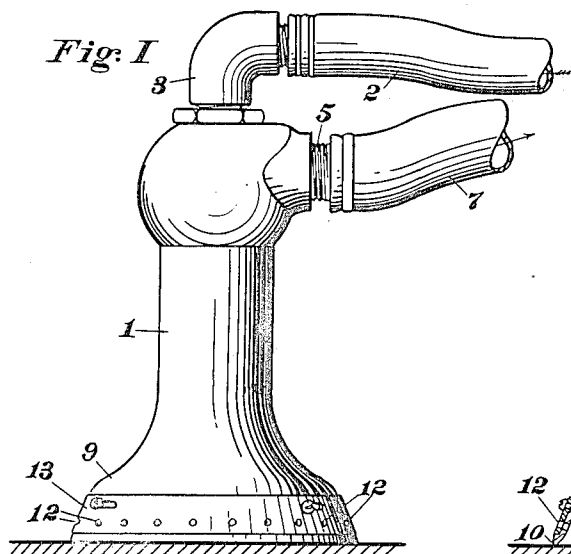
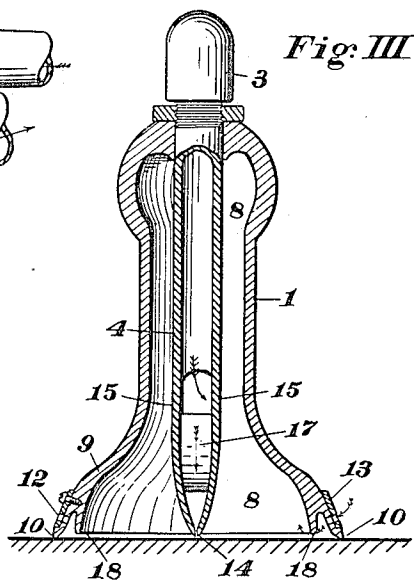
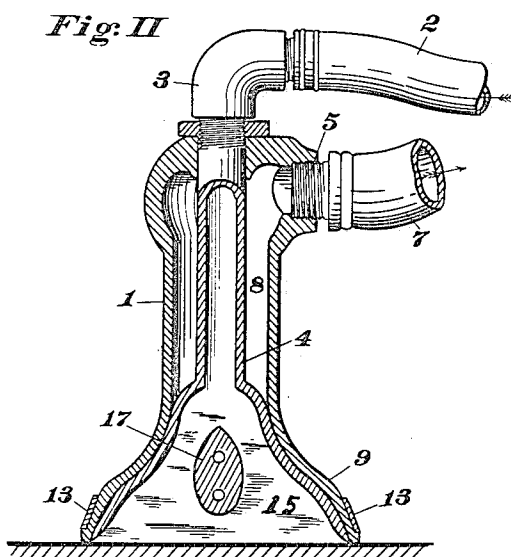
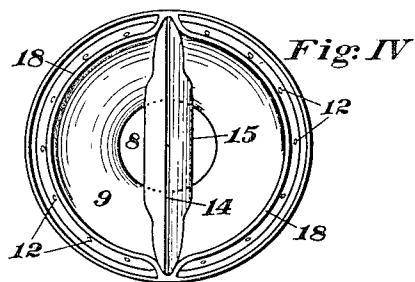
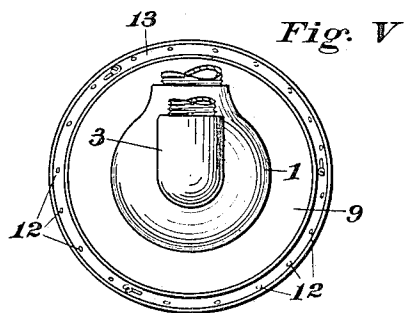


No. 787,389.

PATENTED APR. 18, 1905.

A. E. MOORHEAD.
PNEUMATIC CLEANER.
APPLICATION FILED JULY 28, 1904.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ALBERT E. MOORHEAD, OF OAKLAND, CALIFORNIA.

PNEUMATIC CLEANER.

SPECIFICATION forming part of Letters Patent No. 787,389, dated April 18, 1905.

Application filed July 28, 1904. Serial No. 218,528.

To all whom it may concern:

Be it known that I, ALBERT E. MOORHEAD, a citizen of the United States of America, residing at Oakland, county of Alameda, and State of California, have invented certain new and useful Improvements in Pneumatic Cleaners; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to devices for pneumatically cleansing carpets, cushions, and the like, and comprises certain useful improvements in such apparatus, as hereinafter particularly described, and illustrated by drawings that form a part of this specification.

