J. O. JOHNSON.

SWEEPING MACHINE.

APPLICATION FILED JULY 9, 1908.

928,456.

Patented July 20, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

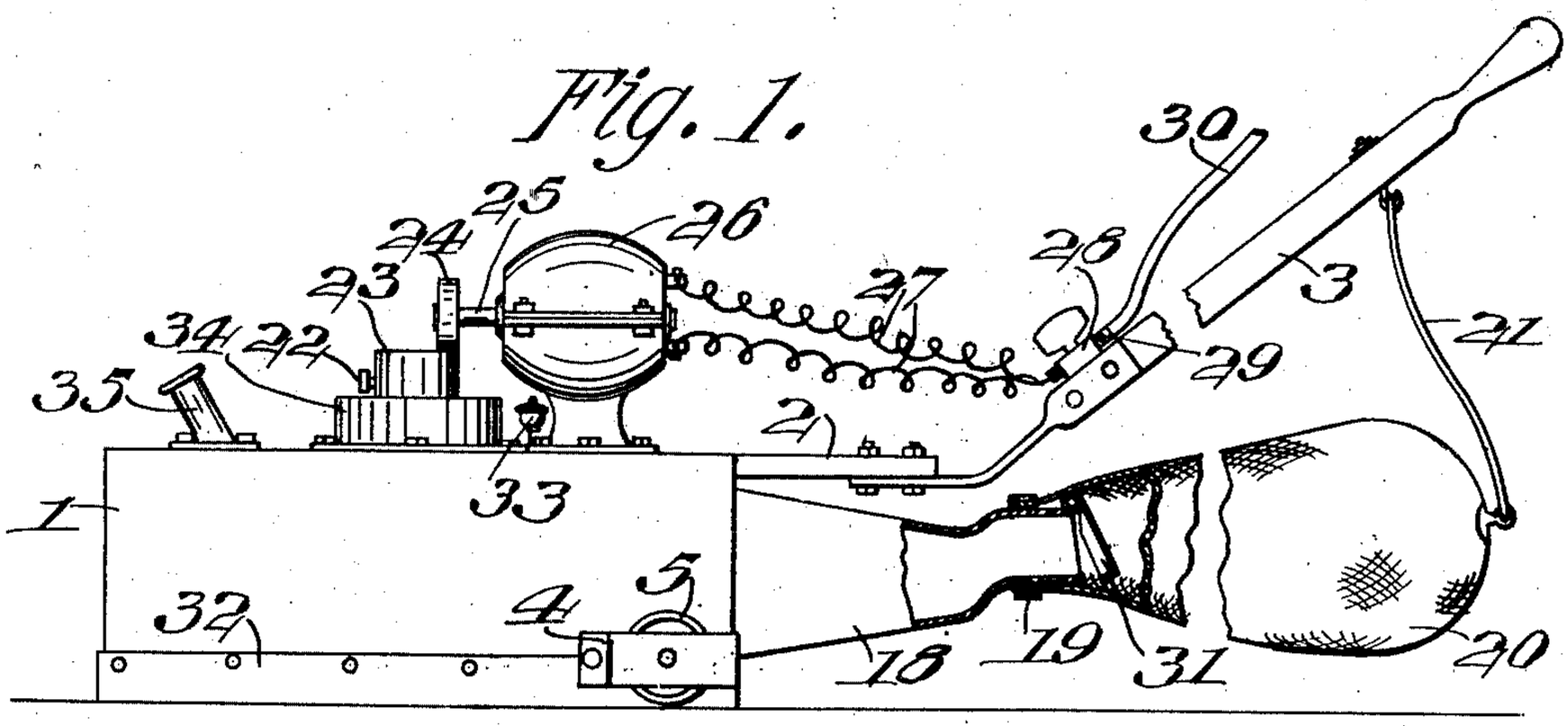

Fig. 2.

