

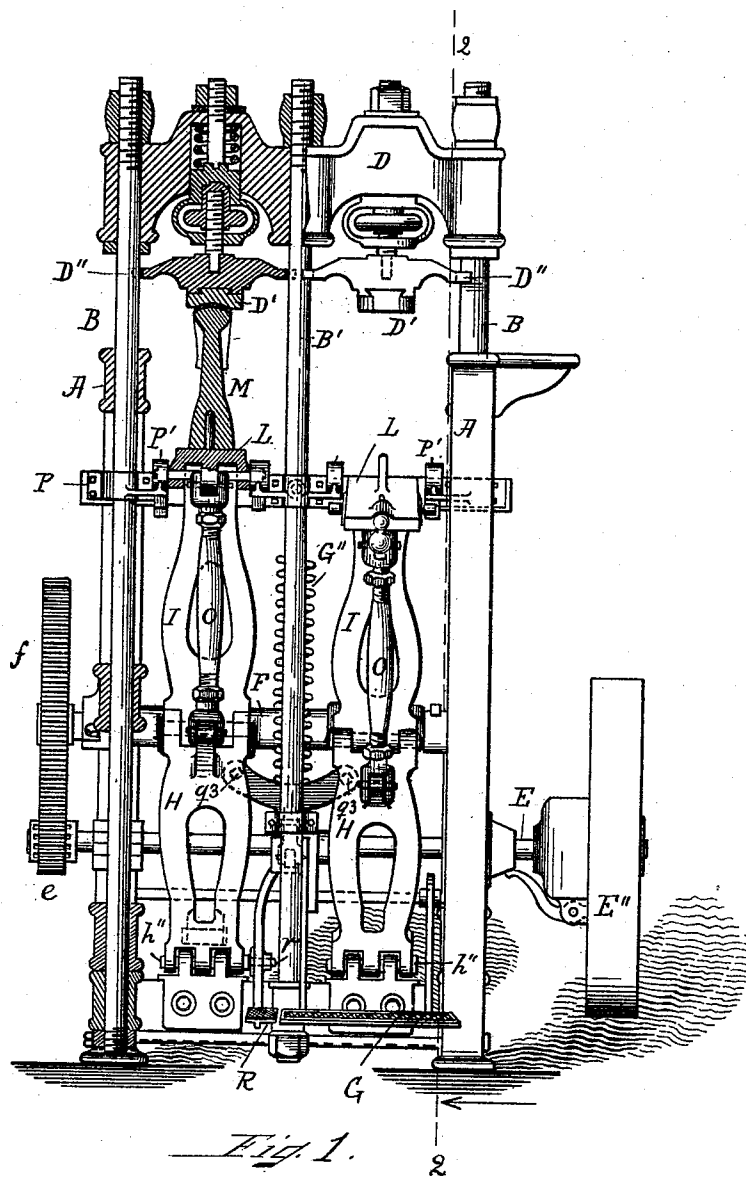
(No Model.)

2 Sheets—Sheet 1.

M. V. BRESNAHAN & J. J. HEYS.
SOLE LEVELING MACHINE.

No. 498,619.

Patented May 30, 1893.



Witnesses
Alice A. Perkins.
Robt. H. Schuch.

