

O. DRAKE.
VACUUM CLEANING MACHINE.
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1,000,382.

Patented Aug. 15, 1911.

Fig. 1.

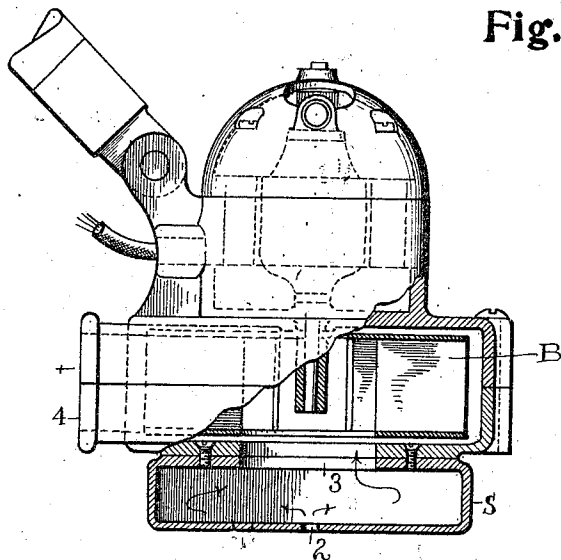
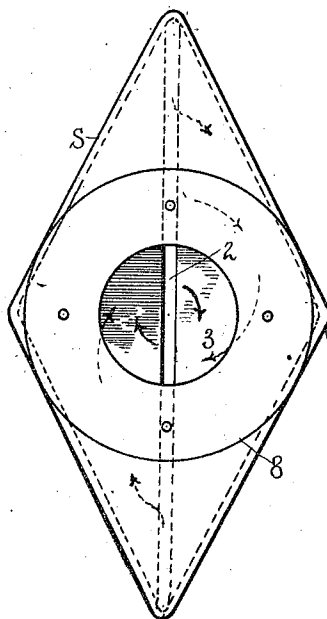


Fig. 2.



ATTEST
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UNITED STATES PATENT OFFICE.

ORA DRAKE, OF CLEVELAND, OHIO.

VACUUM CLEANING-MACHINE.

1,000,382.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed November 25, 1910. Serial No. 594,127.

To all whom it may concern:

Be it known that I, ORA DRAKE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Vacuum Cleaning-Machines, of which the following is a specification.

This invention relates to a dust collecting tool or shoe, so-called for vacuum cleaning machines, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the machine partly in section, and Fig. 2 is a plan view of the tool or shoe used therewith.

Heretofore, so far as I have observed, if a shoe was unduly lengthened it would invariably show lack of draft or suction toward or at its extremities and this regardless of the degree of suction maintained, whether greater or less, but the present shoe is just as efficient at its ends as at its middle. At any rate I can pick up a pin or needle or lint or other such difficult object to lift as easily and surely at the ends of the tool as at the middle, and so far as I can see there is no difference in these particulars. Now, the construction of shoe or tool S which gives this very desirable result with the large reach or sweep over the floor surface which it affords is shown as member S. In plan view the said shoe is shown as lozenge shape, or something like a double pointed flat iron both in plan and side elevation, with end portions of substantially V shape from the middle to each end, and for that matter a substantially elliptical shape is suggested in its plan appearance, particularly, while the depth from top to bottom is uniformly about one inch and possibly a fraction over in a full sized shoe. Both top and bottom are, therefore, substantially flat and the slot 2 runs lengthwise from end to end in said bottom and is say three-eighths of an inch across. If the extreme length of the shoe be say ten inches the width across its middle will be about five inches, and if the length be twelve inches the central width will be about six inches, and these proportions are material to the successful operation of the device as I have found from repeated and protracted experiments. That is, a certain proportional width must go with a certain

length to get the desired results. At the top and center the shoe has a circular hole or opening 3 of say about two and a half inches across which matches a corresponding opening in the bottom of the blower chamber. Discharge from this chamber is from its side at 4 in this instance, and shoe S is removably secured directly to the bottom of the body or casing of the machine.

An eddy or spiral whirl is produced within the shoe about the draft opening 3 from above by the action of blower B and as indicated by the several arrows seen in plan, and the circle 8 somewhat defines the outer radius of whirl or circular movement of the air in its spiral trail to hole 3 from all portions of slot 2. The same effect, however, is felt to the very ends of the slots. Suction occurs in the shoe all about hole 3, but with the slot 2 lengthwise beneath and across said hole through which the air is drawn there is at least such modification of the action as to produce a rotary movement of the air with the radius of suction extended to the extremes of said slot in a well sustained pull. This distributes the pull or suction of the blower uniformly within the shoe which distribution could not occur if the interior chamber of the shoe were not widened and deepened substantially as shown at its middle and which causes the draft to be exercised directly upon the air in the shoe and thence to slot 2. The air therefore enters through said slot by exhaust from the air chamber of the shoe rather than being reached directly by suction from the blower, the said chamber breaking the suction connection with a space large enough to afford an eddy which itself issues in the opening 3. By making the shoe with a pointed nose I can also reach corners and difficult places to be cleaned more easily than would otherwise be possible.

The broad smooth surface of the shoe enables it to slide easily over a carpet or rug, and for hard wood floors a felt mitten or the like can be drawn over each point for a short distance to avoid direct contact of the metal with the wood.

The entire weight of the blower and motor parts comes centrally upon shoe S, being located centrally in respect thereto. The widest part of the shoe is substantially equal to the diameter of the blower casing, whereas the length thereof is obviously greater.

The shoe therefore provides a broad flat base or rest of exceptional stability for the device independent of any other support.

I claim:

- 5 1. A vacuum cleaning device having an internal chamber of substantially equal depth throughout and of substantially lozenge shape and provided with a slot lengthwise centrally in its bottom and an exhaust
10 in its top.
2. A vacuum cleaner comprising a shoe having substantially V shaped portions

from its middle to its ends and provided with a slot centrally in its bottom and an opening in its top, in combination with suction means adapted to draw the dust through said shoe. 15

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

ORA DRAKE.

Witnesses:

M. J. CREGAN,
THOMAS EGAN.