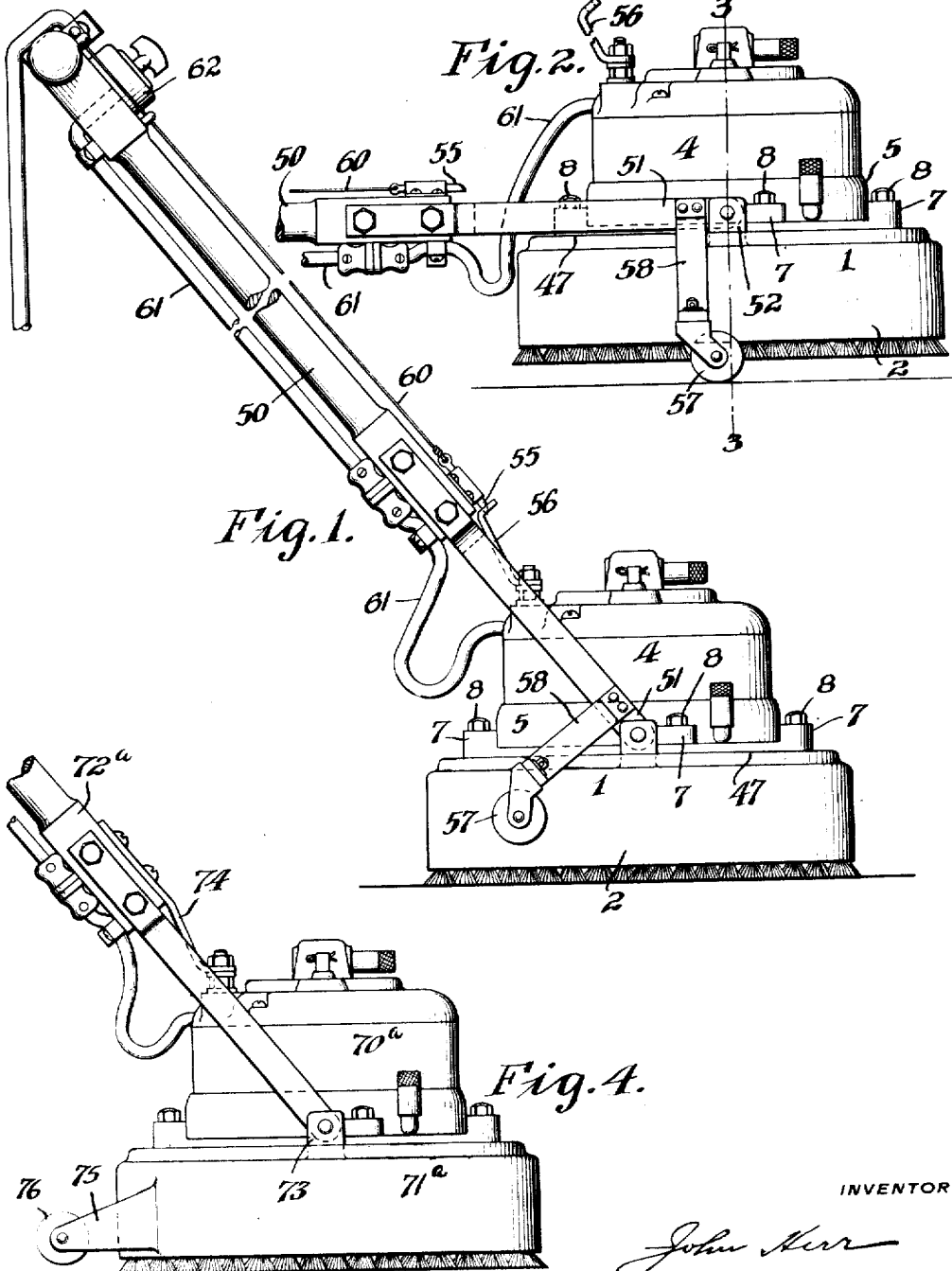


J. HERR.
POLISHING AND SCRUBBING MACHINE.
APPLICATION FILED OCT. 19, 1909.

Patented Dec. 19, 1911.

