No. 841,361. PATENTED JAN. 15, 1907.

J. H. WALL.

SHOE DIPPING MACHINE.

APPLICATION FILED JULY 16, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

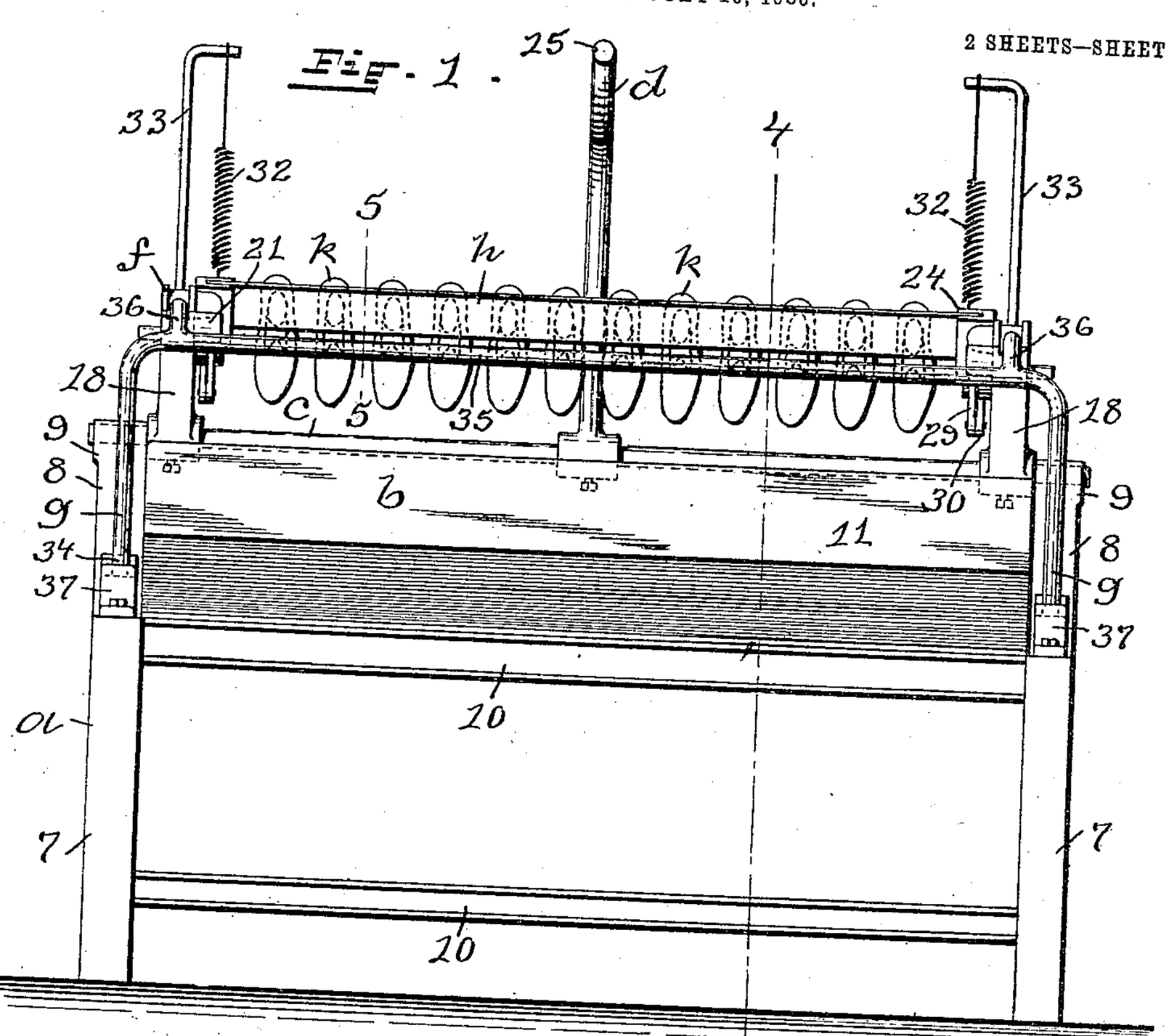
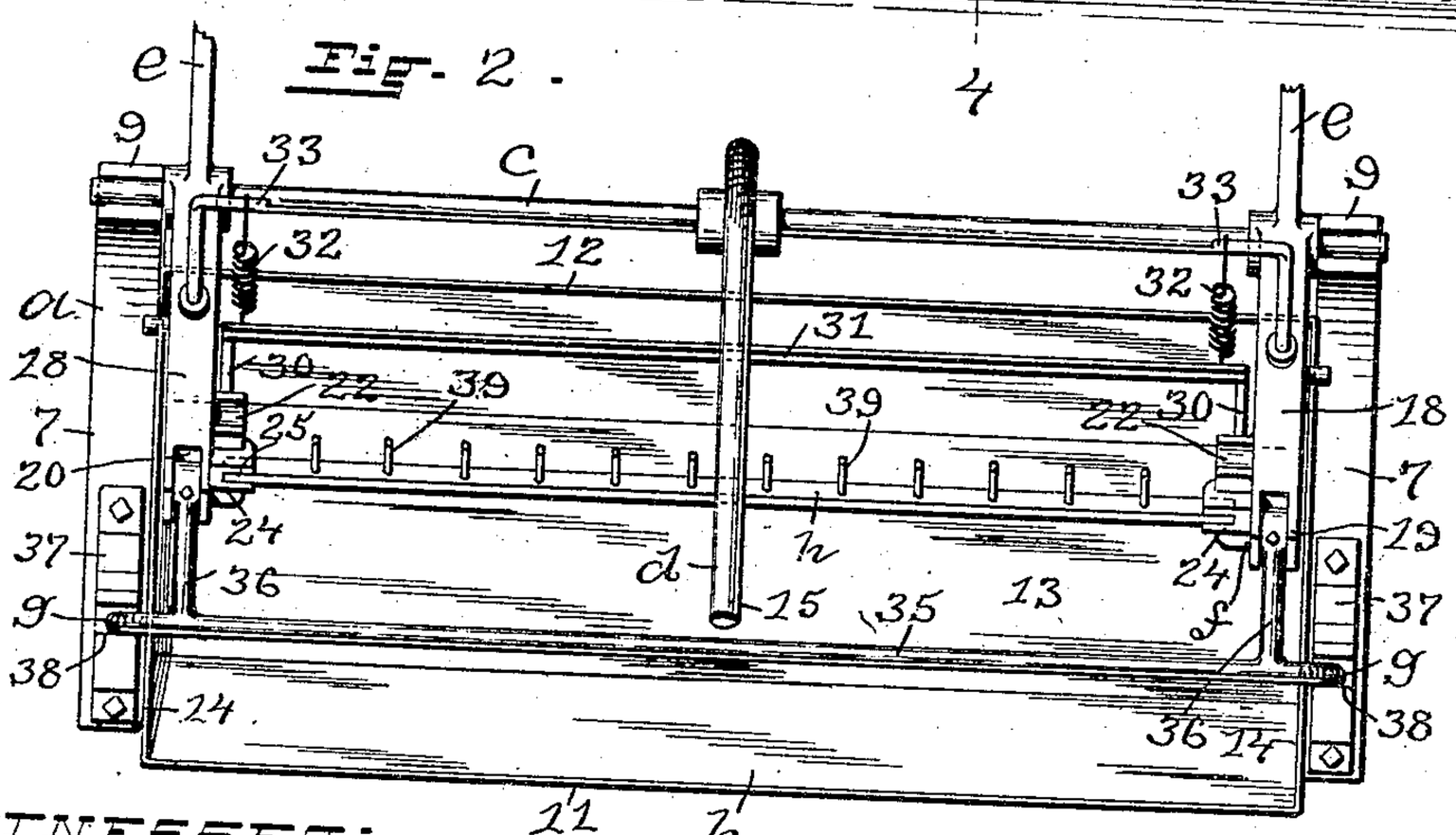


