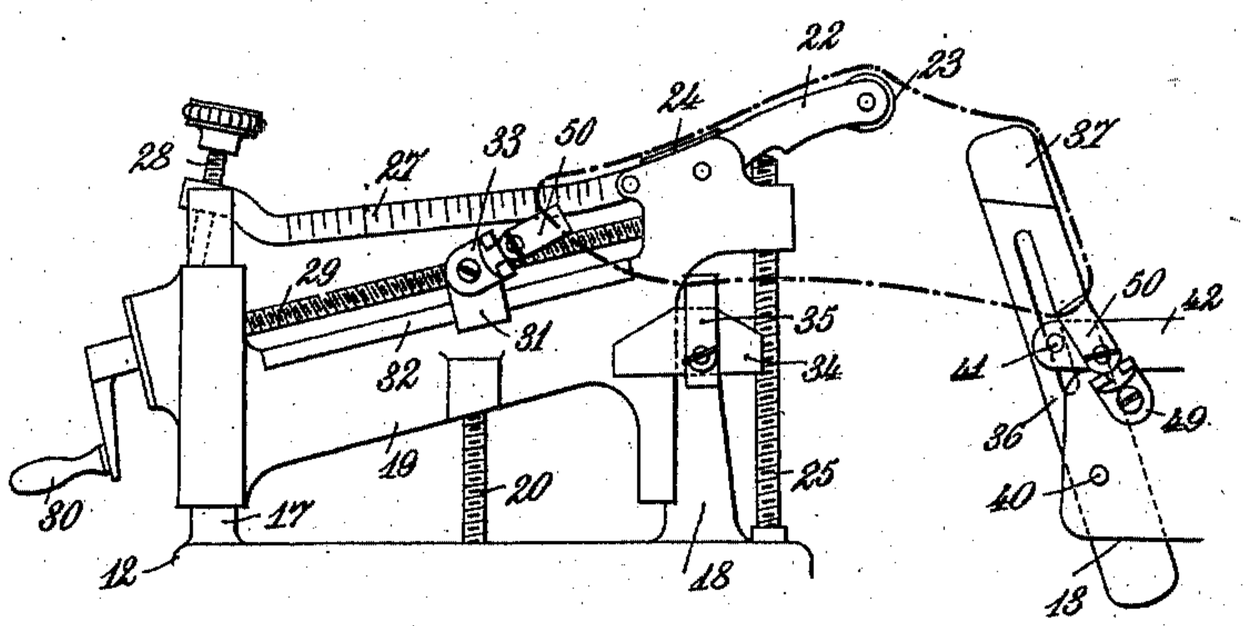
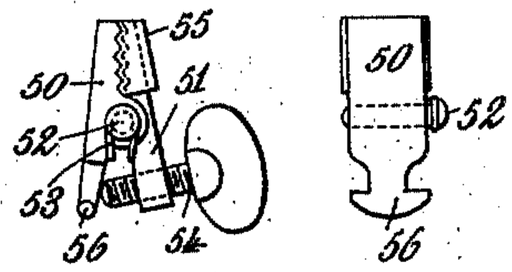


Fig. 5. *Fig. 6.*



Witnesses
C. Schallinger
A. Wendt

Inventor
Georges N. Thorel
By P. Singer
Atty

UNITED STATES PATENT OFFICE.

GEORGES NORBERT THOREL, OF AMIENS, FRANCE.

MACHINE FOR MAKING SEAMLESS GALOSHES AND UPPERS FOR BOOTS AND SHOES.

967,586. Specification of Letters Patent. **Patented Aug. 16, 1910.**

Application filed May 4, 1910. Serial No. 559,308.

To all whom it may concern:

Be it known that I, GEORGES NORBERT THOREL, citizen of the Republic of France, residing at Amiens, in France, have invented new and useful Improvements in or Relating to Machines for Making Seamless Galoshes and Uppers for Boots and Shoes, of which the following is a specification.

This invention relates to a machine intended to make, from one piece of leather, without any seams, galoshes and uppers for boots and shoes of any shapes and sizes, this being done by stretching the material in every direction by means of parts of suitable shapes, the travel of which can be adjusted at will in accordance with the shape and the special dimensions of each boot.

In the accompanying drawings: Figure 1 is an elevation, partly in longitudinal section, of the machine, Fig. 2 is a cross-section on the broken line A—B of Fig. 1, Fig. 3 is a vertical section on the broken line C—D of Fig. 1, Fig. 4 is an elevation of the template mold, the elements of which are shown in the position which they occupy after the formation of the galosh, the latter being shown in chain-dotted lines, Fig. 5 is a front elevation of one of the pairs of pincers used for securing the leather to the machine, and Fig. 6 is a side elevation corresponding to Fig. 5.

The machine comprises a bed-plate 10 intended to support all the parts and cast with two longitudinal parallel guides 11 forming guides for a horizontal extending device or stretcher 12. The latter consists of a suitably shaped piece of cast iron which can slide freely without any play in the guides 11.