1,011,954.

2 SHEETS-SHEET 1.



WITNESSES
Daniel Webster, Jr.
C. L. E. L. t

BY

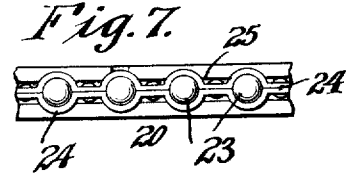
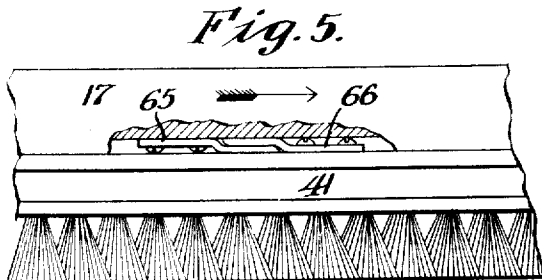
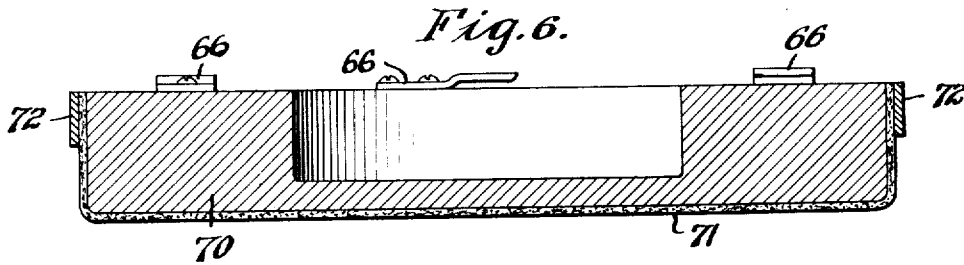
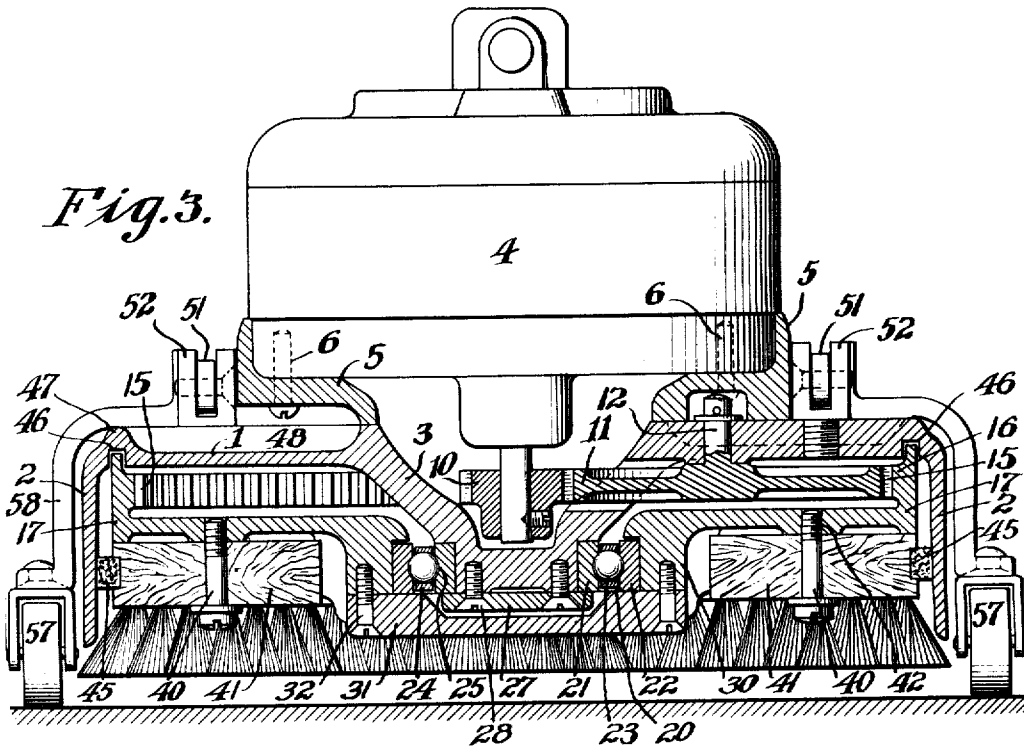
INVENTOR
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UNITED STATES PATENT OFFICE.