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

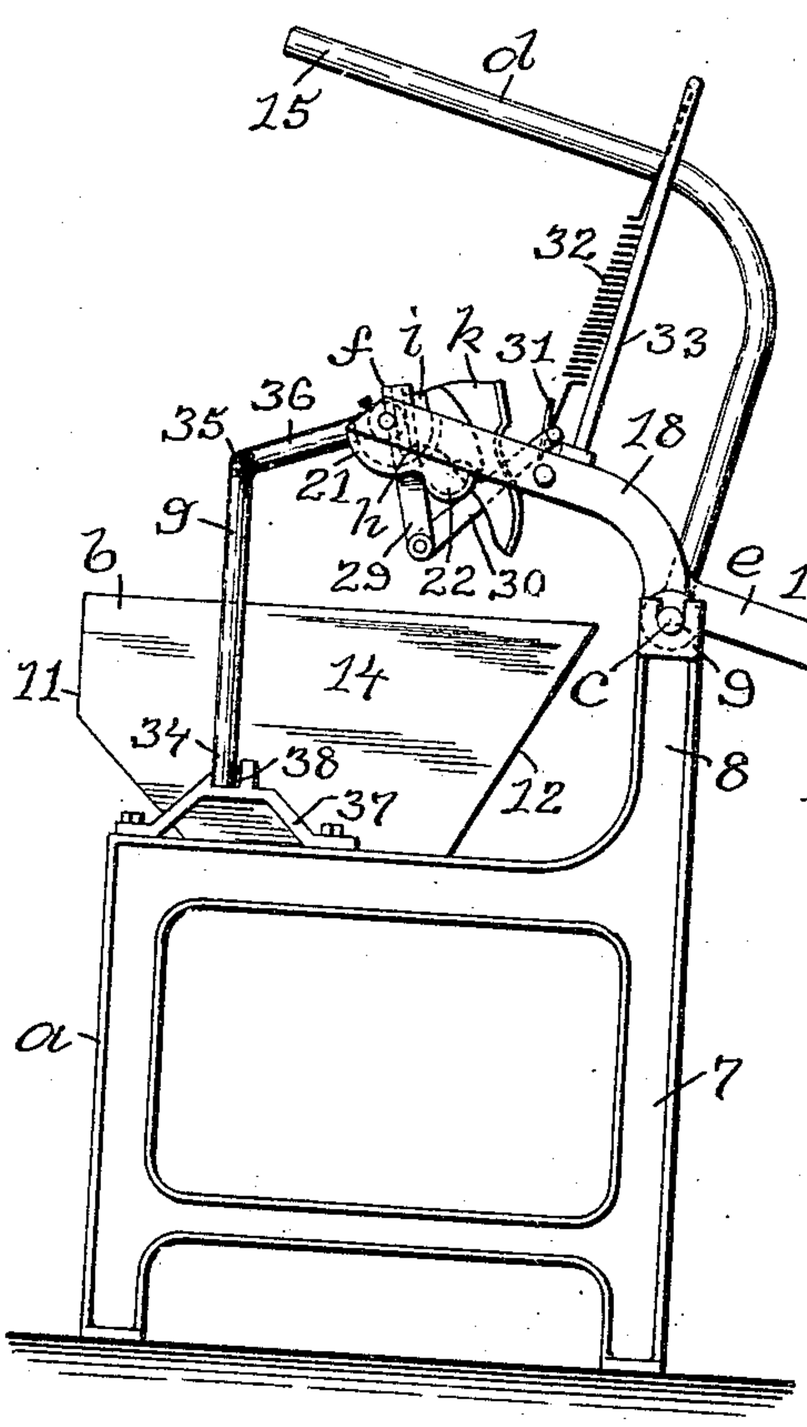


Fig. 4.