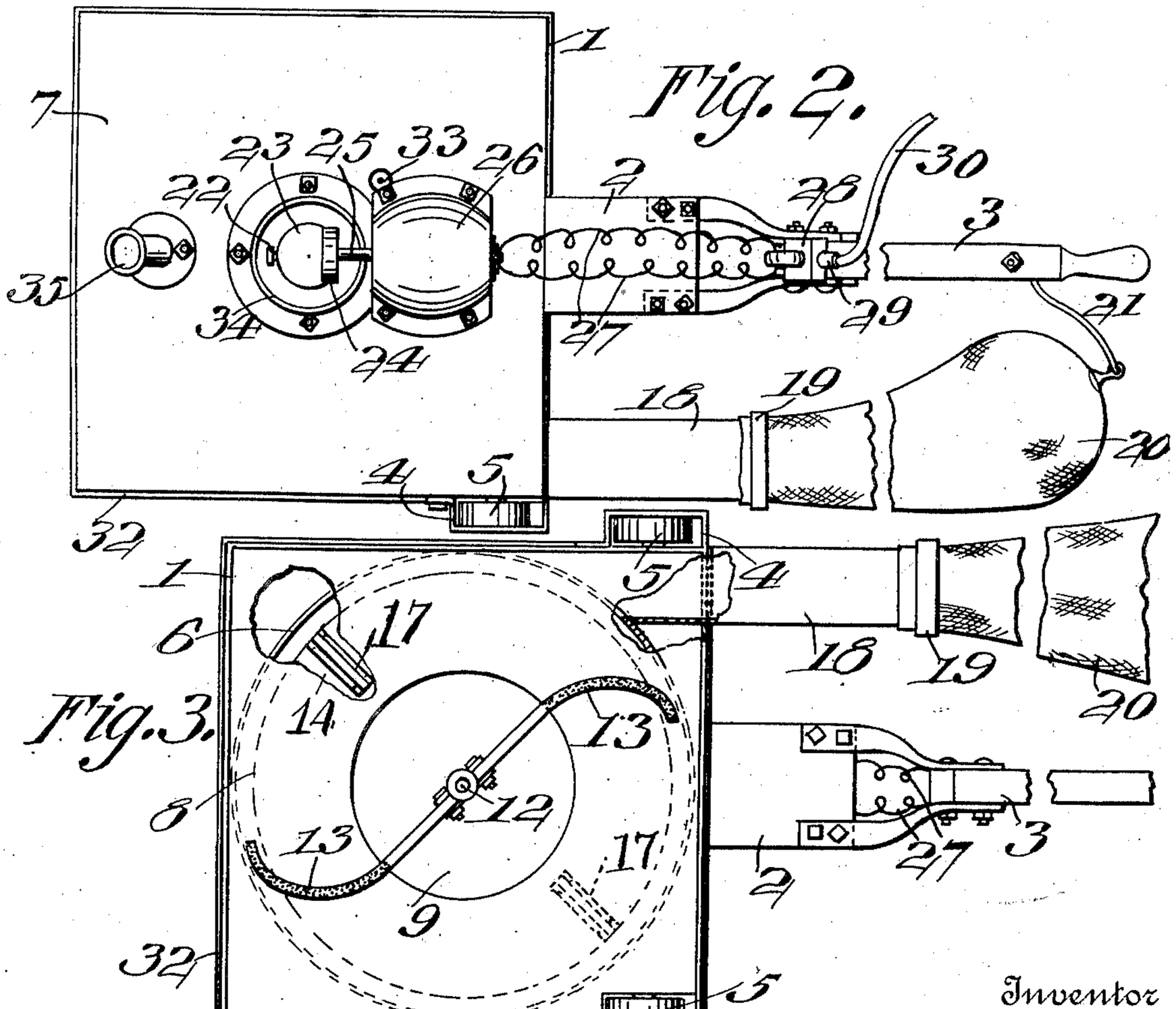

Fig. 3.

Witnesses

E. D. B. Brown.

C. H. Griebauer.

Inventor

J. Oliver Johnson,

By A. Bowilson & Co

Attorneys

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2 SHEETS—SHEET 2.

Fig. 4.

