D. B. REPLOGLE.

PORTABLE VACUUM CLEANER.

APPLICATION FILED FEB. 16, 1911.

1,167,219.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

Fig. 1

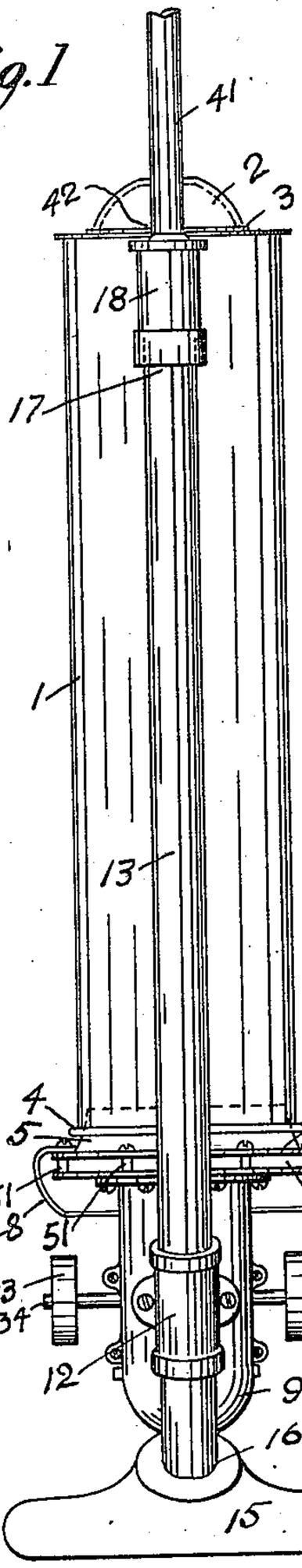


Fig. 3.

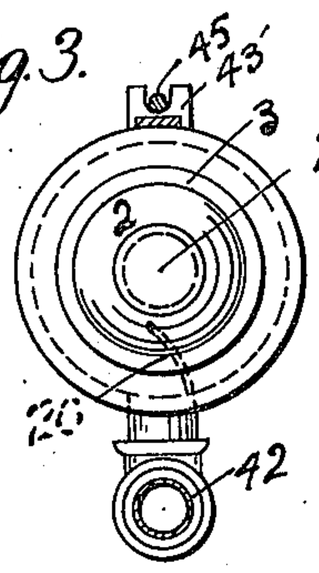


Fig. 4

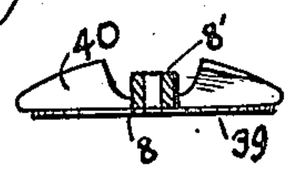


Fig. 5.

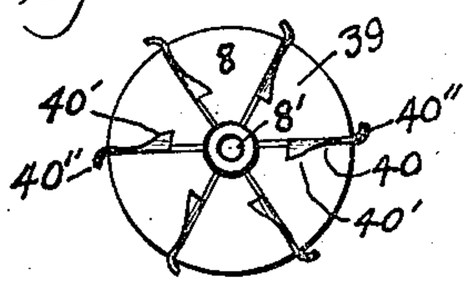


Fig. 6.

