(No Model.) 4 Sheets—Sheet 1.

J. LEDWON.

SCRUBBING AND MOPPING MACHINE.

No. 588,584. Patented Aug. 24, 1897.

FIG. 1.

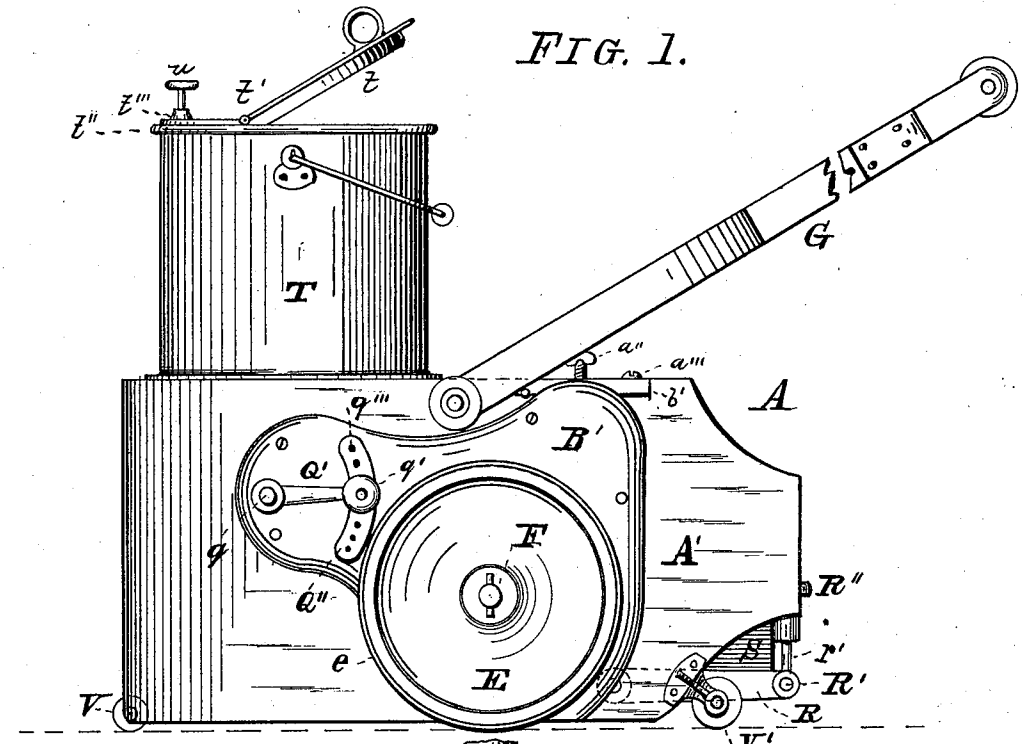
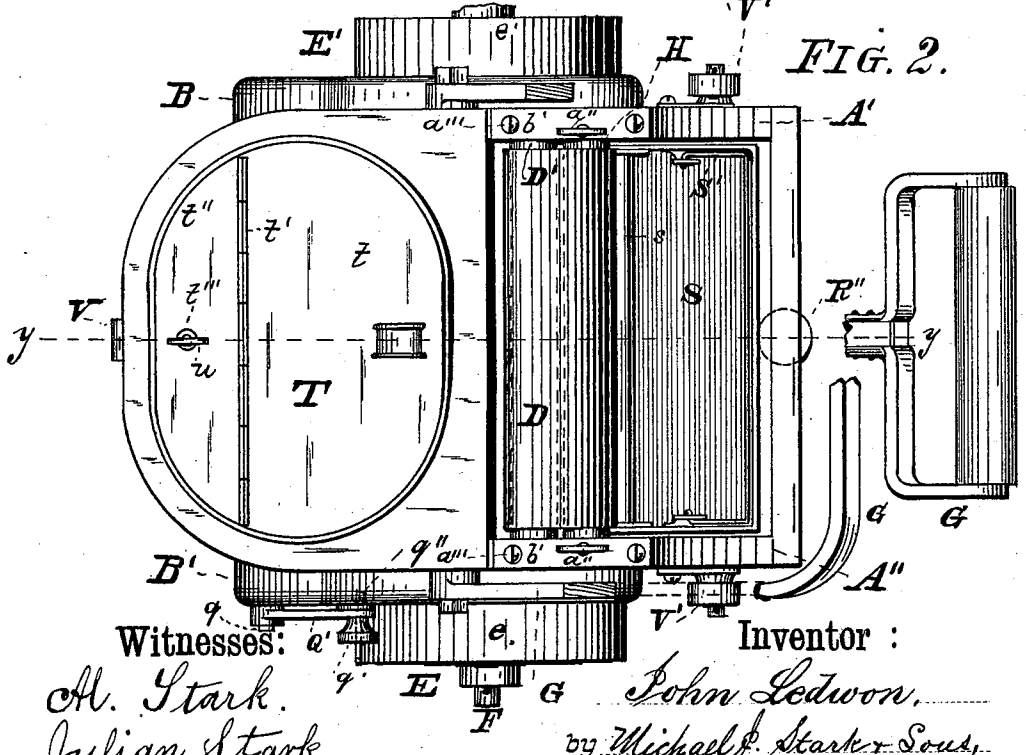