JOHN HERR, OF PHILADELPHIA, PENNSYLVANIA.

POLISHING AND SCRUBBING MACHINE.

1,011,954.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed October 19, 1909. Serial No. 523,493.

To all whom it may concern:

Be it known that I, JOHN HERR, a citizen of the United States, residing in Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Polishing and Scrubbing Machines, of which the following is a specification.

My invention relates to improvements in polishing and scrubbing machines, and it has for its object to provide a machine of this character which shall be light and durable and one in which the moving parts shall be so mounted and supported as to produce a minimum of noise.

A further object of my invention is to provide means for so protecting the moving parts of my machine that they will be prevented from striking against external articles such, for instance, as chairs, tables or other articles of household or office furniture when the machine is used in houses or offices where such articles are found.

Other objects and advantages of machines embodying my invention will appear from a reading of the detailed description thereof which follows herein.

In the accompanying drawings I have illustrated convenient embodiments of my invention but it is to be understood that changes in the details of construction may be made without departing from the scope of my invention as the same is described and set forth in the specification and claims.

In the drawings:—Figure 1 is a side elevation of a machine embodying my invention with the handle raised so that the machine is in operative position; Fig. 2 is a side elevation of the same showing a portion of the handle in lowered position in which the machine is not in operative position; Fig. 3 is a vertical section on the line 3—3 of Fig. 2; Fig. 4 is a side elevation of a slightly modified construction of machine embodying my invention; Fig. 5 is a side elevation, partly in section, of a portion of a polishing or scrubbing brush and the support therefor showing a modified construction of the means for connecting the brush to its support; Fig. 6 is a transverse section of a polishing member showing means similar to that shown in Fig. 5 for securing the same to the movable supporting member of the machine; and Fig. 7 is a side view of a

portion of the ball bearing mechanism showing a detail of the construction thereof.

Referring to the drawings: 1 designates a casing having downwardly extending sides 2 as shown in Fig. 3 and a downwardly extending centrally located portion 3 also shown in said figure. Supported upon the said casing is a motor 4 which motor rests upon and is secured to a base portion 5 by means of screw bolts 6. The base-like portion 5 is provided with lugs or projections 7 by means of which it is secured to the casing 1 by bolts 8 which extend through said lugs or projections into the said casing.

10 designates a driving pinion secured to the driving shaft of the motor which pinion is in engagement with a gear 11 having a stud or projection 12 which extends through the top of the casing 1 and by means of which the said gear 11 is rotatably supported upon the said casing. The gear 11 engages an internal gear 15 formed upon an upwardly extending flange 16 of a revoluble member 17 supported upon the lower end portion of the downward extension 3 of the casing 1. Specifically the member 17 is supported upon ball bearing mechanism 20 which is in turn secured to and supported upon the downward extension 3. The ball bearing mechanism consists of an internal ring 21 and an external ring 22 and the interposed bearing balls 23, said balls being held separated from each other by a frame-like structure 24 shown in detail in Fig. 7 of the drawings. The balls 23 lie in grooves 25 formed in the rings 21 and 22. The ring 21 is firmly secured to and about the lower end of the downward extension 3 and to insure it against accidental removal or displacement the plate 27 having its outer edges extending over the said ring 21 is secured by screws 28 to the lower end of the said extension. The outer ring 22 is seated in the interior of the hub 30 of the revoluble member 17. The lower end of the hub is closed by means of a plate 31 secured to the end of the said hub by screws 32. The said plate 31 extends entirely over and protects the ball bearing mechanism from dust or other foreign particles. The space surrounding the extension 3 above the plate 31 should be kept filled with a suitable lubricant. Such lubricant may be inserted by inverting the machine and removing the plate 31. The

scrubbing brush may be secured to the revoluble member 17 by means of screw bolts 40 which pass through the back or base 41 of the brush and screw into tapped openings 42 in the said revoluble member. Obviously the brush shown in Fig. 3 may be removed and a different form of brush or a polisher or a sand papering device substituted therefor.