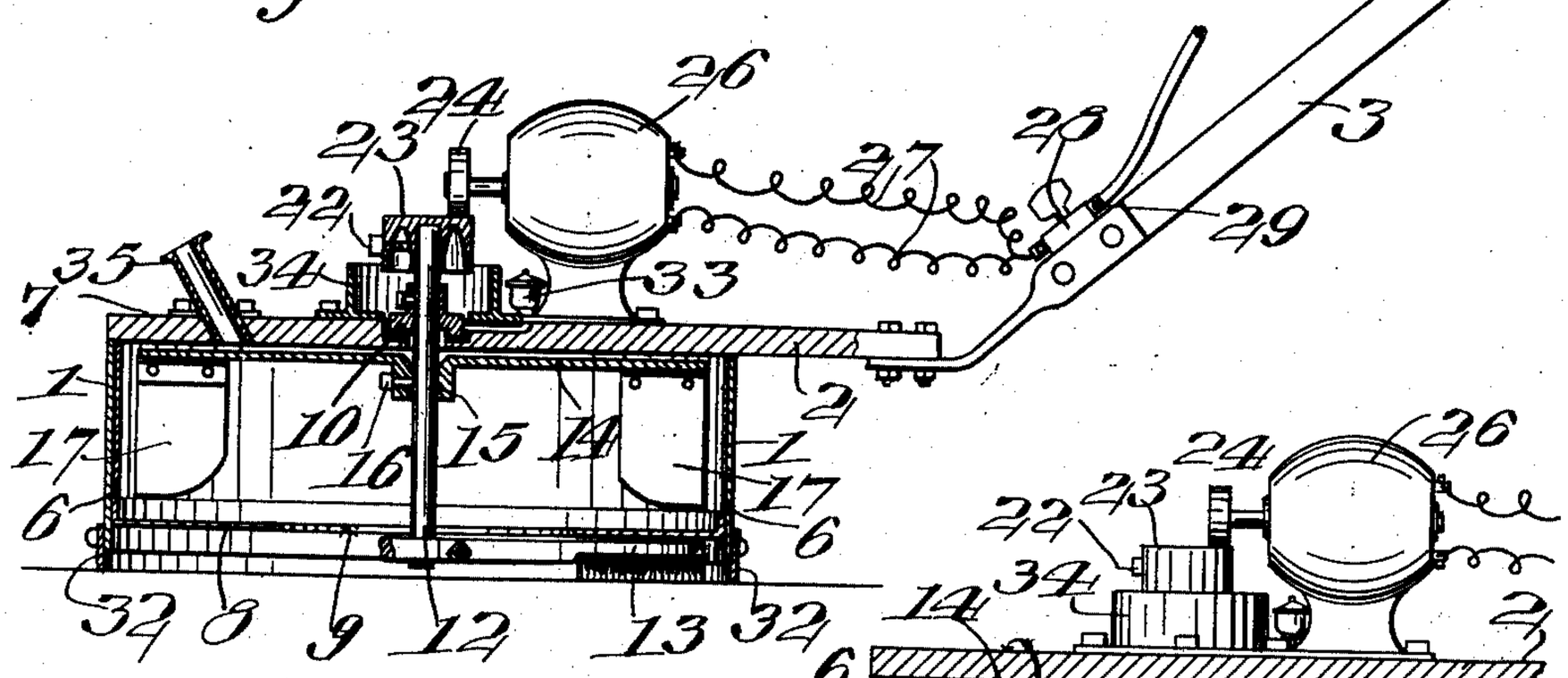


Fig. 5.

