D. B. REPLOGLE.

VACUUM CLEANER HANDLE.

APPLICATION FILED JUNE 23, 1917.

1,338,791. Patented May 4, 1920.

2 SHEETS—SHEET 1.

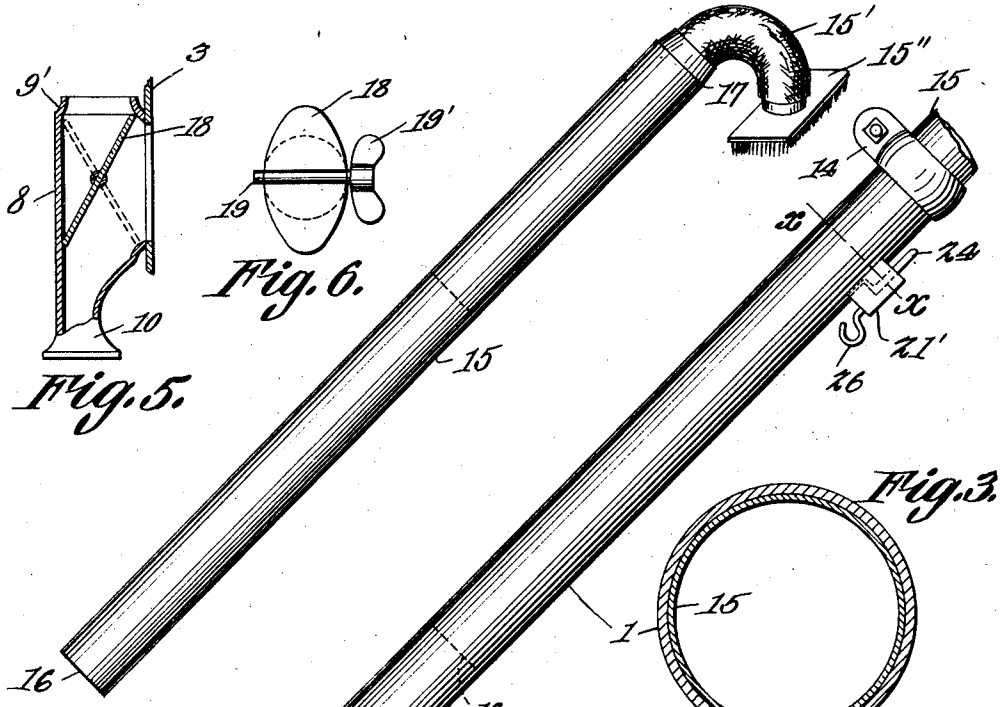


Fig. 4.

Fig. 5.

Fig. 6.

Fig. 3.

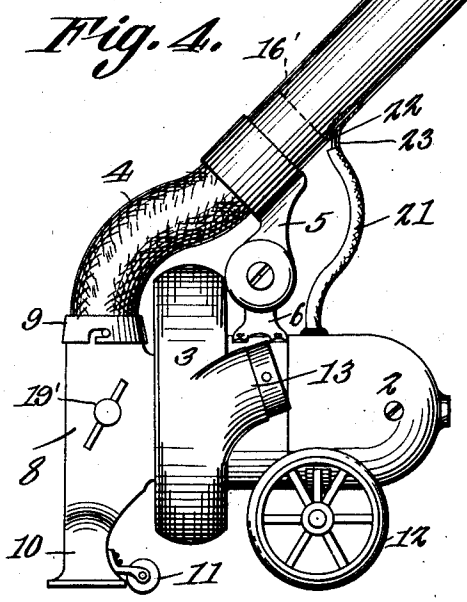


Fig. 1.

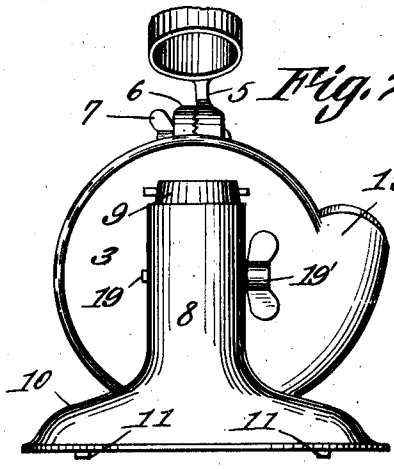


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 7.