FIG. 2.



Witnesses:
A. Stark.
Julian Stark.

Inventor:
John Ledwon,
by Michael J. Stark & Sons,
Attorneys.

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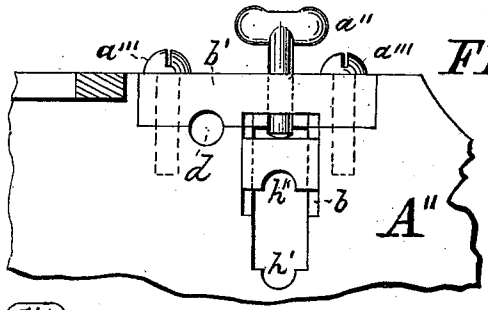


FIG. 3.

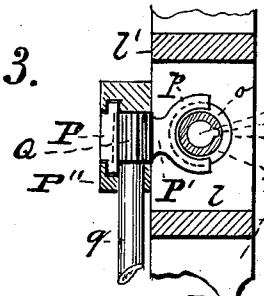


FIG. 9.

FIG. 5.

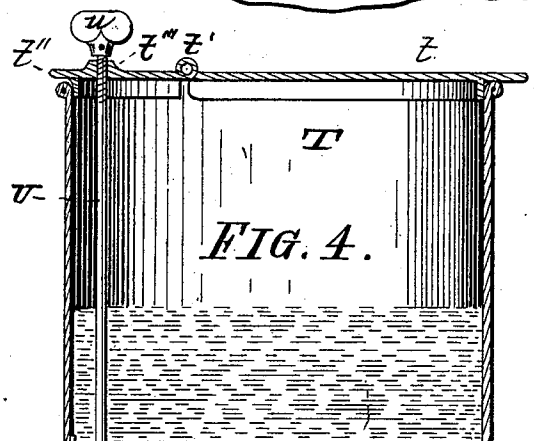
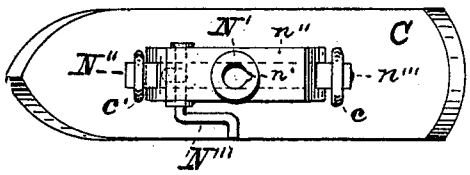


FIG. 4.