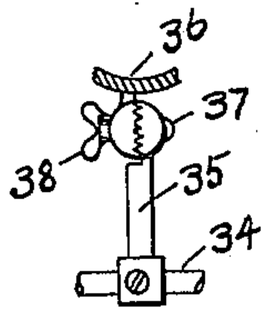
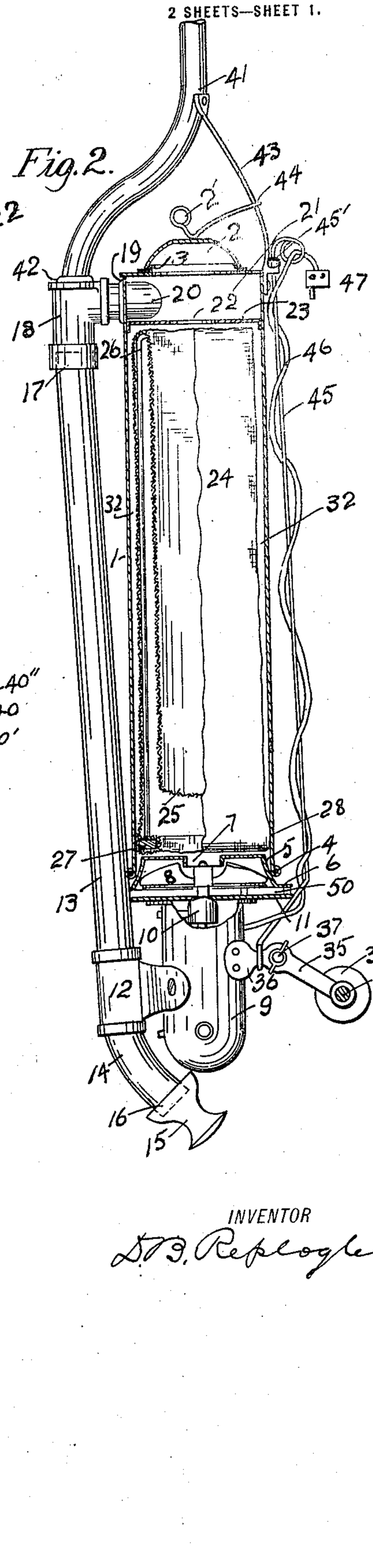


Fig. 2.



WITNESSES:

H. A. Stock

R. B. Replogle.

INVENTOR

D. B. Replogle

D. B. REPLOGLE.

PORTABLE VACUUM CLEANER.

APPLICATION FILED FEB. 16, 1911.

1,167,219.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 2.

Fig. 10.

