June 5, 1951 R. C. SMITH 2,555,822

SCRUBBING MACHINE

Filed Dec. 30, 1946 2 Sheets-Sheet 1

Fig. 1.

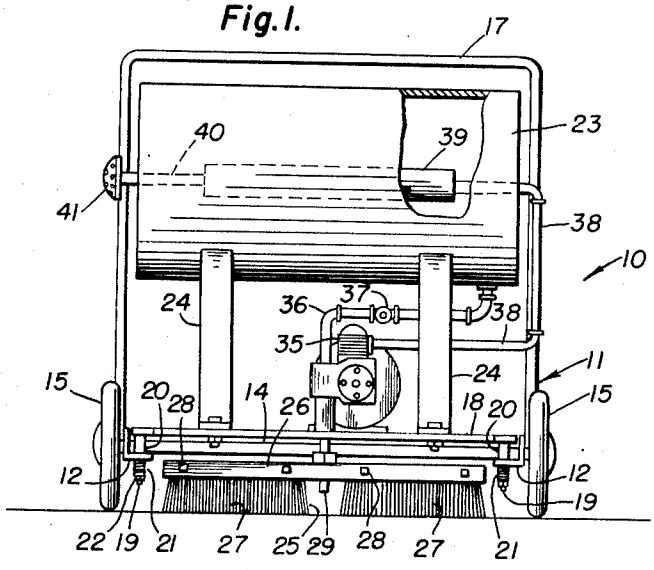
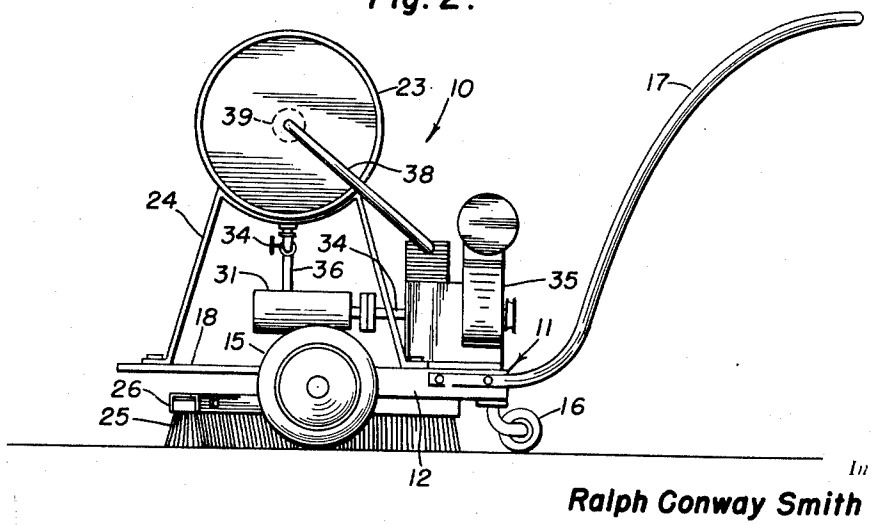


Fig. 2.



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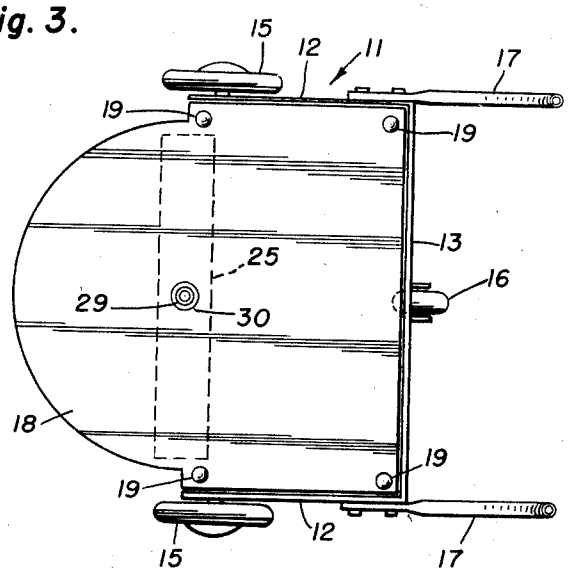
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Fig. 3.