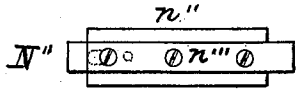
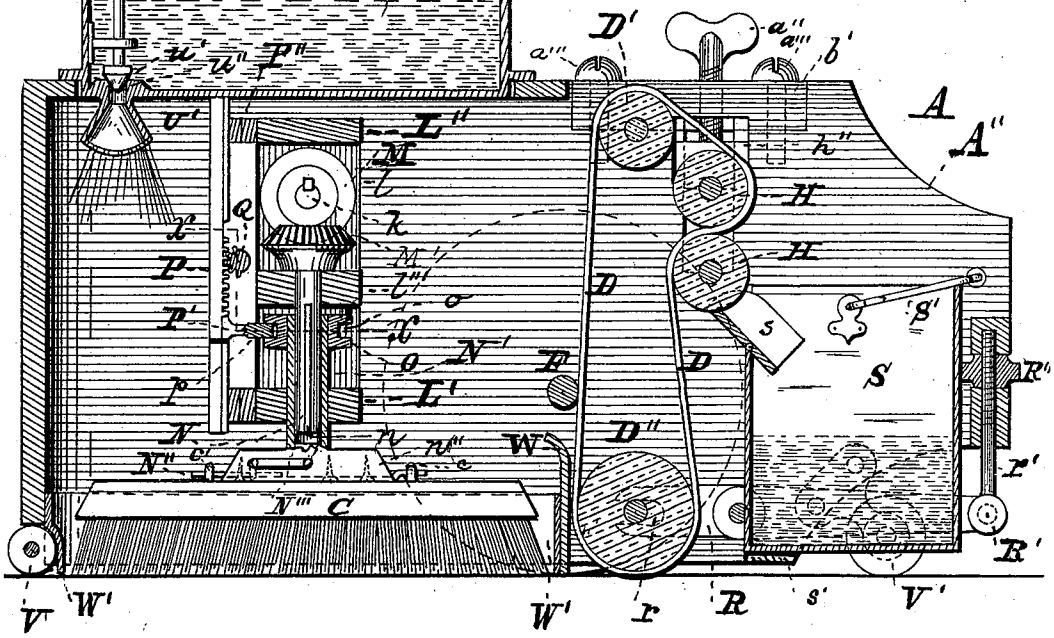


FIG. 6.



Witnesses:

Al Stark.

Julian Stark

Inventor:

John Ledwon,

by Michael J. Stark & Sons,

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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J. LEDWON.

SCRUBBING AND MOPPING MACHINE.

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FIG. 7.

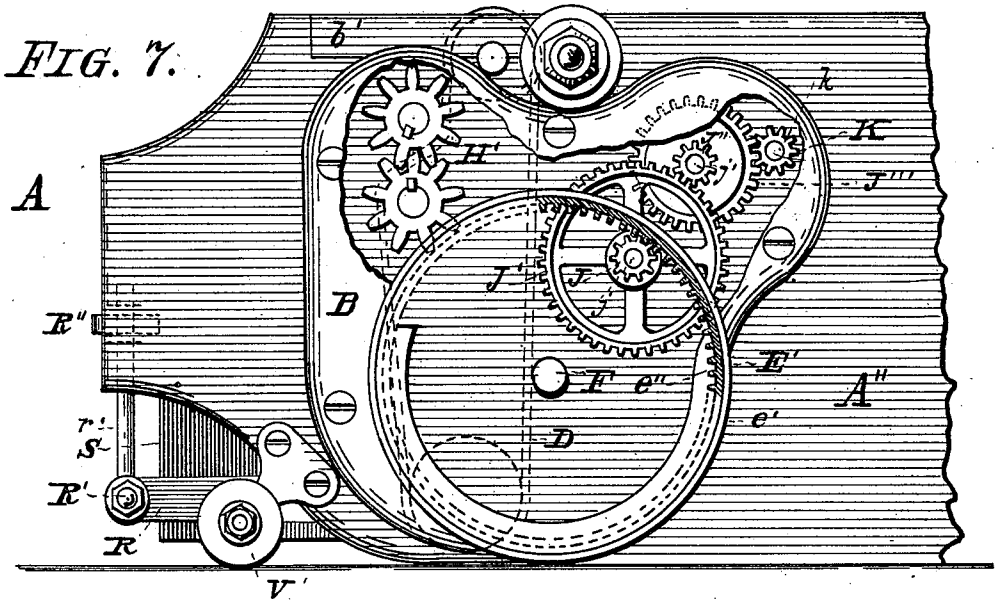
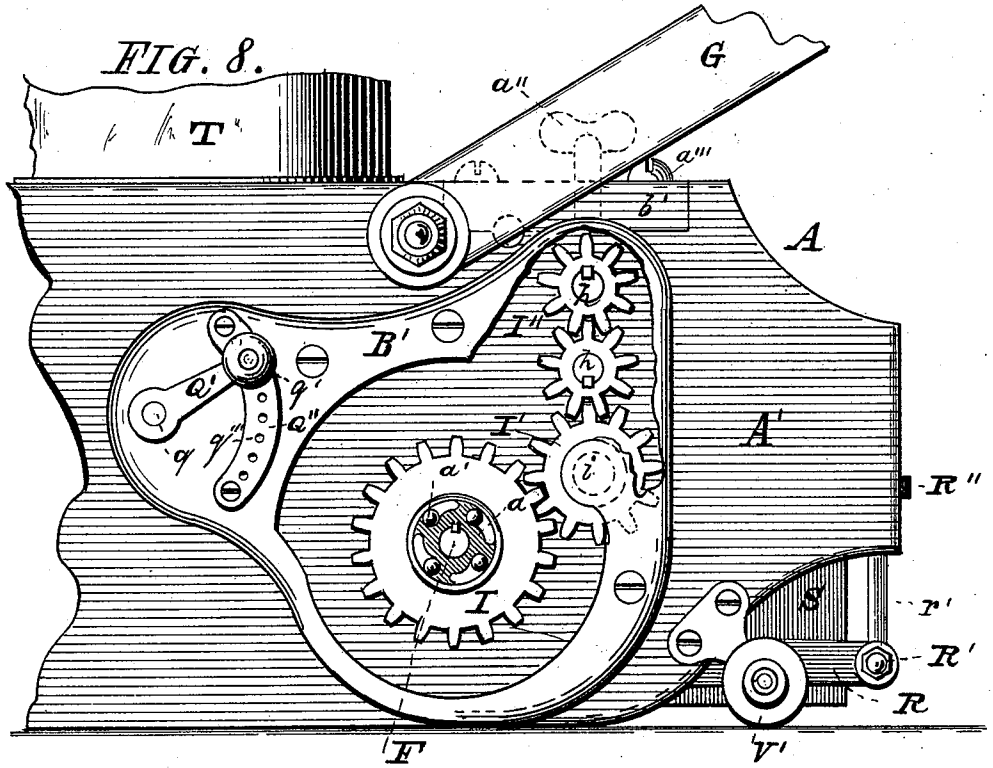


