May 12, 1931. J. MILANOVICH 1,804,636

SCRUBBING MACHINE

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Fig. 9.

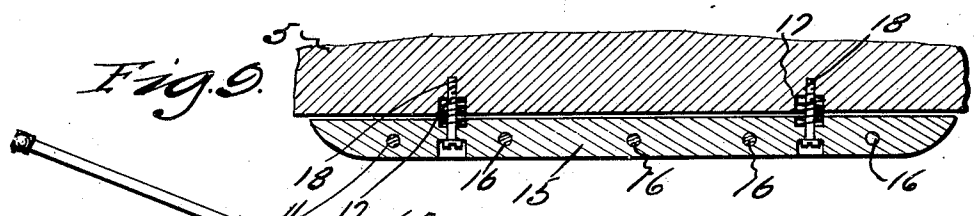


Fig. 7.

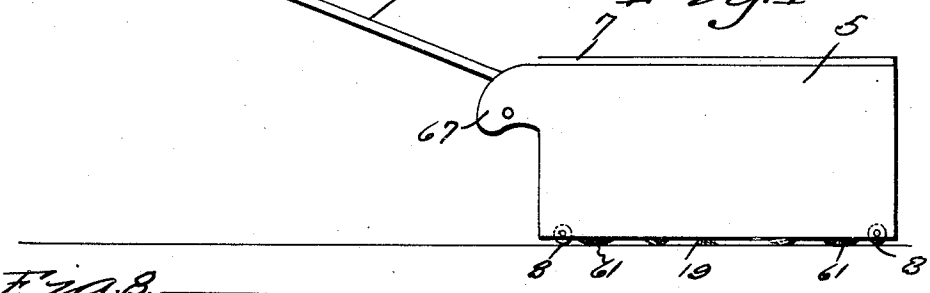


Fig. 8.

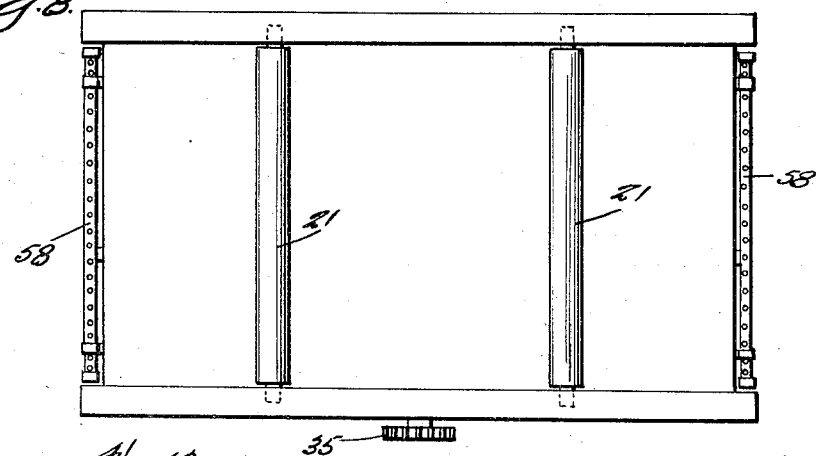


Fig. 17.

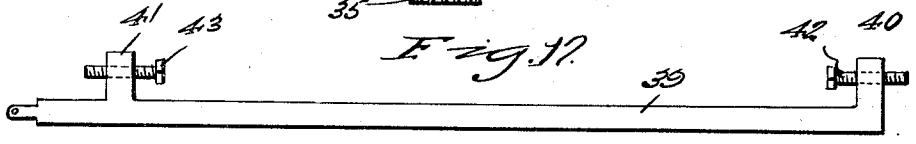


Fig. 18.

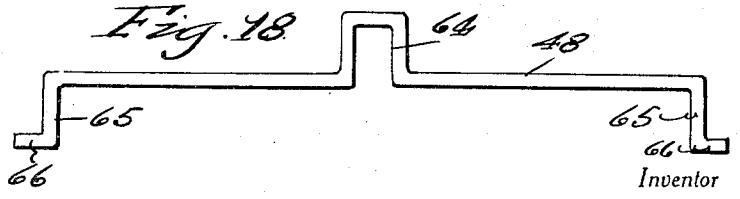
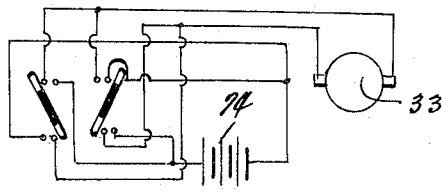


Fig. 19.



