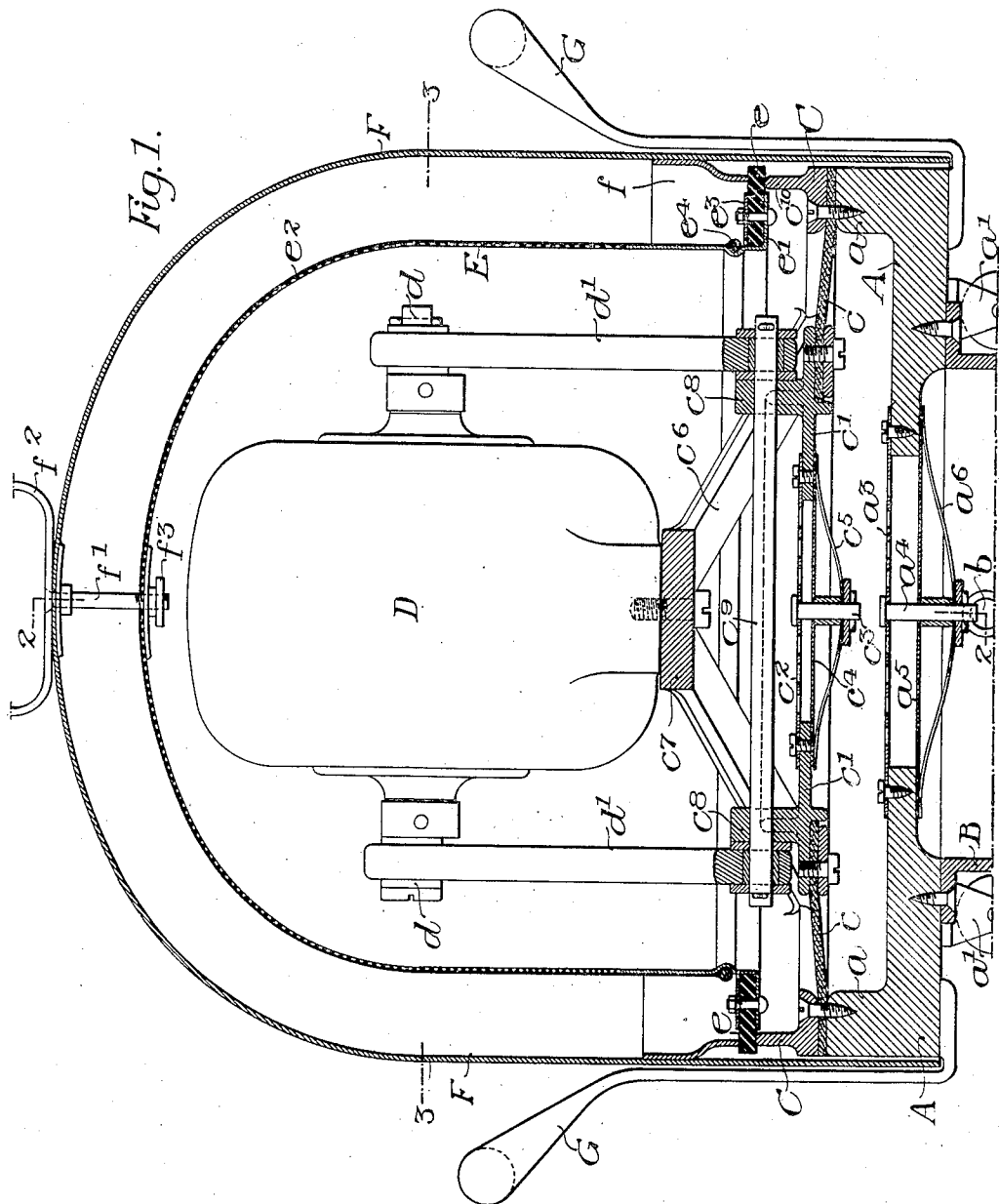


948,254.

