

March 6, 1928.

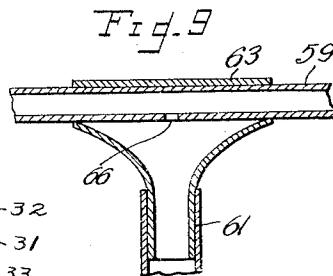
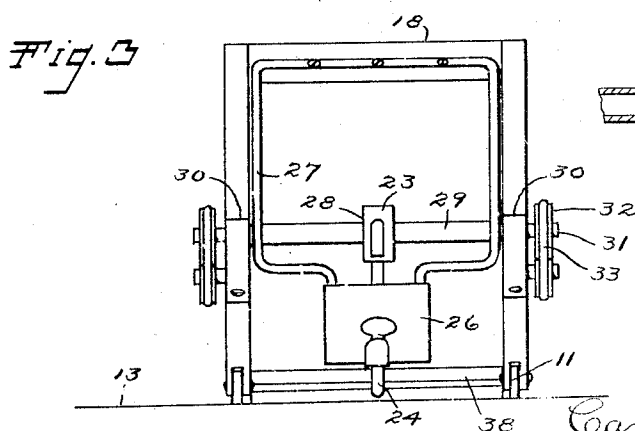
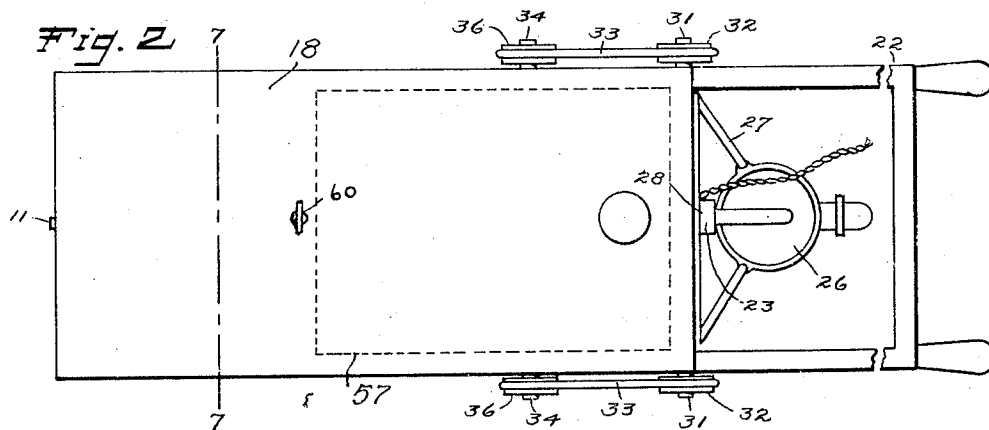
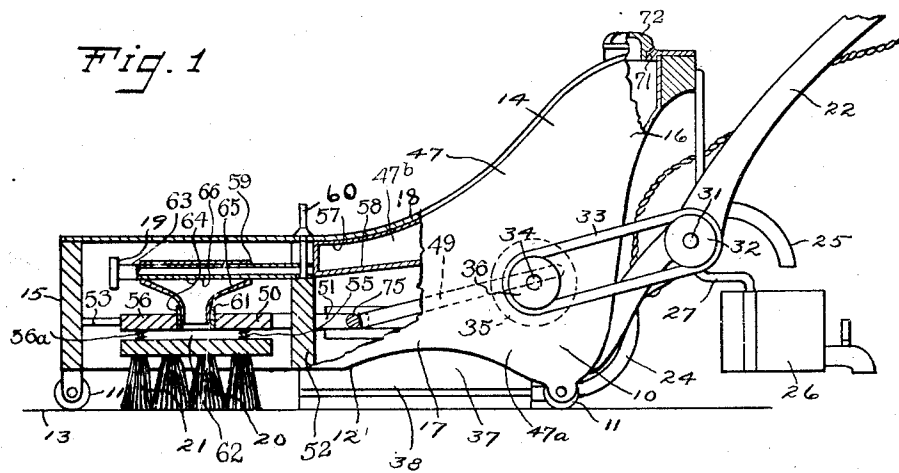
1,661,412

C. DEPTULA

ELECTRIC FLOOR SCRUBBER

Filed July 28, 1924

2 Sheets-Sheet 1



INVENTOR
Carl Deptula
By Louis M. Schmidt
Att'y.

March 6, 1928.