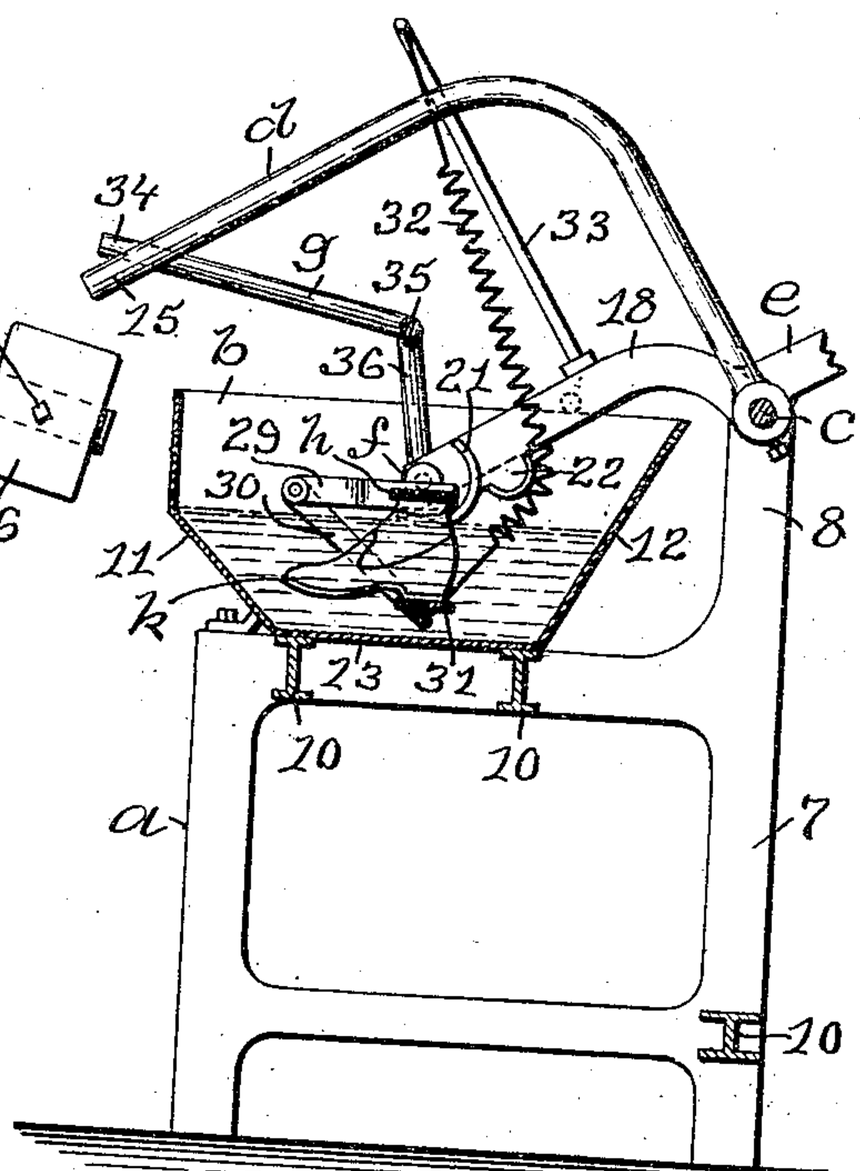


Fig. 5.

