

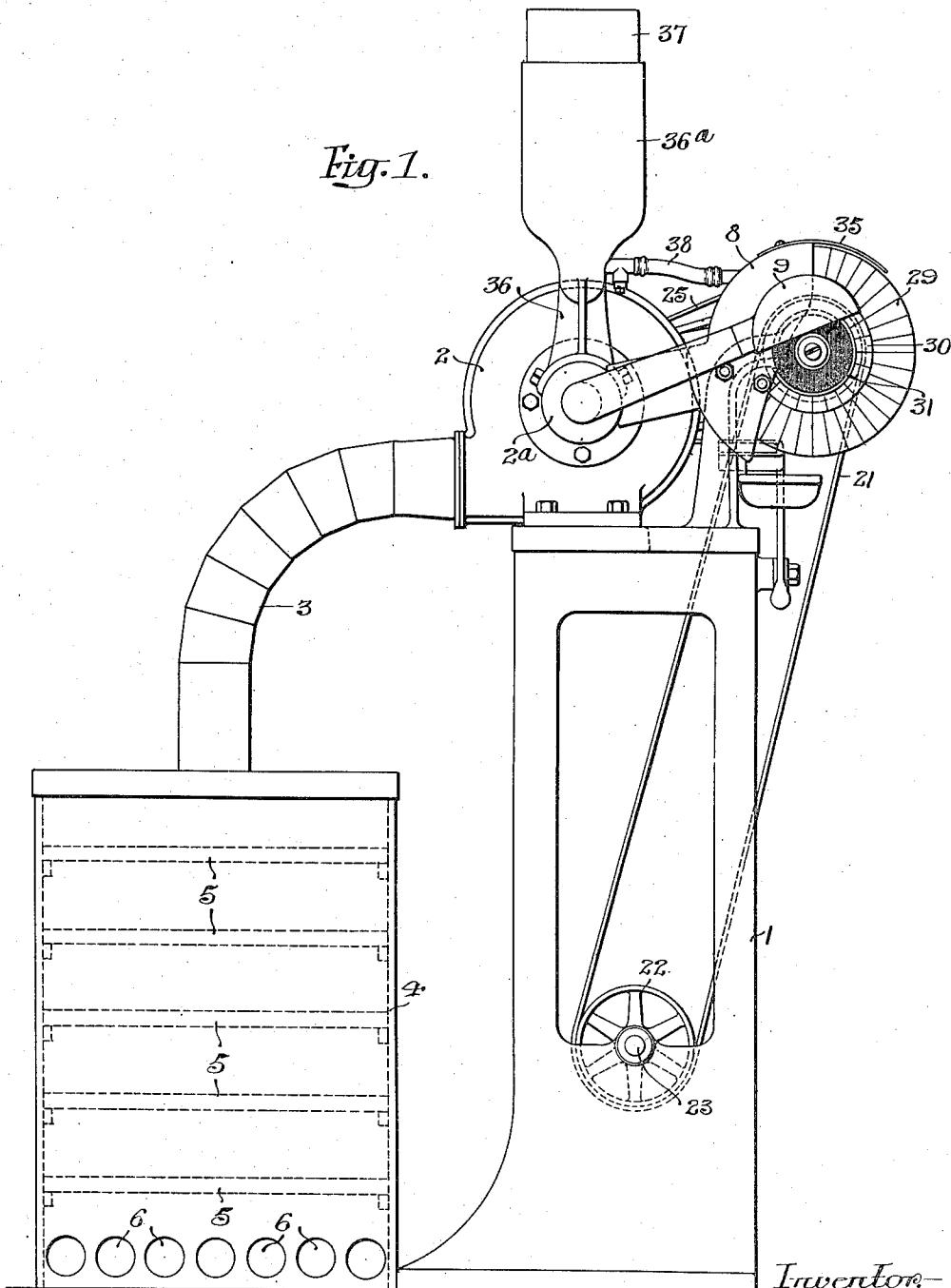
W. B. KEIGHLEY.
CLEANING MACHINE.
APPLICATION FILED MAR. 1, 1910.

Patented Apr. 22, 1913.

4 SHEETS—SHEET 1.

1,059,877.

Fig. 1.