1,661,412

C. DEPTULA

ELECTRIC FLOOR SCRUBBER

Filed July 28, 1924

2 Sheets-Sheet 2

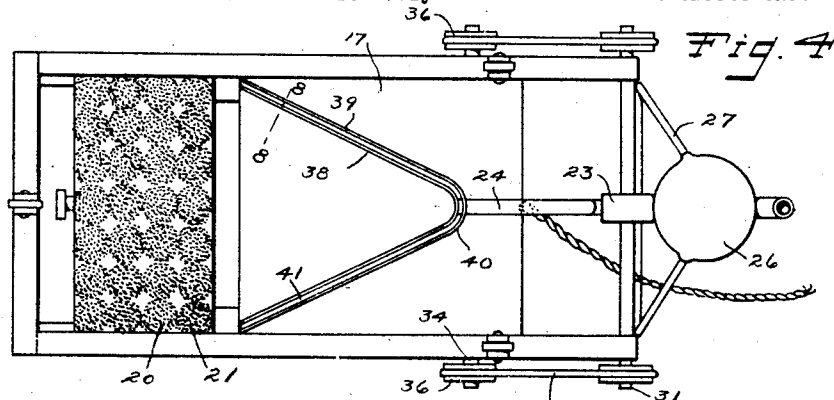


Fig. 4

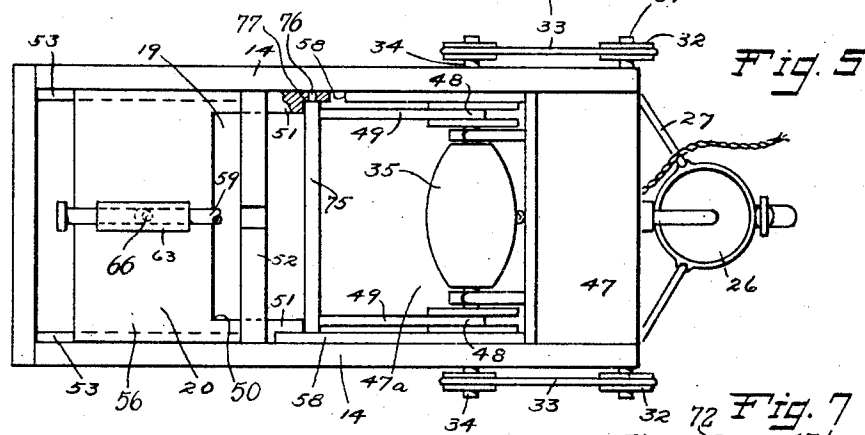


Fig. 5

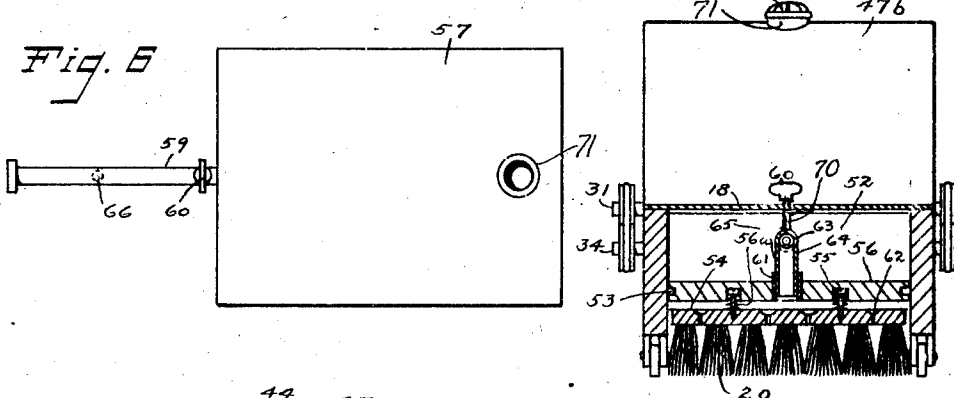


Fig. 6

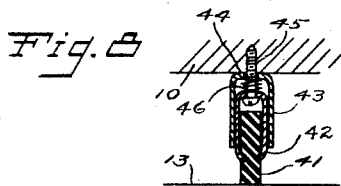


Fig. 7

Inventor
Carl Deptula
By Louis M. Schmidt
Atty.

UNITED STATES PATENT OFFICE.

CARL DEPTULA, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR OF ONE-HALF TO
ALBERT TEREBA, OF NEW BRITAIN, CONNECTICUT.

ELECTRIC FLOOR SCRUBBER.

Application filed July 28, 1924. Serial No. 728,634.

My invention relates to improvements in electric floor scrubbers, in the form of a machine that is adapted to be moved over the floor by hand, having a frame in which a scrubbing brush is mounted for limited movement, means for supplying cleansing water, means, involving a pump, for removing dirty water, and an electric-motor for operating the moving parts of the mechanism, and the object of my improvement is to produce a device that is relatively simple and reliable, such as to be adapted for household use.