3 SHEETS—SHEET 1.



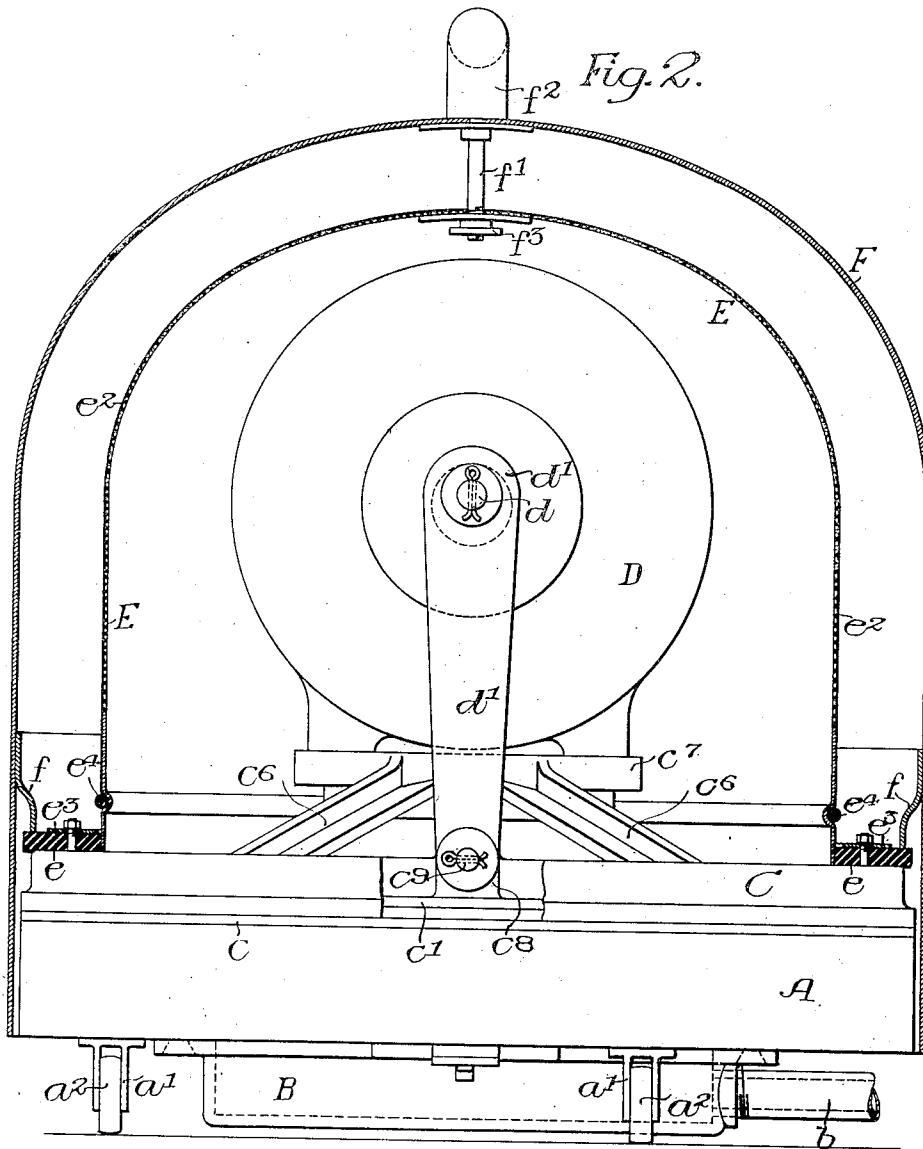
Inventor-
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W. SCHUSSLER.
PUMPING MECHANISM FOR CARPET CLEANING MACHINES.
APPLICATION FILED OCT. 3, 1908.

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3 SHEETS—SHEET 2.



Witnesses:
Wills A. Burrows
Walter Chism.

