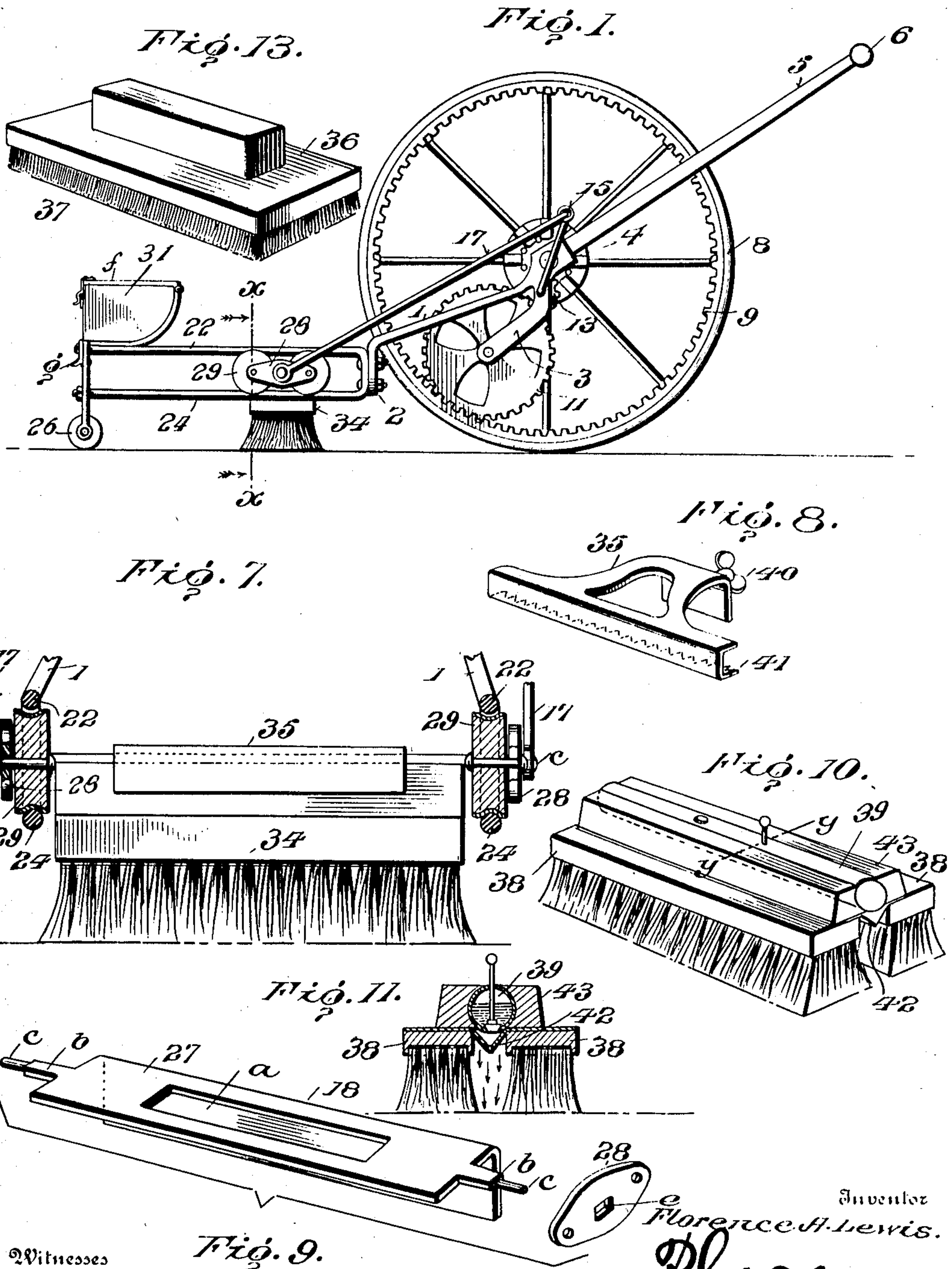


No. 870,633.