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Fig. 2.

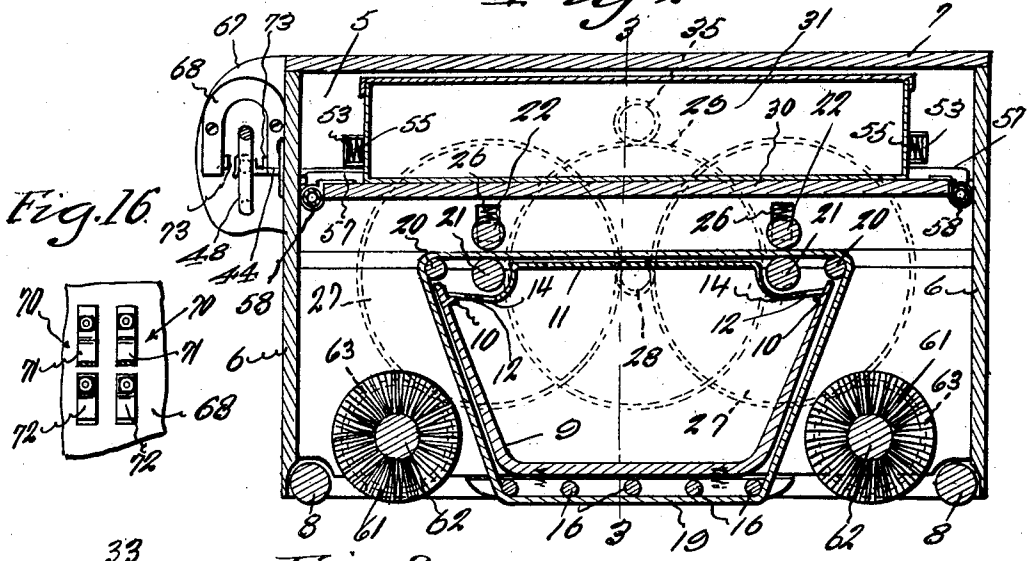


Fig. 16.