Witnesses:
Willa A. Burrows
Walter Chism

Inventor—
William B. Keighley.
by his Attorneys—
Howson + Howson

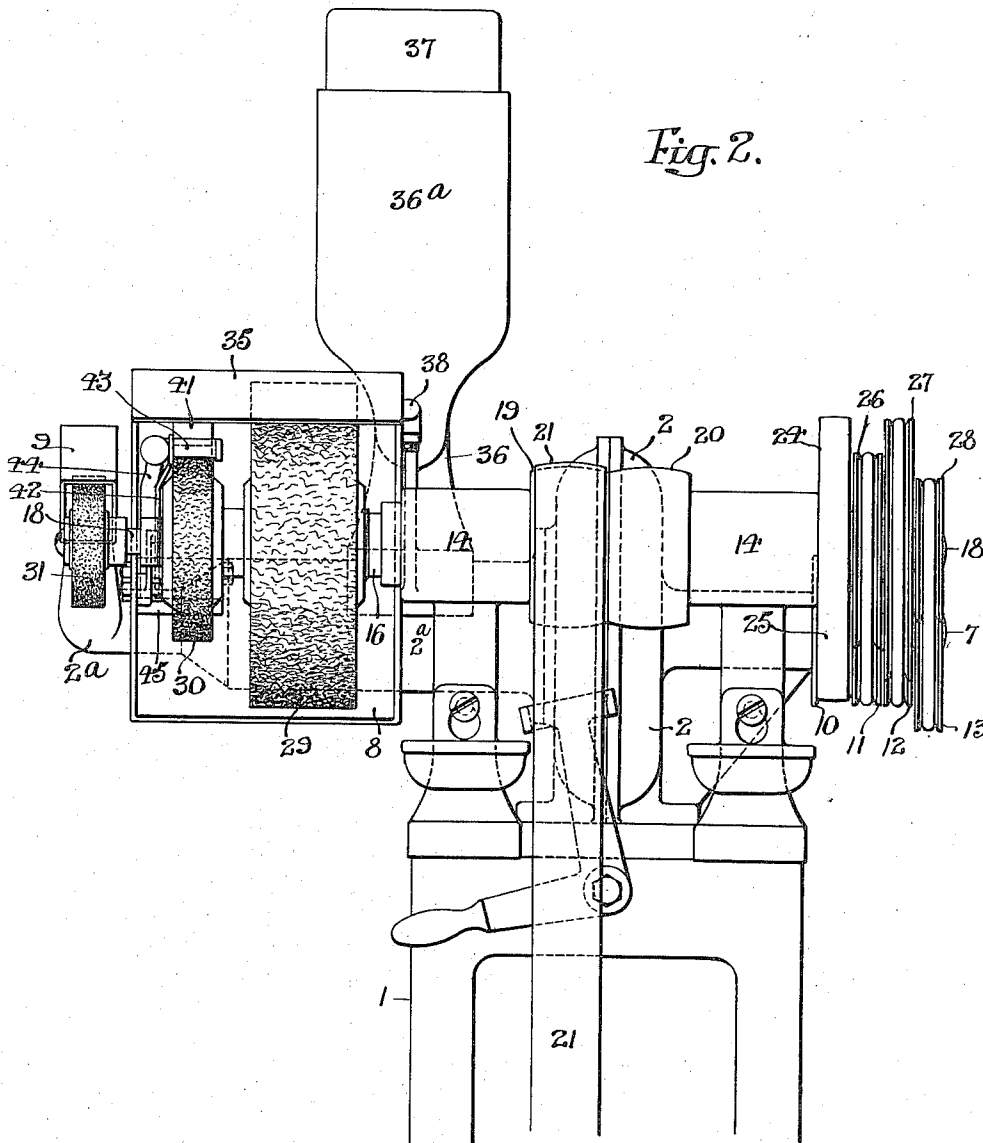
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4 SHEETS—SHEET 2.

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Fig. 2.



