

Dec. 13, 1966

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3,290,716

FLOOR TREATING MACHINES

Filed Aug. 11, 1965

2 Sheets-Sheet 1

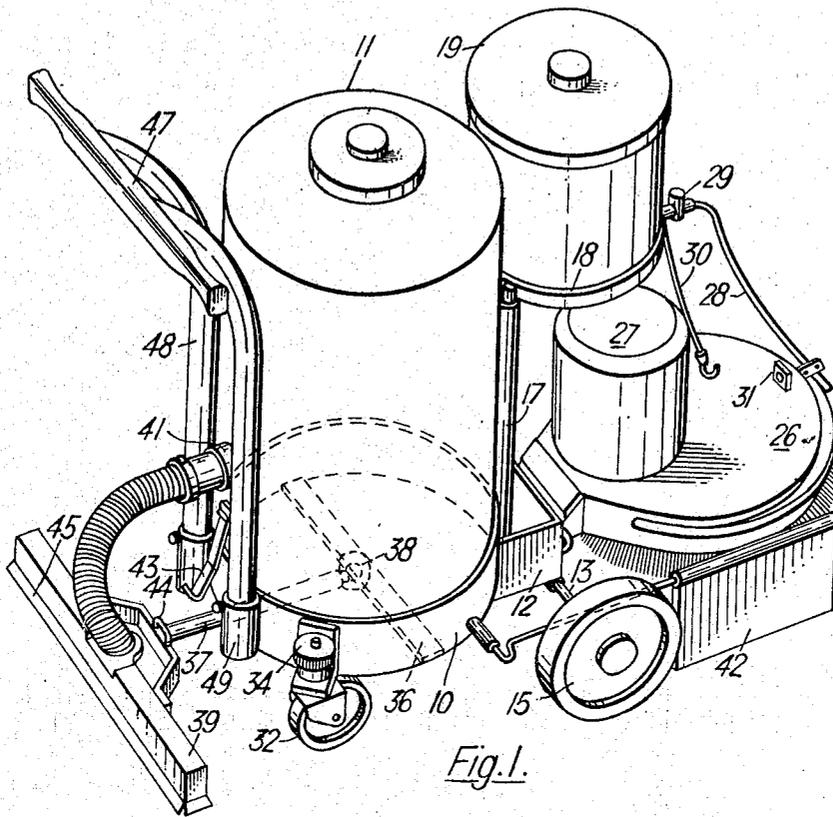


Fig. 1.

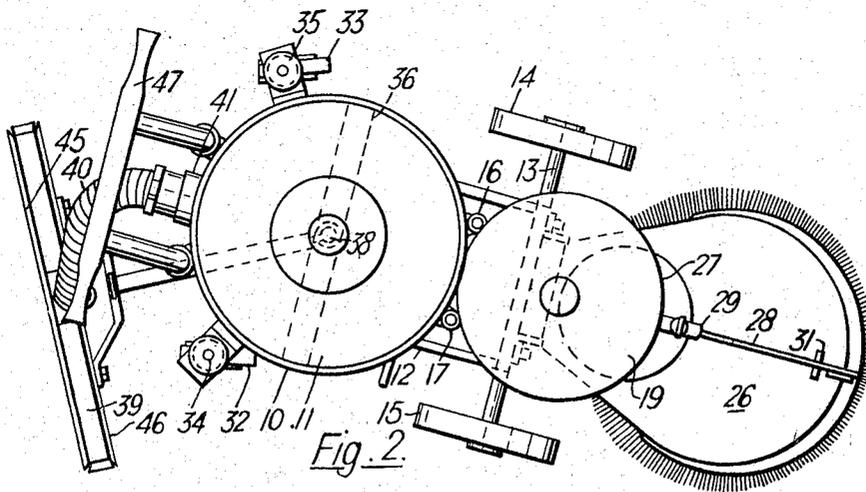


Fig. 2.

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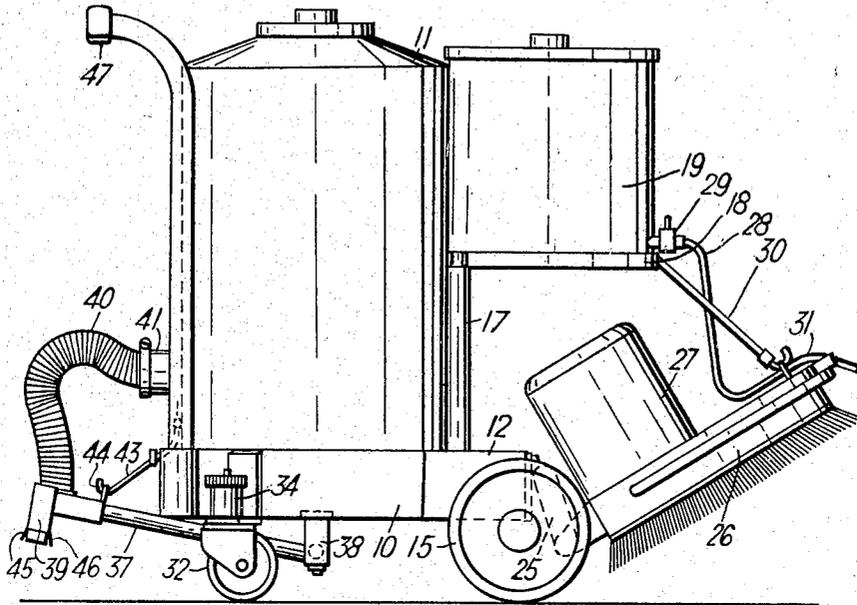