PATENTED NOV. 12, 1907.

F. A. LEWIS.
FLOOR CLEANING MACHINE.
APPLICATION FILED NOV. 22, 1906.

2 SHEETS—SHEET 1.



Witnesses
O. H. Woodson
A. T. Messer.

Fig. 9.

Inventor
Florence H. Lewis.
By *R. A. Macy,*
Attorneys

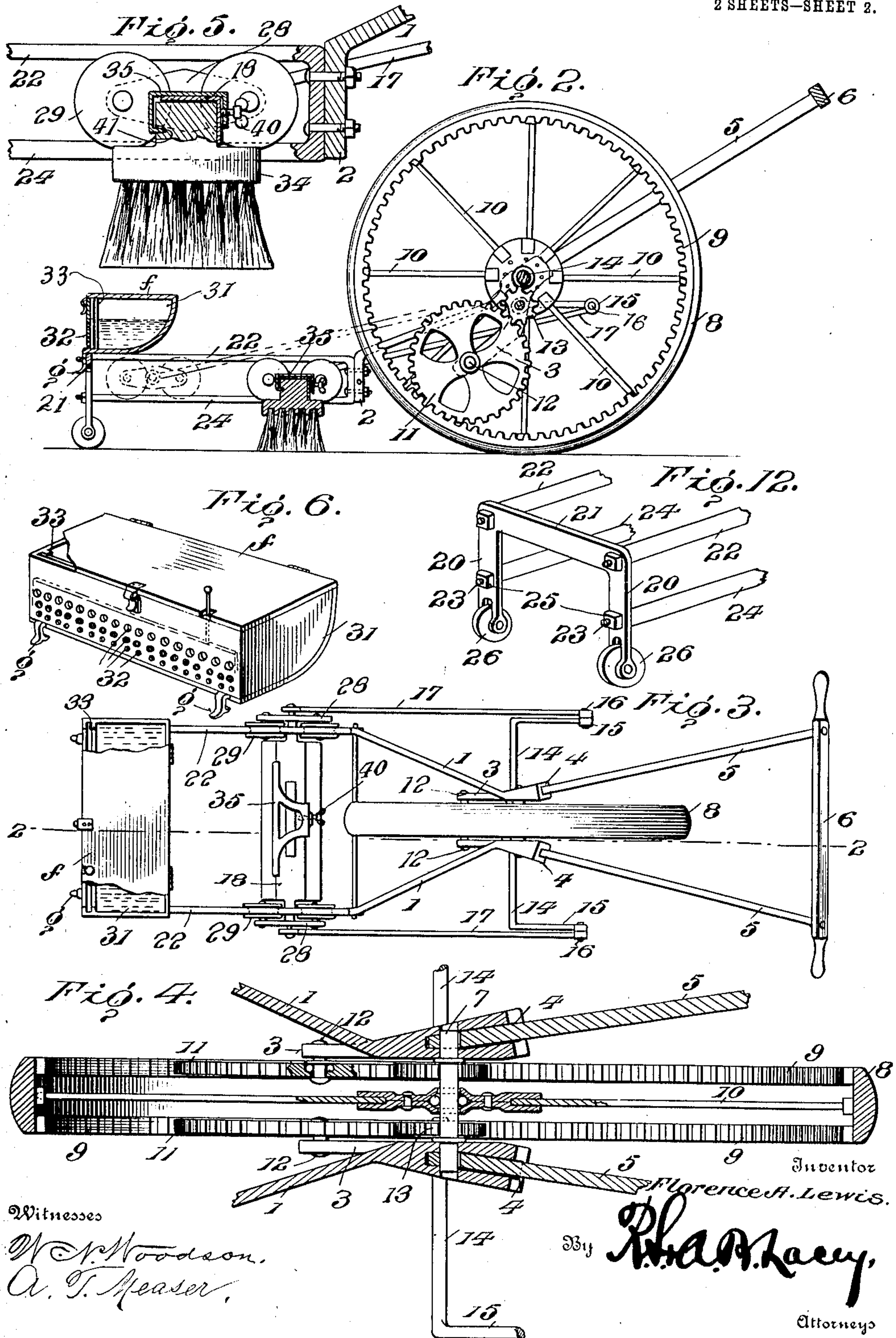
No. 870,633.