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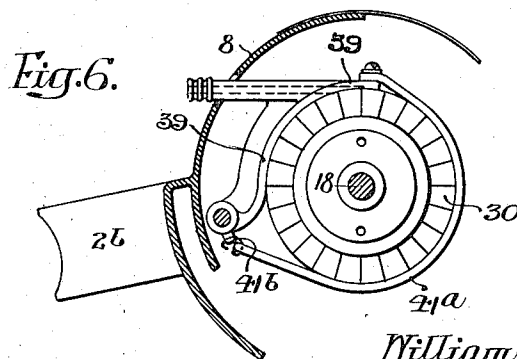
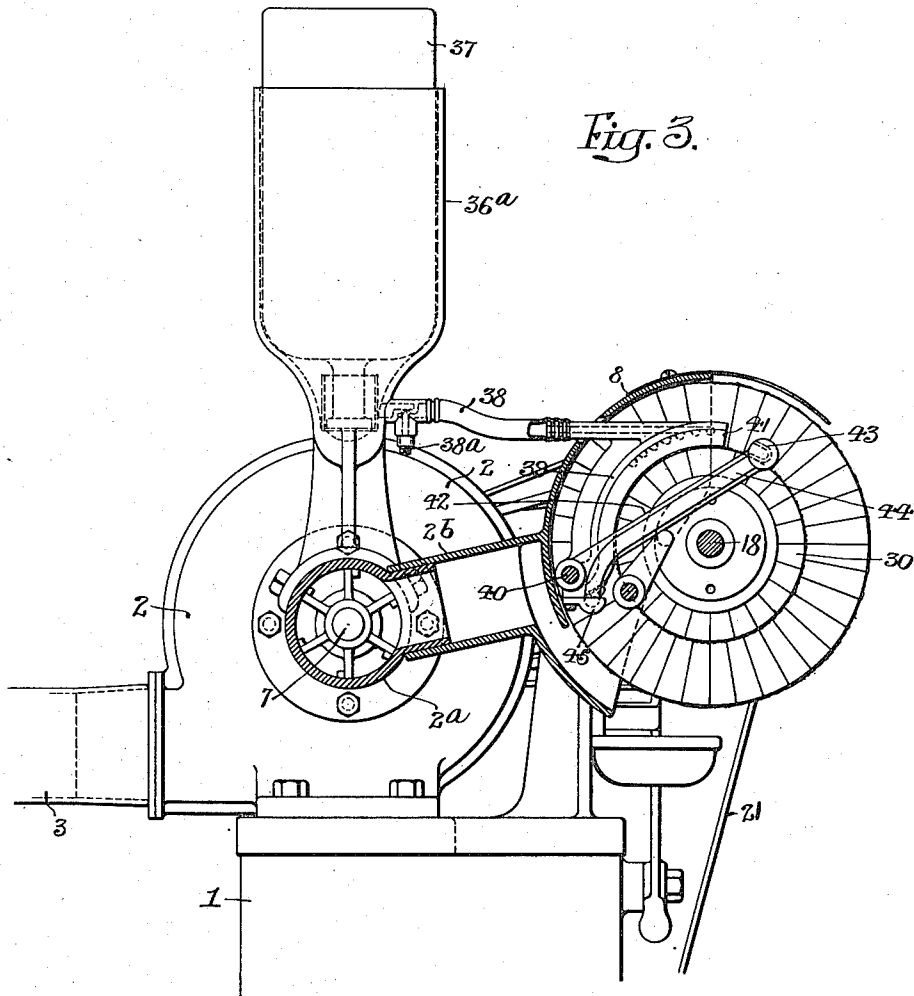
William B. Keighley.
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

Fig. 4.