Fig. 3.

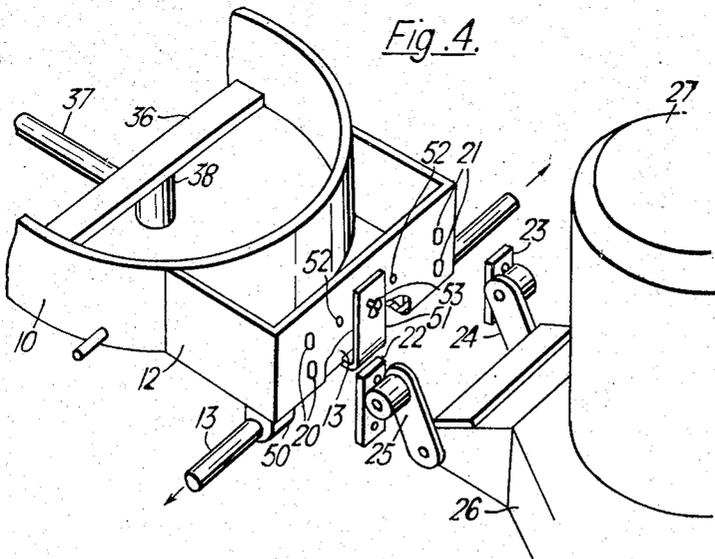


Fig. 4.

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FLOOR TREATING MACHINES

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Filed Aug. 11, 1965, Ser. No. 478,796

Claims priority, application Australia, Aug. 13, 1964,
48,088/64

2 Claims. (Cl. 15—353)

The present invention relates to an improved floor treating machine which may be used for scrubbing and vacuum-drying floor surfaces and also, if required, may be used for buffing and polishing the surface after the scrubbing and drying operation.

Known scrubbing and liquid pick-up suction appliances usually are of the type which may be used to dispense liquid detergent onto a floor, scrub the floor and then dry the floor by sucking up the dirty liquid into a removable dirty-liquid reservoir.

These known floor treating machines usually comprise a wheeled frame, manually propellable by a handle, having an electric motor supported on the said frame and rotary surface-treating means mounted below the frame and driven by the motor, usually through a drive wheel. The rotary surface treating means usually comprise a scrubbing unit mounted in front of the drive wheel and having at least one scrubbing element rotatable about a generally vertical axis. This scrubbing element may be removed and replaced optionally with a buffer or polishing pad if required.

Also usually mounted on the frame there is a tank holding detergent or other suitable cleaning liquid and means for conveying the cleaning liquid to the floor adjacent the rotary scrubbing element.

A suction unit is arranged behind the drive wheel to pick up liquid from the floor surface. This suction unit usually comprises a suction nozzle attached to a suction conduit leading away from the working or floor surface of the nozzle to a dirty liquid reservoir. A fan, operated either by the aforementioned motor or by a second motor is arranged to produce a suction in the nozzle via the suction conduit to suck up the dirty liquid from the floor and to convey it by means of an airstream to the dirty liquid reservoir.

The whole usually is contained in an outer housing and is often referred to as a "wet-vacuum" unit.

The suction nozzle usually comprises a hollow body with an elongated suction mouth having one or more resilient blades with parallel wiping edges arranged to act as a squeegee for collecting the dirty solution on a surface being cleaned and enabling it to be drawn through the nozzle by a current of air from the motor-driven fan.

The motor or motors on the known machines may be either mains or battery operated and usually a switch means for operating the motor or motors is located conveniently in the handle.

For convenience of reference throughout the specification hereafter the above described machines are referred to as "floor treating machines of the type hereinbefore described."

Hitherto in these known machines the suction nozzle was fixedly dependent beneath and the suction conduit was wholly contained within the housing of the wet-vacuum unit. This arrangement suffered from the disadvantage that the suction nozzle (squeegee) left a trail of dirty water behind it, particularly when the machine cornered.

The object of the present invention is to overcome this disadvantage and to provide an improved floor treating machine of the type hereinbefore described which has a suction nozzle so constructed and arranged that dirty floor marks caused by the squeegee action of the

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nozzle are substantially eliminated or greatly reduced.

