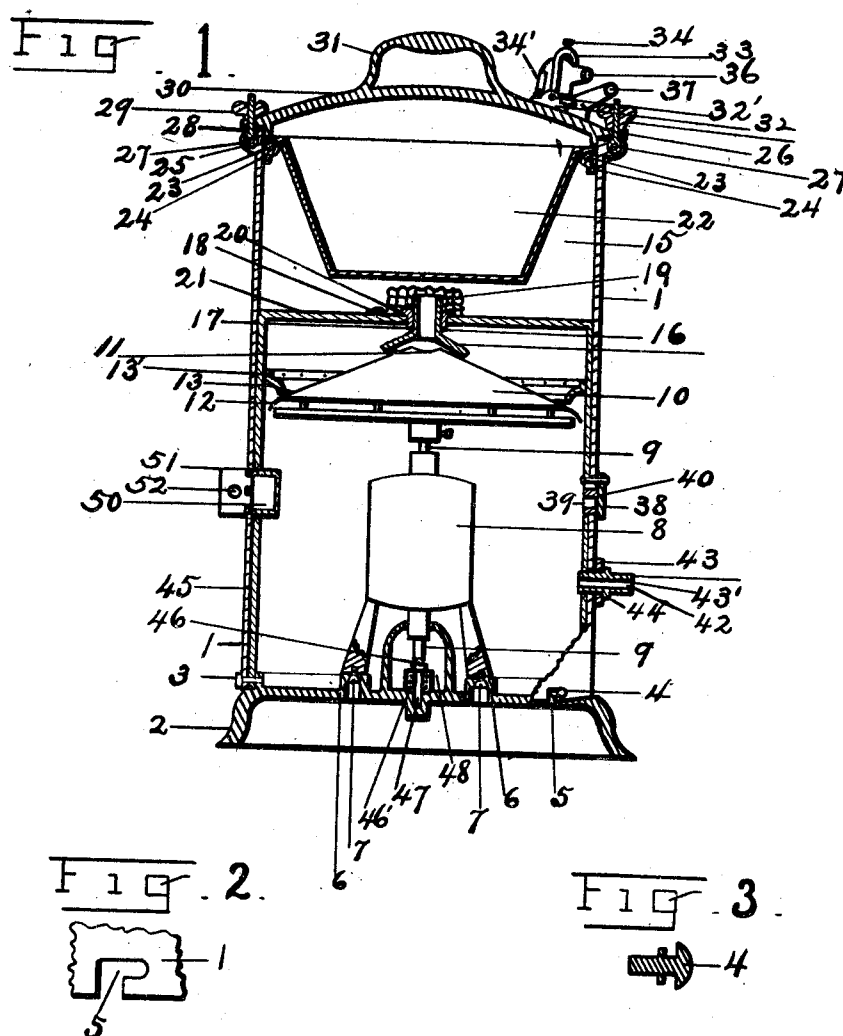


W. A. HEARN.
VACUUM PUMP.
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1,057,959.

Patented Apr. 1, 1913.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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VACUUM-PUMP.

1,057,959.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER A. HEARN, a citizen of the United States of America, and resident of Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Vacuum-Pumps, of which the following is a specification.

This invention relates to vacuum pumps designed to remove dust, dirt, or other foreign matter from carpets, household fabrics of every nature and from floors, walls, ceilings, roofs, vehicles, etc.; and for brushing and currying beasts of burden or other animals; and for any other purposes to which such a suction or blowing device can effectively utilize the different air currents which it creates.

The objects of my invention are first to provide a new and improved vacuum pump; 2nd.—to provide a power operated vacuum pump cleaner; 3rd.—to provide a vacuum pump with more than one intake opening; 4th.—to provide more than one outlet opening; to provide means whereby the same vacuum pump can be used by more than one person at the same time; to provide a portable vacuum pump with multiple means for attaching the cleaner tools; to provide a novel base; to provide a novel fan; to provide a novel casing; to provide means for deadening the sound; to provide a removable intake socket; to provide an interchangeable socket outlet; to provide an interchangeable sight glass; to provide an adjustable gate or bushing between the suction device and the vacuum chamber; to provide a hinged screen within the vacuum chamber; to provide an annular flange between the vacuum chamber and the suction device; to provide means for securing the base to the casing; to provide a drip pan for the oil; to provide means for cooling the motor and for cooling the air blown from the machine.

My device can also be used for catching flies or other insect pests by placing the suction attachment near fly paper or other device for attracting the pests.

I attain these objects by the mechanism shown in the accompanying drawings in which—

Figure 1 is a vertical sectional view of the casing showing the various parts of the

vacuum pump. Fig. 2 is a view of the slots used to secure the casing to its base. Fig. 3 is a view of the button used to engage the slots in the casing.