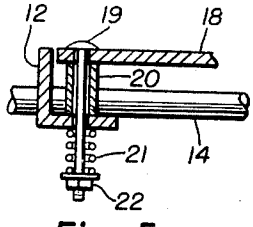
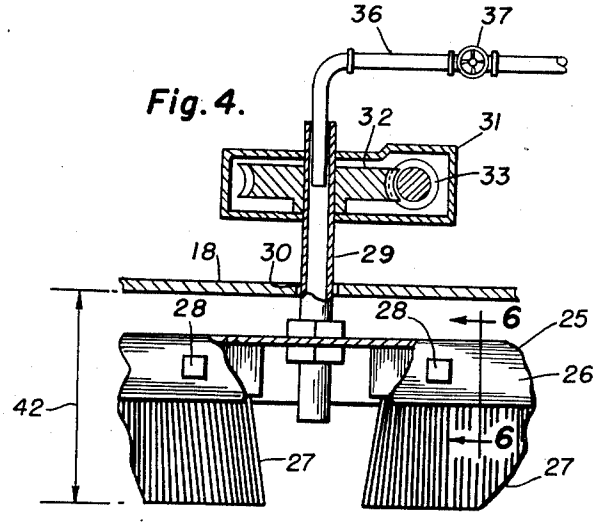


Fig. 5.

Fig. 4.



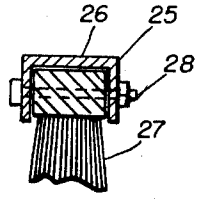


Fig. 6.

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SCRUBBING MACHINE

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Application December 30, 1946, Serial No. 719,283

2 Claims. (Cl. 15—50)

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This invention relates to new and useful improvements and structural refinements in scrubbing machines, and the principal object of the invention is to provide a device of the character herein described, which may be conveniently and effectively employed for cleaning sidewalks, service station driveways, airport runways, or the like.

A further object of the invention is to provide a scrubbing machine which may be easily wheeled along the ground by hand and in which the actual scrubbing operation is performed mechanically.

Another object of the invention is to provide a scrubbing machine wherein the cleaning fluid is delivered to a rotating brush and wherein the fluid, prior to such delivery, is heated for greater effectiveness.

An additional object of the invention is to provide a scrubbing machine which is simple in construction, which may be easily and conveniently manipulated, and which will readily lend itself to economical manufacture.

A still further object of the invention is to provide a scrubbing machine which may be easily disassembled for purposes of inspection or repair, and which is otherwise well adapted for the purpose for which it is intended.

With the above and more important objects in view and such other objects as may become apparent as this specification proceeds, the invention consists essentially of the construction and arrangement of parts as shown in the accompanying drawings in which:

Figure 1 is a front elevation of the invention,

Figure 2 is a side elevation thereof,

Figure 3 is a top plan view of the wheeled carriage used in the invention,

Figure 4 is a fragmentary, cross-sectional detail of the rotatable brush, means for delivering cleaning fluid thereto, and means for rotating the brush,

Figure 5 is a cross-sectional view of one of the suspension bolts used in the invention, and

Figure 6 is a cross-sectional view taken substantially in the plane of the line 6—6 of Figure 4.

Like characters of reference are used to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention consists of a scrubbing machine designated generally by the reference character 10, the same embodying in its construction a carriage designated generally by the character 11. This carriage consists of a pair of spaced parallel angles 12 rigidly secured together at one end thereof by a transversely extending angle 13, while the remaining, that is, the forward end portions of the angles 12 carry a transversely extending axle shaft 14. The latter is provided with a suitable pair of running wheels 15 and a swivel caster 16 is secured to the underside of the carriage, on the angle 13.

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It will be also noted that the rear end of the carriage 11 is equipped with a U-shaped, arcuate handle 17 which extends upwardly and rearwardly, as will be clearly apparent from the accompanying drawings.

A flat plate or platform 18, configurated substantially as shown in Figure 3, is mounted on the carriage 11, this being accomplished by means of a plurality of suspension bolts 19.

The typical arrangement of the latter is illustrated in Figure 5, wherein it will be noted that the bolts 19 extend downwardly through the platform 18 and through tubular spacers 20 which are interposed between the platform and the carriage 11. Thereupon, the bolts extend through the angles 12 (or 13) of the carriage, and a compression spring 21 is positioned on the lower end portion of each bolt, as will be clearly apparent. The springs 21 are retained in place by the nuts 22, and it will be noted that by virtue of this arrangement, the platform 18 is permitted to lift upwardly, but is normally urged downwardly under the carriage by its own weight and by the resiliency of the springs 21.

The platform 18 carries an elevated tank 23 which is supported on a pair of horse members 24. This tank will be hereinafter more fully referred to.

Provided under the platform is a rotatable scrubbing brush 25, the same consisting of a substantially U-shaped channel 26 carrying a pair of spaced brush members 27. The latter are secured in the channel 26 by suitable bolts 28, and it will be noted that the channel 26 is also provided, substantially at the center thereof, with an upwardly extending outlet tube 29.