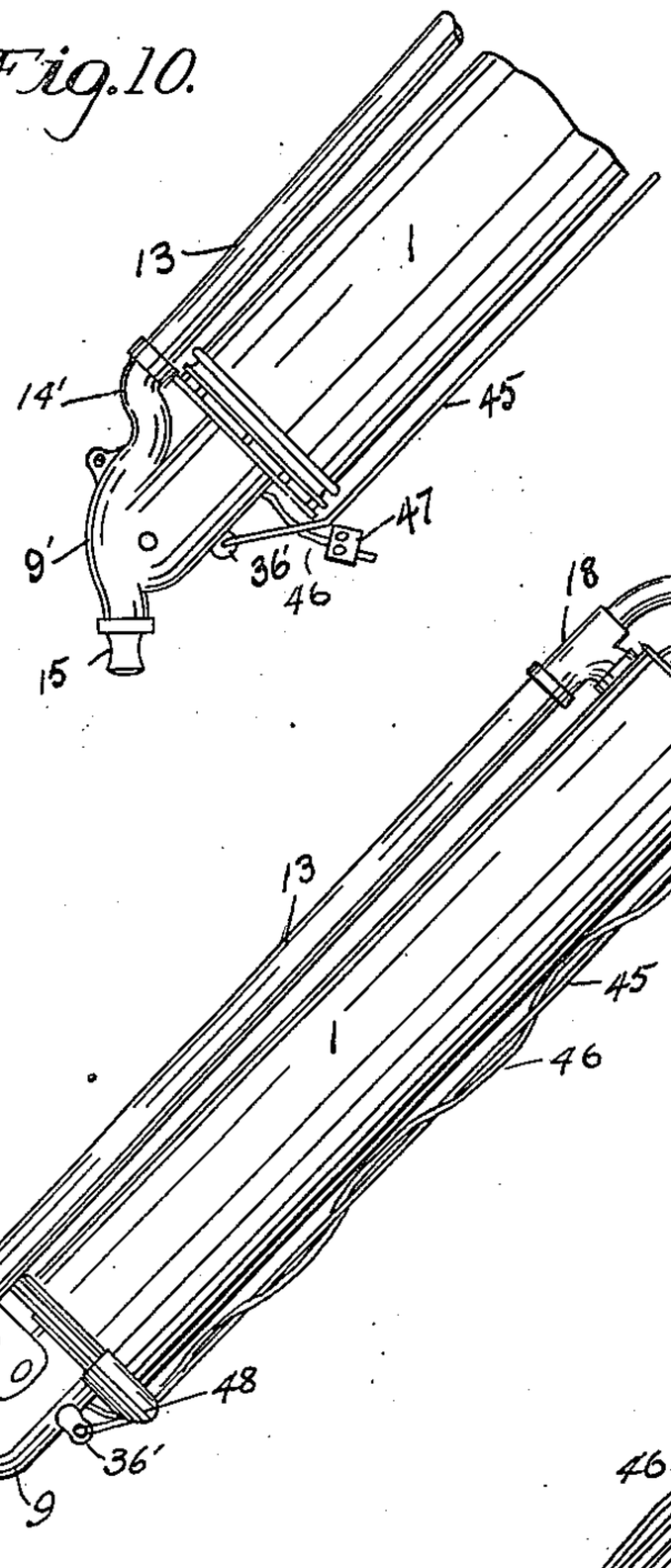


Fig. 7

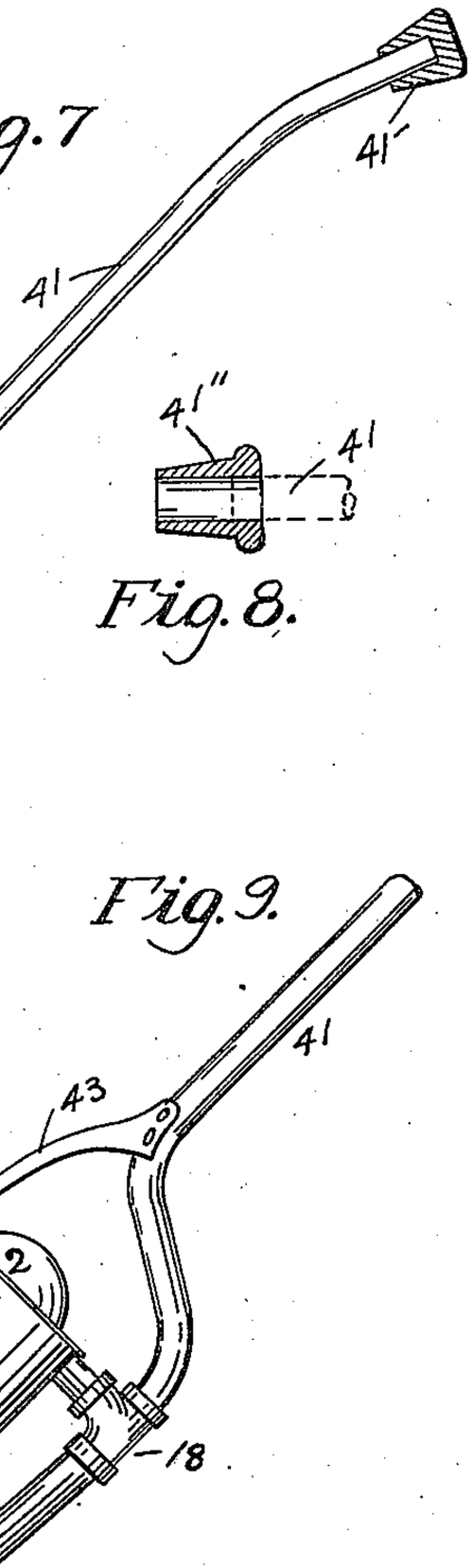


Fig. 8.

Fig. 9.