Inventor:
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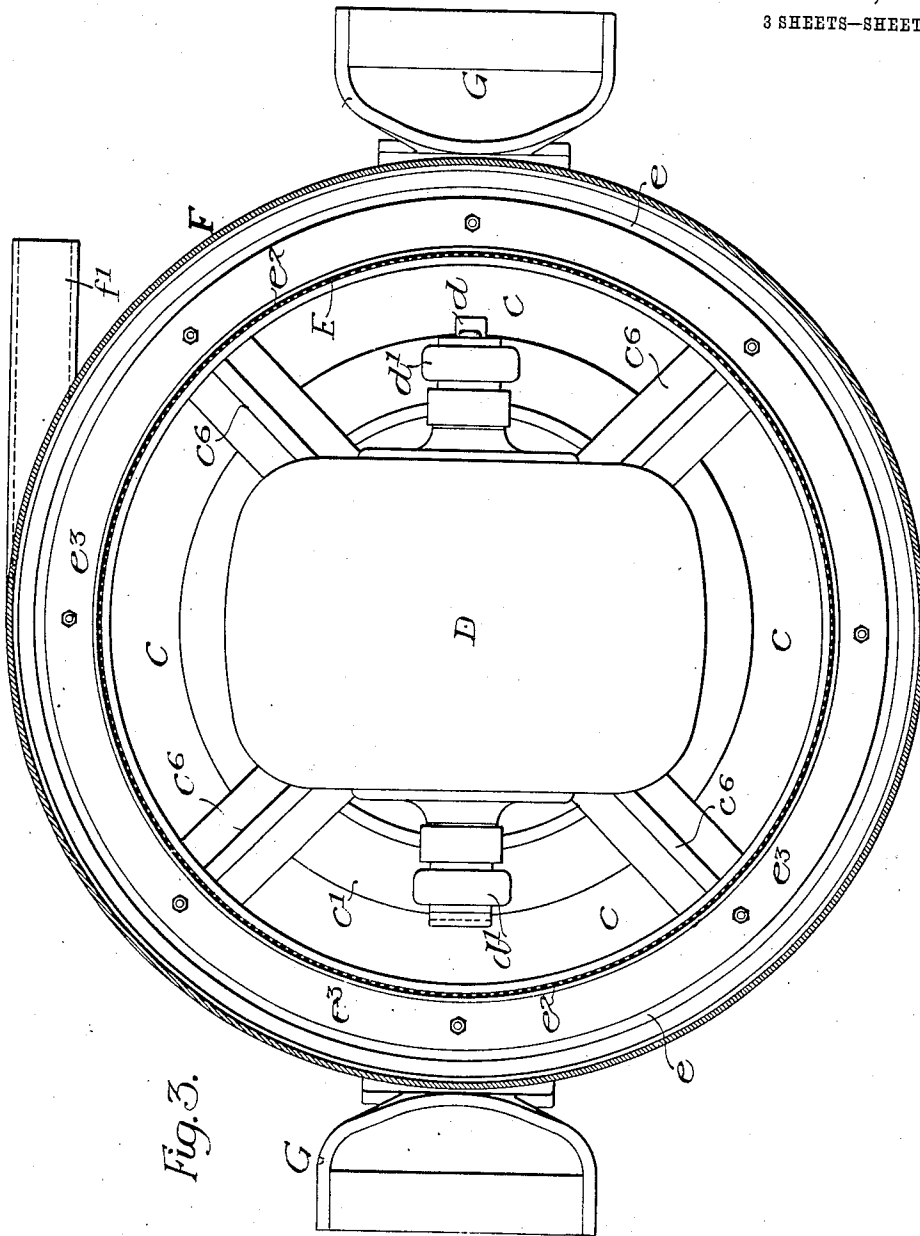


Fig. 3.

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UNITED STATES PATENT OFFICE.

WALTER SCHUSSLER, OF PHILADELPHIA, PENNSYLVANIA.

PUMPING MECHANISM FOR CARPET-CLEANING MACHINES.

948,254.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed October 3, 1908. Serial No. 456,026.

To all whom it may concern:

Be it known that I, WALTER SCHUSSLER, a citizen of the United States, residing at Philadelphia, Pennsylvania, have invented certain Improvements in Pumping Mechanism for Carpet-Cleaning Machines, of which the following is a specification.

One object of my invention is to provide pumping mechanism for a relatively small, portable and relatively light carpet cleaning machine which while being self-contained, may be readily opened to permit of the removal of dust.

Another object of the invention is to so mount the driving motor that it shall be cooled by the current of air produced by the pump and be mounted in a space which would otherwise be relatively valueless.

It is further desired to provide an apparatus which shall be comparatively noiseless in operation and capable of delivering air under pressure when it is desired for any purpose; the parts of the device being so arranged that easy access may be had to the various parts of the machine.

I also desire to provide a machine having the above described characteristics which shall be relatively inexpensive to manufacture, while being possessed of few and relatively substantial parts, and shall be efficient under conditions of use as well as easily manipulated.

These objects and other advantageous ends I secure as hereinafter set forth, reference being had to the accompanying drawings, in which:

Figure 1 is a vertical section illustrating a machine constructed according to my invention; and Figs. 2 and 3 are respectively a vertical section taken on the line 2—2, Fig. 1, and a horizontal section on the line 3—3, of the same figure.

In the above drawings A represents a base structure preferably made of wood and circular in form, there being upwardly projecting flanges *a* at its outer edge and on the under side casters or brackets *a'* having rollers *a''* for facilitating its movement from place to place.

