No. 791,567. PATENTED JUNE 6, 1905.

A. E. MOORHEAD.

CARPET CLEANING APPARATUS.

APPLICATION FILED NOV. 3, 1904.

2 SHEETS—SHEET 1.

Fig. I.

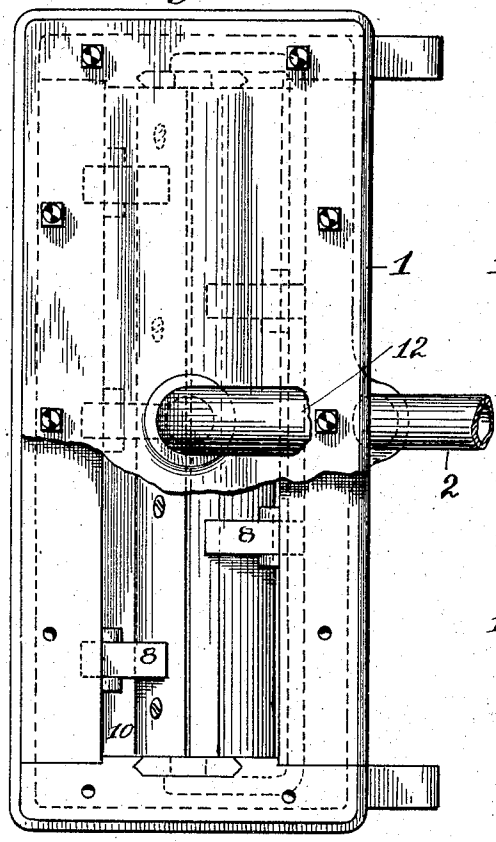


Fig. II.

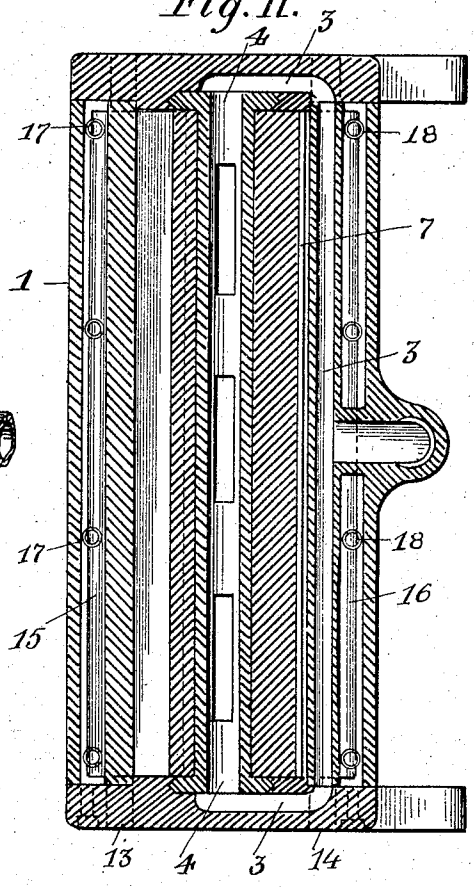
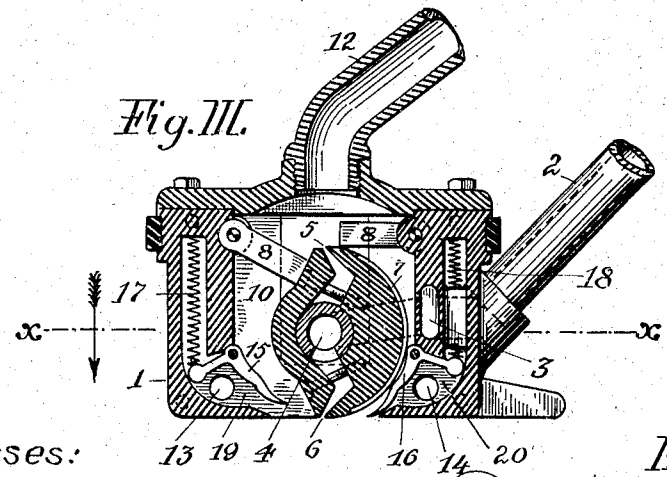


Fig. III.



Witnesses:

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Elmer Wickes.

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2 SHEETS—SHEET 2.

Fig. IV.