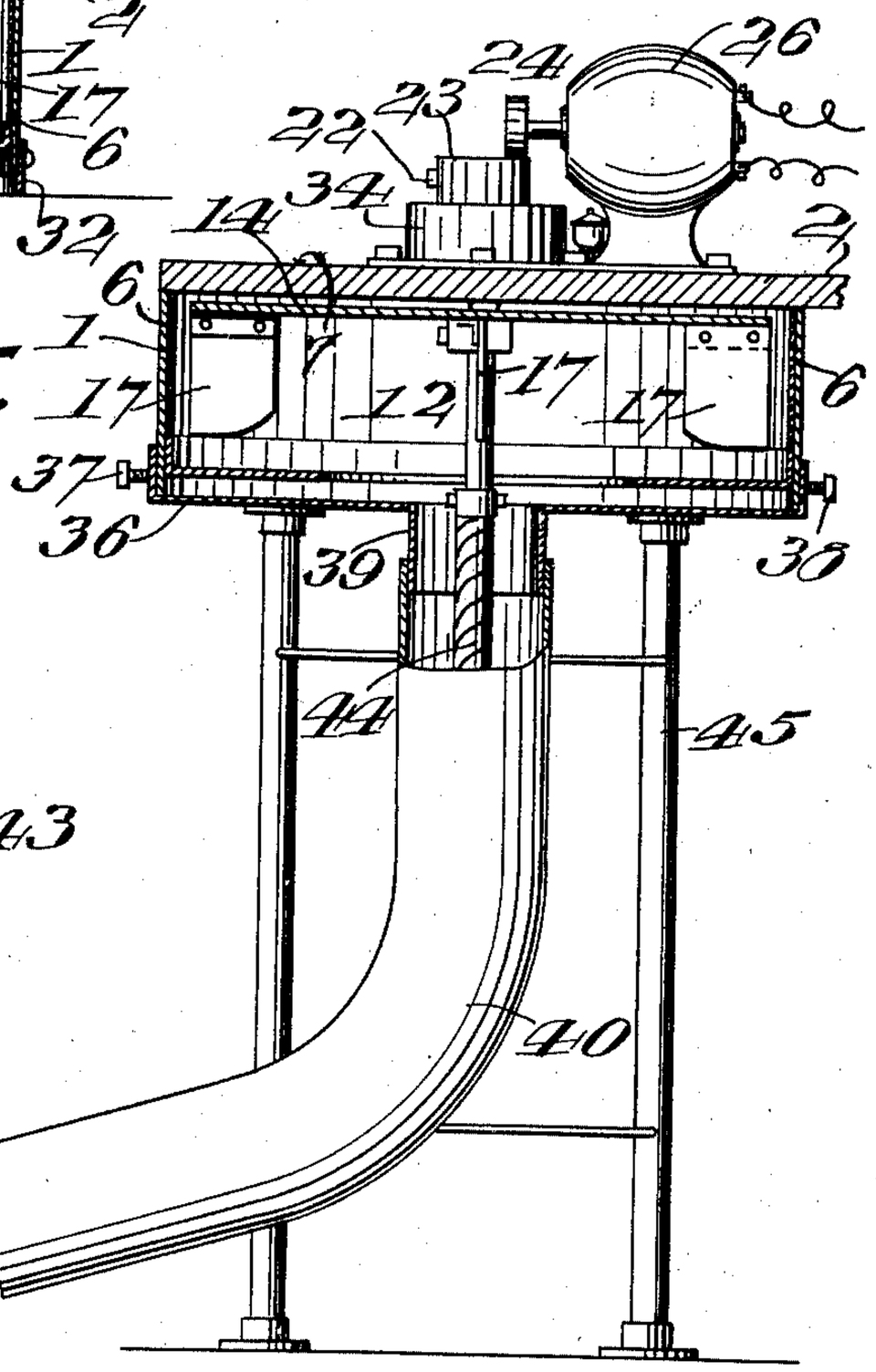
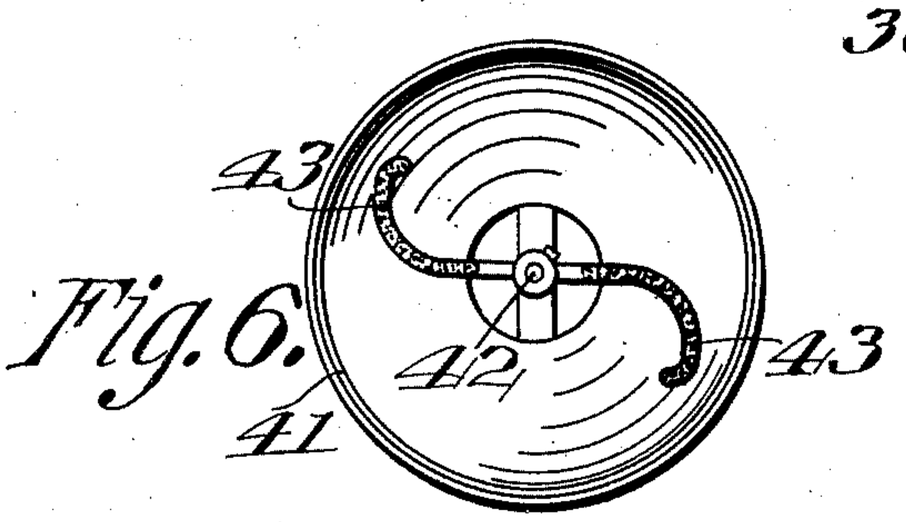