This tube is disposed intermediately of the brush members 27 and is freely rotatable in an aperture 30 formed in the platform 18. The upper end portion of the tube 29 passes through a gear box 31 and is provided with a worm gear 32 meshing with a worm 33. The latter is driven through the medium of a suitable connecting shaft 34 by a small, internal combustion engine 35, mounted on the platform 18.

The aforementioned tank 23 is adapted to hold the cleaning fluid (such as may be compounded by mixing water with lye or the like), and the

fluid from the tank is delivered by means of a tube 36 to the aforementioned outlet tube 29 associated with the brush 25. The delivery tube 36 is equipped, for obvious reasons, with a control valve 37 and it will be noted that the lower end portion of the tube 36 is rotatably and slidably telescoped into the upper end portion of the tube 29, as is best shown in Figure 4.

The exhaust pipe 38 of the engine 35 is connected to a heating tube 39 which is disposed longitudinally in the tank 23.

The pipe 38 communicates with one end of the tube 39 and the remaining end of the latter is provided with a relatively short pipe 40 constituting an extension of the pipe 38. The pipe 40 projects outwardly from the tank 23 and carries a muffler cap 41, in communication with the atmosphere.

When the invention is placed in use, the machine is simply wheeled along the surface or area to be scrubbed by pushing or pulling the handle 17, and the movement of the machine is accompanied by the rotation of the brush 25, driven by the engine 35. Simultaneously, the cleaning fluid from the tank 23 will be delivered to the brush through the tubes 36 and 29, and the scrubbing action will thus be facilitated.

It will be noted that the tube 29 performs a double function, namely, that of imparting rotation to the brush 25 and discharging the cleaning fluid. It should be also explained that the distance indicated by the dimensional line 42 in Figure 4 is held constant (neglecting wear of brush bristles) by the rigid association of the gear box 31 and the engine 35 with the platform 18.

Matters are so arranged that the bristles of the brush members 27 would normally project below the point of contact of the wheels 15 and 16 with the ground, so that when the machine rests on the ground as shown in Figures 1 and 2, the brush 25 and the associated platform 18 will be urged upwardly against the resiliency of the spring 21. In other words, the springs 21 will urge the brush members 27 in contact with the ground, and a more efficient scrubbing action will thus be facilitated, as will be readily understood.

The slidably and rotatably telescoped arrangement or connection of the tubes 29 and 36 will facilitate both, the rotation of the brush 25, as well as the resilient suspension thereof, as explained.

Finally, the passage of the hot exhaust gases from the engine 35 through the tube 39 will result in the heating of the cleaning fluid in the tank 23 and the effectiveness of the cleaning fluid will thus be considerably enhanced.

It is believed that the advantages and use of the invention are clearly apparent from the foregoing disclosure and accordingly, further description thereof at this point is considered unnecessary.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

What I claim as my invention is:

1. A scrubbing machine comprising a wheeled frame including a pair of spaced parallel angles and a transversely extending angle joining the pair of angles, a horizontally disposed platform overlying all of said angles, vertical bolts extending through the platform and the pair of angles and slidably carried by the platform and the pair of angles, spacers surrounding the bolts and interposed between said platform and said pair of angles to space the platform from the pair of angles, said bolts having lower ends depending from the pair of angles, nuts threaded on the lower ends of said bolts, springs embracing the lower ends of said bolts and biased between said nuts and said pair of angles and yieldingly urging the platform toward the pair of angles, a liquid holding tank mounted on the platform, a delivery tube leading from the tank and having a discharge end, valve means controlling the passage of liquid outwardly through the delivery tube, a surface engaging member, a tubular vertically disposed holder rotatably carried by the platform and supporting the surface engaging member beneath the platform, said holder also constituting a conduit for conducting fluid from the discharge end of the delivery tube to the surface engaging member, and means supported on the platform and operatively connected to the holder for rotating the holder and the surface engaging member.

2. A scrubbing machine comprising a wheeled frame, a vertically movable horizontally disposed supporting plate carried by the frame, vertical members slidably securing the supporting plate to the frame and limiting sliding movement of the supporting plate vertically from the frame, a liquid holding tank carried by the supporting plate, a delivery tube leading from the tank and having a discharge end, valve means for controlling the passage of liquid outwardly through the delivery tube, a surface engaging member, means rotatably carried by the supporting plate and supporting the surface engaging member and for conducting fluid from the discharge end of the delivery tube to the surface engaging member, and means carried by the supporting plate for rotating the surface engaging member.

RALPH CONWAY SMITH.

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