FIG. 8.



Witnesses:

Al. Stark.

Julian Stark.

Inventor:

John Ledwon.

by Michael J. Stark & Sons,

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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J. LEDWON.

SCRUBBING AND MOPPING MACHINE.

No. 588,584. Patented Aug. 24, 1897.

FIG. 10.

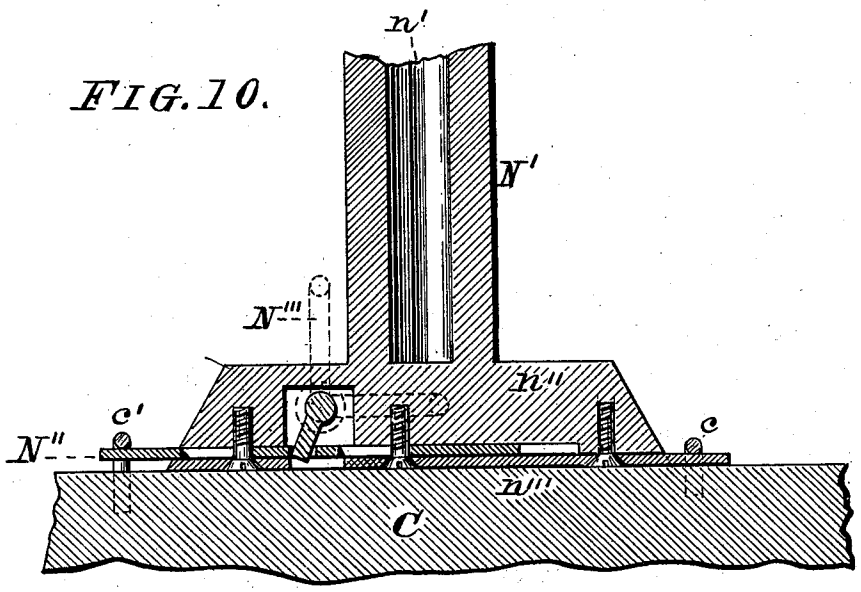
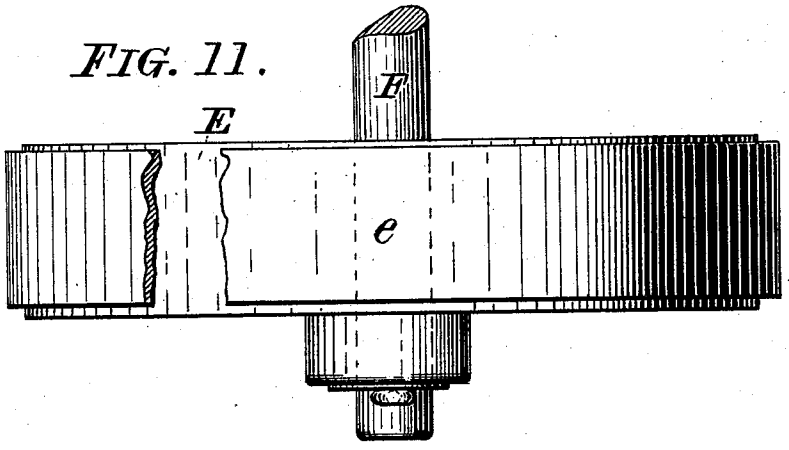


