Aug. 20, 1963 D. I. DOYLE, SR 3,100,903

FLOOR MACHINES

Filed March 6, 1961

FIG. 1

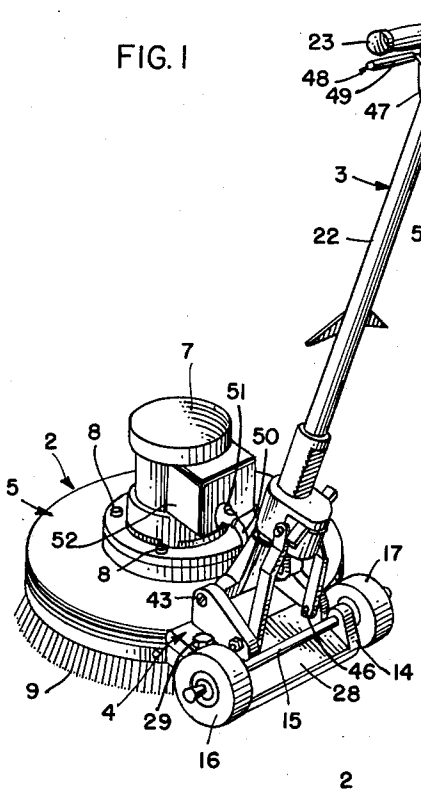


FIG. 2

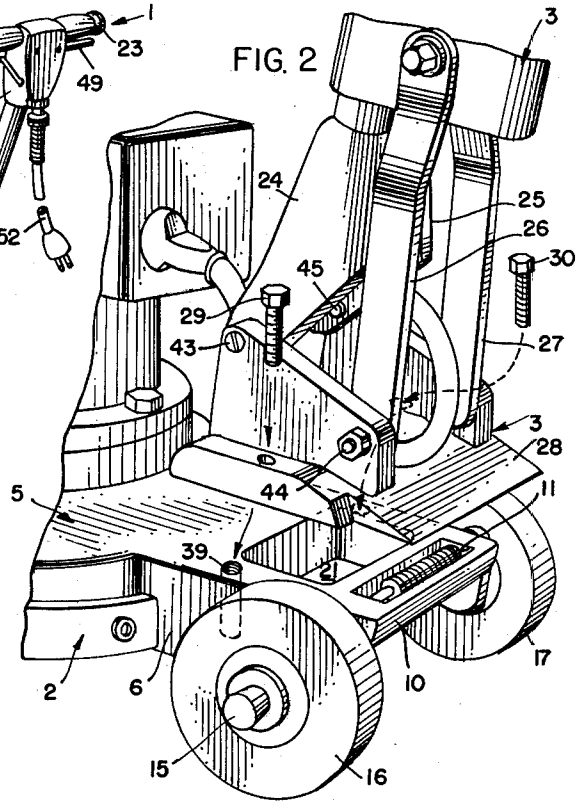


FIG. 3

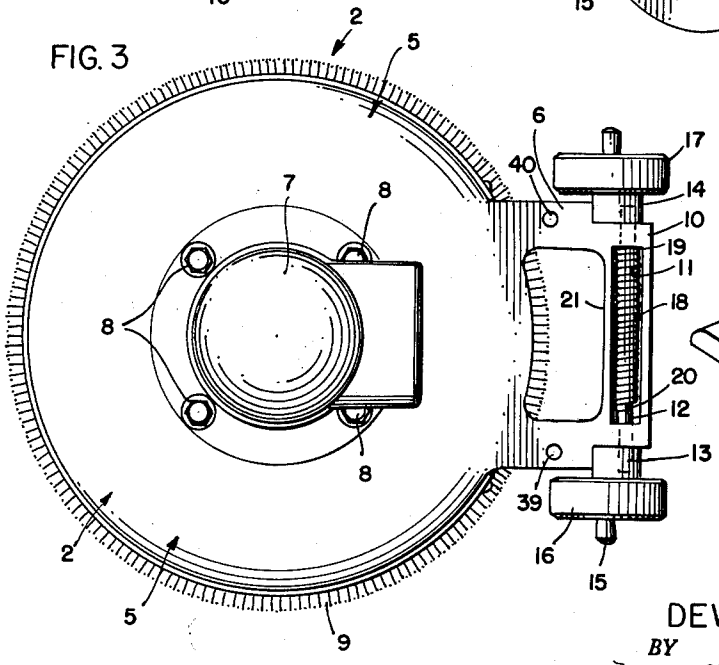
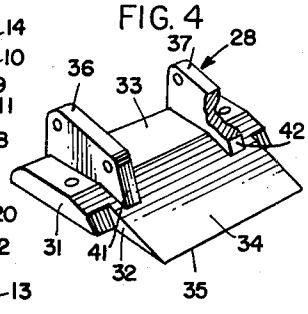