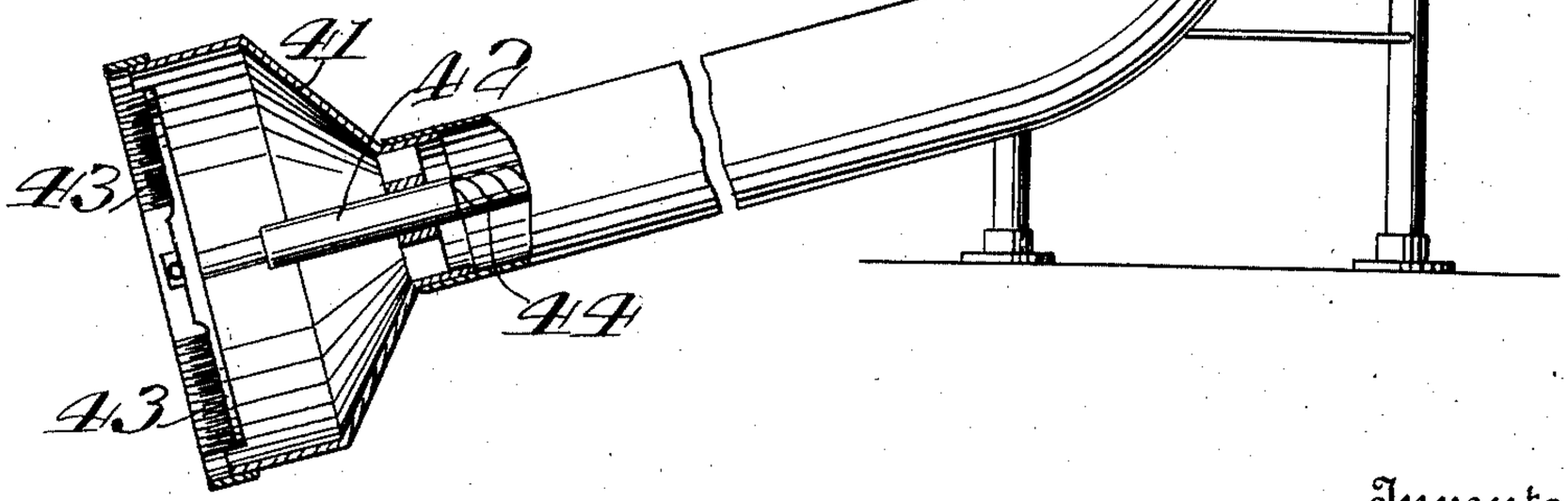