FIG. 11.



Witnesses:
Al. Stark.
Julian Stark.

Inventor:
John Ledwon.
by Michael J. Stark & Sons,
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN LEDWON, OF BUFFALO, NEW YORK.

SCRUBBING AND MOPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 588,584, dated August 24, 1897.

Application filed March 8, 1897. Serial No. 626,486. (No model.)

To all whom it may concern:

Be it known that I, JOHN LEDWON, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Scrubbing and Mopping Machines; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has general reference to machines for scrubbing and mopping floors; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described and then pointed out in the claims.

In the drawings already mentioned, which serve to illustrate this invention more fully, Figure 1 is a side elevation of my improved scrubbing and mopping machine. Fig. 2 is a plan of the same. Fig. 3 is an elevation of a portion of the machine, illustrating the construction of the bearings for the wringer-rolls and the upper apron-guide roll. Fig. 4 is a sectional elevation in line *y y* of Fig. 2. Fig. 5 is a plan of the scrubbing-brush and the sleeve by means of which it is attached to the driving-spindle. Fig. 6 is a bottom view of the sleeve detached. Figs. 7 and 8 are side elevations of the machine, showing the construction of the driving-gearing. Fig. 9 is a sectional plan of portion of the device for lifting and depressing the brush in line *x x* of Fig. 4. Fig. 10 is a sectional elevation of the sleeve and a portion of the scrubbing-brush, illustrating the mechanism for removably attaching the latter to the said sleeve. Fig. 11 is a plan of one of the driving-wheels, showing the rubber band around the rim of said wheels.

Like parts are designated by corresponding letters of reference in all the figures.

The object of this invention is the production of an efficient and serviceable machine for scrubbing and mopping floors. To attain this result, I construct the machine substantially in the following manner:

A in the drawings designates a rectangular shell or case, the forward end of which is rounded off, as shown in Figs. 1 and 2. To the sides A′ A″ of this case are secured gear-cases B B′, which contain and cover the gearing by means of which the scrubbing-brush C and the mopping-apron D are driven and which will be hereinafter more fully described.

E E′ are two driving-wheels loosely mounted upon an axle F, passed transversely through the case A. These wheels are covered on their rims with rubber bands *e e′* to increase adhesion and thereby the frictional contact with the floor over which the machine is to be propelled by means of a forked handle G. (Shown in Figs. 1 and 2.) One of these wheels E has its boss or hub *a* provided with a friction or other clutch mechanism *a′*, by means of which it engages a spur-wheel I, which meshes with an intermediate wheel I′, mounted upon a stud *i*, which intermediate wheel in turn engages one of a pair of connecting gear-wheels I″, secured to the shafts *h* of a pair of wringer-rolls H, the other opposite ends of which are also provided with connecting gear-wheels H′, as shown in Fig. 7. These shafts *h* have their bearings *h′ h″* in the sides A′ A″ of the machine, the upper boxes *h″* of which are movable within recesses *b* and acted upon by adjusting-screws *a″* to force the two wringer-rolls into contact with the apron D, passing between them, said boxes *h″* being inserted into the recesses by removing a cap *b′* in the sides A′ A″, held therein by screws *a‴*, as clearly illustrated in Fig. 3.