FIG. 4



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FLOOR MACHINES

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4 Claims. (Cl. 15—49)

This invention relates to floor machines and, more particularly, to floor machines of the type which embody a body portion movable over the floor in a work-performing operation, and an elongated handle projecting therefrom by which the operator may control and guide the machine during such a work-performing operation.

It is a primary object of the present invention to afford a novel floor machine of the aforementioned type having the parts thereof constituted and arranged in a novel and expeditious manner.

Floor machines of the general type to which the present invention relates have been heretofore known in the art. However, such machines as have been heretofore known in the art have had several inherent disadvantages, such as, for example, embodying a handle which was not removable, or not readily removable from the body of the machine; not being readily packed for shipment; requiring an excessive amount of space for storage; or not being readily transportable if the elongated handle was removed, or the like. It is an important object of the present invention to overcome such disadvantages.

Another object of the present invention is to afford a floor machine of the aforementioned type embodying a removable handle constituted and arranged in a novel and expeditious manner.

An object ancillary to the foregoing is to afford a floor machine of the aforementioned type wherein the aforementioned handle is readily removable and replaceable.

Yet another object of the present invention is to afford a floor machine of the aforementioned type embodying a body portion constituted and arranged in a novel and expeditious manner.

A further object of the present invention is to afford a novel floor machine of the aforementioned type embodying a body portion having a portion thereof constituted and arranged in a novel and expeditious manner for removably receiving an elongated handle for controlling and guiding the machine during a work-performing operation thereof.

An object ancillary to the foregoing is to afford a novel floor machine of the aforementioned type, wherein the aforementioned portion of the body portion thereof is constituted and arranged in a novel and expeditious manner so as to afford a novel, practical and efficient handle for carrying the body portion when the aforementioned elongated handle is removed therefrom.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show a preferred embodiment of the present invention and the principles thereof and what I now consider to be the best mode in which I have contemplated applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

FIG. 1 is a perspective view of a floor machine embodying the principles of the present invention;

FIG. 2 is an exploded, fragmentary, perspective view

of a portion of the floor machine shown in FIG. 1, with certain parts shown in different positions;

FIG. 3 is a top plan view of the machine shown in FIG. 1, with the elongated handle thereof removed; and

FIG. 4 is a perspective view of the plate shown in FIG. 1 to which the handle is attached in an assembled machine, as shown in FIGS. 1 and 2.

In the drawings a floor machine in the form of a cleaning or scrubbing machine 1, embodying the principles of the present invention is shown to illustrate the preferred embodiment of the present invention. It will be appreciated by those skilled in the art that, although my invention is disclosed herein as embodied in a cleaning or scrubbing machine, this is merely by way of illustration and not by way of limitation, and that it may be embodied in other devices or machines such as, for example, polishing machines, sanders, and the like, without departing from the purview of my invention.

The floor machine 1 shown in the drawings embodies, in general, a body portion 2 adapted to be moved along a floor; an elongated handle 3 for guiding and controlling the body portion 2; and attaching mechanism 4 for attaching the lower end portion of the handle 3 to the upper rear portion of the body portion 2, FIG. 1.