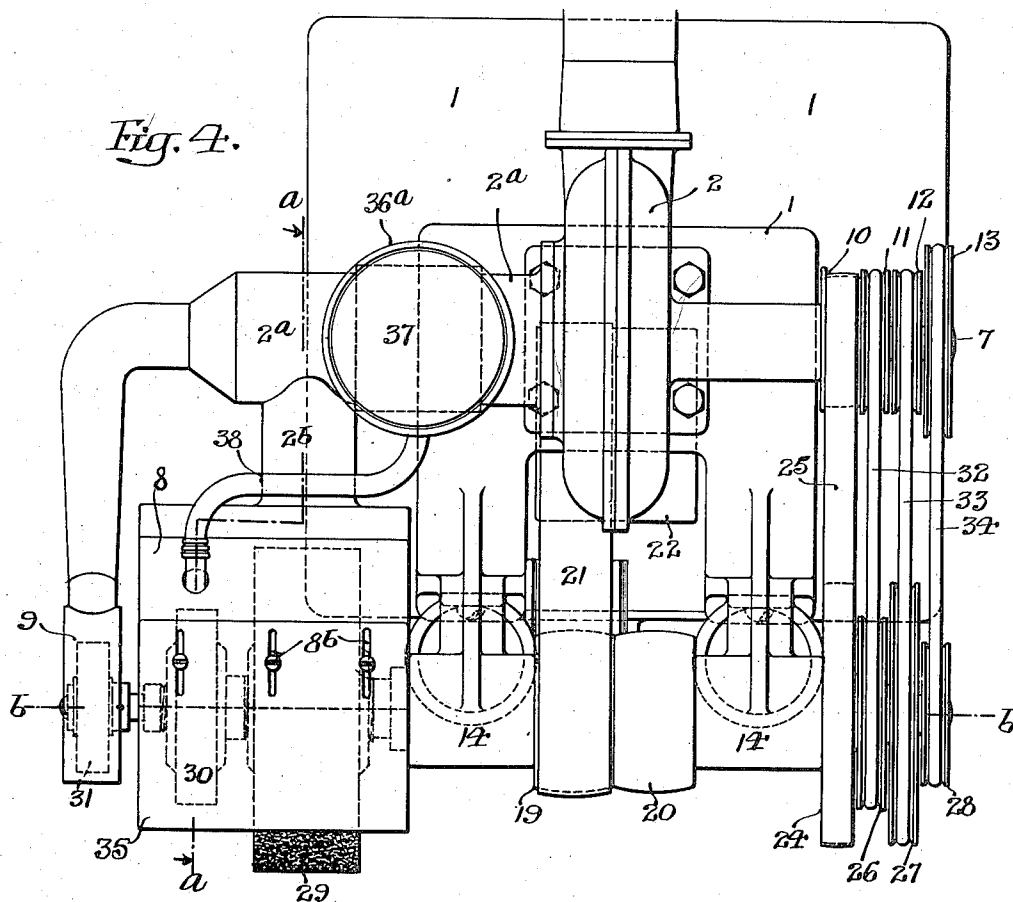
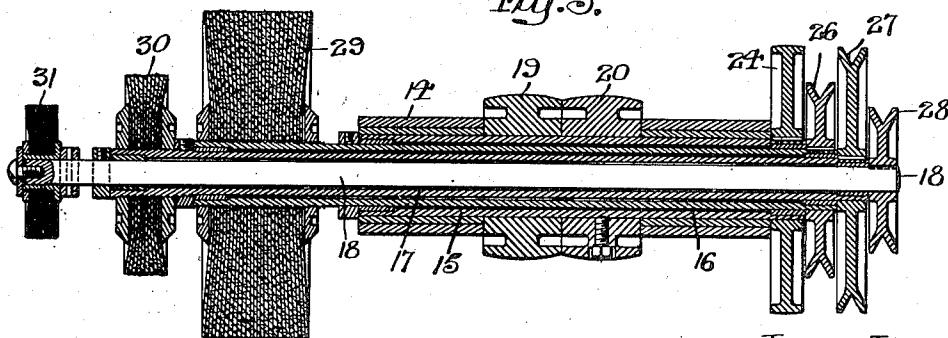


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM BOTTOMLEY KEIGHLEY, OF VINELAND, NEW JERSEY, ASSIGNOR TO THE KEIGHLEY COMPANY, INC., OF VINELAND, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CLEANING-MACHINE.

1,059,877.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed March 1, 1910. Serial No. 546,604.

To all whom it may concern:

Be it known that I, WILLIAM B. KEIGHLEY, a citizen of the United States, residing in Vineland, New Jersey, have invented certain Improvements in Cleaning-Machines, of which the following is a specification.

One object of my invention is to provide a convenient and efficient machine for removing soil marks or foreign material from the surface of any object and more particularly for cleaning shoes after their manufacture has been partially or wholly completed; it being especially desired to so arrange a plurality of brushes that after a shoe has been applied to one of them to remove the dirt, it may subsequently be touched to another so as to be moistened with cleaning liquid and thereafter presented to one or more additional brushes to complete the cleaning.

The invention also contemplates novel means for supplying predetermined amounts of cleaning fluid to a rotary brush or other device, designed to deliver said liquid to a shoe or other object to be cleaned.

I also desire to provide a machine of the general character noted, with means for carrying off the surplus liquid as well as the lint, dirt, or other solid material removed from the shoes or other objects operated on, as well as means for separating such material from the air employed for conveying it away from the machine.