To the bed-plate 10 is secured by means of bolts a swan neck or bracket 13 provided with a horizontal hole screwthreaded for receiving a screw 14 provided at one of its ends with a handle or hand wheel 15. The other end of the said screw engages with a hole of the horizontal extending device or stretcher 12 and is held by means of a collar 16 which enables the screw to rotate but not to move longitudinally in the stretcher 12. It will be understood that by rotating the hand wheel 15, the stretcher 12 will be advanced or withdrawn.

The stretcher in question is provided at its upper portion with two vertical guides 17 and 18 on which a slide block 19 can move freely said block being provided at the bottom, about the center, with a hole in which is secured the end of a vertical screw 20 passing through the stretcher 12 and carrying a hand wheel 21 with a screwthread out in its central hole, the hub of said wheel being arranged between two projections of the stretcher 12, so that the hand wheel in question can rotate, without being able to move vertically. By rotating the said hand wheel in one or in the other direction, the slide block 19 can be raised or lowered at will. This slide block which forms a portion of the "templet-mold" has pivoted to its upper portion, at a suitable point, the instep stretcher 22 provided at its free end with a roller 23 and controlled by a spring blade 24 which has always the tendency to bring it down. The stretcher or lever 22 rests at a suitable point of its length on the upper end of a vertical screw 25 which passes through the horizontal stretcher 12 and is keyed to a hand wheel 26, so as to be capable of moving vertically in the interior of the latter, without, however, being able to rotate independently of the same. Like the hand wheel 21, the hub of this hand wheel 26 engages between the faces of a recess provided in the stretcher 12, so that it can neither be raised nor lowered. By rotating the hand wheel 26 in one or in the other direction, the screw 25, the upper end of which engages with a screwthreaded hole of the slide block 19, will be raised or lowered, thus also raising or lowering the lever 22. To the upper portion of the slide block 19, and near the joint of the lever 22, is also pivoted another lever 27 arranged in the longitudinal axis of the machine and having its cross-section rounded off at the top, as clearly shown in Fig. 2. At its free end the lever in question is provided with a tapped hole with which engages the screw 28, which rests with its bottom end on the upper portion of the vertical guide 17 (Fig. 1). The head of the said screw is formed as a milled button which enables it to be easily rotated for the purpose of raising or lowering the lever 27. Below the said lever 27, the slide block is further provided with a screw 29 suitably inclined relatively to the horizontal and arranged in the longitudinal axis of the machine. At one of its ends, the said screw 29 is provided with a handle 30 by means of which it can be rotated at will. The said screw engages with the screwthreaded hole of a slide block 31 of suitable width, guided

by means of lateral projections 32 parallel to the screw 29 of the slide block 19. The slide block 31 is provided at each side with a pivoted hook 33 intended to receive a pair of pincers similar to those shown in Figs. 5 and 6.

To the vertical upright or guide 18 is secured at each side a metal plate 34, the bottom edge of which is horizontal and beveled as shown in Fig. 2. Each of the said plates is intended for attaching a pair of pincers 35 (Fig. 4).

The bracket 13 is formed at its end into a fork with which engages the heel stretcher 36 consisting of a metal rod of rectangular cross-section, widened at its upper portion and having its angles rounded off in order to form the head 37 intended to work the leather. The said rod 36 is provided longitudinally with a groove or slot 38 of a certain length, and with two parallel series of holes 39. The sides of the bracket fork are themselves provided with two holes suitably arranged for the engagement of a pin 40 to be introduced at the same time through one of the holes 39 of the rod 36, so as to form a pivot pin for the same. The holes 39 of the two series are not opposite each other, as shown in Fig. 1, owing to which arrangement the head 37 can be arranged as exactly as possible at the desired level by introducing the pin 40 into that one of the hole 39 of one or of the other series which may be found suitable, and, according to circumstances, into one or the other of the holes of the fork terminating the bracket 13.

Through the groove 38 passes a pin 41 secured to the ends of the two parallel rods 42 surrounding the rod 36. These rods are guided along projections 43 and 44 cast with the upper portion of the bracket 13, and covered by a plate 45 secured to the said projections by means of screws (Fig. 1) and covering at the same time the rods 42 for the purpose of preventing them from rising, so that they should be able to move only horizontally.

The projection 44 holds fast the end of a screw 46 passing through said projection, so that it can rotate in the same without moving in the longitudinal direction. The screw in question engages with a nut 47 connecting the two rods 42, and is provided at its free end with a crank handle 48. It will be understood that when the handle in question is rotated in either direction, the rods 42 with the pin 41 are moved, which causes the stretcher 36 to oscillate about the pin 40.

Each of the outer faces of the fork terminating the swan neck or bracket 13 is provided with a pivoted attachment plate 49 similar to the support 33 and intended, like the latter, to receive a pair of pincers of the kind shown in Figs. 5 and 6. The said pincers consist of two branches 50 and 51 pivoted to each other by means of a pin 52, and a spring 53 wound about the said pin has a constant tendency to move away two of the ends of the branches for pressing the opposite ends against each other. A screw 54 engaging with the branch 51 and having its end resting on the branch 50, enables the said pincers to be tightened. The ends of the latter intended to move into engagement, are fluted or toothed, and one of them, namely, that which is to engage with the grain side of the leather to be treated, is covered with a packing 55 of leather or other suitable material, for preventing it from injuring the material to be stretched. The opposite end of the other branch terminates in the shape of a T, 56, the branches of which are intended to engage with the hooks of the supports or attachment plates 33 or 49.