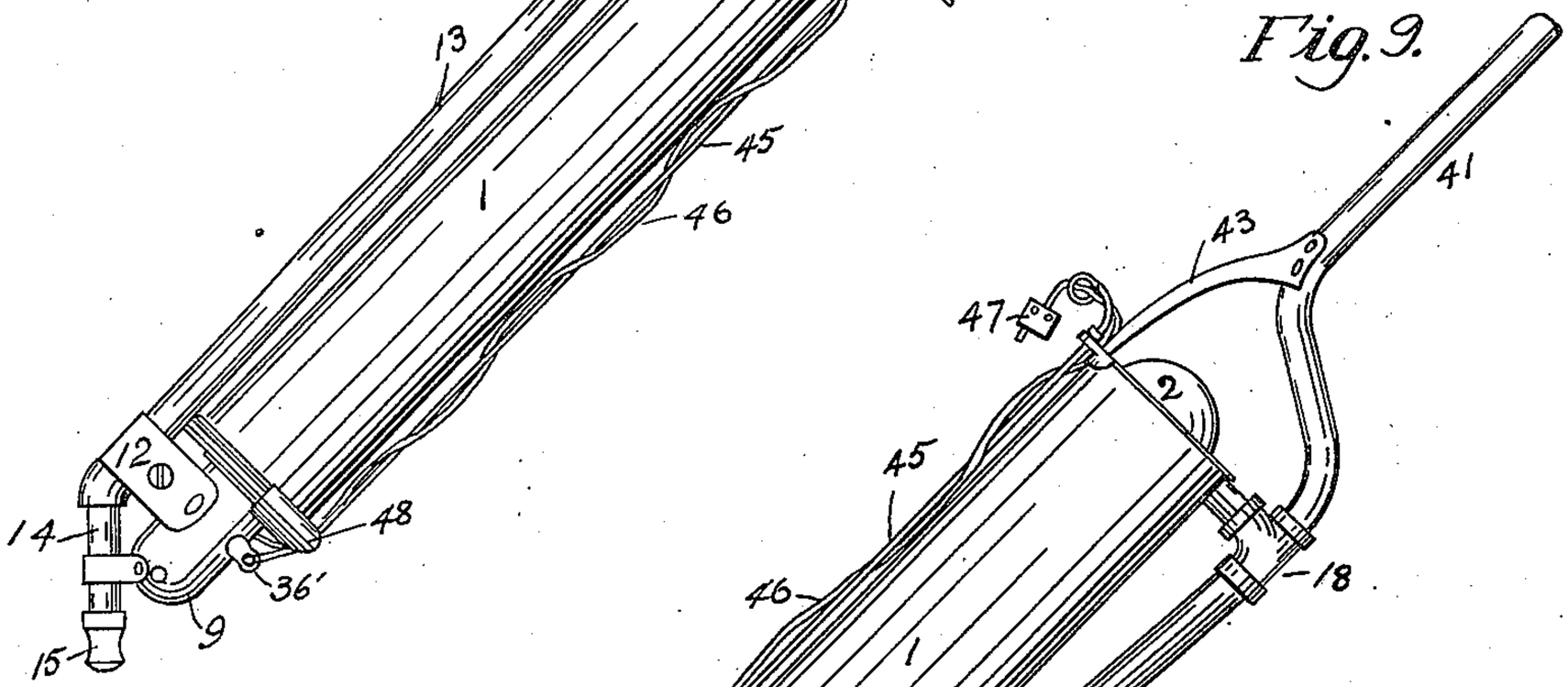
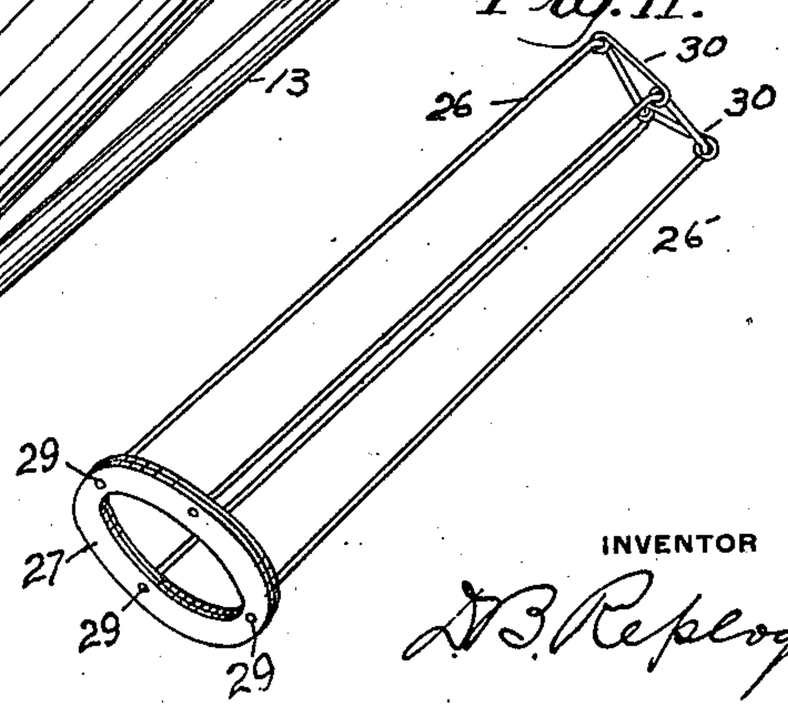