In the accompanying drawing:—

Figure 1 is a side elevation of my improved electric floor scrubber, being in part broken away and showing portions of the interior structure in section.

Figure 2 is a plan view of the same.

Figure 3 is an end view of the same.

Figure 4 is a bottom view of the same.

Figure 5 is a plan view with the cover and the water tank for clean water removed.

Figure 6 is a plan view of the water tank removed from the frame.

Figure 7 is a sectional view on the line 7—7 of Fig. 2.

Figure 8 is a fragmentary sectional view on an enlarged scale on the line 8—8 of Fig. 4, showing the details of the rubber wiper structure.

Figure 9 is a sectional view through the hollow standard and the tank delivery tube.

My improved electric floor scrubber comprises a frame 10 that is supported by a set of relatively small wheels 11 so that the bottom face or edge 12 will be close to the floor 13.

Said frame 10 is closed at the sides by the side walls 14; at the front end by the front wall 15; and at the rear by the rear wall 16, said walls constituting a box-like structure.

The rear portion only of the frame 10 is closed at the bottom, having a bottom wall 17, and there is provided a removable cover 18 for the top, said cover being of plate-like form and shaped to correspond to the form of the top edge portion of the frame 10, said frame being of moderate depth at the

front and of increasing depth towards the back to provide for housing the various devices to be described.

In the front portion 19 of the frame 10 is operatively housed the scrubbing-brush 20 that has the bristles 21 in contact with the floor 13.

A handle 22 projects rearwardly from the frame 10.

Mounted at the rear end portion of the frame 10 is a pump 23 for dirty water, a suction pipe 24 leading therefrom forwardly underneath the bottom wall 17 and a delivery pipe projecting rearwardly therefrom. A tank 26 supported by means of a bracket-frame 27 collects the dirty water.

The pump 23 is preferably of the rotary form, having a cylindrical housing 28. As shown, said housing 28 is at the middle and has laterally projecting extensions 29 of tubular form on the two sides. The outer ends of said extension 29 are mounted in brackets 30 that are supported from the frame 10.

The moving element of the pump 23 is operatively supported by means of a pair of laterally directed shafts 31 that are housed in the tubular pump-casing extensions 29 and that extend outwardly beyond the same so as to support the belt pulleys 32 that are driven by the belts 33.

The shaft 34 of the electric motor 35 extends laterally through the side walls 14 and the projecting ends carry the driving pulleys 36 that drive the belts 33.

The bottom wall 17 is rounded or crowned upwardly substantially from end to end so as to provide between the same and the floor 13 a relatively large open space 37 for the accumulation of dirty water back of the brush 20. The major portion of said space 37 is boxed in at the sides and rear by means of a collecting wall structure that is designated as a whole by the character 38 and which serves to collect the dirty water.

The contour of said collecting wall structure 38 as it is projected toward the floor is essentially triangular, the side arms 39 converging towards the rear and meeting at

the apex portion 40, where under conditions of use there would be the maximum of accumulated dirty water. The inlet or mouth of the suction pipe 24 for the dirty water is located adjacent the apex portion 40, at the front thereof, said pipe 24 passing through the collecting wall structure 38.

For contacting with the floor 13 the collecting wall structure 38 is provided with a contacting piece or wiper 41 of rubber and the parts are constructed and arranged so that said wiper 41 is held in resilient engagement with the floor under conditions of use and notwithstanding such unevenness as may exist in the floor, involving more or less of relative upward and downward movement of the general structure of the floor-scrubber.

The wiper 41 is made of a strip of rubber and the manner of supporting the same, as shown, comprises the use of two generally similar U-shaped structures of sheet metal, one thereof, 42, serving as a holder or clamp and gripping the rubber and the other, 43, serving as a housing for the holder 42 and having the top wall or roof 44 spaced from said holder 42. A plurality of screws distributed along the length of the structure serve as means for holding the parts together generally and springs provide for resiliency. The screws 45 are entered from below upwardly through the holder-clamp 42 and the housing 43 and into the frame 10 and the springs 46 are mounted on the portions of the screws that are intermediate the parts 42 and 43.

The motor shaft 34 extends transversely across the interior of the rear portion 47 of the frame 10 and the motor 35 is positioned at about the middle thereof. Incorporated in the structure of the motor shaft 34 and positioned adjacent the side walls 14 on each side is a crank 48 that is operatively connected by means of a forwardly extending connecting-rod 49 with a slide or sliding frame structure 50 that is given a reciprocating movement responsive to operation of the motor. The connections with the slide 50 are made with rearward extensions thereof in the form of rods 51, the latter passing through suitable openings in a partition 52 that extends transversely across the frame 10 and separates the rear portion 47 of said frame from the front portion 19 thereof. The connecting rods 49 are connected both to a single rocking cross-piece 75 and the latter is pivoted by its ends 76 in suitable bearings 77 that are provided in the extension rod portions 51 of the sliding frame structure 50.