The pincers which are to engage under the attachment plates 34, instead of having a branch terminating the shape of a T, 56, as described, have a branch terminating in the shape of a hook for engaging under the beveled edge of the plate.

The piece of leather to be treated, is cut to a suitable shape, in accordance with the dimensions of the boot of which it is to form a part. After having been previously moistened, it is placed on the machine, with the horizontal stretcher brought more or less close to the bracket, 13, according to the length of the piece of leather. The rod 36 is brought into its vertical position and arranged at a level which also depends on the dimension of the boot, the galosh or upper of which must be of a height proportional to its size or length. Finally, the lever 22 is brought down into the horizontal position as shown in Fig. 1. For the rest, in order to guide the operator, the lever 27 is graduated, and the front end of the piece of leather to be stretched must be opposite the graduation corresponding to the size. The positions of the slide block 31 must be regulated accordingly. The longitudinal axis of the piece of leather must be arranged as nearly as possible in the axis of the machine, that is to say, it must follow the top of the lever 27 and coincide with the center line of the width of the head 37 which is to form the heel. When the elements have been adjusted in position thus, the pincers are placed on the hooks 33 and 49, and the corresponding ends of the leather sheet are seized between their two ends. The said piece of leather is folded at each side of the longitudinal axis of the machine along the rod 36. The stretching operation can then be proceeded with.

The hand wheel 15 is first rotated in a suitable direction so as to move the horizontal stretcher 12 away from the bracket 13 until the desired tension of the leather

in the longitudinal direction has been obtained. During the stretching, the rod 36 is inclined toward the horizontal stretcher, as shown in Fig. 4, by rotating the handle 48. During that operation, several creases are formed in the leather in the vertical direction, and in order to remove them, the rod 36 is raised in the vertical direction, which brings the heel into the vertical position. The pincers 35 are then placed on the plates 34 for giving the camber, and the edge of the leather is gripped between the said pincers. The hand wheel 21 is rotated for raising the slide block 19, and the lever 22 is raised, by manipulating the hand wheel 26, to the desired height for obtaining a more or less pronounced instep shape. The lever 27 must be also raised by the operation of the screw 28, in accordance with the end or toe of the boot in order to be of sufficient height. The operation is now finished, and in that way the upper and the heel are obtained in one operation. It is merely necessary to cut the part thus obtained at the place where it is sewn to the leg of the boot, if the latter has one. This process results in a saving of leather owing to the stretching of the same, and economizes labor by doing away with the seams which in ordinary boots connect the upper to the heel. Finally, with one machine only, it is possible to make galoshes in one piece for boots of any shape, because it is possible at will to move away or to bring nearer together or to raise more or less the different parts intended for forming the shape.

For facilitating the operation, one of the guides 11 and the rod 38 may be suitably graduated as shown in the drawing so as to enable the operator to form an exact idea of the stretching effected in every direction, and to regulate the said stretching in accordance with the dimensions of the boot.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

A machine for forming seamless galoshes and uppers of boots and shoes, with the heels, comprising a fixed frame or plate having a swan neck or bracket secured thereto said bracket terminating at the end in a fork receiving a rod pivoted to it at a variable height, the head of said rod being intended to produce the heel, and said rod being adapted to be inclined at will, being pivoted to a screw mechanism for that purpose, a horizontal stretcher guided in the guides of the frame, and adapted to be moved away from, or brought nearer to, the bracket by the operation of a screw engaging with the latter, said stretcher carrying guides for guiding a vertical stretcher which can be lowered or raised by means of a screw gear; the said vertical stretcher carrying a lever pivoted to one of its ends, provided with a sliding roller and adapted to be raised or lowered by operating a screw on which it rests, for the purpose of regulating the height of the instep; said machine further comprising a second lever graduated on its rounded off upper edge, pivoted near the preceding one for forming the end of the galosh and carrying at its free end a screw resting against the fixed point and enabling its height to be adjusted; the vertical stretcher forming a guide for a screwthreaded slide block which can be moved by means of a screw carried by the said stretcher and carrying itself at each side pivoted supports for pincers intended to grip the front end of the galosh; the faces of the fork of the bracket carrying similar supports for other pincers intended to grip the heel, and one of the guides of the vertical stretcher carrying at each side plate for the attachment of other pincers intended to grip the edges of the leather opposite the instep; the piece of leather suitably cut out and previously moistened, being secured by means of the pincers, and longitudinally stretched owing to the movement of the horizonal stretcher, the movement of the vertical stretcher stretching it vertically and the rod forming the hole being raised for doing away with the creases, the instep and the end or toe being formed by raising the two levers more or less by means of their respective screws.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGES NORBERT THOREL.

Witnesses:

PEBRET,

AMORY.