PATENTED NOV. 12, 1907.

F. A. LEWIS.
FLOOR CLEANING MACHINE.

APPLICATION FILED NOV. 22, 1906.

2 SHEETS—SHEET 2.



Witnesses

W. V. Woodson.
A. T. Measer.

By

Florence A. Lewis.
[Signature]

Attorneys

UNITED STATES PATENT OFFICE.

FLORENCE A. LEWIS, OF SHADYPOINT, INDIAN TERRITORY.

FLOOR-CLEANING MACHINE.

No. 870,633.

Specification of Letters Patent.

Patented Nov. 12, 1907.

Application filed November 22, 1906. Serial No. 344,611.

To all whom it may concern:

Be it known that I, FLORENCE A. LEWIS, a citizen of the United States, residing at Shadypoint, Choctaw Nation, Indian Territory, have invented certain new and useful Improvements in Floor-Cleaning Machines, of which the following is a specification.

This invention relates to floor cleaning machines of the type embodying a carriage and an operating mechanism therefor, and has for its object to produce a comparatively simple, inexpensive device of this character which may be utilized for scrubbing, oiling or polishing the floor, one wherein the scrubbing, oiling and polishing devices may be readily interchanged to adapt the device for properly performing its various functions, and one in which the floor treating device employed in the machine will be positively and effectually operated.

A further object of the invention is to provide a device of this character in which the operating mechanism will drive the carriage at a comparatively high rate of speed proportionate with the speed of travel of the machine, one in which the carriage will be properly reciprocated during the scrubbing, oiling or polishing operations, and one in which the brush or polisher is securely but detachably engaged with the carriage to permit convenient interchanging of said devices.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a side elevation of a machine embodying the invention and showing the same equipped with a scrubbing brush. Fig. 2 is a side elevation partly in vertical longitudinal section, the section being taken on the line 2—2, of Fig. 3, the full lines showing the carriage at the limit of its rear movement and the dotted lines showing the carriage at the limit of its forward travel. Fig. 3 is a top plan view of the machine, end portions of the cover to the water tank being broken away. Fig. 4 is a horizontal section of the drive wheel and the rear end portions of the side frame bars, the parts being on a larger scale. Fig. 5 is an end view of the brush showing the carriage in section and a portion of the supporting frame for the carriage, parts of said frame being broken away. Fig. 6 is a detail perspective view of the water tank, a corner portion of the cover being broken away. Fig. 7 is a front view of the brush and clip showing the carriage and its supporting frame in section on the line x—x of Fig. 1, the parts being illustrated on a larger scale. Fig. 8 is a detail per-

spective view of the clip. Fig. 9 is a detail perspective view of the body portion of the carriage showing an end piece, the latter being separated from said body. Fig. 10 is a detail perspective view of a pair of oiling brushes and the oil tank and oil distributor cooperating therewith. Fig. 11 is a transverse section of the parts shown in Fig. 10 on the line y—y. Fig. 12 is a detail perspective view of the front portion of the supporting frame of the carriage and adjunctive parts. Fig. 13 is a perspective view of the polishing device, or head.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, it will be seen that the frame of the machine includes a pair of rear side members, or bars 1 arranged to diverge relatively from their rear toward their forward ends, at which latter they terminate in vertically depending portions 2 and at their rear ends in downwardly and forwardly inclined parallel portions or arms 3, the bars 1 being provided at their rear ends with sockets 4, to receive the forward ends of handle bars 5 connected at their ends by a cross piece 6.