Fig. 11.



WITNESSES

H. A. Stock.

R. B. Replogle

INVENTOR

D. B. Replogle

UNITED STATES PATENT OFFICE.

DANIEL BENSON REPLOGLE, OF BERKELEY, CALIFORNIA, ASSIGNOR OF ONE-THIRD TO F. M. RAY, OF OAKLAND, CALIFORNIA.

PORTABLE VACUUM-CLEANER.

1,167,219. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed February 16, 1911. Serial No. 609,039.

To all whom it may concern:

Be it known that I, DANIEL B. REPLOGLE, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented a new and useful Portable Vacuum-Cleaner, of which the following is a specification.

This invention relates to vacuum cleaners in which a portable electric or other suitable motor furnishes the vacuum producing power and is moved about wit hthe apparatus in use.

The objects of the invention are to improve the form of such cleaners, increase their durability, add to their convenience and utility, and more especially to provide a handle which may serve both to use such cleaners as a sweeper and as a suction pipe to which to attach hose pipe or vacuum cleaner tools or implements.

To these ends, the invention consists of the construction and arrangement of parts as herein set forth and illustrated in the accompanying drawings in which—

Figure 1 is a front view of the main parts of my device. Fig. 2 is a view at right angles to that of Fig. 1. Fig. 3 is a top view with certain parts in section. Fig. 4 is a section view of fan wheel used and Fig. 5 is a plan view of same. Fig. 6 is a detail of bracket used to attach the supporting rollers. Fig. 7 is a side view of the device in working position with the rollers removed. Fig. 8 illustrates how a rubber tip or other vacuum tool may be applied to the outer end of the suction pipe handle. Fig. 9 is a side elevation showing an alternate form in which the suction pipe handle leads under instead of over the body of the device. Fig. 10 is a side view of another modification in which part of the suction pipe handle is constructed integral with the motor casing. Fig. 11 shows a perspective view of the frame over which the filtering cloth is stretched within the body of the machine.

Similar characters of reference refer to the same or similar parts throughout the views.

Referring to the drawings, 1 designates the body which is furnished with an opening designed to be closed by the glass or transparent cover 2. The cover fits over a gasket 3 and is held in place by a detent 2′. The lower end 4 of the body is occupied by the fan case 5 rimmed with a flange 6 and having a central port 7 through which the fan 8 exhausts air from the body. A motor 9 having its armature shaft extending through the bearing 10 drives the fan. A disk or plate 11 serves to secure the motor and form part of its incasement while the rim of said disk parallels the flange 6, forming an annular exhaust 50 for the fan. Spacers or posts 51, 51, etc., unite the disk to the flange. A bracket 12 rigidly secured to the motor also serves to operably join the ends of sections 13 and 14 of the suction pipe handle of the device.

A floor tool 15 is operably connected to section 14 at 16 and the upper end of section 13 fits into a coupling 18 at 17 which is a slip joint. The coupling 18 is rigidly secured to the body at 19 and completes communication from the pipe section 41 secured to it at 42, to the interior of the chamber 21 of the body. A deflector 20 is arranged to give a whirling motion to entering air whether it comes from the upper or lower section of the suction pipe handle. A diaphragm 23 having a central aperture 22 partitions off the chamber 21 from the main part of the body.