Fig. 3

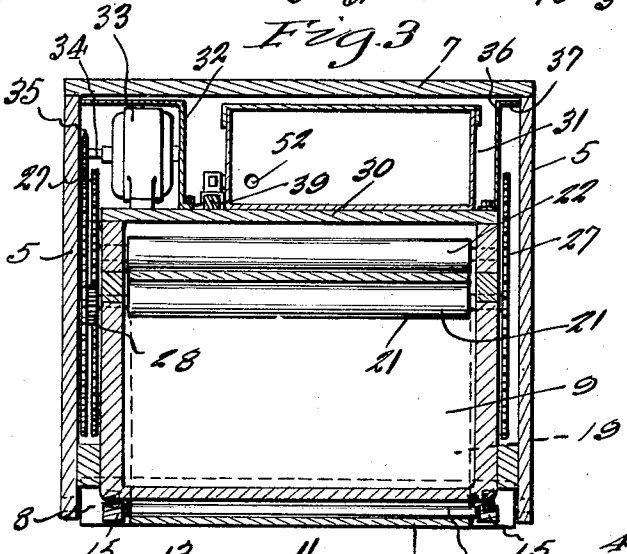


Fig. 13

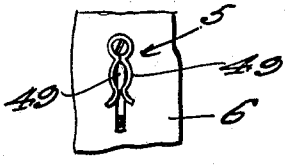


Fig. 12

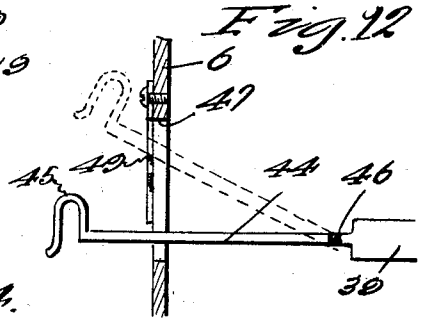
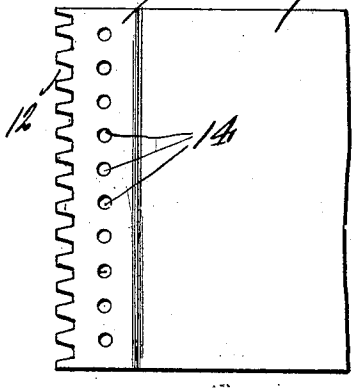


Fig. 14.



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Fig. 4.

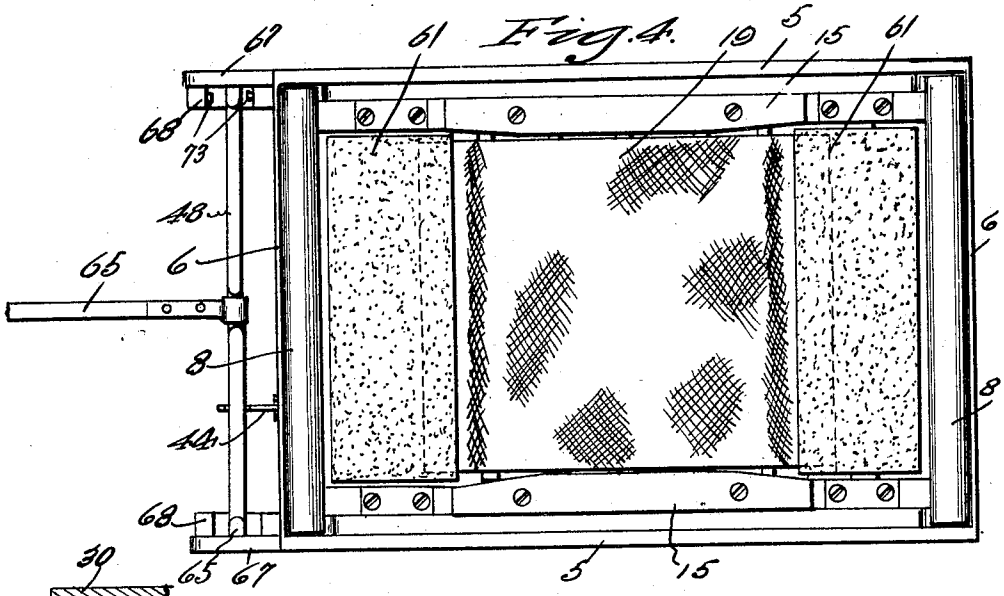


Fig. 10

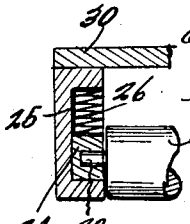


Fig. 5.