Fixed at its ends in the socket portions of the side bars 1 is a shaft 7 on which is rotatively mounted a drive wheel 8 designed to travel over the floor or other surface and provided on the inner face of its rim with two sets of gear teeth 9 disposed respectively at opposite sides of the centrally arranged spokes 10 and adapted to mesh with gears 11 journaled upon stub shafts 12 projecting inwardly from the lower ends of the arms 3, the gears 11 being in turn in mesh with pinions 13 fixed upon the inner ends of shafts 14 equipped with crank arms 15 provided with wrist pins 16 on which are pivoted the rear ends of pitman rods 17 in turn connected at their forward ends with a carriage 18 which will be fully hereinafter described. The drive wheel 8 and pinions 13 may be fitted with ball bearings adapting them for free rotation.

The supporting frame-work for the carriage is preferably located in front of the drive wheel 8 and comprises similar side members which are transversely connected, each side bar comprising an upper longitudinal bar 22 and a lower longitudinal bar 24, said bars being connected at their rear ends to the respective frame members 1 in any convenient and substantial way. The bars 22 and 24 of each side bar have a parallel arrangement and preferably comprise parts of a single bar or rod which is doubled upon itself and secured at the closed end of the pendent portion 2 of the frame bar 1. The said supporting frame-work for the carriage is provided at its forward end with U-shaped front piece, the head comprising vertical side members 20 and an upper connecting member, or bar, 21, said head having the front ends of the bars 22 and 24 detachably connected thereto, whereby provision is had for removing the car-

riage, or placing the same in position as may be required. The front ends of the longitudinal rods are reduced and threaded as indicated at 23 and receive nuts 25. The lower ends of the vertical side members 20 of the head piece are forked and receive supporting wheels 26 which are adapted to travel upon the floor, or other surface, upon which the machine may be placed for operation.

It is observed that the parts are so proportioned as to cause the rods 22 and 24 to extend about parallel with the surface upon which the machine may be operating, thereby causing the brush, polisher or like device, to operate upon the surface with equal pressure and effectiveness throughout its entire travel both upon the forward and rearward stroke.

The carriage comprises a body 27, end pieces, or plates, 28 and guide rollers 29, the latter being grooved in their outer edges to receive the rods 22 and 24. The body portion 27 consists of an angular bar, or plate, arranged with one wing horizontal and the other wing vertical. The horizontal wing has a longitudinal opening *a* to admit of oil or other liquid being supplied to the brush, or other means for spreading or distributing the same upon the surface, or floor, to be finished. The vertical wing constitutes a stop against which the head of the brush, or like part is clamped. Projections are formed at opposite ends of the body preferably in line with the horizontal wing and comprise angular portions *b* and rounded portions *c*. The angular portions *b* are adapted to pass through angular openings *e* of corresponding shape, provided centrally of the end pieces, or plates, 28 so as to prevent relative rocking movement of the parts 27 and 28. The rounded portions *c* receive the lower forward ends of the pitman rods 17 which are mounted thereon. Each of the plates 28 is provided at, or near, opposite ends with a grooved wheel 29 which is rubber-faced, or otherwise clothed to prevent rattle and noise while the machine is in operation.

A tank 31 is supported upon the front portion of the frame and is adapted to be closed by a suitable cover *f* which is hinged thereto at one edge and is secured at its opposite edge by means of a catch. The lower rear portion of the tank is preferably made rounding, whereas the front side is straight and provided with a series of rows of openings 32 for the escape of water to moisten the brush and floor in the scrubbing operation. The lowest row of openings are small and the next row are a trifle larger, and the openings of the row above are still larger. By having the openings thus graduated, the flow of water may be regulated by means of a slide 33 which is mounted in suitable guides formed in the ends of the tank.