This object is achieved, according to the invention, by arranging the suction nozzle and at least a portion of the suction conduit outside the wet-vacuum housing, the conduit being articulated thereto so that the suction nozzle may pivot freely and follow the movement, and in particular the turning cycle, of the floor treating machine.

This has the great advantage that the trailing edges of the resilient wiping blades of the suction nozzle are always at an angle such that they gather in the dirty liquid towards the suction conduit instead of allowing the liquid to escape beneath the blade edges as happened with a suction nozzle fixedly attached beneath the wet-vacuum unit.

The invention is further described with reference to the accompanying drawings in which:

FIGURE 1 is a pictorial view of the apparatus of this invention;

FIGURE 2 is a plan view;

FIGURE 3 is a side elevation view, and

FIGURE 4 is a fragmentary view of the attachment of the motor and brush to the frame of the apparatus shown in the preceding figures.

The apparatus of the invention comprises a circular frame 10 which is arranged to detachably mount a fluid or vacuum container 11 including a motor and pump incorporated therein. The frame 10 at its forward end is provided with a channel shaped, when viewed from above, sub frame 12. At the forward end of the sub-frame 12 is secured a transverse 13. Wheels 14 and 15 are provided on the ends of the axle 13.

A pair of spaced vertical frame members 16 and 17 extend upwards from the front end of the circular frame 10. These frame members 16 and 17 are tubular and are arranged to receive in telescopic relationship mounting lugs which are secured to a circular frame member 18 which carries a liquid container 19.

The subframe 12 is provided at the base of the channel with spaced apertures 20 and 21 for the mounting of bearing brackets 22 and 23 respectively. These bearing brackets 22 and 23 have matching apertures through which bolts are passed to clamp the bearing brackets to the subframe. The bearing brackets have journalled therein stub axles secured to the link members. The latter at their free ends are pivotally mounted to the housing 26 of a motor and brush assembly. This housing 26 carries a rotary brush on its underside and an electric motor 27 on its upper side.

Extending between the liquid container 19 and the housing 26 is a tube 28 which conducts fluid through a valve 29 to a position ahead of the brush mounted in the housing 26. A flexible member 30 is secured to the front end of the circular frame 18 and is arranged so that a hook on the end thereof can be inserted in an apertured bracket 31 on the upper side of the housing 26. In FIGURE 1 the motor and housing are shown in the operative position with the hook on the member 30 detached from the apertured bracket 31. In FIGURE 3 the housing 26 and the motor 27 are shown in the raised position with the member 30 arranged so that the hook at the end thereof is connected to the apertured bracket 31 and as the member 30 is of restricted length it holds the forward end of the brush carried by the housing 26 above the floor level.

The rear end of the frame 10 is supported by castor wheels 32 and 33 having screw height adjustment means 34 and 35 mounted on brackets secured to the rearward end of the frame 10. A diametrical cross frame member 36 extends across the frame 10 transverse to the longitudinal axis of the apparatus, that is parallel

to axle 13. At the mid point there is mounted a shaft 37 by a universal or ball joint 38. The shaft 37 at its free end carries a vacuum squeegee housing 39 which is connected by a vacuum pipe 40 through a connector 41 to the vacuum tank 11.

A squeegee 42 is carried by an elongated arm pivotally mounted on the frame 10 and is arranged to be positioned on one side of and adjacent to the brush in its working position. The vacuum squeegee housing 39 is arranged to be elevated above floor level as shown in FIGURE 3 by means of a catch member 43 the free end of which enters an apertured lug 44 to hold the housing 39 above the floor. The vacuum housing 39 is provided with leading and trailing squeegees or rubber blades 45 and 46. The leading squeegees 46 may be apertured or perforated. An operators handle is provided which has a transverse upper portion 47 and vertical connecting portions 48 which enter sockets 49 secured to the frame 10.

In FIGURE 4 there is a modification in which the axle 13 is mounted in an axially slidable manner in bearing members 50 secured to the subframe 12. The movement of the axle 13 is controlled by a bracket 51 welded thereto. The major portion of the bracket is adjacent to the front portion of the frame 12 and is secured in the desired off set relationship by a bolt 53 which passes through an aperture in the bracket 51 into a selected tapped hole 52 in the frame member 12. This arrangement permits the device to work underneath a kick board and in a restricted location.

I claim:

1. A floor treating machine having a wheeled frame, a vacuum container mounted on the frame, a suction squeegee nozzle connected by a conduit to the vacuum container, a single pivot arm extending backwards from the frame and connected at one end to the frame by a universal joint and at its other connected to the squeegee nozzle, whereby the squeegee nozzle is freely displaceable by an operator and normally tracks along behind the frame with its length transverse to the direction of travel of the machine in arcuate as well as straight line travel.

2. A floor treating machine as claimed in claim 1 wherein the universal joint is a ball joint.

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