Inventors:
Maurice V. Bresnahan
and John J. Heys.
by *Alban Andren, atty.*

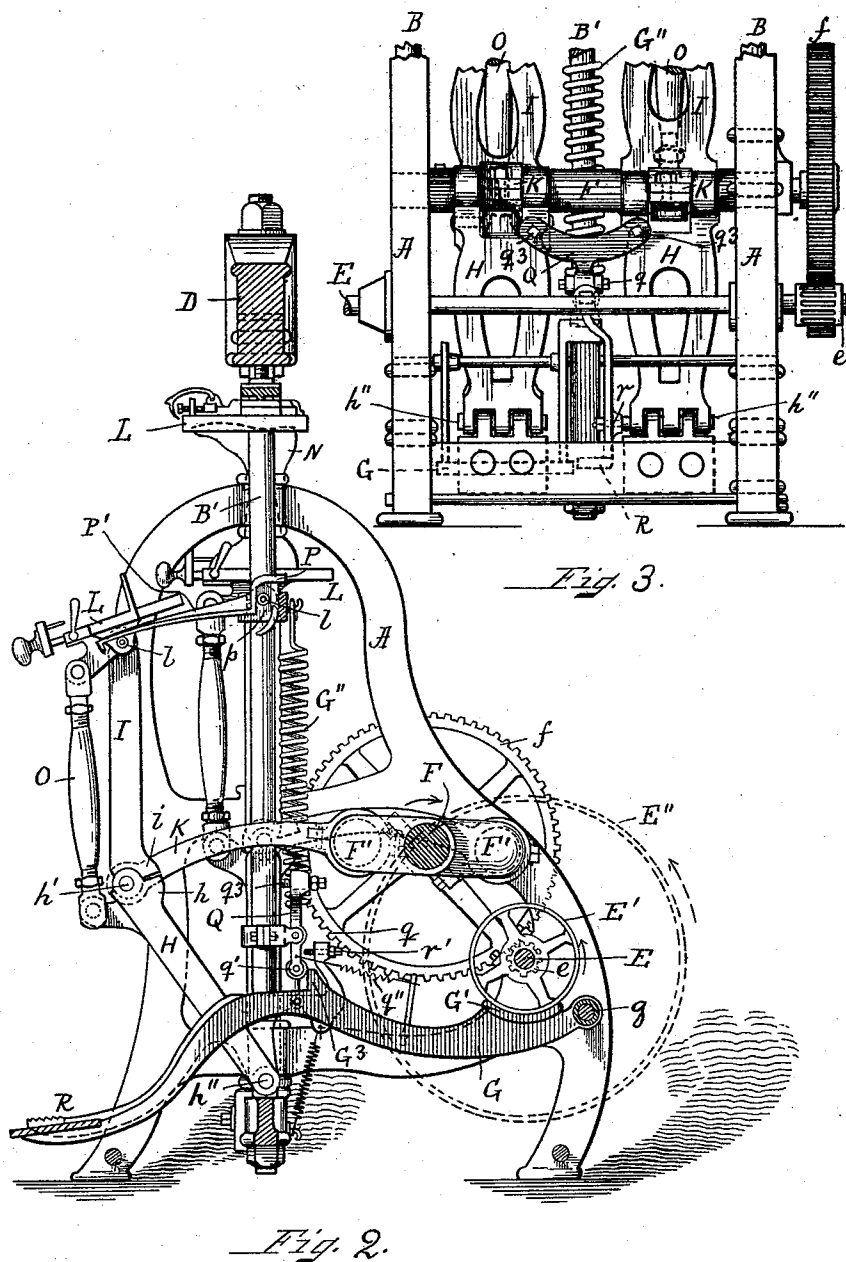
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UNITED STATES PATENT OFFICE.

MAURICE V. BRESNAHAN AND JOHN J. HEYS, OF LYNN, MASSACHUSETTS.

SOLE-LEVELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 498,619, dated May 30, 1893.

Application filed November 1, 1892. Serial No. 450,693. (No model.)

To all whom it may concern:

Be it known that we, MAURICE V. BRESNAHAN, a citizen of the United States, and JOHN J. HEYS, a subject of the Queen of Great Britain, and residents of Lynn, in the county of Essex and State of Massachusetts, have jointly invented new and useful Improvements in Sole Shaping or Leveling Machines for Boots and Shoes, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in sole shaping or leveling machines for boots and shoes, and it consists in the construction and arrangement of parts by which the machine is rendered automatic, very simple, strong and durable as well as easily operated as will hereinafter be more fully shown and described, reference being had to the accompanying drawings, wherein—

Figure 1 represents a front elevation of the improved machine partly shown in section. Fig. 2 represents a vertical section on the line 2—2 shown in Fig. 1; and Fig. 3 represents a rear view of the lower portion of the machine.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

The machine is of the duplex form—that is, it comprises a pair of shoe-holding and pressure devices automatically connected for operation, so as to permit the operator to remove a leveled shoe from one of the lasts and replace it with another while the leveling is being done on the other last and so on alternately during the running of the machine.