Fig. 6.





Witnesses

C. D. B. Brown.

C. H. Griesbauer.

Inventor

J. Oliver Johnson,

By A. Bruesonetc

Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH OLIVER JOHNSON, OF VISALIA, CALIFORNIA, ASSIGNOR OF ONE-HALF TO HENRY HARRY JOHNSON, OF DINUBA, CALIFORNIA.

SWEEPING-MACHINE.

No. 928,456. Specification of Letters Patent. Patented July 20, 1909.

Application filed July 9, 1908. Serial No. 442,748.

To all whom it may concern:

Be it known that I, JOSEPH OLIVER JOHNSON, a citizen of the United States, residing at Visalia, in the county of Tulare and State of California, have invented certain new and useful Improvements in Sweeping-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in sweeping machines.

The object of the invention is to provide a machine of this character whereby carpets, floors or other surfaces may be thoroughly swept and cleaned without raising any dust.

Another object is to provide a sweeping machine having means to sweep and loosen the dust, and means to take up the latter and discharge it into a suitable receptacle provided for this purpose.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side view, partly in section of a sweeping machine constructed in accordance with the invention; Fig. 2 is a top plan view; Fig. 3 is a bottom plan view with parts broken away; Fig. 4 is a vertical longitudinal sectional view; Fig. 5 is a vertical sectional view of the machine showing the application of a modified form of brush thereto; and Fig. 6 is an end view of the brush and its casing as shown in Fig. 5.

In the embodiment of my invention I provide an outer box or casing, 1, which may be formed of any suitable material and is preferably rectangular in shape. The upper side, 7, of the box is provided with a rearwardly projecting extension 2, to which is secured a handle, 3, by means of which the machine is moved over the floor or surface to be swept. Secured to the opposite rear corners of the casing 1, adjacent to its lower edge are bearing brackets, 4, in which are revolubly mounted supporting rollers, 5.

Arranged within the outer casing, 1, and secured thereto in any suitable manner is a cylindrical inner casing, 6, closed at its lower end by a suitable head, 8. This head, 8, is formed a centrally disposed aperture, 9, through which the dust is sucked or drawn in the manner hereinafter described.

In the center of the top of the box or casing, 1, is arranged an anti-friction journal box or bearing, 10, in which is revolubly mounted an operating shaft, 12, the lower end of which projects through the inner casing 6 and extends through the aperture, 9, in the lower side thereof into the space between the lower side or end of said casing and the surface to be swept, and on said lower end of the shaft is fixedly mounted two or more radially projecting curved brushes, 13, which extend outwardly from the shaft to near the outer sides of the inner casing and are adapted to be rapidly revolved by the shaft, 12, thus sweeping and loosening the dirt and dust from the floor or other surface being swept.

On the shaft, 12, within the inner casing, 6, is fixedly mounted a radially projecting disk or plate, 14, said plate being preferably secured to the shaft by means of a hub, 15, and set screw, 16. On the lower side of the disk, 14, is secured a series of radially projecting fan blades, 17, which, as the disk is operated by the shaft, will create a strong suction through the opening 9 in the bottom of the casing, thus drawing the dust and dirt which has been loosened by the brushes, 13, into the fan casing and discharging the same through a suitable tube, 18, arranged in one side of the fan casing, and projecting rearwardly through the rear side of the outer casing, 10, as shown. On the rear end of the tube 18 is secured, preferably by means of an elastic band, 19, a dust receptacle, 20. The receptacle, 20, is here shown and preferably consists of a bag formed of such material as will permit the air to readily pass therethrough, but which will retain the dust and cause the latter to settle to the bottom of the bag, from which it is removed by disconnecting the mouth of the latter from the end of the tube, 18, as will be understood. The bag, 20, is preferably supported at its rear closed end to the outer end of the handle, 3, by means of a strap or other flexible connection, 21.

Secured to the upper end of the operating shaft, 12, as by a set screw, 22, is a friction pulley, 23, the upper side of which is adapted to be engaged by a similar pulley, 24, on the end of a drive shaft, 25, of a motor, 26, which is suitably mounted on the upper side

of the outer casing, 1, as shown. The motor, 26, is connected to a suitable source of electric supply, by conducting wires, 27, to which is connected a socket, 28, secured to the handle or other part of the machine, and adapted to receive a connecting plug, 29, on the end of a current-conducting cable, 30, of sufficient length to permit the machine to be moved around during the sweeping operation.