The body portion 2 includes a substantially inverted cup-shaped housing 5 having a substantially rectangular-shaped boss or platform 6 projecting rearwardly therefrom. The platform 6 is preferably formed as an integral part of the housing 5, and the housing 5 and the platform 6 may be constructed of any suitable material such as, for example, alumium. A motor unit 7 is mounted on top of the housing 5 and is secured thereto by suitable means such as bolts 8. A floor-working member in the form of a brush 9 is mounted in the housing 5 and projects downwardly therefrom. The brush 9 is operatively connected to the motor 7 for rotation thereby.

The platform 6 has a free end portion 10, which has an upwardly opening elongated recess 11 therein, FIGS. 2 and 3. An elongated shaft 12 extends longitudinally through the recess 11 and projects outwardly from opposite lateral sides of the end portion 10 of the platform 6. Two elongated mounting brackets 13 and 14 are mounted at one end on respective ends of the shaft 12, and are secured thereto by suitable means, such as, for example, welding. Another shaft 15 extends between, and is mounted in the other ends of the brackets 13 and 14 opposite to the ends attached to the shaft 12. The shaft 15 projects outwardly from the brackets 13 and 14, and two wheels 16 and 17 are rotatably mounted on respective ones of the outwardly projecting end portions of the shaft 15, outwardly of the brackets 13 and 14, respectively.

A torsion spring 18 is mounted on the shaft 12 within the recess 11 and has one end 19 secured to the platform 6, and the other end 20 secured to the shaft 12. The torsion spring 18 so constituted and arranged that it urges the shaft 12 to rotate in a counterclockwise direction, as viewed in FIG. 2, to thereby urge the brackets 13 and 14 toward upwardly projecting positions, as shown in FIG. 1, wherein the shaft 15 is disposed above the platform 6. When the brackets 13 and 14 are disposed in the aforementioned raised position, the wheels 16 and 17 are disposed upwardly above the plane of the brush 9 so that the floor machine 1 may be supported solely by the brush 9.

When it is desired to transport the floor machine 1 with the brush 9 disposed in elevated position, the wheels 16 and 17, the shaft 15, and the supporting brackets 13 and 14 may be manually rotated in a clockwise direction from the position shown in FIG. 1 to the position shown in FIG. 2, in which latter position, the shaft 15 is dis-

posed below the free end portion 10 of the platform 6 to thereby dispose the wheels 16 and 17 in position to support the floor machine 1 with the brush 9 disposed in elevated position relative to the floor or other supporting surfaces on which the wheels 16 and 17 are resting. When it is desired to again lower the brush 9 for another scrubbing operation, it is merely necessary to tip the body portion 2 of the floor machine 1 forwardly into position wherein the brush 9 engages the floor, and the wheels 16 and 17 are raised from the floor. This frees the wheels 16 and 17 to the urging of the torsion spring 18, which is again effective to rotate the shaft 12 from a position shown in FIG. 2 to thereby move the wheels 16 and 17 into the raised position sown in FIG. 1 and permit the brush 9 to be disposed in operative engagement with the floor to be scrubbed.

An opening 21 is formed in the platform 6 forwardly of the free end portion 10 thereof, FIGS. 2 and 3. The opening 21 is of such size that the fingers of an adult person may be inserted therethrough and the free end portion 10 of the platform 6 gripped in that person's hand, when the handle 3 and the attaching mechanism 4 are removed from the body portion 2 of the floor machine 1, to thereby afford a practical, efficient handle for carrying the body portion 2 when the handle 3 and the attaching mechanism 4 are removed therefrom.

The elongated handle 3 includes an elongated tubular shank 22, having hand grips 23 attached to and projecting outwardly from the upper end portion thereof, and having two brackets 24 and 25 and two links 26 and 27 attached to and projecting downwardly from the lower end portion thereof. The brackets 24 and 25 are fixed on the shank 22, and the links 26 and 27 are pivotally attached to the shank 22 rearwardly of the brackets 24 and 25.