In the drawings A, A, represent the upright frames or sides of the machine, and B, B, B', are the vertical rods or posts as usual.

D is the head of the machine secured in an adjustable manner to the rods B, B, B'.

D', D', represent the usual sole formers secured to the underside of the yielding spring pressed plates D'', D'', which are guided on the rods B, B, B', as is common in machines of this kind.

E is the rotary driving shaft to which is secured the pinion e, the teeth of which mesh in the teeth of the spur gear f that is secured to the crank shaft F, which latter is provided with two diametrically opposite arranged cranks F', F', in the usual manner.

G is the foot treadle lever for starting the machine which lever is pivoted at g and provided with a brake shoe G' adapted to be normally held against a pulley E' on the driving shaft E by the influence of a spring G''.

E'' is a pulley loose on the driving shaft E, and said pulley is set in a constant rotary motion by belt power applied to it as usual and it is provided with any suitable or well known friction or other clutch mechanism connected to and actuated by the treadle G so as to cause a rotary motion to be imparted to the driving shaft E when the treadle G is depressed.

As such starting mechanism does not form a part of our present invention and as it is well known in the art to which this machine relates, it is not shown in detail in the drawings.

H and I are the respective lower and upper toggle levers which are pivoted at h' as shown in Fig. 2; there are two sets of said toggle levers, each set being connected to one of the cranks F', by means of a link K, the forward end of which is pivoted directly to the pin h', that connects the lower and upper toggle levers H and I as fully shown in Fig. 2. The lower end of each of the levers H is pivoted at h'', to the lower portion of the frame of the machine as shown in the drawings.

L is the last block pivoted to the upper end of the lever I, and M is the last supported on the last block and adapted to receive the shoe N, the sole of which is to be shaped and leveled.

O is an adjustable connection between the pivoted last block L and lower toggle lever H for the purpose of holding the last block at a right angle, or any other desired angle, to the perpendicular during the vertical motion of the said last block. The toggle levers H and I are provided on their sides, back of the joint h', with the respective lugs h and i, which serve to carry the upper lever I with the lower lever H during the forward rocking motion of the lower toggle lever H, and until said upper lever I reaches its lowest vertical position shown in Fig. 2. By this arrangement the toggle levers H, I, are positively moved forward as if they were one single lever. Each last block L is provided at its sides with lateral projections or pin and

rolls l, l , adapted to enter and to be guided in vertical grooves p during the vertical motion of the last block, its shoe or last. Said grooves p are made in the brace P , secured to the vertical posts B, B, B' , as shown in Figs. 1 and 2.

On the brace P , or other stationary part of the machine are secured a pair of forwardly projecting segmental curved bars P', P' , one for each of the sections of the machine. Each such curved bar P' has the lower toggle pivot h'' for its center and during the lateral or swinging motion of said toggle levers H, I , the last block rollers l, l , are caused to roll and bear against the under side of said curved bars P' as shown in Fig. 2 by which arrangement the upper toggle lever and last block are held down rigidly in position for the purpose of enabling the operator to work on the shoe. The lugs h, i , on the back of the toggle levers H, I , prevent the toggles from descending beyond the desired point during the operation of our machine, and thus causing the last block to be moved out and in, in a true circular path having the lower fulcrum h'' as a center, and by this arrangement a lock is produced between the last block and the curved arm so as to hold the last block down rigidly in position at all times during its forward and back movement and while the operator takes off a shaped shoe and replaces it with another to be molded and so on.