My improvement consists in a small chamber, preferably cylindrical, open at bottom and having a flaring rim adapted to fit into corners, means for applying within said chamber a narrow jet of air under pressure extending across the middle of the chamber at the bottom near the surface to be operated upon, and means for withdrawing the mingled air and dust from said chamber. The latter is provided with a series of apertures in its flaring marginal rim near the bottom and with a movable ring to vary the opening of said apertures for the purpose of admitting external air at that point, for equalizing the difference in volume between the incoming air under pressure and the outgoing air mingled with dust, and for modifying the partial vacuum created to prevent undue adhesion of the device to the carpet. There is also a means for downwardly directing the jets of external air coming in through said apertures against the surface operated upon, so as to pick up the marginal dust and direct it into the main current.

The object of my invention is to provide a convenient and portable pneumatic device for carpets that can be applied by hand to various surfaces and places not accessible to apparatus suitable for floors and other plane surfaces, so as to concentrate the action of the air over a small area at a time, to dislodge dirt and dust where it is adhesive and

difficult to remove, and to prevent outward escape of air and dust from beneath the chamber at the margin thereof. To these ends I provide devices as shown in the drawings.

Figure I is a side view of one of my improved carpet-cleaning devices. Fig. II is a central vertical section through the device in the plane of the discharge-orifice 14. Fig. III is a central vertical section in a plane at right angles to that of Fig. II; Fig. IV, a bottom view of the device; Fig. V, a plan view of the device.

In cleansing carpets, cushions, and the like by pneumatic implements the principal impediments met with are in presenting or applying the apparatus in corners and to irregular surfaces, in rendering the apparatus convenient to handle, with but little weight and of small dimensions, and in preventing the escape of dust and dirt from beneath the implement. To these ends I provide devices now to be described.

1 is the main body of the implement, preferably of a symmetrical form and adapted to be held in the hand of an operator, provided at the top with a flexible hose 2 and inlet-pipe 3 and a nozzle 4 for air under pressure, also provided with outlet-passage 5 and a flexible hose 7 connecting with devices for producing a partial vacuum and to a suitable receptacle for dust and dirt removed from the chamber 8. (Not shown.)

The main body of the implement 1 is made with a flaring or trumpet-formed extension 9 at the bottom, adapted to rest and fit upon a carpet, cushions, or other surface to be cleaned having a narrow contact, as seen at 10 in Fig. III. Around this extension 9 are a series of perforations 12, opened and closed by a movable register-ring 13, having corresponding perforations.

The nozzle 4 is formed with a wide narrow discharge-orifice 14, as shown in Figs. III and IV, that extends across the bottom of the chamber 1, causing a narrow stratum of air to impinge with force on the carpet or other surface being cleaned. To diffuse the air uniformly across the orifice 14, also to combine and strengthen the flat sides 15 of

the nozzle against distention by air-pressure, I insert therein a strut and guiding member 17, as shown in Figs. II and III.

Air admitted through the perforations 12 does not enter directly or radially into the chamber 8, but is deflected downward by an annular flange 18 (shown in Fig. III) to the surface of the carpet and in this manner picks up the dust and dirt and carries it upward in the direction of the exhausting-current in the chamber 8.

In operating there is approximately an equal movement of air in the inlet and outlet pipes 2 and 7, with a preponderance of stress in favor of the current in the pipe 7, to cause a slight adhesion by atmospheric pressure of the device to the surface being operated upon. The difference in the volume of air admitted through the pipe 2 and that passing out through the pipe 7 is supplied through the perforations 12 and regulated by register-ring 13.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a pneumatic cleaning implement, a hollow main body adapted to be applied and moved by an operator's hand, an inlet-pipe for air under pressure, and an outlet-pipe for mingled air and dust to be removed, said main body having inlet-passages for external air near the bottom margin thereof, substantially as specified.

2. In a pneumatic cleaning implement, a hollow main body adapted to be applied and moved by hand, means for supplying air

thereto and for withdrawing mingled air and dust therefrom, a flat fish-tail nozzle terminating close to the surface operated upon, spanning the hollow main body, and adjustable means for admitting external air to the cavity near the bottom, substantially as specified.

3. In a pneumatic cleaning implement, a hollow main body, means for supplying air thereto and for withdrawing mingled air and dust therefrom, a flaring margin around the bottom of said main body, with perforations therein, and an adjustable register-ring to vary the aperture of said perforations, substantially as specified.

4. In a pneumatic cleaning implement, a hollow main body, means for supplying air thereto and for withdrawing mingled air and dust therefrom, a flaring margin around the bottom of said main body, with perforations therein, an adjustable register-ring to control the admission of air through said perforations, and a circular flange inside of said flaring margin, extending not quite down to the surface operated upon, for directing the air admitted through the perforations downward upon the said surface, substantially as specified.

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

ALBERT E. MOORHEAD.

Witnesses:

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ALFRED A. ENQUIST.