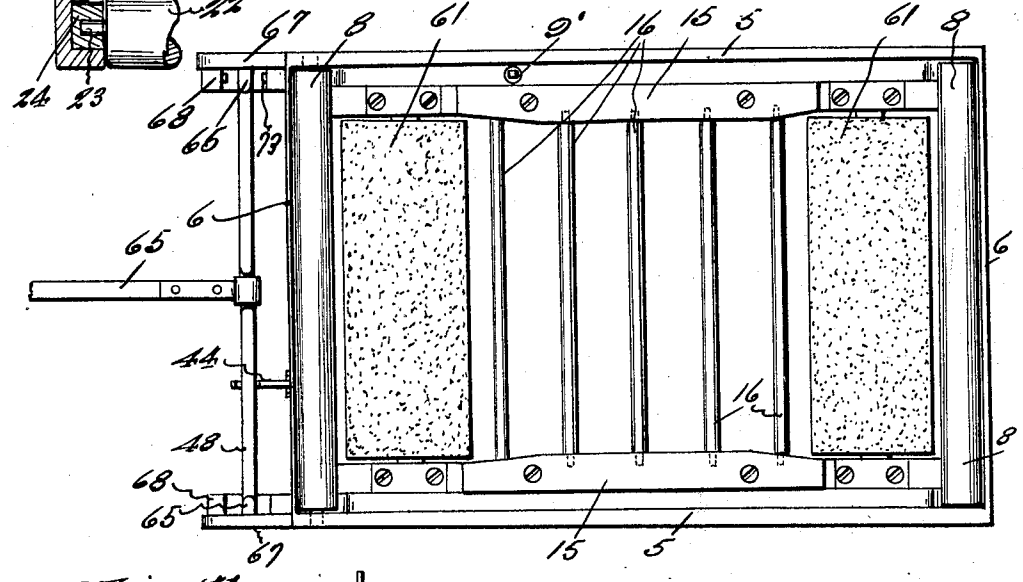
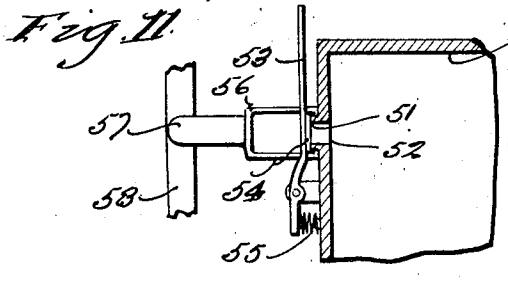


Fig. 11.



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Fig. 6.

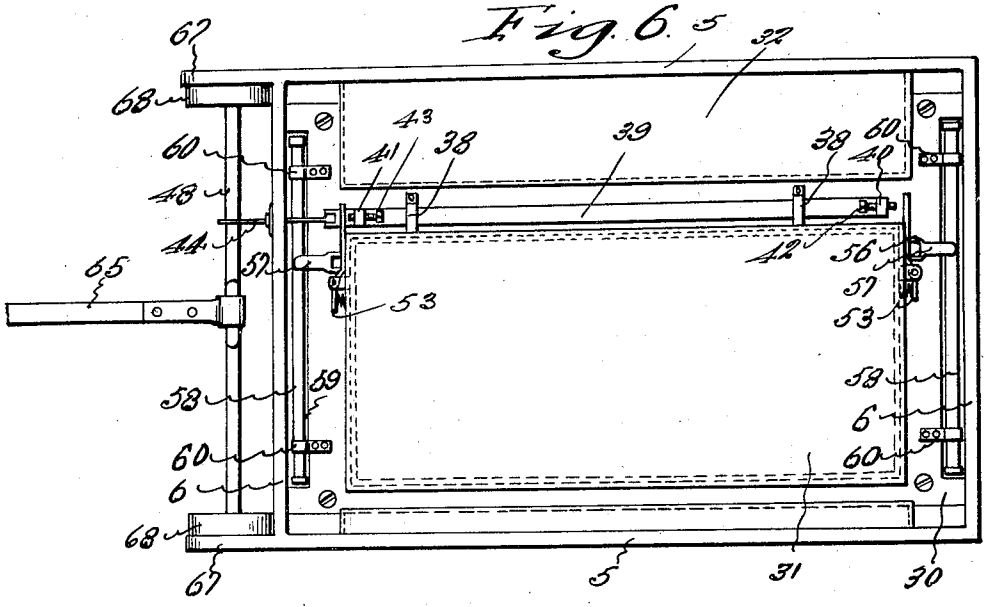


Fig. 7.