The driving-wheel E′ has its rim formed with an internal gear *e″*, as shown in Fig. 7, which gear engages a pinion J, attached to a spur-wheel J′, with a clutch mechanism similar to the one in the gear-wheel and hub of the driving-wheel E, the spur-wheel J′ being mounted upon a stud *j* and engaging a pinion J″, fastened to a spur-wheel J‴, mounted upon a stud *j′* and engaging a pinion K, secured to a shaft *k*, having one of its bearings in the side A″ and its other bearing in a frame L, located between the sides A′ A″, Fig. 4, and carrying a bevel-wheel M, engaging a bevel-pinion M′. This latter pinion is secured to a vertical spindle N, which rotates the scrubbing-brush C.

The frame L consists of two horizontal bars L′ L″, Figs. 4 and 5, and two connecting

vertical bars $l\,l'$, between which there is a short horizontal bar l'', in which the vertical spindle has its bearing. Over this spindle N there is a sleeve N', which revolves in the lower cross-bar L' and connects with the vertical spindle N by a spline n thereon, Fig. 4, engaging a groove n', Figs. 5 and 9, in said sleeve. The lower end of this sleeve terminates in the center of a cross-bar n'', the lower face of which has a longitudinal groove fitted with a plate n''', one end of which projects from the bar n'' and engages a staple c on the top of the brush C, while in the opposite part of the said groove there is a slide N'', projecting from that end of the bar n'' opposite to the projecting end of the plate n''' and which engages a staple c', also located on the top of the brush C. This slide N'' is actuated by a bell-crank lever N''', having an arm engaging an opening in the slide N'' in such manner that the slide N'' is moved longitudinally in the plate n'''. By actuating this bell-crank N''' the brush C may be attached to and removed from the T-shaped sleeve N' for renewal of the brush and for other obvious reasons and purposes.

O is a grooved collar affixed to the upper end of the sleeve N'. Its groove o engages the fork p of an arm P', formed in one piece with or attached to a rack P, located in guides P'', secured to the rails or bars L' L''. With this rack engages a pinion Q, Figs. 4 and 9, formed on a shaft q, which has a bearing near the pinion Q in the guides P'' and another bearing near the outer end of said shaft in the gear-case B', Fig. 8, there being attached to the outer end of said shaft q an arm Q', having a knob q' by means of which it is actuated. On the lower side of this arm Q' there is a pin q'', Fig. 2, engaging one of a series of holes q''' in a segment Q'', secured to the gear-case B'. This arm Q' is made rather thin, so that by pulling on the knob q' the pin q'' can be withdrawn from the hole q''' and then the arm moved in either direction and again locked by allowing the pin q'' to engage the respective hole q'''. By thus actuating the arm Q'' the pinion Q will be raised or lowered, as the case may be, and with it, through the arm P' and the grooved collar O, the brush C, thus allowing for wear of the brush-bristles and for supplying the necessary pressure upon the brush to properly operate in the cleaning operation.

D is the mop. It is an endless apron of a suitable fabric and is passed over a top guide-roll D', having its bearings d in the sides of the body A, as shown in Fig. 3, and a bottom guide-roll D'', journaled in slotted openings r on the ends of two levers R, fulcrumed in the sides A' A'' and extending rearwardly, where a cross-bar R' connects them. This cross-bar has centrally projecting an adjusting-screw r', engaging a revolving nut R', as shown in Fig. 4. By turning this nut the screw r' is raised or lowered, as the case may be, which operates the slotted ends of the levers R in the opposite direction and thereby enables the tensioning of the apron and to cause it to press upon the floor with the requisite degree of force, however slight that may be, to mop up the floor after the brush C has scrubbed the same.