At the center of the base is an opening having over it a structure *a³* serving as a support for a small rod *a⁴* on which slides a valve *a⁵* for closing said opening. This valve is normally pressed against the under side of the base piece A (which is preferably recessed for its reception) by a spring

a⁶. Surrounding the outlet from this valve is a closed casing B forming a muffler which is provided with an outlet conduit *b*. Fixed to the flanged edge of the base structure A is a metallic ring C, and there is confined between said ring and the flange *a* an inwardly extending ring of leather or other flexible material, the whole being arranged to form an air tight joint. Clamped to the inner edge of the flexible ring *c* is a metallic ring *c'* across which extends a supporting structure *c²*, having a centrally placed pin *c³* on which slides a second valve *c⁴*. This valve opens downwardly and is pressed to the seat formed by the under side of the ring *c'* by a spring *c⁵*, it being noted that the valve with said rings constitutes the movable wall of the suction chamber formed by a casing F hereafter described, as well as the flexible partition between said casing and a chamber of which the base structure forms the main portion. Formed integral with or otherwise suitably attached to the ring C are four inwardly and upwardly extending arms *c⁶* united by a base plate *c⁷* on which is carried an electric or other suitable motor D. This latter is completely inclosed so as to be dust proof, and the projecting ends of its shaft are provided with cranks *d* from which depend connecting rods *d'*.

As shown in Fig. 2, the ring *c'* at the center of the flexible ring *c* has at its opposite sides upwardly projecting lugs *c⁸* serving for the reception of a rod or pin *c⁹* whereby said connecting rods are movably held to said ring.

The outer ring C has an upwardly projecting and somewhat rounded edge flange *c¹⁰* designed to make an air tight joint with a rubber ring *e*. This latter is clamped between the outwardly extending flange *e'* of a cage E of perforated material and a clamping ring *e³*. Over this cage is placed a fabric dust bag indicated by the outer black line *e²* in Figs. 1 and 2, and this is held in place by a clamping wire or cord *e⁴*.

As shown, the cage extends around or incloses the motor D and is itself contained within the casing F which incloses the entire machine. This casing is hemispherical or dome shaped and has soldered or otherwise fixed to its interior surface an inwardly extending ring *f* designed to rest upon the rubber ring *e*. The casing F is fixed to the cage E by means of the bolt *f'*, of which one end is provided with a handle *f²* where-

by the casing and cage may be lifted, while the other end has a thumb nut f^3 whereby the said cage is removably connected to said casing.

5 For lifting or moving the entire machine I provide handles G projecting on opposite sides thereof and extending down under the base piece A, to which they are fixed in any desired manner.

10 Current conductors are run into the motor, whose shaft under operating conditions imparts a succession of up and down movements to the ring c' through the medium of the cranks d and connecting rods d' . Owing
15 to the flexible connection of this ring with the base piece A through the medium of the leather ring c , the space between the two valves a^5 and a^4 forms a pump chamber into which the air is drawn from the interior
20 of the cage E and from which it is expelled into the muffler B and out through the discharge pipe b .

The inlet pipe f^3 shown in Fig. 3 serves to admit air to the casing F into which it is
25 sucked by the bellows or pump action caused by the movement of the side of the container formed by the base and the rings c and c' ; said inlet being connected through the pipe to a suitable suction nozzle. The
30 dust laden air is drawn into the space between the cage E and the casing F where it has a circular or whirling motion and is permitted to expand considerably. Inasmuch as the bag d^2 is impervious to dust, this
35 latter is deposited in the annular space before mentioned, while the air passes through said bag and cage, around the motor D, through the valve c^1 , into the space between the rings c and c' and the base A, and finally
40 past the valve a^5 into the muffler B. By this continual flow of air the motor D is kept cool, especially by reason of the fact that such air is in process of expansion in the vicinity of the motor.

45 Whenever desired, the casing F with the attached cage E, may be lifted off of the base on which it is loosely mounted and where it is normally held by the suction occurring when the machine is in operation.
50 Inasmuch as the dust is contained between the cage and the casing there is no possibility of its being scattered as said casing is carried to any desired point, where the dust may be removed by taking off the thumb
55 nut f^3 so as to release the cage and permit its separation from the said casing.

Should it be desired to use air under pressure for any purpose, a conduit may be connected to the outlet b , since the air delivered therefrom while the machine is work-
60 ing may be given any desired pressure according to the design of the pump.