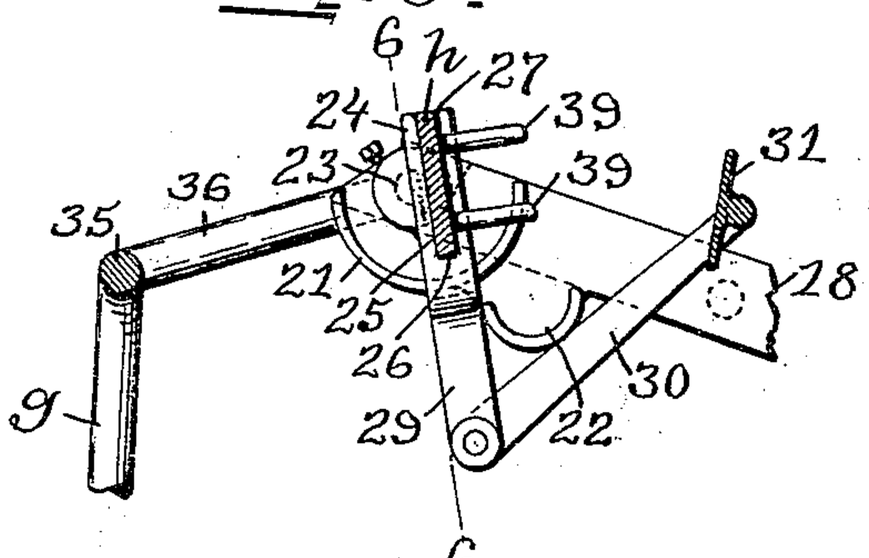
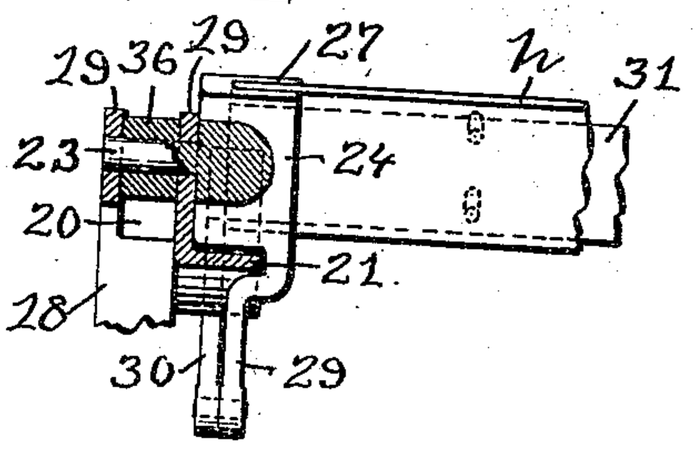


Fig. 6.



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JOHN H. WALL, OF BRISTOL, RHODE ISLAND.

SHOE-DIPPING MACHINE.

No. 841,361. Specification of Letters Patent. Patented Jan. 15, 1907.

Application filed July 16, 1906. Serial No. 326,413.

To all whom it may concern:

Be it known that I, JOHN H. WALL, a citizen of the United States, residing at Bristol, in the county of Bristol and State of Rhode Island, have invented a new and useful Improvement in Shoe-Dipping Machines, of which the following is a specification.

This invention has reference to an improvement in machinery used in the process of manufacturing rubber shoes, and more particularly to an improvement in machines adapted to dip or varnish rubber shoes.

The object of my invention is to improve the construction of a shoe dipping or varnishing machine, whereby the operation of dipping or varnishing a plurality of rubber shoes is facilitated and the operation and construction of the machine simplified, thereby increasing the product and reducing the cost of manufacturing the machine.

A further object of my invention is to reduce the cost of manufacturing rubber shoes, and I accomplish this object by the use of a machine adapted to varnish a plurality of rubber shoes in one operation of the machine, thereby reducing the cost of varnishing rubber shoes to a minimum.

My present invention is an improvement on the shoe-dipping machine shown in United States Letters Patent No. 817,408, issued to me April 10, 1906; and it consists in the peculiar and novel construction of a shoe-dipping machine adapted to dip or varnish a plurality of rubber shoes in one operation of the machine and having details of construction, as will be more fully set forth hereinafter and claimed.

