No. 811,030. PATENTED JAN. 30, 1906.

F. H. BREWSTER.

MACHINE FOR BLACKING SHOES.

APPLICATION FILED NOV. 3, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 2,

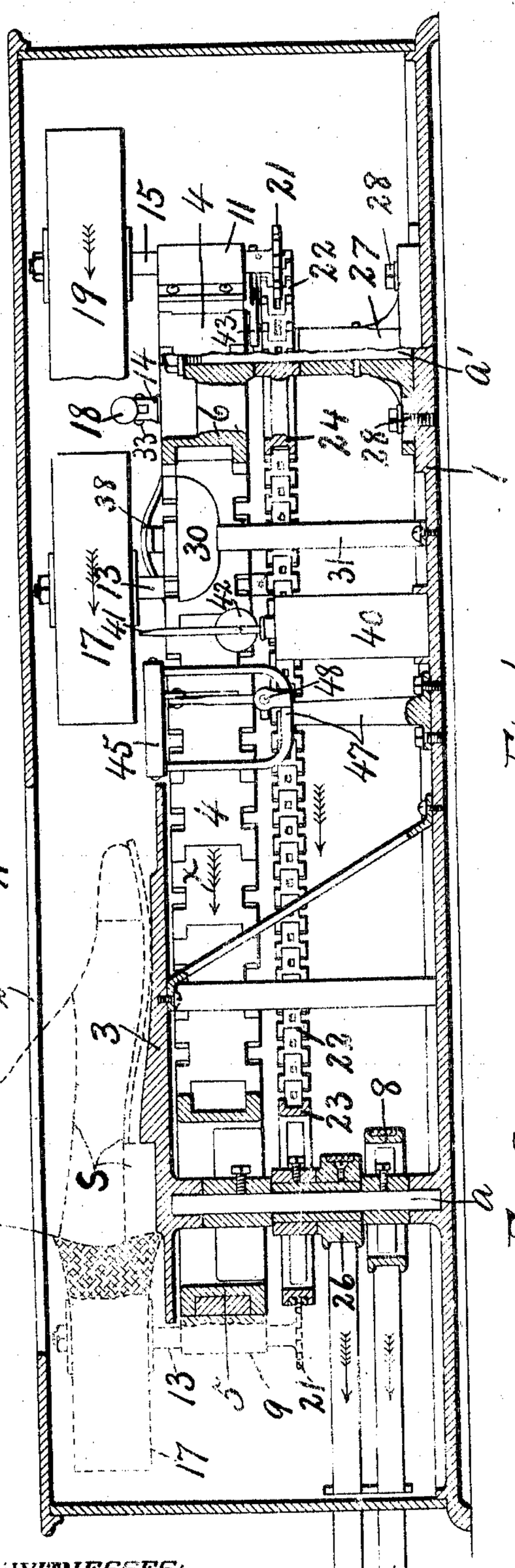


Fig. 5,

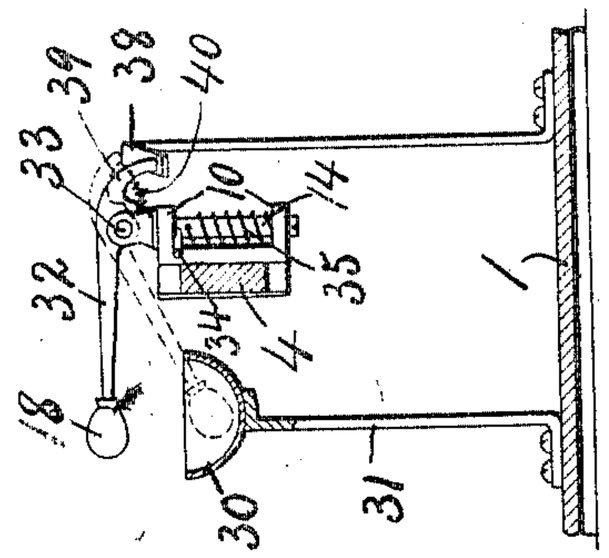


Fig. 4,

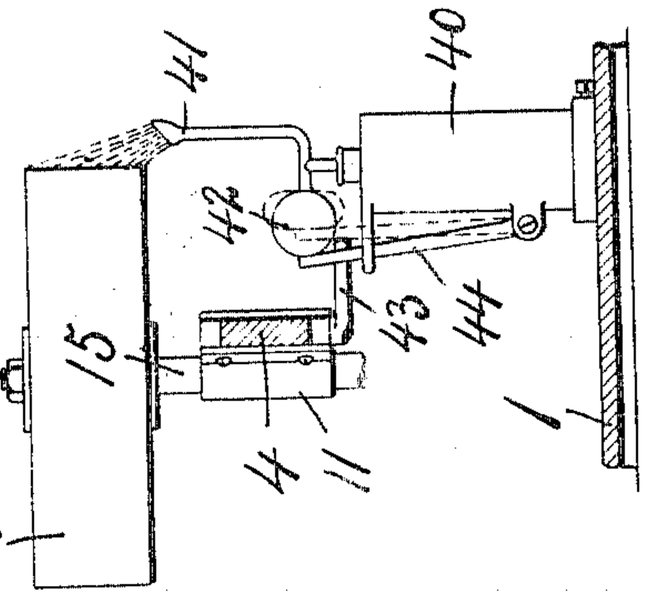
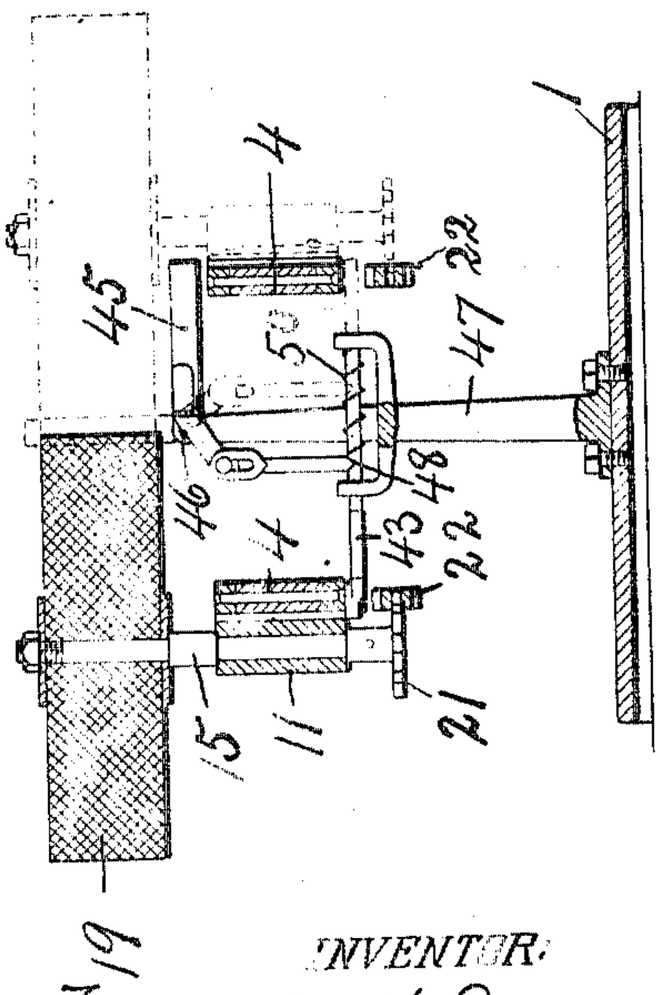


Fig. 3,



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UNITED STATES PATENT OFFICE.

FREDERICK H. BREWSTER, OF AUBURN, NEW YORK.

MACHINE FOR BLACKING SHOES.

No. 811,030. Specification of Letters Patent. Patented Jan. 30, 1906.

Application filed November 3, 1904. Serial No. 231,268.

To all whom it may concern:

Be it known that I, FREDERICK H. BREWSTER, of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Machines for Blacking Shoes, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in machines for cleaning, blacking, and polishing shoes, and is adapted to be installed in suitable places to be used by the general public and to be brought into action by any coin-controlled motive power, (not shown,) as the motive power and its controlling means form no part of my present invention.

My broad object is to produce a simple self-acting mechanism by which any person may have his or her shoe or shoes quickly and effectually cleaned, blackened, and polished in a single operation and without any further labor than placing the foot or feet upon a suitable pedestal around which said mechanism travels.