On the outer end of the tube, 18, is hinged a flap valve, 31, which is adapted to open and close automatically by the action of the air and dust being forced through the tube.

On the lower edge of the outer box or casing, 1, is arranged an elastic or flexible strip, 32, which is adapted to fit into close engagement with the floor or surface being swept, thus preventing the escape of any dust or dirt which may be stirred up by the brushes, 13.

The bearing, 10, has connected thereto an oil supply cup, 33, which is arranged in a suitable position in the top of the casing 1. On the top of the casing, 1, and surrounding the bearing, 10, is a guard collar or flange, 34, the arrangement of which prevents the oil from being thrown out from the bearing.

In operation as the machine is moved over the floor or other surface the dirt will be loosened and by reason of the peculiar hook-shape of the brushes, 13, will be drawn inwardly toward the discharge opening formed in the bottom of the fan casing, through which it will be drawn by the suction of the fan and discharged into the bag provided to receive the same, said bag being constructed of such material that the pure air will pass through the upper portion thereof, while the dust and dirt will settle to the lower side of the bag, as will be understood.

In the upper side of the fan casing and the outer casing 1 is formed an aperture through which is arranged an upwardly inclined coupling nipple 35,to which may be connected a tube leading to a pump or other suction device, whereby a suction may be created through the casing to draw the dust collected by the brushes therethrough instead of using the disk and fan plates 14 and 17, respectively to create suction in the casing and effect the discharge of the dirt through tube 18.

In the arrangement of the device as shown in Fig. 5 of the drawing, the brushes, 13, are detached from the lower end of the shaft, 12, and a supplemental bottom, 36, is engaged with the lower side of the fan casing and is preferably secured thereto by means of set screws 37 and 38. The bottom 36 is provided with a centrally disposed aperture having an outwardly projecting flange, 39, to which is connected the inner end of a flexible dust conducting tube, 40, the outer end of which is connected to a brush casing, 41, in which is revolubly mounted in suitable bearings a short brush shaft, 42, on the outer end of which are secured radially projecting curved brushes, 43, which are similar in shape and construction to the brushes described in connection with the first figures of the drawing. To the inner end of the short brush shaft, 42, is connected a flexible operating shaft, 44, the inner end of which is detachably connected to the lower end of the shaft, 12, and the fan casing. The shaft, 12 is provided with the same arrangement of fan blades as shown in the first figures of the drawing, the brushes 13 being removed and the supplemental bottom and flexible conducting tube and shaft connected as described.

By means of the attachment just described, the machine may be employed for brushing and cleaning walls, tapestries, furniture and other objects which require a brush that can be turned to various angles and moved to different positions. When the machine is employed for the latter purpose, it is arranged upon a suitable stand or support, 45.

From the foregoing description, taken in connection with the accompanying drawing, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. In a sweeping machine, an outer supporting casing, a fan casing arranged in said outer casing, an operating shaft, a series of fan blades operatively mounted on said shaft within said fan casing, radially projecting curved brushes mounted on the outer end of said shaft, a discharge tube connected to said fan casing, and a fabric dust receptacle connected to said discharge tube, said receptacle serving to separate or filter the dust from the air passing through the same, substantially as described.

2. In a sweeping machine, a wheeled supporting casing, a fan casing in said supporting casing, said fan casing having in its lower side an inlet passage, an operating shaft revolubly mounted in said casing, a disk fixedly mounted on said shaft within said fan casing, a series of fan blades secured to the lower side of said disk, a series of radially projecting curved brushes secured to the lower end of said shaft below said fan casing, an elastic strip secured to the lower edge of the outer casing to form a tight engagement with the surface being swept, a discharge tube con-

nected to said fan casing, a check valve in the outer end of said tube, a dust receptacle detachably connected to the outer end of said discharge tube, and means to support said receptacle in an operative position, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH OLIVER JOHNSON.

Witnesses:
I. T. BELL,
HARRY A. CLARKE.