Similar numerals refer to similar parts throughout the several views, in which—

1 is the casing which is secured to its base 2 by means of the screw 3 which is upset on the inside to prevent falling out and becoming lost; said base is also secured by buttons 4 engaging the slots 5. The pillars or posts 6 are preferably made hollow as well as preferably made integral with the base 2 to permit the screw heads of the screws 7 to be above the oil line in the base forming the drip pan for the excess oil. These screws serve to fasten the motor 8 to the machine; the rotor spindle 9 to which is rigidly fastened the suction fan 10 revolves in suitable bearings to create the different air currents common with such fans. The upper disk of this fan is provided with a downwardly flared annular edge 12 surrounding the exhaust edge of the fan so as to direct the air in alignment with the rotor spindle and toward the base of the machine. Above this fan and near its outer edge is an annular depending flange 13 secured by its ring 13' to said casing to prevent a return of the exhaust air toward the vacuum chamber 15, or toward the suction inlet 11 of the said fan.

16 is an adjustable bushing or gate having a vertical movement to permit its adjustment toward the fan suction opening to aid in preventing a return of the air to the vacuum chamber. The socket 17 is a guide for the said bushing and serves to reinforce the bottom 21 of the vacuum chamber to which it is secured by its flange 20.

19 is a screen preferably secured by the hinge 18 to the vacuum chamber.

22 is a porous receptacle suspended within the vacuum chamber by a ring 25 resting upon the gasket 23 supported by an annular flange 24 secured to the casing.

26 is the rim of the top 30 which is secured to the casing by the trunnioned bolt 28 pivoted by its pin 27 and carrying its winged nut 29. 31 is a handle attached to said top or cover by means of which the machine may be readily carried.

37 is one intake socket preferably made

integral with the cover and 36 is a secondary intake socket removably held in position by the hinged bridge 33 and its screw 34. This bridge is pivoted in the lugs 32 by the pins 32'. This detachable intake 36 is provided with a sight glass 34'. In lieu of this secondary intake, a wineglass shaped sight glass may be inserted when using only one tool.

10 At all places where required and wherever two metals come into contact, suitable packings are used to make the joints airtight and to deaden the sound.

38 is a hinged cover secured to the socket 40 over the blow opening 39.

43 is a flange around the secondary blow opening 43' into which is inserted a removable socket having an attending flange 44 into the opening 42 of which is inserted the hose when it is desired to use the blow current of air.

45 is the sound deadening material.

47 is a support for the ball bearing 46 upon which rests the lower end of the rotor spindle 9 surrounded by the oil well 48.

46 is a spring to counteract the weight of the rotor and fan, and serves to maintain the rotor in its center of the magnetic field.

50 is a chamber in which a cooling material, such as ice, may be placed for cooling both the motor and the air blown from the machine.

51 is a door into which a hose may be inserted at the opening 52.

It will be seen that the flared edge of the adjustable passage or gate "16" and the top of the fan 10 together with the flange 13 and the bottom of the suction chamber 15 form an intermediate chamber between the suction and compression chambers, in which the air pressure is more or less normal and serves to prevent the return of the air drawn from the suction chamber.

45 In the operation of my machine it may readily be seen that when the rotor revolves the fan 10 draws air through the bushing 16 from the suction chamber 15 and the dust receptacle 22 wherein the intruding air through the nozzles 36 and 37 deposits the dirt.

I do not care to limit myself to the specific construction shown.

What I claim as my invention is—

1. In a vacuum pump, the combination 55 with a casing provided with a suction chamber, an inlet to the suction chamber and means for creating suction in the suction chamber, a space between the suction chamber and suction creating means, of a movable 60 passage from the suction chamber to the suction creating means, substantially as described.

2. In a vacuum pump, the combination 65 with a casing provided with a suction chamber, an inlet to the suction chamber and means for creating suction in the said chamber, a space between the suction chamber and suction creating means, of an adjustable tube through which the air is drawn by the 70 suction creating means and means for adjusting the said tube, substantially as described.

3. The combination with a casing having a detachable top and a suction chamber, a 75 fan secured to a rotatable spindle for creating suction in said chamber, a space between said fan and suction chamber, an inlet to the said fan and an adjustable passage leading from the suction chamber to the 80 inlet of said fan, substantially as described.

4. In a vacuum pump, a casing provided with a suction chamber, an inlet to said chamber, a fan for creating suction in said chamber, and a passage leading from said 85 chamber to said fan, a space between the said fan and suction chamber, of a ring secured to said casing between the bottom of the said chamber and the top of the said fan, substantially as described. 90

5. In a vacuum pump, a casing provided with a suction and a compression chamber, means for creating suction and compression in the respective chambers, an inlet to the suction chamber, a passage leading from the 95 suction chamber to the suction creating means, of a chamber between the said suction and compression chambers, substantially as described.

Signed by me at Baltimore city, this 21st 100 day of February, Nineteen twelve.

WALTER A. HEARN.

Witnesses:

D. M. ADAMS,
M. R. BELL.