Figure 1 is a vertical front view of my improved rubber-shoe dipping or varnishing machine, showing the machine in the normal position with a plurality of shoes in the machine ready to be dipped or varnished in one operation of the machine. Fig. 2 is a top plan view of the machine in the normal position with the lasts and shoes removed from the peg-bar and the weight-levers broken away. Fig. 3 is a vertical end view of the machine, showing the operative parts in their normal position. Fig. 4 is a vertical sectional view taken on line 4 4 through the machine and showing the operative parts in the position they would assume in dipping or varnishing the shoes. Fig. 5 is an enlarged detail sectional view taken on line 5 5 of Fig. 1, showing the peg-bar and its rotating mechanism in their normal positions with the lasts and shoes removed from the peg-bar; and Fig. 6 is an enlarged detail sectional view taken on line 6 6 of Fig. 5 through the peg-bar-rotating mechanism.

In the drawings, *a* indicates the frame of the machine; *b*, the varnish-tank; *c*, the rock-shaft; *d*, the lowering and elevating lever; *e e*, the weight-levers; *f*, the rotating mechanism; *g g*, the rotating levers; *h*, the peg-bar; *i i*, a plurality of shoe-lasts on the peg-bar, and *k k* a plurality of rubber shoes on the lasts.

The frame *a* consists of the end frames 7 7, having the upwardly-extending arms 8 8 at the rear, the bearings 9 9 on the upper ends of the arms 8 8 for the rock-shaft *c*, and the cross-struts 10 10, secured to the end frames, the upper cross-struts supporting the varnish-tank *b*, as shown in Figs. 1 and 4.

The varnish-tank *b* is rectangular in form. It extends the length of the frame on the upper struts 10 10 and has the beveled front and back 11 and 12, the flat bottom 13, and the ends 14 14 shaped to fit the front, back, and bottom, as shown in Figs. 3 and 4.

The lowering and elevating lever *d* consists of a round bar bent at right angles and secured centrally to the rock-shaft *c*, with the end 15 extending over the varnish-tank in a convenient position for the operator, as shown in Fig. 3.

The weight-levers *e e* are secured to the rock-shaft *c* at each end and have the weights 16 16, adjustably secured to the levers by the set-bolts 17 17, and the curved forwardly-extending arms 18 18, forming an extension of the weight-levers and adapted to support the rotating mechanism *f* over the varnish-tank *b*, as shown in Figs. 2 and 3.

The rotating mechanism *f* consists of bearings 19 19 formed on the ends of the arms 18, an opening 20 in the end of each arm extending through the bearing 19, a semicircular lip 21 on the inner face of each arm formed slightly eccentric with the bearing and with the ends in an upward position, a curved lip on the inner face of each arm 18 adjacent the semicircular lip 21, and forming a stop 22, a shaft 23 in each bearing 19 and having on its inner end a member 24 constructed to have an elongated recess 25, with the closed end 26 and the open end 27 for the end of the peg-bar *h*, and an arm 29, extending downward from the member in a position for the arm 29 to engage with the stop 22, with the rotating mechanism in its normal position, an arm 30,

pivotally secured to the end of each of the arms 29 29, a flat locking-bar 31, secured at each end to the free ends of the arms 30 30, a coiled spring 32, secured at one end to the end of the locking-bar 31 and at the other end to an upwardly-extending bracket 33 on each of the arms 18 18, the tension of the coiled springs 32 32 holding the arms 30 30 in contact with the stops 22 22 and the locking-bar 31 out of engagement with the heels of the shoes, with the mechanism in its normal position.

The rotating levers *g g* each have the end 34 and are placed at each end of the machine in a vertical position (when in their normal position) and are connected to a cross-bar 35, having the rearwardly-extending arms 36 36, the free ends of which are secured to the shafts 23 23 of the rotating mechanism *f* in the openings 20 20 in the ends of the arms 18 18. The rotating levers *g g*, the cross-bar 35, and the arms 36 36 are all formed integral, as shown in Figs. 1 and 2. Two brackets 37 37, each having the notch 38, are secured to the top of the end frames 7 7 at each end of the tank in a position for the ends 34 34 of the rotating levers *g g* to enter the notches 38 38 and hold the operative mechanism in its normal position, as shown in Fig. 3.