Another object of my invention is to provide relatively compact and substantial means for supporting and actuating a plurality of cleaning wheels in a machine of the general type noted.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1, is a side elevation of my improved machine, illustrating the general arrangement of its parts; Fig. 2, is a front elevation of the machine shown in Fig. 1, taken on a scale somewhat larger than that of said figure; Fig. 3, is a vertical section on the line *a—*a**, Fig. 4, is a plan of the machine; Fig. 5, is a section on the line *b—*b**, Fig. 4, and Fig. 6, is a vertical section of a slightly modified construction of the device for supplying cleaning fluid to a shoe under treatment.

In the above drawings, 1 represents a sup-

porting frame or other suitable structure upon which my improved cleaning machine is carried and this latter includes a casing 2 containing a suction fan whose outlet 3 communicates with the top of a dust collecting box or casing 4 preferably mounted alongside of the structure 1. This box contains a number of transverse screens or sieves whose meshes decrease in size from the uppermost screen toward that nearest the bottom; there being openings 6 in the side of the casing adjacent the bottom thereof for the escape of the cleaned air. The fan within the casing 2 is mounted on a shaft 7 passing axially through said casing and supported in horizontal bearings; it being noted that the intake of the fan is preferably concentric with said shaft and projects at one side of the fan casing; terminating in two hoods 8 and 9 hereafter referred to. The shaft 7 projects outside of the casing 2 on that side thereof opposite the intake conduit 2^a and has fixed to it a number of pulleys 10, 11, 12, and 13, of which in the present instance the first is an ordinary crowned pulley and the three last are grooved.

Supported in suitable bearings 14 projecting forwardly from the top of the frame 1, is a tubular shaft 15 extending parallel with the shaft 7 and having concentrically mounted within it two other tubular shafts 16 and 17 and a central spindle 18. Said shaft 15 has mounted on it two pulleys 19 and 20, of which the first is loose and the second is fixed to it; there being a driving belt 21 extending between said pulleys and a driving pulley 22 mounted on a counter-shaft 23 supported in suitable bearings near the bottom part of the structure 1. Also fixed to the shaft 15 is a crown pulley 24 connected by a belt 25 with the pulley 10 on the shaft 7 and there are three grooved pulleys 26, 27, and 28 respectively fixed to the shafts 16, 17, and 18 so as to be respectively in line with the three pulleys 11, 12, and 13.

While I have shown four concentric shafts mounted in the bearings 14, it is obvious that three, or more than four may be employed if desired.

The free ends of the shafts are provided with various forms of cleaning or polishing wheels and in the present instance the shaft 16 has fixed to it a polishing wheel 29 of relatively large diameter. Immediately be-

yond this wheel is a wheel 30 fixed to the shaft 17, for applying cleaning fluid to the shoes or other objects operated on. Beyond the second wheel is a third and relatively small wheel 31;—usually a bristle brush, fixed to the central shaft or spindle 18.

The various pulleys 26, 27, and 28, as well as the pulleys from the shaft 7 are so proportioned that the shaft 16, 17, and 18 are turned at the proper speeds to give the most desirable peripheral velocities to the various wheels 29, 30, and 31; the various pulleys being connected by belts or cords 32, 33, 34, as shown in Fig. 4.

From Figs. 1, 3 and 4, it will be noted that the hood 8 extends over the top and back of the two wheels 29, and 30 and has an adjustable top and front portion 35, provided with a series of slots 8^b for the reception of screws whereby the amount of its projection around the front parts of the wheels may be regulated at will. The rear end of this hood is connected to the intake conduit 2^a of the fan by a branch conduit 2^b. As will be noted from Fig. 4, the end of the said conduit 2^a is bent at right angles and extended forwardly to the hood 9, which extends to the top and back of the smallest wheel 31.