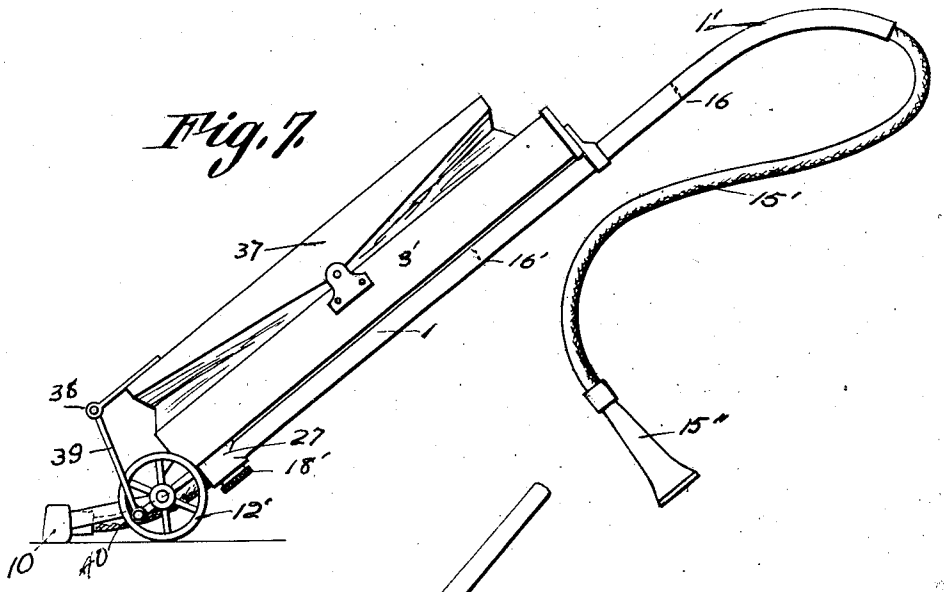


Fig. 8.

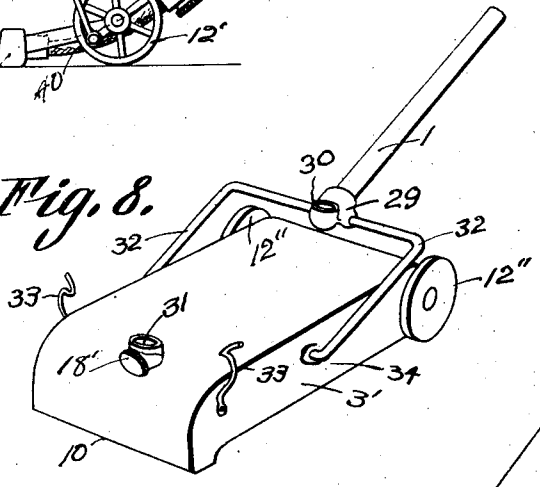


Fig. 9.

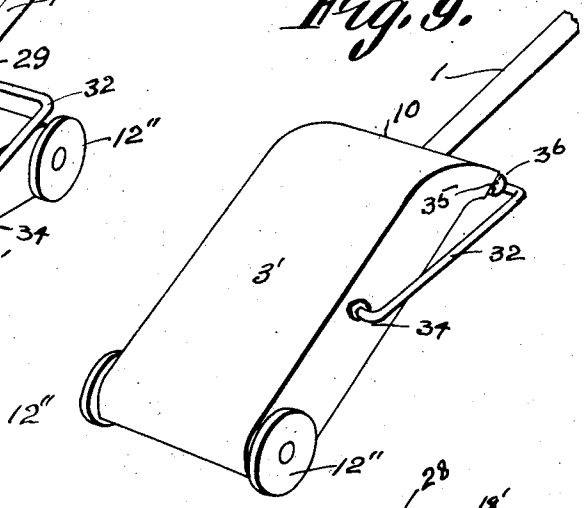


Fig. 10.

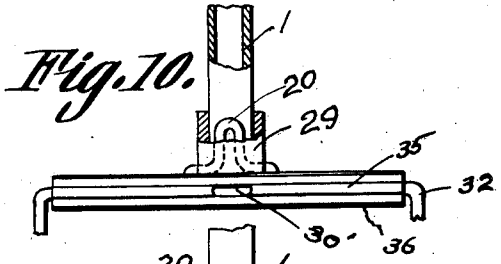


Fig. 11.