Suitable hooks *g* are provided at the lower forward portion of the tank to engage with the cross-bar 21 of the U-shaped head piece and retain the tank in place, said hooks admitting of the tank being readily removed when required for any purpose.

The scrubbing brush 34 may be of any construction and is adapted to be secured to the carriage in any manner to admit of its removal and replacement by means of the polishing head, or oiler. A clip 35, shown most clearly in Fig. 8, is provided for securance of the brush to the body portion 27 of the carriage. This clip consists of a plate having opposite edge portions bent in the same direction at about a right-angle, one of the

bent ends being provided with a set-screw 40 and the opposite bent portion, being provided with a series of inwardly extending teeth 41 which are adapted to enter a raised portion of the back of the brush and prevent slipping thereof as indicated most clearly in Fig. 2. The brush is adapted to be replaced by means of a polishing head 36, the same consisting of a back similar to the brush 34 and having its face provided with a pad 37 which may receive an abrasive material, or other compound to effect the required finish of the floor, or other surface, to be polished.

When a liquid substance, such as oil, is adapted to be applied to the floor, or surface, the means illustrated in Figs. 10 and 11 are employed, the same consisting of companion brushes 38, a tank 39 and a distributor 42. The brushes 38 are spaced apart a short distance and each is provided upon the upper side of its back with a strip 43, and between the two strips is fitted the tank 39.

A valve controlled outlet is provided in the bottom of the tank for the escape of the oil, or other liquid, in regulated quantity, the outflow being controlled by means of the valve which may be opened more or less. The distributor 42 is a trough and is arranged between the two brushes and is approximately of "V" form in transverse section and is provided with a row of holes in its bottom throughout its length for the escape of the oil which is distributed by means of the brushes. The valve controlled outlet of the tank is preferably centrally located and the distributor 38 serves to convey the oil, or other liquid, throughout the length of the brushes, whereby a uniform delivery is assured.

In the practical operation of the machine, the same being adapted for scrubbing, the water tank 31 and the brush 34 are placed in position as indicated most clearly in Figs. 1 and 2. Upon causing the machine to travel over the floor, or surface to be cleaned, the traction of the drive wheel 8 upon the surface is sufficient to cause the rotation of the shafts 14 through the instrumentality of the gearing 9, 11 and 13, the brush being reciprocated by the action of the crank arms 15 and pitman connections 17. For oiling the floor, or surface, the brush 34 is replaced by the means shown in Figs. 10 and 11, the machine being drawn backward and forward over the floor by means of the handle-bars in a manner well understood. For polishing or smoothing the surface, the soft brush 36 illustrated in Fig. 13 is attached to the carriage and the machine trundled over the surface in the manner hereinbefore explained. When the machine is adapted for either polishing or oiling, the water tank 31 may either be removed from the carriage supporting frame, or may be left in position. When the tank 31 is left on the frame, the slide 33, is pressed downward to completely cut off the water and the weight of said tank assists materially in holding the front part of the frame down to its work. The different floor treating devices may be removed and placed in position without detachment of the carriage from the frame, but should it be preferred to remove the carriage, the same may be effected by disconnecting the U-shaped head piece from the guide rods, or members 22 and 24, disengaging the pitman connections from the ends of the body 27. The carriage being thus released may be removed and again replaced with the greatest ease and convenience.

Having thus described my invention, what I claim is:

1. In a machine of the character described, the combination of a frame comprising upper and lower longitudinal rods, a removable head connecting the extremities of the rods at one end of the frame, rearwardly extending side pieces connected to opposite end portions of the rods, a carriage slidably mounted between the rods, a drive wheel mounted between the side pieces, and mechanism operated by the drive wheel for reciprocating the carriage.
2. In a machine of the character described, the combination of a frame comprising upper and lower longitudinal rods, a removable head connecting the extremities of the rods at one end of the frame, the said head being provided with means for supporting the frame, rearwardly extending side pieces connected to opposite end portions of the rods, a carriage slidably mounted between the rods, a drive wheel mounted between the side pieces, and mechanism operated by the drive wheel for reciprocating the carriage.
3. In a machine of the character described, the combination of a frame comprising a pair of oppositely arranged U members, a removable U-shape head connecting the extremities of the arms of the U members, a carriage slidably mounted between the arms of the two U members, a drive wheel connected to the frame, and mechanism operated by the drive wheel for reciprocating the carriage.
4. In a machine of the character described, the combination of a drive wheel provided with teeth upon opposite sides of its periphery, a frame connected with the drive wheel, a carriage slidably mounted upon the frame, gears meshing with the teeth on opposite sides of the drive wheel, crank shafts actuated by the gears, and pitmen connecting the crank shafts to the carriage.
5. In a machine of the character described, the combination of side bars having sockets at one end thereof, handle bars fitting in said sockets, a shaft mounted in the side bars, a drive wheel mounted upon the shaft and provided with teeth, gears meshing with the teeth upon the drive wheel, a frame carried by the opposite ends of the side bars, provided with oppositely arranged guide ways, a carriage slidably mounted within the guide ways, and connecting means between the before mentioned gears and the carriage whereby the latter is given a reciprocating motion through the action of the drive wheel.
6. In a machine of the character specified, a combination of side-bars forwardly diverged and having sockets at their rear ends, handle-bars fitted in said sockets, a shaft mounted in said side bars, a drive wheel mounted upon said shaft and provided with cog teeth at opposite portions, shafts located upon opposite sides of the drive wheel and provided with crank arms and connected to the respective cog gearing of the drive wheel, a frame extended forward from the aforementioned side-bars, a carriage mounted upon said frame and adapted to have a floor treating device fitted thereto, and pitman connections between said carriage and the aforementioned crank arms.

tions between said carriage and the aforementioned crank arms.

7. In a machine of the character described, the combination of a drive wheel, a frame connected therewith, a carriage slidably mounted upon the frame and comprising a body portion having extensions at opposite ends thereof, roller carrying plates fitted upon the extensions, and mechanism operated by the drive wheel for reciprocating the carriage.

8. In a machine of the character specified a carriage comprising a body of angular formation in cross section and provided with end extensions, each extension comprising an angular portion and a rounded part, end pieces fitted upon the angular portions of said extensions and provided at their ends with supporting wheels and pitman connections fitted to the rounded portions of said extensions.

9. In a machine of the character described, the combination of a drive wheel, a frame connected therewith, a carriage slidably mounted upon the frame, and comprising a body portion having extensions at opposite ends thereof, each extension having an angular portion, roller bearing plates fitted upon the angular portions of the extensions, pitmen connected to the extensions, and means actuated by the drive wheel for operating the pitmen and reciprocating the carriage.

10. In a machine of the character described, the combination of side bars provided at one end thereof with downwardly extending arms, a frame carried by the opposite end portions of the side bars, a carriage slidably mounted upon the frame, a drive wheel journaled between said bars and provided upon its periphery with teeth, gear wheels carried by the before mentioned downwardly extending arms and meshing with the teeth upon the drive wheel, and means actuated by the gear wheels for reciprocating the carriage.

11. In a machine of the character described, the combination of a pair of side bars provided at one end with downwardly extending arms, a U-shaped member connected to the opposite end of each of the side bars, the said U-shaped members being arranged in parallel relation to each other and constituting a frame, a removable head for the frame, a carriage slidably mounted upon the frame, a drive wheel journaled between the side bars and having its periphery provided with teeth, gear wheels carried by the before mentioned downwardly extending arms at one end of the side bars, the said gear wheels meshing with the teeth upon the periphery of the drive wheel, and means actuated by the said gear wheels for reciprocating the carriage.

In testimony whereof I affix my signature in presence of two witnesses.

FLORENCE A. LEWIS. [L. S.]

Witnesses:

T. FRELWELL,
G. V. LEWIS.