The peg-bar *h* has the series of pegs 39 39 extending outward from the rear face of the bar in sets of two, one set for each shoe-last *i i*. These pegs enter coinciding holes in the top of the lasts (not shown) and secure the lasts to the bar.

In the operation of my improved shoe dipping or varnishing machine the tank *b* is supplied with varnish or a similar liquid. A plurality of rubber shoes *k k* are placed on the lasts *i i*, and the lasts placed uniformly on the peg-bar *h*, on which they are held by the pegs 39 39. The peg-bar *h*, with the lasts and shoes, is now placed in the machine with the ends of the bar in the recesses 25 25 in the members 24 24 of the rotating mechanism *f*, with the shoes in a position intermediate the peg-bar and the locking-bar 31, and with the toes of the shoes extending downward, as shown in Figs. 1 and 3. The operator now grasps the lowering and elevating lever *d* with his left hand, a rotating lever *g* with his right hand, and by a slight upward movement of his right hand releases the end 54 of the rotating lever from the notch 38 in the bracket 37. The lowering and elevating lever *d* is now depressed and the rotating lever *g* given a forward movement, thus operating the rotating mechanism *f* to partly rotate the peg-bar *h*, the lasts *i i*, and the shoes to submerge the shoes in the varnish in the tank *b*, as shown in Fig. 4. As the rotating mechanism *f* starts to rotate the locking-bar 31 comes into engagement with the heels of the shoes and the arms 30 30 leave the stops 22 22. The locking-bar 31 is now held against the heels of the shoes by the tension of the coiled springs 32 32, thereby locking the lasts and shoes to the peg-bar in the operation of dipping the shoes. The peg-bar *h* is locked when in the dipping position in the recesses 25 25 by the semicircular lips 21 21 on the arms 18 18, closing over the open end 27 of the recesses 25 25, as shown in Fig. 4. On the reverse movement of the levers *d* and *g* the mechanism resumes its normal position, the ends 34 34 of the levers *g g* are snapped into the notches 38 38 in the brackets 37 37, the locking-bar 31 leaves the heels of the shoes by the arms 30 30 coming into engagement with the stops 22 22 on the arms 18 18, and the peg-bar with the varnished shoes is removed from the machine.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A shoe-dipping machine comprising a frame, a tank adapted to hold varnish or a similar liquid supported on the frame, a rock-shaft supported in bearings in the frame, a rotating mechanism, means for supporting the rotating mechanism on the rock-shaft, means for rotating the mechanism, a peg-bar, means in the rotating mechanism for detachably securing the peg-bar to the rotating mechanism, a plurality of lasts on the peg-bar adapted to hold a plurality of shoes, and means for partly rotating the rock-shaft, whereby a plurality of shoes are coated with varnish or a similar liquid in one operation of the machine.

2. A shoe-dipping machine comprising a frame, a tank adapted to hold varnish or a similar liquid supported on the frame, a rock-shaft supported in bearings in the frame, a lever on the rock-shaft, arms on the rock-shaft, a rotating mechanism supported on the arms over the tank, levers operatively connected with the rotating mechanism, a peg-bar, means in the rotating mechanism for detachably securing the peg-bar in the rotating mechanism, and a plurality of lasts on the peg-bar adapted to hold a plurality of shoes, whereby on operating the levers a plurality of shoes are coated with varnish or a similar liquid in one operation of the machine.

3. A shoe-dipping machine comprising a frame, a tank adapted to hold varnish or a similar liquid supported on the frame, a rock-shaft supported in bearings in the frame, a lever on the rock-shaft, arms on the rock-shaft, a rotating mechanism supported on the arms over the tank, levers operatively connected with the rotating mechanism, a peg-bar, means in the rotating mechanism for detachably securing the peg-bar in the rotating mechanism, means in the rotating mechanism for locking the peg-bar in the mechanism when in the reverse position, means for counterbalancing the rotating mechanism, and a plurality of lasts on the

peg-bar adapted to hold a plurality of shoes, whereby on operating the levers a plurality of shoes are coated with varnish or a similar liquid in one operation of the machine.