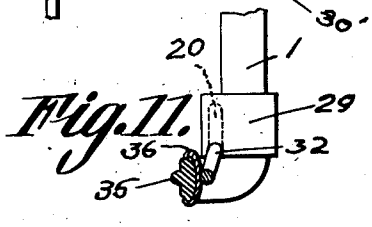
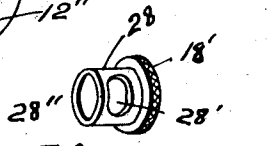


Fig. 12.



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UNITED STATES PATENT OFFICE.

DANIEL BENSON REPLOGLE, OF BERKELEY, CALIFORNIA.

VACUUM-CLEANER HANDLE.

1,338,791. Specification of Letters Patent. Patented May 4, 1920.

Continuation in part of application Serial No. 801,402, filed November 17, 1913. This application filed June 23, 1917. Serial No. 176,644.

To all whom it may concern:

Be it known that I, DANIEL B. REPLOGLE, a citizen of the United States, residing at Berkeley, California, and whose post-office address is 813 Mount Vernon Place, Washington, D. C., have invented certain Improvements in Vacuum-Cleaner Handles, of which the following is a specification.

This invention relates to manually portable vacuum cleaners which being ordinarily adapted for use as carpet or floor sweepers are nevertheless readily converted for use in suction cleaning of upholstery, books, trays, etc., where an extension of hose pipe is usually required.

The present is a continuation application whereof the original was filed as Serial Number 801,402 on Nov. 17, 1913; and the particular objects of the present invention are to provide a suction pipe handle pivoted to the body of the cleaner, to provide flexible extensions of said handle and to generally increase their utility.

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

Figures 1 to 6 show my invention as applied to an electrically operated cleaner, and Figs. 7 to 12 as applied to hand operated cleaners. Fig. 1 is a side view, Fig. 2 a partial front view, Fig. 3 is a cross section on *x*—*x* of Fig. 1. Fig. 4 shows a slidable hose with cleaning tools assembled with a slidable section of the complete handle. Figs. 5 and 6 detail the deflector by which air flow is interchangeably set through the handle or floor tool.

Fig. 7 is a view illustrating my invention where a hand operated cleaner has a pair of bellows rigidly secured to the handle, and the combined bellows and suction handle are hingedly connected to the floor tool. Fig. 8 shows a method of attaching my improved handle to a box type floor sweeping vacuum cleaner, and Fig. 9 an alternate method of doing the same. Fig. 10 details the nozzle connecting part of the handle shown in Fig. 9. Fig. 11 is a section of the detail shown in Fig. 10. Fig. 12 is an enlarged perspective view of the rotatable part of the air deflecting valve shown in Figs. 7 and 8. Designations of similar parts are by similar characters in the several views.

In the drawings, 1 designates the main part of my tubular handle which may carry a motor 2, fancase 3, connecting hose 4 and has a hinged joint made up of the pieces 5 and 6 secured by a wing bolt 7 hingedly connecting the main parts of an electric cleaner. The hose 4 may connect to the conduit 8 by the coupling 9 and the mouthed floor tool 10 may have supporting rollers 11, 11 supplementing the supporting rollers 12, 12 under the motor. A dust collector may operably attach to the exhaust 13, its opposite end hanging from the hook 26. A clamp 14 is attached to the tube 1 whereby the section 15 of the handle may be held from being pulled out of the main tube 1. The lower end of the section 15 may extend well into the main tube, as to the dotted lines at 16 or to 16′ and the outer end 17 of said section may be tapered to receive cleaning tools. A section or length of hose-pipe 15′ carrying a suitable cleaning tool 15″ is also telescoped into the section 15, while the two parts thus assembled are likewise telescoped into the main tube 1.

An air deflecting valve 18 mounted on a stem 19 and adapted to be turned by the wing 19′ is pinioned to the conduit 8 so that when its upper tip is turned to the fancase 3, as shown in full lines, in Fig. 5 air is brought from the floor; but when the upper tip is turned to 9′ as shown in dotted lines, air is brought from the handle. An electric cord carrying conductors 22 and 23 leading from the terminals 24 and 25 respectively serves to conduct current to the motor 2 which drives a fan in the fancase 3.

In the hand operated type of cleaner, Fig. 7, there is a smaller diametered main tube 1, and its outer end 1′ may be curved, the hose-pipe 15′ may be longer, and the suction tool 15″ should have a restricted inlet as indicated. In this embodiment of my invention shown in Fig. 7 the floor tool 10 connects with the valve 27 through the section 40 of flexible hose arranged between rollers 12′ which rollers are also arranged to operate the bellows 37 by means of a pitman 39 extending from a crank carried by the rollers 12′ to a pivoted connection 38 on the bellows. The cap 18′ fits into a connection valve 27 leading to the interior of the body 3′.