A more specific object is to mount the cleaning, blacking, and polishing brushes upon an endless conveyer within which the pedestal is located and to provide separate means for imparting rotary movement to said brushes during their planetary movement around the shoe or pedestal.

Other objects and uses will be brought out in the following description.

In the drawings, Figure 1 is a top plan of my invention partly broken away to show the underlying parts. Figs. 2, 3, 4, and 5 are sectional views taken, respectively, on lines 2 2, 3 3, 4 4, and 5 5, Fig. 1.

In carrying out the objects stated a suitable case 1 is made to inclose the greater part of the cleaning and polishing mechanism, presently described, and is provided with a foot-opening 2 in its top, beneath which is a pedestal or foot-rest 3 of such size and form as to receive and hold any ordinary shoe in position during the cleaning and polishing operation. This opening 2 and its underlying foot-rest 3 are located near one end of the case which is of ample size to permit the brushes and carriers to move freely and easily without cramping or binding and at the same time serves to inclose and conceal the working parts when not in use.

An endless belt or chain 4 is mounted upon a pair of rotary drums 5 and 6 in a horizontal plane directly beneath the foot-rest 3 and is driven in the direction indicated by arrow *x*, Fig. 1, by a belt 7 and pulley 8, through the medium of a vertical shaft *a*, to which the drum 5 is secured. The rear drum 5 is located directly beneath the heel of the shoe, as *s*, so that the rear portion of the chain travels concentrically with said heel, while the front drum 6, which carries the front end of the chain 4, is located some distance in front of the toe of the shoe and also in front of the opening 2 upon a spindle *a'*, whereby the several brushes, presently described, may be brought to a position of rest in front of the opening 2, to leave a clear space for the insertion of the foot or shoe through said opening and upon the foot-rest when the carrier 4 is at rest. This chain 4 is provided with a series of (in this instance four) vertical bearings 9, 10, 11, and 12, which are formed upon the links of the chain 4, one in advance of the other and receive upright rotary spindles 13, 14, 15, and 16, carrying, respectively, a rotary cleaning-brush 17, an oscillatory liquid-applying dauber 18, a rotary paste-applying brush 19, and a rotary polishing-brush 20, all of which are mounted upon the upper ends of their respective spindles in a plane above the foot-rest 3. The rotary brushes 17, 19, and 20 are preferably cylindrical and may be made of bristles, felt, or any other suitable material adapted to best perform their respective functions, while the liquid-applier 18 preferably consists of a pad, or sponge, felt, or other absorbent capable of dipping into a liquid blacking and then applying such blacking to the sole of the shoe as the chain-carrier 4 is actuated. It is now apparent that the chain 4 travels entirely around and in close proximity to the shoe to cause the brushes 17, 19, and 20, which are soft and pliable, to contact with such parts of the shoe as are usually blackened and polished, and in order to render the operation more expeditious and effective the brushes 17, 19, and 20 are caused to rotate on their respective axes simultaneously with the travel of the chain 4. In order to accomplish this, the brushes 17, 19, and 20 are secured on their respective spindles 13, 15, and 16, and the lower end of each spindle is provided with a sprocket-wheel 21, which meshes with the links of an endless sprocket-chain 22. This chain is mounted on rotary drums 23 and 24, directly beneath and parallel with the brush-carrying chain 4, and is driven in the same direction, but at greater speed than the chain 4 by means of a belt 25 and pulley 26, the drums 23 and 24 being loosely mounted, respectively, on spindles *a*