45 designates a ring of felt or suitable material secured, in the construction shown, to the back or base 41 of the brush and being interposed between the same and the sides 2 of the casing 1. The presence of such felt ring or a ring of similar material assists in preventing dust and water from reaching the mechanism of the machine. It will be noted that the intermediate gear 11 projects through an opening provided in one side of the downwardly or inwardly extending part 3 of the casing 1.

In the operation of my machine for certain work, a considerable quantity of water may be and is used. In such case the water is liable to pass between the periphery of the revoluble member 17 and the sides 2 of the hollow casing 1 and thence into and on the mechanism of the machine. To prevent this occurrence as far as possible, I have provided around the under side of the outer edge of the top of the casing 1 a groove 46 into which the upper edge of the upwardly extending flange 16 projects. In order that the top of the casing may be as thin and the casing therefore as light as possible consistent with necessary strength, the top of the said casing at its outer edge is provided with a circular rib 47 in line with the groove 46. By providing such rib the body portion of the top of the casing 1 between the rib 47 and the downwardly extending central portion of said casing may be relatively thin. The casing may, if desired, however, be strengthened by means of radial ribs 48.

The operating or moving mechanism is located entirely inside the relatively stationary casing 1 whereby the machine may be used in close proximity to external objects, such as furniture, without fear of any of the moving parts striking and injuring the same. Furthermore by inclosing the operating or moving mechanism within the casing and supporting it at the central portion of said casing, the noise made in operation is very greatly reduced.

50 designates a handle by means of which the machine may be propelled over the floor or other surface which is being polished or scrubbed. The end of the said handle which is connected to the machine is yoke-shaped, the opposite sides 51 of the yoke portion being pivotally secured to lugs 52 secured to the casing 1. The handle may be made to occupy any desired position between the positions which are shown respectively in

Figs. 1 and 2. In Fig. 1 the handle is in highest position and is supported in such position by means of a spring-pressed catch 55 which engages a bracket 56 secured upon the motor 4. In such position the wheels 57 which are mounted upon the brackets 58 extending downwardly from the members 51 of the yoke are elevated as shown and permit the operative part of the machine to rest directly upon the floor or other surface. If it is desired to lower the handle the catch 55 may be withdrawn from the opening in the bracket 56 by means of the cord 60 which extends outwardly to the end of the handle for the convenience of the operator. The current for operating the motor is conveyed through the conductor 61 which is partly carried upon the handle 50. The passage of the current through the conductor is controlled by a switch 62.

In Fig. 5 I have shown a modified construction of the means for securing the brush or polisher, as the case may be, to the member 17. Such modified means consists of plates 65 secured to the member 17 and respectively having portions separated or spaced from the said plate which portions are adapted to engage or pass underneath raised portions of plates 66 connected to the base 41 of the brush. There may be as many of these attaching plates or clips as may be found desirable or necessary.

In Fig. 6 I have shown what may be termed a base or carrying member 70 which is adapted to have secured thereto a polishing cloth 71 or a covering of sand paper as the case may be. The said covering is secured to the base 70 by means of a ring 72 which is adapted to be passed over the member 70 and clamp the edge of the covering 71 thereto. The form of attaching means shown in Fig. 5 and also shown in this figure is particularly desirable.

In attaching a brush or a polisher to the member 17 by means of the attaching members shown in Figs. 5 and 6, the brush or polisher would be placed in position with the ends of the plate 66 adjacent to or in line with the ends of the plates 65. The brush or polisher would then be given a turn to the left interlocking the attaching plates in the manner shown in Fig. 5. In the operation of the machine the revoluble member 17 moves in the direction indicated by the arrow in Fig. 5 and when moving in such direction the scrubber or polisher would remain securely attached in position upon said member 17.