The cap 18′ when in position presents an exterior knurled rim by which it may be

turned. A tubular shank 28 having a side port 28′ and an end port 28″ as shown in Fig. 12 serves to control the air flow in the form shown in Fig. 8 as well as in the form shown in Fig. 7; but is not needed in the modification shown in Fig. 9. In the latter form, shown in Fig. 9, a curved channel plate 36 carrying a pad preferably of rubber 35 and arranged transversely of the handle at 29 where it joins the bail 32, is adapted to seal the mouth of the floor tool 10 except at the aperture 30′ which communicates with the interior of the pipe handle 1. A similar aperture 30, in the form shown in Fig. 8, is arranged to coincide with the port 31 when the bail 32 is brought forward to make a sealing connection. A loop 20 of the bail, in either case serves to make a solid connection with the shank member at 29, and inwardly curved ends 34, 34 of the bail make hinged connection with the body 3′. The bail 32 in the Fig. 9 form should be made of a length and a width ample enough to clear the rollers 12″, 12″, so that the handle may be swung around under the body, bringing the pad 35 and the aperture 30′ into operative relation to be retained there by the force of gravity when the operator raises up the outer end of the handle 1. The bail 32 may also, however be readily unhooked by withdrawing the ends 34, 34, to make adjustments and readjustments. In the form shown in Fig. 8, gravity would tend to break the operative connection of the handle, therefore detents 33, 33 are arranged to hook over the bail 32 and hold it in position, so that the operator supports the floor tool upwardly, throwing the weight on the rollers 12″, 12″ in order that they may the more effectively drive the vacuum producing means within the body 3′, which means it is not necessary here to show, as they constitute no part of the improvement here shown.

The operation, if not fully implied in the foregoing, is easily understood. The handle 1, with or without the flexible extension 15′ attached or inserted into it, is used for pushing the cleaner over the floor, applying the floor tool 10; but when desiring to use a hand manipulated suction tool as 15″, the air current is first deflected through the handle instead of through the floor tool. In the electric form this is done by simply turning the deflector 18 to the position shown in dotted lines, while the motor is kept at work. But in the hand forms shown in Figs. 7 and 8, the valve cap 18′ which for floor sweeping has its port 28′ turned downward and connecting with a passage from the floor tool, is, for handle service, to be turned with the port 28′ upward. This brings said port into operative connection with the interior passage of the handle, and in either position of the cap, the port 28″ leads air current with the dust content to a suitable collector not shown, but well understood in the art. Any arrangement of handle connections and valve manipulation, or air control that is desired may be used, and many other details may be varied without departing from the spirit of the invention, which is claimed broadly as follows:

1. A vacuum cleaner comprising a suction-producing means, and a handle connected with the said means for moving the vacuum cleaner back and forth over a floor or other surface, said handle comprising extensibly connected parts forming a suction conduit.

2. A vacuum cleaner comprising a body, a suction-producing means therein, a plurality of telescoping tabular members forming a suction conduit, and means for hingedly connecting one of the members to the body, whereby the members constitute an operating handle for the vacuum cleaner when the members are not used as a suction conduit.

3. A vacuum cleaner comprising a body, a suction-producing means therein, a plurality of telescoping tubular members forming a suction conduit, means for hingedly connecting one of the members to the body, whereby the members constitute an operating handle for the vacuum cleaner when the members are not used as a suction conduit, and a valve at the juncture of the handle members with the body.

4. A suction conduit adapted to be used as a handle for a vacuum cleaner, comprising three telescoping sections, the outer section being flexible and an intermediate section being stiff, a clamp on the end of an intermediate section arranged to lock said sections in different positions and from being pulled out of each other, and means for hingedly connecting one of said sections to the body of said vacuum cleaner.

5. The combination with portable vacuum producing means, of a suction tool, a conduit operably connecting said suction tool to the vacuum producing means, a part of said conduit being a relatively long rigid tube, and another part being a flexible hose telescoping within the rigid tube; the construction being such that the tube and hose afford a handle which may be grasped in the operation thereof.

The foregoing specification signed at Washington, D. C., this twenty-third day of June, 1917.

DANIEL BENSON REPLOGLE.

In presence of—
JANE M. BARRETT,
WILLIAM FRIESS.