Mounted in any suitable manner to the rear of the hood 8, (in the present instance upon the main portion of the conduit 2^a) is a casing 36, having its upper portion 36^a in the form of a reservoir for the reception of a bottle 37 designed to hold water or other cleaning fluid. From the lower part of this reservoir there extends a tube 38 which projects into the hood 8 and terminates on top of a segmental saddle piece 39 pivoted to the hood by a spindle or rod 40 and so shaped as to lie immediately above and substantially parallel with the curved surface of the wheel 30. Between said saddle and said wheel is mounted a thick strip 41 of felt or other suitable absorbent material which preferably rests directly upon the surface of said wheel 30 and is fastened to the saddle structure adjacent to said spindle 40. An arm 42 is pivotally mounted on the spindle 40 and supports a liquid catching trough 43 projecting across the surface of the wheel 30 immediately in front of the top end of the absorbent pad 41; there being a conduit 44 extending from said trough downwardly and rearwardly to a trough 45 carried immediately adjacent the spindle 40, for the reception of any liquid collected by said trough 43. Any desired form of drainage pipe (not shown) may be connected to said trough 45. The outlet 38 from the reservoir 36^a is so placed that liquid is delivered to it from the bottle 37 by what is known as a barometric feed; that is to say, as the liquid passes out of the tube 38

it gradually lowers the liquid level within the lower part of the reservoir until air is free to enter the mouth of the bottle 37. This permits a further outflow of liquid and the amount of such liquid is governed by means of a needle valve 38^a.

Under operating conditions, with the belt 21 on the fast pulley 20, the pulley 24 is driven through the tubular shaft 15, and said pulley, through the belt 25, in turn drives the pulley 10. Since this is fixed to the shaft 7, the fan on the shaft 2 is driven, as are also the various pulleys 11, 12, and 13, and by means of the belts 32, 33, and 34 these pulleys drive the pulleys 26, 27, and 28, as well as the shafts to which these latter are fixed and therefore drive the wheels 29, 30 and 31. While these latter may be turned at any desired speeds, I have found that it is advantageous to so proportion the various pulleys that the wheel 31 will turn at 2500 R. P. M. while the brush 30 is driven at 900 R. P. M. The brush 29 turns at about 600 to 700 R. P. M.

From time to time water or other cleaning fluid from the reservoir 36^a is delivered through the pipe 38 to the felt pad 41, which while being very completely saturated, is prevented from being supplied with too much water by proper adjustment of the valve 38^a. When in use the dust, etc., collected in the crease of the sole of the shoe, between the upper and the edge, is cleaned out by applying it to the brush 31; the foreign material, etc., being carried away through the hood 9 and conduit 2^a, owing to the suction created by the fan in the casing 2. The soiled portion of the shoe is then touched to the wet brush 30 after which it is cleaned off dry and polished by the brush 29. Here again any dirt or lint is carried away through the conduit 2^a by the suction of the fan and after passage through this latter and the conduit 3, is delivered to the screens in the casing 4. These effectually catch the dirt or other material carried by the air, which is finally allowed to pass out of the device through the openings 6. Any surplus liquid supplied by the wet brush 30 is collected in the trough 43, from whence it passes through the tubular arm 44 to the trough 45 and thence out of the machine.

While I have described my machine as particularly adapted for use in cleaning shoes during their manufacture, it is obvious that it may be employed in many ways for cleaning or polishing other materials.

If desired, I may provide the moisture applying wheel with a secondary felt band 41^a which is of such width as to extend completely across the face of said brush and is clamped at one end to the front edge of the saddle 39 in any suitable manner. From this edge, said band extends down and

around the brush 30 to the rear lower end of the saddle, to which it is attached by a series of hooks 41^b or by other suitable means, as shown in Fig. 6. In this case the liquid is delivered through the pipe 38 either to a felt pad as before or directly to the brush 30, which, under the action of centrifugal force, throws the liquid onto the felt band 41^a and thus maintains it in a moist or damp condition; it being understood that the amount of liquid supplied may be regulated by adjustment of the valve 38^a which is preferably of the needle type. The shoe or other object to be cleaned is then merely touched to said band in order that a relatively small amount of liquid may be applied to it and it is thereafter applied to the dry polishing brush 29 as before described.

I claim:—

1. The combination of a rotary shaft having a supporting structure; means for driv-

ing said shaft; a brush on the shaft; a band of absorbent material extending partially around the brush so as to receive liquid therefrom; and means for supplying liquid for the brush.

2. The combination of a supporting structure; a shaft rotatably mounted thereon; driving means for the shaft; a brush fixed to the shaft; a saddle mounted adjacent the brush; a band of absorbent material attached to the front of the saddle and extending across the face of the brush around the same; with means for delivering liquid for the brush.

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

WILLIAM BOTTOMLEY KEIGHLEY.

Witnesses:

WILLIAM E. BRADLEY,
WM. A. BARR.