Within the main part of the body is the filtering sack 24 stretched over frame work and having its closed end 25 inclusively implicated and hanging within the frame work forming a dust collector through which dust laden air is filtered there being a space 32 between the bag and the body 1. Loops of wire 26, 26′ joined by links 30, 30 and connecting to a common ring 27 at 29, 29, etc., form the frame work referred to and prevent the sack from collapsing in use. Rollers 33, 33 running on the axle 34 which is secured to a shiftable arm 35 carried by a bracket 36 are adapted to carry most of the weight of the device in use. A bolt 37 and wing nut 38 serve to adjust the roller attachment.

The fan 8 is provided with a hub 8′ and has its blades 40, 40, etc., secured to a shroud 39, and the blades have forwardly extending lugs 40′, 40′, etc., and rearwardly extending tips 40″, 40″, etc., to make the fan more efficient in exhausting air through the device.

The section 41 of the suction pipe handle may be closed with a cap 41′ or it may be supplied with a rubber suction tip 41″ or with hose pipe or any vacuum cleaner tools. A brace 43 may serve to more rigidly con-

nect the upper section of the suction pipe handle to the body and also may carry a detent 2′ cramped to it at 44 to secure the lid 2, and it may also have a forked end or lug 43′ to which the stay 45 having an enlargement at 45′ connects; the other end of said stay being secured to the bracket 36 so as to tie the parts together when in use. Electric conduction cord may be twined around the stay as at 46. An air deflector 48 secured to the flange 6 directs discharging air from the exhaust 50 through the crevice 49 and upward from the floor.

In the alternate form shown in Fig. 10 the lower section of suction pipe handle is embodied with the motor housing 9′ and an electrical connector 47 is attached to the conduction cord 46 near the motor instead of at the upper part of the body as in Figs. 2 and 7.

The use of the device is now easily explained. For ordinary sweeping it is grasped by the section 41 of the handle and the motor being started the device is drawn over the floor with the tool 15 in contact with surface to be cleaned, the section 41 having its end closed with the cap 41′ of course so as to direct all the air drawn in to the device, through the lower sections and floor tool. The floor tool may be removed and the section 14 of the suction pipe handle closed with the cap 41′ used as a stopper when it is desired to direct all the current through the upper section of the handle, as when reaching to ceilings, or when attaching hose pipe to the outer end of section 41.

It is of course apparent that the exhaust fan will cause a rapid current of air which carrying the dust with it into the body of the machine is filtered out and the dust left on the surface of the sack 24 which has its mouth end sealed against leaking by being compressed tightly against the outer walls of the body at 28 by means of the ring 27 of the fabric holding frame. In the act of emptying the dust the device is separated by unhooking the stay 45 when the lower end 4 of the body leaves the fan case and the upper end 17 of section 13 slips from the member 18. The frame and fabric contents of the body are then readily drawn out and the collected dust removed from the fabric.

Having thus described my invention I do not wish to be confined to the details described as they may be greatly varied without departing from the spirit and intent of the invention.

What I claim and desire to secure by Letters Patent is:

1. In a portable vacuum cleaner of the kind described, a suction pipe handle, adapted to connect with suction cleaning tools at either end, and carrying vacuum producing means and dust collecting means operably connected intermediate of its ends.

2. In a portable vacuum cleaner of the kind described, the combination with vacuum producing means and dust collecting means operably connected, of a suction pipe handle rigidly secured thereto and communicating with the dust collector at a point intermediate of its ends, said suction pipe handle adapted to receive cleaning tools at either of its ends.

3. In a vacuum cleaner of the kind described, vacuum producing means, dust collecting means and floor tool, operably connected, in combination with a suction pipe handle section extended from a communicating connection with the dust collecting means, and adapted to connect with cleaning tools at its outer end.

In testimony whereof I affix my signature in the presence of two witnesses.

DANIEL BENSON REPLOGLE.

Witnesses:
M. GOHMAN,
R. A. BERRY.