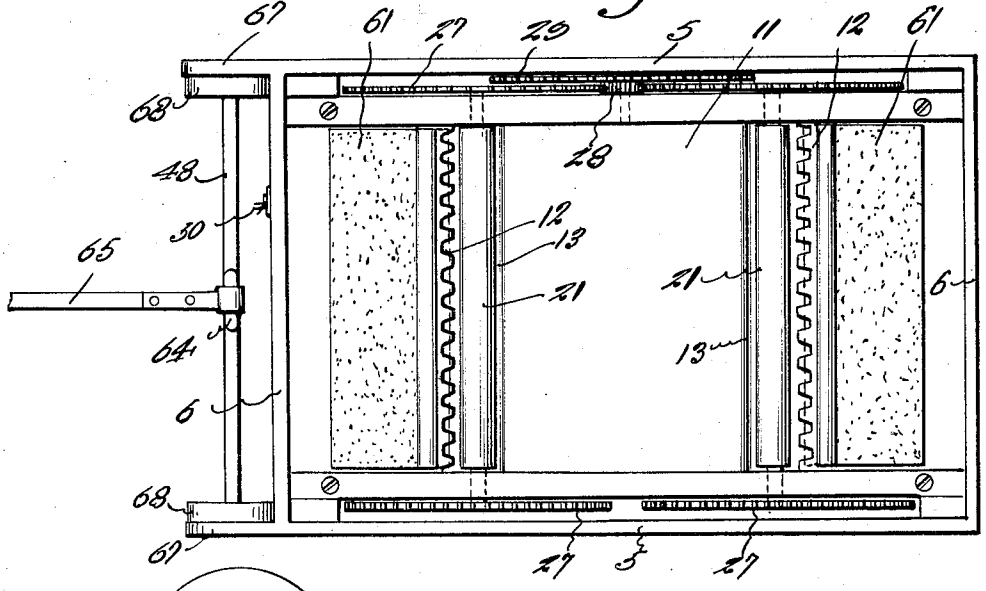
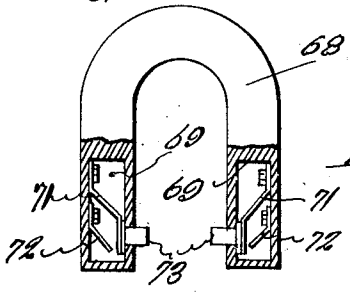


Fig. 15.



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Patented May 12, 1931 1,804,636

UNITED STATES PATENT OFFICE

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SCRUBBING MACHINE

Application filed April 21, 1930. Serial No. 446,150.

This invention appertains to new and useful improvements in scrubbing machines, and more particularly to a machine of the reservoir type, wherein a reservoir is provided for clean water and another receptacle provided for dirty water wrung from the scrubbing elements.

The principal object of this invention is to provide a scrubbing machine wherein a dual set of scrubbing elements are provided capable of operating alternately depending upon the direction of travel of the machine.

Another important object of the invention is to provide a motor driven scrubbing machine provided with switch means associated with its handle whereby the motor may be controlled for operating the machine in reversed directions.

These and various other important objects and advantages of the invention will readily become apparent to the reader as the invention is described hereinafter.

In the drawings:—

Figure 1 represents a side elevational view of the machine.

Fig. 2 represents a longitudinal sectional view through the machine.

Fig. 3 is a cross sectional view through the machine, taken substantially on the line 3—3 of Fig. 2.

Fig. 4 is a bottom plan view of the machine with the wiping elements in place.

Fig. 5 is a bottom plan view of the machine with the wiping elements removed.

Fig. 6 is a top plan view of the machine with the lid removed.

Fig. 7 is a top plan view of the machine with the motor mount and clean water receptacle removed.

Fig. 8 is a bottom plan view.

Fig. 9 is a fragmentary detailed sectional view disclosing the spring means for supporting the wiping web at the bottom of the machine.

Fig. 10 is a fragmentary sectional view disclosing the spring mount for one end of one of the upper rolls.

Fig. 11 is a fragmentary detail sectional view disclosing one of the valve assemblies.

Fig. 12 is a fragmentary detailed sectional view disclosing the means for disconnecting the valve assemblies from the machine handle.

Fig. 13 is a fragmentary elevational view disclosing the means for retaining the means shown in Fig. 12 in an inoperative position.

Fig. 14 is a fragmentary top plan view of the cover plate for the dirty water receptacle.

Fig. 15 is a fragmentary sectional view disclosing the reversible switch means for association with the machine handle.

Fig. 16 is a fragmentary sectional view disclosing a pair of the contact elements of the switch shown in Fig. 15.

Fig. 17 is a side elevational view of the connecting rod for disposition between the valve assemblies.

Fig. 18 is a side elevational view of the crank rod to which the machine handle is connected.

Fig. 19 is a diagrammatic view disclosing the cylindrical connection between the electrical devices involved.