The lower guide-roller D'' is preferably made from soft rubber, so as to act yieldingly and thereby pass readily over undulations of the floor. In passing from the top guiding-roller the apron passes between the two wringer-rolls H, where the water or liquid lapped up by the apron is squeezed out of the same and discharged into a receiver S, being a rectangular receptacle placed into the rear portion of the body of the machine upon cleats s'' and provided with a bail S' to enable the receptacle being readily inserted into or taken out of the machine. An inclined guide s is provided in the receptacle S to lead the liquid from the wringer-rolls into the receiver.

T is a tank or reservoir placed upon the forward part of the body A. It has a cover t, hinged to a fixed portion t'' at t', to which fixed portion is attached a nut t''', wherewith engages a screw-threaded portion of a valve-rod U, having a handle u, by means of which it is revolved. On the lower end of this rod there is a valve u', seated upon a seat in a valve-casing u'', forming an outlet for the tank T and terminating in a rose-sprinkler U', discharging into the forward portion of the body A, wherein the brush C revolves. By opening this valve u' the contents of the tank will flow through the valve-casing and rose-sprinkler, which flow may be regulated to a nicety by turning the handle u on the valve-rod in the proper direction.

The machine, as described, is mounted upon the two driving-wheels E E', but it has, in addition, a pilot-wheel V in front and two carrying-wheels V' in the rear of the body A, it being understood that by the introduction of the clutch mechanism in the wheels I and J' the mechanism will operate in one direction only and that when the machine is pulled backward the gearing, and with it the brush and the apron and wringer-rolls, will stand idle. The machine is pushed along the floor to be scrubbed and mopped by the handle G much the same way as a lawn-mower or carpet-sweeper. The driving-wheels being thus revolved set the brush, as well as the mopping-apron, into operation. Soapsuds or other detergent in liquid form is used in the tank T and sprinkled over the floor within the compass of the forward portion of the body and supplies the necessary moisture to the revolving brush, which cleanses the floor, while the apron following the brush takes up the moisture and delivers it to the receiver S.

In order to prevent spattering of the liquid detergent used in the machine over the floor already cleaned and mopped, the forward portion of the machine containing the revolving brush is separated from the portion containing the mopping device by a low parti-

tion W, Fig. 4, and the inner lower space of the forward portion lined with a rubber or other suitable lining W′, which reaches down to the floor and thereby confines the splashing liquid within this forward compartment.

In constructing this device I prefer to make the body of sheet metal and supply the gearing, gear-cases, and other parts in metal, so as not to be affected by moisture, a matter readily understood by mechanics skilled in the art to which this invention appertains.

Having thus fully described my invention, I claim as new and desire to secure to me by Letters Patent of the United States—

1. In a combined scrubbing and mopping machine, the mechanism for raising and lowering the brush, consisting, essentially, of a vertical shaft, means for rotating the same, a T-shaped sleeve over said shaft, a brush removably affixed to the horizontal bar of said sleeve, a grooved collar on said sleeve, a rack operating in suitable guides, a slotted arm on said rack engaging the groove in said collar, a shaft, a pinion on said shaft, engaging said rack, an arm on the end of said shaft having a handle or knob, a pin on said arm, and a segment on the side of the machine having a series of holes as and for the object set forth.

2. In a combined scrubbing and mopping machine, the combination with the apron, of top and bottom guide-rolls for the same, a pair of wringer-rolls, mechanism for moving the apron and wringer-rolls, levers having slotted ends engaging the pivots of the lower guide-rolls at one end, a cross-bar connecting the levers at the opposite end, an adjusting-screw projecting centrally from said cross-bar, and a revolving nut located in a slot in the body of the machine, as and for the purpose indicated.

3. In a floor-scrubbing machine, the mechanism for removably attaching the brush to the driving-shaft, consisting, essentially, of a T-shaped sleeve, a longitudinal groove in the lower part of the horizontal bar on said sleeve, a plate in said groove and projecting from one end of said bar, a slide at the opposite end of said groove and projecting therefrom, a brush, and two oppositely-located staples on the top of said brush adapted to engage the projecting ends of the plate and the slide, and a crank-lever for actuating the slide as and for the object set forth.

In testimony that I claim the foregoing as my invention I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN LEDWON.

Attest:

STANISLAUS URBANSKI,

JOSEPH STROKA.