The brackets 58, as will be noted, are secured to the opposite side members 51 at points near to the pivot lugs 52. In consequence when the catch 55 is disengaged from the bracket 56 and the handle 50 permitted to drop from the position shown in Fig. 1 to that shown in Fig. 2, the wheels 57 con-

tact with the floor or other surface and the machine is lifted removing the brush or other operative or working member from the floor as is clearly shown in Figs. 2 and 3.

5 In Fig. 4 I have shown a slightly modified construction in which a motor 70^a is supported upon a casing 71^a such motor and casing being of the same or substantially the same construction as the corresponding
10 parts in Figs. 1 to 3 inclusive. The handle 72^a is connected to lugs or projections 73 upon the opposite sides of the casing. The handle 72 is, however, rigidly secured to a bracket 74 which extends upwardly from
15 the motor 70. At one side of the casing 71 and extending in the same direction as the handle 72 brackets 75 are provided on which are mounted wheels 76. When not in operation the weight of the handle 72^a is
20 sufficient to cause the machine to tilt upon the rollers 76 so as to lift the polisher or scrubber from the floor or other surface which is being polished or scrubbed.

If a machine of this character is allowed
25 to rest horizontally with its full weight upon the floor or other surface being polished or scrubbed, it will move laterally in a direction away from that in which the scrubbing brush or polisher is turning. I
30 have found that such lateral movement may be prevented by slightly tilting the machine so as to put greater pressure upon the side thereof toward the operator. This is readily accomplished in either form of machine
35 shown by me. In that shown in Figs. 1, 2 and 3, the catch 55 supports the handle in its upwardly inclined position and permits the operator to press down upon the handle and occasion a slight tilting action
40 of the machine. This, of course, may also be done in the construction shown in Fig. 4 in which the handle 72^a is rigidly secured to the bracket 73. When pressure is exerted upon the handle so as to slightly tilt the
45 machine and impose greater pressure upon the side in the direction in which the handles extend the rotation of the brush does not cause a lateral movement of the machine across the floor in a direction opposite to
50 that in which the brush or polisher may be rotating.

Having thus described my invention, I claim:—

1. In a polishing and scrubbing machine,
55 the combination of a hollow casing having an open lower end and having an inward and downward extension from its top, the bottom of which is closed, a working member having operative revoluble connection
60 with said extension and means located par-

tially within said inward and downward extension for causing revolution of said working member.

2. In a polishing and scrubbing machine, the combination of a supporting casing hav- 65 ing downwardly extending sides at its outer edges and also having a downwardly extending portion at its center, a power device supported upon the said casing and located above the said downwardly extend- 70 ing portion and having a driving shaft the lower end of which extends to a point slightly above the closed end of the downwardly extending portion whereby portions of the power mechanism are situated be- 75 tween the sides of the said downwardly extending portion, a pinion on said driving shaft, a revoluble member revolubly supported upon the said central downwardly extending portion, the said revoluble member having an internal gear, a gear supported upon the said casing intermediate the said internal gear and the said pinion and in engagement with each whereby the said revoluble member may be driven, and a 85 working member secured to said revoluble member.

3. In a polishing and scrubbing machine, the combination of a casing, a revoluble operative or working member supported in the 90 said casing, a handle for moving the said machine over the surface to be polished or scrubbed, and means connected to said handle whereby depression or lowering of the said handle causes the said machine to be 95 lifted from the floor.

4. In a polishing and scrubbing machine, the combination of a supporting chamber, a polishing or scrubbing member revolubly supported upon said supporting member, a 100 power device for causing movement of said polishing or scrubbing member, a handle pivotally connected to said machine, and arms connected to said handle at opposite sides of the machine and at points adjacent 105 to the pivotal points of connection between the said handle and the said machine and intermediate the said points and the end of said handle, the lower ends of said arms being adapted to contact with the floor or 110 other support when the handle is depressed whereby such depression causes the lifting of the machine.

In testimony that I claim the foregoing as my invention, I have hereunto signed my 115 name this 18th day of October, A. D. 1909.

JOHN HERR.

In the presence of—
S. SALOME BROOKE,
CARRIE E. KLEINFELDER.