Referring to the drawings wherein like numerals designate like parts, it can be seen that the machine includes a housing made up of the side walls 5 and end walls 6. The housing is open at its bottom as well as at its top and the top is provided with a removable lid 7 which may be secured thereto in any desired manner.

The front and rear ends of the housing are supported by rollers 8 and as is clearly shown in Fig. 2, a dirty water receptacle 9 is mounted within the housing between the intermediate portions of the side walls 5.

This dirty water receptacle preferably has sloping front and rear walls and is provided with shoulders 10 adjacent its top for supporting the cover plate 11 at its serrated edge portion 12. The cover plate 11 is disposed downwardly as at 13 adjacent each serrated edge portion thereof and these portions 13 are provided with spaced perforations 14, the purpose for which will be fully illustrated hereinafter.

As is apparent, the receptacle 9 is fixed against movement in the housing.

A pair of side bars 15 have rollers 16 in-

terposed between the same. These bars 15, are connected to the housing by springs 17 and pins 18, as in the manner shown in Fig. 9. Any number of these rollers 16 may be employed as may be found efficient in maintaining the wiper web 19 snugly against the surface being treated.

Obviously, when the machine rides over some uneven surface, the rollers 16 with the bars 15, will give, thus preventing any damage to either the web or the aforementioned parts. The web 19 is further supported by rollers 20 at the forward and rearward ends of the receptacle 9, the rollers 20 being located above the receptacle 9 and substantially on the same plane with the lower wringer rolls 21.

As before mentioned, the end portions of the cover plate 11 are offset as at 13, and this is to accommodate the lower wringer rolls 21. The upper wringer rolls 22 are located immediately above the corresponding lower wringer rolls 21 and each is provided with a pintle at each end, denoted by numeral 23, and shown clearly in Fig. 10.

Each of these pintles 23 engages in a block 24, slidable in a guideway 25, in the manner clearly shown. A coiled spring 26 in this guideway 25, serves to normally urge the block 24 downwardly so that the corresponding roll 22 is pressed against the top surface of the web 19 so as to urge the same against the lower roll 21, which action obviously wrings the dirty water from the web so that it will descend onto the underlying portion 13 of the cover plate 11 from where it will flow through the perforations 14 and into the receptacle 9.

As is clearly shown in Fig. 3, a gear chamber is provided at each side of the receptacle 9 and as is shown in Figs. 2 and 3, each roll 21 has a gear 27 at each end thereof.

At one end of each roll 21, a pinion 28 is provided and adapted to mesh with the intermediate gear 29. (See Fig. 2.)

In Figs. 2 and 3, a removable platform 30 is shown supporting a clean water reservoir 31 and a hood 32 for the electrical motor 33, which motor is provided with a reversible winding.

The armature shaft 34 of the motor is equipped with a pinion 35 for driving the intermediate gear 29. (See Fig. 2.) A side plate 36 having upper flange 37 serves to confine the gear chamber at one side of the machine, while the upper edge portion of the hood 32 serves to confine the gear chamber at the opposite side of the machine.

Attention is now directed to Fig. 6, wherein the elements aforementioned are shown in top plan view. A pair of guide members 38 slidably receives the bar 39 and as is shown in Fig. 17, this bar 39 has a pair of upstanding protuberances 40 and 41 thereon, provided with set screws 42, and 43 respectively.

A rod 44 having a hook head 45 is pivotally connected to one end of the bar 39 as at 46. This rod 44 operates through a vertical slot 47 in the rear end wall 6 of the housing, and is adapted to engage over the crank shaft 48 in the manner as shown in Fig. 6.

This rod 44 may be disconnected from the crank shaft 48 by lifting the same so that it engages between the spring jaws 49—49 of the retaining device generally referred to by the numeral 50.

Each end of the clean water reservoir 31 is provided with a boss 51 at its outer side and thru each end wall of the reservoir and through this boss extends an outlet opening 52.

A rockable lever 53 is provided at each end of the reservoir and carries a valve element 54 for closing the opening 52 by engaging against the corresponding boss 51.