The attaching mechanism 4 includes a plate 28 and two bolts 29 and 30, FIGS. 1 and 2. The plate 28 includes a substantially rectangular-shaped body portion 31 having a flat lower face 32. The front portion 33 of the upper face of the body portion 31 is substantially parallel to the lower face 32 thereof, and the rear portion 34 of the upper face slants downwardly and rearwardly from the front portion 33 to join the bottom face 32 at the rear edge 35 of the plate 28, FIG. 4. Two substantially parallel mounting brackets 36 and 37 project upwardly from the upper face 33—34 of the plate 28 in spaced parallel relation to each other. The mounting brackets 36 and 37 are disposed in position relative to each other to receive the brackets 24 and 25 and the links 26 and 27 therebetween, for a purpose which will be discussed in greater detail presently.

The lower face 32 of the plate 28 is substantially identical in size and shape to the upper face of the platform 6, and, in the assembled floor machine 1, rests on the upper face of the platform 6, as shown in FIG. 1. The plate 28 is removably secured to the platform 6 in the assembled floor machine 1 by the two bolts 29 and 30 which extend downwardly through the body portion 31 of the plate 28, outwardly of the mounting brackets 36 and 37 and are threaded into tapped openings 39 and 40, respectively, in the platform 6. The rear edge portion of the body portion 38 of the plate 28 is of such thickness that the shaft 15 may swing freely thereover during movement of the wheels 16 and 17 between the raised position shown in FIG. 1 and the lowered position shown in FIG. 2. The mounted bracekts 36 and 37 extend rearwardly along the upper face 33—34 of the body portion 31 of the plate 28 from the front edge thereof, and terminate at their rear ends 41 and 42 in forwardly spaced relation to the rear end 35 of the body portion 31, in such position that they afford stop members for engaging the shaft 15 and limiting the forward movement thereof in the raised position shown in FIG. 1.

The lower end portions of the bracket 24 and the link 26 are pivotally attached to the bracket 36 on the plate 28 by bolts or screws 43 and 44, respectively, and the lower end portions of the bracket 25 and the link 27 are pivotally attached to the bracket 37 by bolts or screws 45 and 46, respectively, FIGS. 1 and 2, to thereby pivotally attach the handle 3 to the plate 28.

A switch box 47 is mounted on the upper end of the tubular member 22 of the handle 3, and includes a switch 48 having actuating members 49 projecting outwardly from the box 27, FIG. 1. The motor 7 may be attached to the switch 48 by a suitable electrical conductor such as, for example, a cord 50 having one end 51 detachably plugged into a suitable control box 52 on the motor 7, the cord 50 extending upwardly through the tubular member 22 of the handle 3 into the switch box 47, wherein it may be connected to the switch 48. The switch 48 may be connected to a suitable source of electric power such as, for example, a wall outlet in a house, or the like, by a suitable electrical conductor such as, for example, a cord 52 connected thereto and projecting outwardly from the switch box 47.

The handle 3 shown in the drawings is of the type disclosed in the co-pending application for United States Letters Patent of Patrick E. Doyle, Serial No. 96,237 filed March 16, 1961. However, it will be appreciated by those skilled in the art that, although the floor machine 1 is shown herein as embodying the handle 2, this is merely by way of illustration and not by way of limitation, and handles which differ therefrom in details of construction may be used without departing from the purview of the present invention.

When it is desired to use the floor machine 1 for a scrubbing operation, or the like, the handle 3 may be attached to the body portion 2 by the attaching mechanism 4, as shown in FIG. 1. In such position, the handle 3 affords a practical and efficient means for guiding and controlling the floor machine 1 during operation thereof. However, if desired, the handle 3 may be quickly and easily removed from a body portion 2 of the floor machine 1 by merely removing the bolts 29 and 30, unplugging the end 51 of the cord 50 from the motor 7, and then lifting the handle 3 with the plate 28 attached thereto from the platform 6. In this disassembled condition, the floor machine 1 lends itself to ready packing for shipment, the shipper being able to pack and ship the body portion 2 separately from the handle 3. Also, it lends itself to ready storage, such as, for example, when being stored in stock for sale, the person storing the machine 1 being able to store the body portion 2 separate from the handle 3 but being able to quickly and easily attach the handle 3 to the body portion 2 if this is desired.