It will be noted that with the construction above described the number of joints
65 which might permit leakage of air and so

interfere with the efficiency of the machine, has been reduced to a minimum, and the arrangement of the various parts is such that there is little likelihood of their becoming injured or worn, even though exposed to
70 long use and operated by unskilled persons.

I claim:

1. The combination of a structure forming a suction chamber having an inlet and provided with a movable valved wall, a
75 motor mounted in said suction chamber and operatively connected to said movable wall for actuating the same, and a perforated casing surrounding the motor so as to provide a space between itself and the walls of 80 the suction chamber.

2. The combination of a chamber having a movable wall, inlet and outlet valves to said chamber, of which one is mounted in said wall, a casing forming a suction cham- 85 ber having an inlet and communicating with such chamber through its inlet valve; a screen cage within the suction chamber, a motor mounted in the cage and means operatively connecting said motor to the movable 90 wall of the first chamber.

3. The combination of a casing having an inlet, a cage therein forming with said casing a chamber, a motor in said cage, with a pump operatively connected to the motor 95 and connected with the interior of said cage.

4. The combination of a hollow base having a flexible cover, a motor mounted on the base and operatively connected to said flexible cover so as to reciprocate the same, inlet 100 and outlet valves for the hollow base, with a chamber having an inlet and connected to deliver air to the hollow base.

5. The combination of a base having a pump, a motor mounted on the base, and 105 operatively connected to said pump, and a casing removably mounted on the base and provided with a cage arranged to communicate with the intake of the pump.

6. The combination of a base having a 110 pump, a motor mounted on the base and operatively connected to the movable member of the pump, and a casing having an inlet and loosely mounted on the base so that its interior is in communication with the intake 115 of the pump.

7. The combination of a base, a casing mounted thereon, a cage mounted in the casing to form therewith an annular chamber, means for forming an air tight joint between 120 the casing, the cage and the base, a pump mounted on the base and having its intake connected to the interior of the cage, with a motor in said cage for driving said pump.

8. The combination of a base, a casing 125 having an inlet and removably mounted on the base, a cage detachably connected to the casing, a pump arranged to exhaust the air from the interior of the cage, and means for driving said pump in the cage. 130

9. The combination of a base, a flexible
valved partition forming with said base a
pump chamber, there being a valved intake
to said chamber, a frame mounted on the
5 base and extending over the partition, a
motor on said frame above the partition, a
rod, or rods, connecting the shaft of said
motor with the partition, so as to be capa-
ble of reciprocating the same, and a suction
10 chamber connected to the intake or the pump
chamber.

10. The combination of a base having
mounted on it a pump including a flexibly
mounted pump member, a motor, a rod or
15 rods connecting the shaft of said motor with
said pump member so as to reciprocate the
same, with a chamber inclosing said motor
and having its interior connected to the in-
take of the pump.

20 11. The combination of a base having a
valved opening, a flexible covering for said
base also having a valved opening, a ring
mounted on the base, a series of arms pro-
jecting inwardly and upwardly from the
25 ring over said cover, a motor carried on said
arms, a rod attached to each end of the
motor shaft and connected at opposite
points with the cover, and a casing inclosing
the motor.

30 12. The combination of a flanged base
having a valved opening, a flexible cover

for said base also having a valved opening,
a motor mounted on the base, a rod or rods
connecting the motor shaft with the said
cover, a casing inclosing the motor and hav-
ing an inlet, and a cage mounted within said
casing. 35

13. The combination of a base, a dome
shaped casing therefor having an internal
ring, a ring mounted on the base, a cage 40
within the casing having a body of packing
extending between said two rings to form
an air tight joint, a flexible cover for the
base, a motor mounted on the base and op-
eratively connected to said cover so as to be 45
capable of reciprocating the same, and valves
for controlling the passage of air to the base.

14. The combination of a flanged base
structure, a flexible cover therefor, a ring
clamping said cover to the base, an inlet and 50
an outlet valve for the chamber formed by
the base and its cover, a motor mounted on
the base and operatively connected to said
flexible cover so as to reciprocate the same,
and a receptacle connected to said chamber. 55

In testimony whereof, I have signed my
name to this specification, in the presence of
two subscribing witnesses.

WALTER SCHUSSLER.

Witnesses:

WILLIAM E. BRADLEY,
WM. A. BARR.