4. A shoe-dipping machine comprising a frame, a tank adapted to hold varnish or a similar liquid supported on the frame, a rock-shaft supported in bearings in the frame, a lever on the rock-shaft extending over the tank, arms on the rock-shaft extending over the tank, a rotating mechanism supported on the ends of the arms, levers operatively connected with the rotating mechanism, a peg-bar, means in the rotating mechanism for detachably securing the peg-bar in the mechanism, means in the rotating mechanism for locking the peg-bar in the mechanism when in the dipped position, means for counterbalancing the rotating mechanism, means for locking the rotating mechanism when in the normal position, and a plurality of lasts on the peg-bar adapted to hold a plurality of rubber shoes, whereby on operating the levers a plurality of rubber shoes are coated with varnish or a similar liquid in one operation, as described.

5. In a shoe-dipping machine the combination of a frame, a tank adapted to hold varnish or a similar liquid supported on the frame, a rock-shaft supported in bearings in the frame, a lever on the rock-shaft extending over the tank, arms on the rock-shaft extending over the tank, a rotating mechanism supported on the ends of the arms, levers operatively connected with the rotating mechanism, a peg-bar, means in the rotating mechanism for detachably securing the peg-bar in the mechanism, means in the rotating mechanism for locking the peg-bar in the mechanism when in the dipped position, means for counterbalancing the rotating mechanism, means for locking the rotating mechanism when in the normal position, a plurality of lasts on the peg-bar, a plurality of shoes on the lasts, and means for holding the shoes and lasts on the peg-bar when in the dipped position, as described.

6. In a shoe-dipping machine, the combination of a frame *a*, a tank *b* adapted to hold varnish or a similar liquid supported on the frame, a rock-shaft *c* supported in bearings in the frame, a lever *d* secured to the rock-shaft, weight-levers *e e* secured to the rock-shaft and having the arms 18 18 extending over the tank *b*, a rotating mechanism *f* comprising bearings 19 19 formed on the ends of the arms 18 18 and having the openings 20 20, semicircular lips 21 21 on the inner face of the arms 18 18, curved lips on the inner face of the arms forming stops 22 22, shafts 23 23 in the bearings on the inner ends of which are members 24 24 having the elongated recesses 25 25 with the closed ends 26 26 and the open ends 27 27, and the arms 29 29 extending downward from the members in a position to engage with the stops 22 22, arms 30 30 pivotally secured to the ends of the arms 29 29, a flat locking-bar 31 secured to the ends of the arms 30 30, coiled springs 32 32 secured to the locking-bar 31, and to upwardly-extending brackets 33 33 on the arms 18 18, levers *g g* connected to a cross-bar 35 having the arms 36 36 secured to the shafts 23 23, a peg-bar *h* having the pegs 39 39, a plurality of lasts *i i* on the peg-bar on which are a plurality of rubber shoes *k k*, and means for holding the rotating mechanism *f* in the normal position for the purpose, as described.

7. In a shoe-dipping machine, the combination of a frame *a*, a tank *b* adapted to hold varnish or a similar liquid supported on the frame, a rock-shaft *c* supported in bearings in the frame, a lever *d* secured to the rock-shaft over the tank, weight-levers *e e* secured to the rock-shaft and having the arms 18 18 extending over the tank, a rotating mechanism *f* supported on the ends of the arms 18 18, levers *g g* operatively connected with the rotating mechanism *f*, a peg-bar *h*, and a plurality of lasts *i i* on the peg-bar on which are a plurality of rubber shoes *k k*, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN H. WALL.

Witnesses:
ADA E. HAGERTY,
J. A. MILLER.