Also, when in the aforementioned disassembled condition, the floor machine 1 may be readily transported such as, for example, in the truck or automobile of a workman or salesman desiring to transport the same, the body portion 2 and the handle 3 being separately insertable into and removable from the truck or automobile.

In addition, when the handle 3 and the plate 28 are removed from the body portion 2 of the floor machine 1, as shown in FIGS. 2 and 3, the free end portion 10 of the platform 6 affords a practical and efficient handle for carrying the body portion 2 of the floor machine 1, it merely being necessary for the operator to insert the fingers of one hand downwardly through the opening 21 and grasp the free end portion 10, together with the shaft 15, in his hand. On the other hand, the platform 6 affords a practical and efficient mount for the attaching mechanism 4, and, when the attaching mechanism 4 and the handle 3 are in normal operative position thereon, a practical construction, which is pleasing in appearance and efficient in operation, is afforded thereby.

From the foregoing it will be seen that I have afforded a novel and practical floor machine which is practical and efficient in operation and may be readily and economically produced commercially.

Thus, while I have illustrated and described the pre-

ferred embodiment of my invention, it is to be understood that this is capable of variation and modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. A floor machine comprising a body portion having a outwardly projecting platform thereon, and including a floor working member, a shaft extending through said platform, and a pair of wheels mounted on said shaft in position to support said body portion, said platform having an opening therethrough inwardly of said shaft and of such size as to receive the fingers of a human hand therethrough in position to afford a handle for carrying said body portion, an elongated handle, a mounting member attached to one end of said elongated handle, said mounting member being disposed on said platform in covering relation to said opening, and means releasably attaching said mounting member to said body portion.

2. A floor machine comprising a body portion including an outwardly projecting platform having an outer free end portion, a floor-working member, and two wheels mounted on opposite sides of said free end portion to support said platform, said platform having an opening extending vertically therethrough inwardly of said free end portion in position to permit said free end portion to be grasped in a human hand for carrying said body portion, a handle, a plate attached to said handle in supporting relation thereto, and means releasably securing said plate to the top of said platform in covering relation to said opening to thereby releasably attach said handle to said body portion.

3. In a floor machine of the type embodying a housing, motor means mounted on the top of said housing, a brush mounted in said housing and operatively connected to said motor for rotation thereby, and means, including said brush and a pair of wheels mounted on said housing,

for supporting said housing on such a floor, a platform projecting outwardly from said housing and having a free end portion disposed between said wheels, said platform having an opening therethrough inwardly of said free end portion, said opening being of such a size as to permit the fingers of an adult human hand to be inserted therethrough to grasp said free end portion in said hand, an elongated handle for guiding said machine, a plate attached to one end of said handle, and bolts releasably securing said plate to said platform in covering relation to said opening in position to releasably attach said handle to said housing in upwardly projecting relation thereto.

4. A floor machine comprising a body portion including a floor-working member, an outwardly projecting platform having an outer free end portion, a shaft pivotally mounted on said free end portion for rotation thereabout, and two wheels mounted on said shaft on opposite sides of said free end portion, said platform having an opening extending vertically therethrough inwardly of said free end portion in position to permit said free end portion and said shaft to be grasped in a human hand for carrying said body portion, a handle, a plate attached to said handle in supporting relation thereto, and means releasably securing said plate in operative position on the top of said platform in covering relation to said opening to thereby releasably attach said handle to said body portion, said plate being disposed in such position on said platform when said plate is disposed in said operative position that said shaft may swing thereover during said rotation thereof around said free end portion.

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