In connection with the main treadle G and lower pivoted toggle lever H , we use an automatic stop device Q pivoted at q to a clamp preferably secured to the middle post B' or other stationary part of the machine; said lever being preferably provided with a roller q' in its lower end which is normally held by means of a suitable spring q'' against the face of an upwardly projecting tooth G^3 on the main treadle G as shown in Fig. 2. The upper end of the lever Q is sufficiently wide to have its side extension come opposite to the two lower toggles H, H , and is provided at such upper ends with adjustable set screws q^3, q^3 , against which the rear side of either of the lower toggle levers H come in contact when any one of such levers reaches its vertical position.

The operation of this mechanism is as follows: By depressing the treadle G the machine is started at the same time as the lever Q is tripped by the influence of the spring q'' causing the roller q' on such lever to butt against the upper side of the tooth G^3 on the treadle G , thus causing the machine to be held in motion as long as the treadle G is held depressed by the lever Q . When the toggle H (which for the time being is moving toward the center of the machine) comes to its vertical position, it strikes the upper end of the lever Q causing it to be tripped and its lower end moved in front of the treadle projection G^3 when the treadle G is automatically moved to its normal position shown in

Fig. 2 by the influence of the spring G'' causing the machine to be stopped while the boot or shoe sole is under pressure, and the other last block is in its forward position for the operator to work upon the shoe. After having started the machine by the depression of the treadle G , and if it should be desired to stop it for any reason before any one of the toggles H reaches its vertical position, this may be done by an auxiliary treadle R pivoted at r and having an adjustable set screw r' in its upper end adapted to come in contact with the rear lower end of the lever Q when the auxiliary treadle R is depressed, thus causing the treadle projection G^3 to be released from the lever Q , by which release the treadle lever G is returned to its normal position by the influence of the spring G'' , shown in Fig. 2, and causing the machine to be stopped. The auxiliary treadle R is normally held out of contact with the lever Q by the influence of a suitable spring r'' as shown in Fig. 2. If both treadles are depressed at the same time, the machine will stop immediately upon removing the foot from said treadles.

Having thus fully described the nature, construction, and operation of our invention, we wish to secure by Letters Patent and claim—

1. In a machine for automatically leveling the soles of boots and shoes, the combination of a sole former, a last block, a pair of toggle levers, carrying the last block, a link connection between the crank shaft and the toggle lever joint and stationary segmental or curved arm for positively guiding the last block to and from the operator, substantially and for the purpose set forth.

2. In a machine for automatically leveling the soles of boots and shoes, the combination of a sole former a last block, a pair of pivoted toggle levers carrying the last block having rearwardly projecting lugs, a crank shaft, and a link connecting the crank shaft with the toggle joint and stationary segmental or curved arm for positively guiding the last block to and from the operator, substantially as and for the purpose set forth.

3. In a machine for automatically leveling the soles of boots and shoes the combination with a crank shaft of a pair of toggle levers for carrying the last, a link connection between the crank shaft and the toggle lever joint, lugs on the toggle levers at the joint for limiting the withdrawal movement of the last and a guide arm for guiding the last block substantially as described.

4. In a machine for automatically leveling the soles of boots and shoes, the combination of a sole former, a last block mounted upon the upper end of a pair of pivoted toggle levers, a crank and link for actuating said toggle levers, and a starting treadle having a locking projection and a pivoted locking lever adapted to hold the said treadle depressed until the toggle lever in reaching its vertical

position comes in contact with said locking lever and releases the treadle automatically as and for the purpose set forth.

5 In a machine for automatically leveling the soles of boots and shoes, a last block mounted upon a pair of toggle levers and actuated by a crank and connection and a pivoted locking lever combined with a main starting treadle adapted when depressed to
10 be held by said locking lever, and an auxiliary treadle adapted to trip the said locking lever to release the main treadle at the will

of the operator, substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 24th day of October, A. D. 1892.

MAURICE V. BRESNAHAN.
JOHN J. HEYS.

Witnesses:

ALBAN ANDRÉN,
PATRICK F. BRESNAHAN.