

June 27, 1933.

W. LEATHERS

1,916,005

HAND VACUUM CLEANER

Filed Aug. 21, 1930

Fig. 1

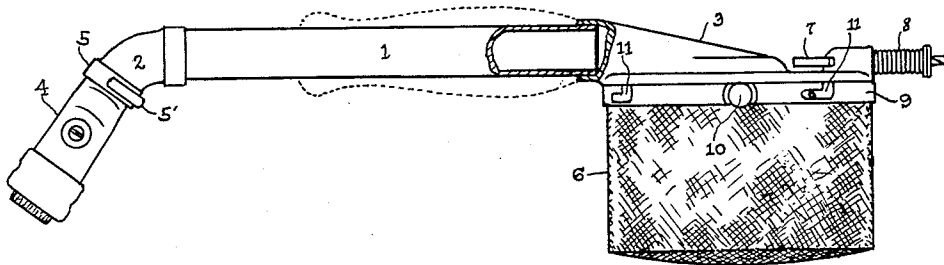


Fig. 2

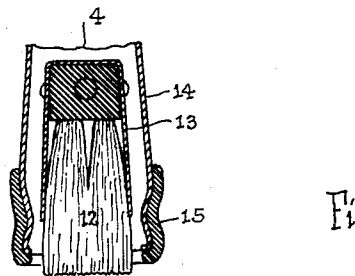


Fig. 4

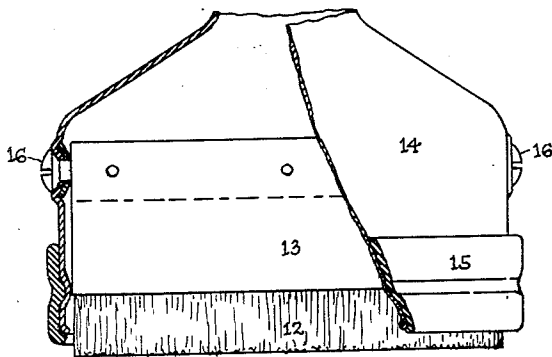
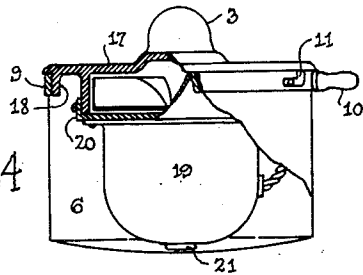


Fig. 3

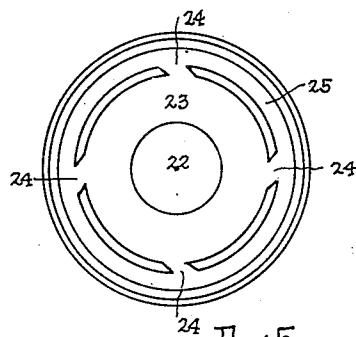


Fig. 5

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# UNITED STATES PATENT OFFICE

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## HAND VACUUM CLEANER

Application filed August 21, 1930. Serial No. 476,834.

The object of my invention is to produce a more practical and efficient hand-vacuum-cleaner than heretofore made.

This apparatus is radically different in many respects. It has as its first object the making of a cleaner that may be handled more like a brush and dust-cloth combined. The first consideration in its general development was to so locate the weights, back of the griphold, and underneath the hand so that the nozzle extension may be swept around freely with the wrist motion rotating said extension freely, approximately about the center of kinetic rotation of the entire machine. Heretofore hand cleaners have been made with the motor-blower unit in front of the handle where they furnish a clumsy weight-mass and annoy a dexterous person.

I have set forth in the following specifications a complete description of my invention, and to the same have appended drawing of which—

Figure 1 is a side elevation

Figure 2 is a transverse cross-section of brush-nozzle

Figure 3 is a partial longitudinal cross-section of the same

Figure 4 is a partial cross-section of motor-blower assembly

Figure 5 is a plan view of the under side of the suction housing.

Figure 1 shows my hand-vacuum-cleaner approximately half size. Here, 1 is a hollow-air-duct-handle, preferably of hard fibre tubing. The length may be as desired. It supports on the forward end, rigidly attached to it, a hollow nozzle attachment 2. It supports on its rearward end in similar manner a motor-suction air-filter assembly 3. To the forward end of 2 is rotatably attached a suction-nozzle assembly 4. The unit assembly 3 has within the filter 6 the motor-suction unit. At 7 there is an electric switch, at 8 a flexibly joined electrical connection. The filter-bag 6 made of suitable fabric, is joined in any suitable manner to a supporting ring 9 provided with a handle 10, whereby the filter 6 may be joined to the assembly 3 by

means of suitable latches such as the bayonet joints shown at 11.

Figures 2 and 3 show cross-sections of the lower part of the suction-nozzle assembly, approximately actual size. A brush 12 provided with the usual back is encased in a clip 13 made of sheet metal or other suitable material such as stiff sheet rubber attached thereto suitably as by rivets. The nozzle casing 14 is preferably of stamp sheet metal, although it may be cast if desired. 15 is a rubber-bumper and nozzle-nose, attached in any desired manner, as shown, consisting of a rubber-band held on by tension and rubber cement. The brush 12 is dropped in at the of the nozzle and held rotatively in place by pins, plugs or screws, or other suitable means, shown at 16.

In operation the side movement of the brush, due to its hinged character, permits it to automatically open the port on its forward side and close the port on its rearward side, which action is reversible in use.

Figure 4 shows a partial cross-section of the motor-suction assembly 3. A member 17, which it seems desirable to make in the form of a casting, provides the attachment for the handle 1, the air inlet to the center of the rotor, the top and side casing for the rotor, and an outside rim 18 to which the ring 9 is joined as above described. In the manufacture of this device this is the only part that need be made of cast material, the remaining parts, being preferably stamped. A motor-housing 19 is suitably joined to a supporting member or plate 20. At 21 I have provided a rubber-bumper attached in any desired manner, which will help to protect the fabric of the cover 6 when the machine is not in use.

Figure 5 is a view of the part 17 from the underside wherein 22 is the inlet-opening to the suction. 23 is the suction-chamber. Outlet ports 24, to any desired number, permit the exhaust to egress freely to the filter-chamber 25.

Having set forth my invention in simple, understandable terms, so that all familiar with these arts may understand, I wish it understood that the principles involved in my invention may be applied by a multitude

of detail structures, all of which fall within the scope of my invention.

I claim:—

In a suction cleaner the combination of a casing-enclosed motor-suction-unit comprising a fan, a plate having at right angles thereto and within its periphery an annular flange having ports therethrough, the casing of the motor-suction-unit being secured to the mouth of said flange with the fan peripherally surrounded by the annular flange which, with the plate, forms a fan chamber;

a filter attached to the periphery of said plate and enclosing the ported annular flange and the motor-suction-unit; a rigid tubular handle attached to the plate with its bore in communication with a hole through the plate into the fan chamber; and a suction nozzle on the outer end of said tubular handle.

Signed at New York in the county of New York and State of New York this 18th day of August A. D. 1930.

WARD LEATHERS.

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