and a' just below the drums 5 and 6. The spindle a' is mounted in a bracket or step 27, which with its drums 6 and 24 are adjustable toward and from the drums 5 and 23 to take up any slack or looseness in the chains 4 and 22, said bracket or step 27 being secured in its adjusted position to the bottom of the case by suitable fastening means, as bolts 28. It is now seen that by driving the chains 4 and 22 in the same direction and causing the chain 22 to travel faster than the chain 4 each brush is caused to travel entirely around and to rotate on its own axis against the shoe, thereby producing a rapid action of the brushes and speedy cleaning and polishing of the shoe. The cleaning-brush 17 is arranged in advance of the others, and therefore is the first to act upon the shoe, after which the dauber or pad 18 is next brought into action to apply a blacking liquid or paste to the sole of the shoe. In order to accomplish this second action, a liquid-receptacle 30 is mounted upon a fixed standard 31 in the front end of the case with its open side uppermost, as seen in Fig. 5, and the pad 18 is mounted on the inner end of a vertically and horizontally swinging arm 32, which is pivoted at one end at 33 to the rocking spindle 14 on the chain 4, said spindle being held in a certain position by a limiting-stop 34 and a spring 35, having one end secured to the adjacent link of the chain and its other end secured to the spindle 35, as best seen in Fig. 5. The stop 34 is secured to the spindle 14 and engages the adjacent link of the chain to limit the forward swinging movement of the pad 18, but to allow it to swing rearwardly against the action of the spring 35.

A cam-track 38 is fixed to the bottom of the case 1 at the opposite side of the chain 4, but near the receptacle 30, and the arm 32 is provided with an extension 39, which rides upon the cam 38 and causes the pad 18 to dip into the receptacle once during each cycle of movement of the chain 4, said pad being immediately returned to its horizontal position by a spring 40 as soon as it is released by the cam 38. Now as this pad is carried forwardly by the chain 4 it applies the liquid to the sole of the shoe, and being yieldingly swiveled, as described, it is evident that it readily adjusts itself to any variations in distance between the chain and side of the shoe, so as to always contact with the sole during its entire transit around the shoe. The next to contact with the shoe is the paste-applying brush 19, and in order to keep the brush soft and pliable I provide a suitable spraying device consisting of a fixed liquid-containing cylinder 40, having a spraying-nozzle 41 and a compressible bulb 42, all of which parts are located some distance in front of the foot-rest 3. A suitable cam 43 is secured to the bearing 11 for the spindle of the brush 19, and upon the cylinder 40 is pivoted a lever 44, which projects into the path of the traveling cam 43 and also bears upon the bulb 42, so that as the cam 43 travels toward the shoe it engages and operates the lever 44 to compress the bulb 42, and thereby causes the spraying of the liquid from the cylinder 40 against the periphery of the brush 19. Between the spraying device and foot-rest is a receptacle 45, which contains a blacking-paste and is pivoted at 46 to a fixed standard 47, rising from the bottom of the case 1, and upon this standard is mounted a horizontal sliding bar 48, which projects into the path of movement of the cam 43 and is eccentrically connected to the paste-receptacle 45, so that as the cam 43 advances from the position seen in Fig. 4 it will engage and move the bar 48 endwise, and thereby rock the receptacle 45 from its normal horizontal position (shown by full lines in Fig. 3) to the position shown by dotted lines, with its open side in the path of the brush 19. The brush 19 is now rotated on its axis and traveling toward the shoe, and therefore its periphery will revolve in the open side of the paste-receptacle 45 and receive more or less of the paste, which is afterward applied to all sides of the shoe as the brush 19 continues to travel around the same. The cam 43 is comparatively short so as to allow the receptacle 45 to return to its normal position before the polishing-brush reaches this position, this return movement being facilitated by a spring 50, which is interposed between suitable shoulders on the bar 48 and standard 47. The next and last operation is performed by the polishing-brush 20, which is similar in operation to the cleaning-brush, and is therefore sufficiently broad and pliable to reach over the upper a trifle more than half-way and at the same time to fit against and polish the sides of the shoe and sole.

I have shown and described a device for cleaning and blacking a single shoe; but it is evident that this device may be duplicated and both operated simultaneously for cleaning and blacking a pair of shoes.

The belts 7 and 25 may be connected to any suitable coin-controlled motive power, (not shown,) as this forms no part of my present invention, although the intention is to provide some means whereby the brush-carrying chain will be caused to make one or two complete cycles of movement, as may be deemed advisable or desirable.

The operation of the parts shown is believed to be sufficiently incorporated in the description to enable any one skilled in the art to construct and use the complete device.

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

1. In a machine for cleaning and blacking shoes, the combination with a foot-rest, of an endless chain or belt traveling around the foot-rest, means to actuate the chain or belt, brushes rotatingly mounted on said chain or belt one

in advance of the other, means including a second chain for rotating the brushes, separate driving means for the second chain, and additional means actuated by the first-named chain for applying blacking to one of the brushes.