A spring 55 is provided for each lever 53 to maintain the lever 53 in a position so that its valve element 54 will be closing the opening 52. The boss 51 at each end of the reservoir overlies a trough 56 from which leads a pipe 57 communicating with a perforated tube 58. These tubes 58 are disposed in slots 59 at the ends of the platform 30 and are supported by straps 60. (See Fig. 6.)

Underlying each of the tubes 58 and adjacent the bottom of the machine, is a scrubbing brush 61 on a core 62. Each end of each of the cores 62 is equipped with a gear 63 for mesh with the corresponding gear 27.

The crank shaft 48 is provided with a crank 64 to which the handle 65 is connected. The ends of the crank shaft 48 are bent laterally as at 65 and then outwardly to provide pintles 66. These pintles engage through openings in the gear portions 67—67 protruding from the rear wall 6 of the machine housing.

On the inner side of each of these gear portions 67 is a horse-shoe shaped di-electric body 68. Each leg portion of each of these bodies 68 is provided with a cavity 69 within which is located a pair of switch devices 70—70, each composed of a pair of contactable elements 71 and 72.

The elements 71 are provided with buttons 73 which protrude through openings in the body 68, and are engageable by the laterally bent end portions 65 of the crank shaft 58.

These switches are clearly shown in the diagrammatic view Fig. 19 and connects with the battery 74 and the motor 33.

It can thus be seen that when the machine is moved in one direction, the crank shaft 48 will bear against one set of switches so as to cause the motor 33 to operate in a given direction. The result is that the web 19 will be driven in a direction to wipe up the surface under treatment.

Obviously, it would be desirable to have the web operate in the opposite direction if the machine is pulled in a reverse direction, and

this is accomplished by reason of the shifting of pressure of the crank shaft 48 from one set of switches to the other, thus reversing the motor 33 and driving the web in the reversed direction, by means of the gears hereinbefore specified.

Simultaneously with the reversing of the machine, the valves at the ends of the clean water reservoir 31 are likewise reversed, so that the water will flow from the tube 58 overlying the scrubbing brush 63 in advance of the dirty water receptacle 9.

While the foregoing specification sets forth the invention in specific terms, these terms need not be strictly adhered to in view of the more general terms of the appended claims.

Having thus described my invention, what I claim as new is:—

1. A scrubbing machine of the character described comprising a housing, a handle for manipulating the machine, a clean water receptacle in the housing, valved outlets at the front and rear ends of the clean water receptacle, a scrubbing brush mounted in the said casing underlying each valved outlet, and means for selectively opening the front or rear valve accordingly as the machine is moved forwardly or rearwardly.

2. A scrubbing machine of the character described comprising a housing, a handle for manipulating the machine, a dirty water receptacle mounted within the housing, a clean water receptacle in the housing, valved outlets at the front and rear ends of the clean water receptacle, a scrubbing brush mounted in the said casing underlying each valved outlet, means for selectively opening the front or rear valve accordingly as the machine is moved forwardly or rearwardly, a wiping web trained around the dirty water receptacle and between the brushes, and motor driven gear means for operating the web.

3. A scrubbing machine of the character described comprising a housing, a handle for manipulating the machine, a clean water receptacle in the housing, valved outlets at the front and rear ends of the clean water receptacle, a scrubbing brush mounted in the said casing underlying each valved outlet, means for selectively opening the front or rear valve accordingly as the machine is moved forwardly or rearwardly, a motor, means whereby the motor may be reversed, a web, and gear means between the motor and the said web.

4. A scrubbing machine of the character described comprising a housing, a handle for manipulating the machine, a clean water receptacle in the housing, valved outlets at the front and rear ends of the clean water receptacle, a scrubbing brush mounted in the said casing underlying each valved outlet, means for selectively opening the front or rear valve accordingly as the machine is moved forwardly or rearwardly, a motor, means whereby the motor may be reversed, a web, gear means between the motor and the said web, said means for reversing the motor comprising a crank shaft to which the handle is adapted to be attached, a reversing switch, and means on the said crank shaft operating the switch.

In testimony whereof I affix my signature.

JOHN MILANOVICH.