Slideways 53 are provided at the sides for the slide 50 and the latter serves as a carriage or carrier for the brush 20.

The brush 20 is of rectangular form, the longer dimension thereof being directed

transversely of the axis of the frame. As in the case of the wiper 41, the brush 20 and the supporting structure therefor are constructed and arranged so as to ensure contact with the floor under conditions of use, notwithstanding such undulations of the general structure as may follow from the unevenness of the floor.

In the structure shown the brush 20 is provided with a body or back 54 that is held in place generally by means of a set of screws 55 that engage with a plate-like bridge 56 on the slide 50 and springs 56^a mounted on said screws 55 serve to tend to depress the brush towards the floor.

The devices so far described provide for movements of the brush and for the removal of dirty water.

Means for supplying fresh cleansing water will now be described.

The interior of the rear portion 47 of the frame 10 is virtually divided into a bottom part 47^a in which is housed the motor 35 and adjacent parts and the upper part 47^b, and said upper part 47^b is virtually filled by the fresh or cleansing water tank 57, the latter being shaped to fit within the space immediately below the cover 18.

The tank 57 is supported on inclined shelves or ridges 58 that extend along the inner faces of the side walls 14.

A centrally positioned delivery conductor 59 extends forwardly from the tank 57, through the partition 52, and projects over the major portion of the brush-operating space in the forward portion 19, said conductor 59 being provided with a shut-off cock 60.

Said shut-off cock 60 has a stem 70 that extends through the cover 18 so as to be accessible from above the scrubber structure.

The tank 57 has a filler-boss 71 that projects upwardly through the cover 18 and that has an opening that is closed by means of a cap 72.

Mounted on the brush-supporting plate or bridge 56 is a hollow standard 61 that opens at its lower end so as to connect with a set of distributing channels 62 for feeding the water to the different parts of the brush 20.

The upper end portion 63 of said standard 61 is in the form of an elongated sleeve and in the same is operatively housed the tank delivery tube 59. Intermediate said sleeve 63 and the tubular neck portion 64 of the standard 61 is a fan-shaped connecting piece 65 and the interior of the latter is in registration with an outlet opening 66 in the water delivery tube 59. Thus means are provided for feeding water to the brush at all times and in all positions thereof relatively to the frame 10.

In the construction shown and described the operative connections with the motor

are of duplex form. In some cases and as to the main driving features, a single operative connection would suffice.

In the case of the brush, however, a duplex connection is of advantage due to the laterally elongated form of the structure thereof in that such a form of construction tends to prevent binding and cramping in the slideways for the brush.

I claim as my invention:—

1. In a floor scrubber, a body divided into two compartments by a transverse vertical partition provided with openings adjacent its lower edge, one of said compartments being open at the bottom, a frame supporting a brush and mounted for to and fro sliding movement in a horizontal plane in said last mentioned compartment, a motor housed in the other of said compartments, said frame having extensions projecting through the openings in said partition, and driving connections intermediate said motor and extensions.

2. In a floor scrubber, a body divided by a transverse vertical partition into a front and a rear compartment, a brush structure slidably mounted in said front compartment and extending through an opening provided in the bottom of said front compartment, a motor located in the lower portion of said rear compartment and connected to said brush structure, a water tank and means for supplying water from said tank to said brush structure, said tank substantially filling the portion of said rear compartment that is above said motor.

3. In a floor scrubber, a body, devices housed in said body comprising a brush structure extending through an opening provided in the bottom of said body, driving means for said brush structure, and a water supply structure, a cover extending over said body and generally covering said devices, said water supply structure having a cock that is provided with a stem and having a filler-boss, and said stem and said boss projecting through openings in said cover.

4. In a floor scrubber, a frame having the under side spaced from the floor, a wiper support carried by said under side and being channel shaped in cross-section, a wiper member telescoping in said channel and making contact with the floor, and a set of connecting devices intermediate said support and member each having individual spring means for projecting said member towards the floor.

5. In a floor scrubber, a frame, a tank supported by said frame, a brush-carrier supported by said frame, a delivery tube extending horizontally from said tank and projecting above said carrier, a hollow standard extending upwardly from said carrier and provided with a sleeve that encloses said tube and is slidably engaged therewith, and said tube having an opening that registers with the opening in said standard for delivering water to said brush-carrier, a brush being supported by said carrier.

CARL DEPTULA.