2. In a machine for cleaning and blacking shoes, the combination with a foot-rest, of an endless chain or belt traveling around the foot-rest, means to actuate the chain or belt, a blacking-brush rotatingly mounted on the chain, means to rotate the brush while the chain is in motion, and additional means to apply blacking to said brush during its rotation.

3. In a machine for blacking shoes, the combination with a foot-rest, of an endless chain or belt traveling around the foot-rest, driving means for the chain or belt, a blacking-brush rotatingly mounted on the chain, a cam on the chain, means actuated by said cam to apply blacking to the brush while in motion, a cleaning-brush rotatingly mounted on the chain or belt, and means connected to rotate both brushes during the movement of the chain or belt.

4. In a machine for cleaning, blacking and polishing shoes, the combination with a foot-rest, of an endless belt traveling around the foot-rest and driving means therefor, a series of brushes rotatingly mounted on the belt one in advance of the other, means operatively connected to rotate said brushes during the movement of the belt, additional means to apply moisture to one of the brushes, and further means for applying blacking to the moistened brush during its rotation.

5. In a machine for blacking shoes, the combination with a foot-rest, of an endless carrier traveling around the foot-rest and driving means for said carrier, a blacking-dauber yieldingly mounted on the carrier, a receptacle containing blacking, means to cause the dauber to dip into the receptacle during the movement of the carrier, a polishing-brush rotatingly mounted on the carrier and separate means to rotate the brush.

6. In a machine for blacking shoes, the combination with an endless chain and driving means therefor, of a series of brushes rotatingly mounted on the chain, means including a second chain for rotating said brushes during the movement of the first-named chain, separate driving means for the second chain, a spraying device for applying moisture to one of the brushes, means on the first-named chain for actuating the spraying device, and a blacking-holder actuated by the last-named means for applying blacking to the moistened brush.

7. In a shoe-blacking machine, the combination with an endless chain having a series of vertical bearings, of rotary brushes journaled in said bearings, driving means for the chain, additional means for rotating the brushes, a spraying device for applying moisture to one of the brushes, a separate device for applying blacking to the moistened brush, and a cam on the belt for actuating said devices.

8. In a shoe-blacking machine, the combination with a foot-rest, an endless belt traveling around the foot-rest, and driving means for the belt, of brushes rotatingly mounted on the belt, separate means for rotating the brushes, a blacking-holder movable toward and from one of the brushes and means including a cam on the belt in proximity to the last-named brush for moving the blacking-holder toward said brush.

9. In a shoe-blacking machine, an endless belt and separate supporting-drums therefor, in combination with means to rotate one of the drums whereby motion is transmitted to the belt, additional drums each revolving about the axis of one of the first-named drums, a second belt on the additional drums, brushes rotatingly mounted on the first-named belt, and means actuated by the second belt for rotating said brushes.

10. In a shoe-blacking machine, two separate endless chain belts and separate driving mechanisms therefor, a brush rotatingly mounted on one of the belts, and means to transmit motion from the other belt to the brush for rotating said brush.

11. In a shoe-blacking machine, the combination with a foot-rest, of an endless carrier traveling around the foot-rest, driving means for the carrier, brushes mounted on the carrier one in advance of the other, a receptacle containing blacking, a blacking-applying pad mounted on the carrier and having an independent movement into and out of the receptacle, and a fixed cam having operative connection with said pad to cause it to dip into the receptacle once during each cycle of movement of the carrier.

12. In a shoe-blacking machine, the combination with a foot-rest, of an endless belt and driving means therefor, a cleaning-brush, a blacking-brush and a polishing-brush all rotatingly mounted on the belt one in advance of the other, a second belt operatively connected with the brushes to rotate said brushes, separate driving means for the second belt, a device located in front of the foot-rest for applying blacking to the periphery of the blacking-brush, and means on the first-named belt operatively connecting with said device to bring it into action after the cleaning-brush has passed and before the polishing-brush reaches said devices.

In witness whereof I have hereunto set my hand this 14th day of October, 1904.

FRED. H. BREWSTER.

Witnesses:

DELIA D. CUYKENDALL,

ALBERT H. CLARK.