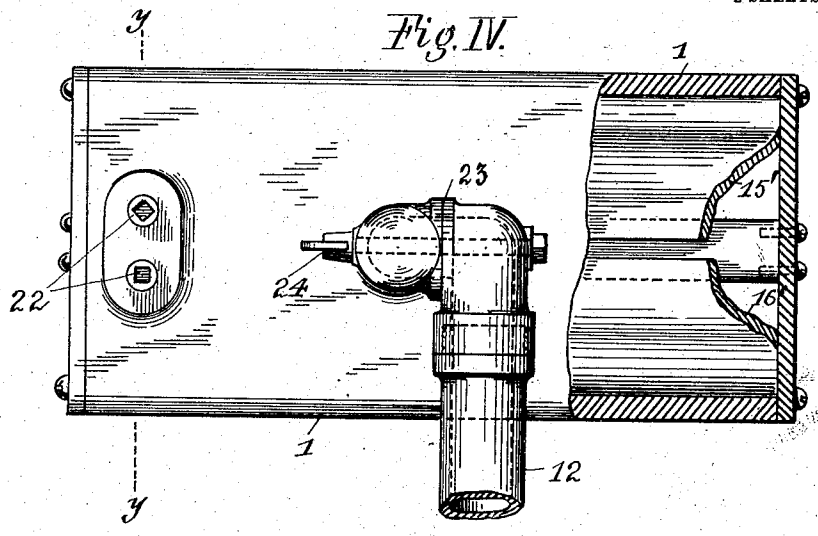


Fig. V.

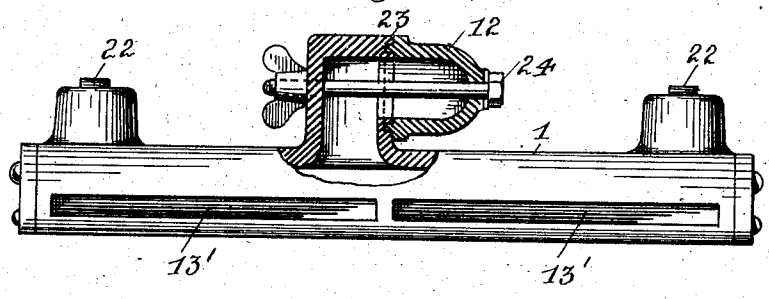
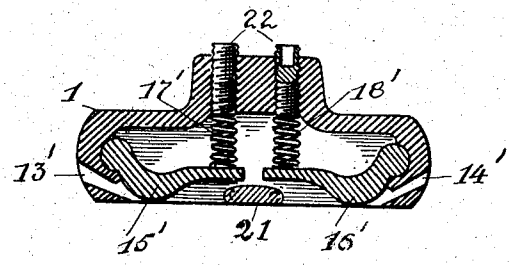


Fig. VI.



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No. 791,567. Patented June 6, 1905.

UNITED STATES PATENT OFFICE.

ALBERT E. MOORHEAD, OF OAKLAND, CALIFORNIA.

CARPET-CLEANSING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 791,567, dated June 6, 1905.

Application filed November 3, 1904. Serial No. 231,253.

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 Carpet-Cleansing Apparatus; 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 pneumatic carpet-cleansing devices and to certain useful improvements therein, as hereinafter described, and illustrated by drawings that form a part of this specification.

My improvement consists in devices automatic in their action that maintain a uniform predetermined vacuum within the collecting-chamber and inlets thereto, through which are drawn the dirt and dust from carpets by means of suction in the usual manner.

The object of my invention is to secure an improved and efficient performance of such apparatus with a minimum of manual effort in its use.

Referring to the drawings, Figure I is my improved plan view of a carpet-cleansing device provided with positive and negative pneumatic means to loosen and remove dust and dirt from carpets. Fig. II is a horizontal longitudinal section on the plane indicated by the line *x x* in Fig. III. Fig. III is a transverse section through the center. Fig. IV is a plan view of a carpet-sweeping apparatus provided with negative or suction air connections only in which my automatic air-admission valves are embodied. Fig. V is a side view of the same, partially in section; and Fig. VI is a transverse section on the line *y y* in Fig. IV.

In devices for cleansing carpets that employ air-suction or a partial vacuum to collect and remove the dust and dirt an impediment is the air-pressure on the back of the inclosing cases, and the partial vacuum beneath causes adherence to the floor, making the apparatus difficult to move and laborious to operate. I obviate this difficulty by a provision for admitting a limited and variable quantity of air beneath the casing to modify the varying external air-pressure.

The vacuum-pipes employed are for convenience made as small as circumstances permit, and when a number of the cleaning devices are operated in different rooms or flues at one time and one or more of these are cut out the vacuum-pressure without my improvement will rise accordingly. Thus it is found in operating that the amount of external air that should be admitted varies continually at each machine or device. The vacuum-pressure is also liable to vary by extra air admitted in passing over seams, uneven parts, or carpet of different kinds having long and short pile, causing irregular and imperfect work.

Referring to the drawings, 1 is the usual casing or chamber containing the operating parts.

2 is an induction-pipe leading from some source of air under pressure, which air passes through the port or passage 3 to the slotted tube 4 and is forcibly discharged through the nozzles 5 and 6 when either of these are at the bottom and in communication with the tube 4, as shown in Fig. III. The nozzles 5 and 6 revolve loosely about the tube 4, accordingly as the device is drawn backward or pushed forward, by frictional contact of the curved face 7 and are arrested or stopped in their proper positions by the automatic pawls 8 in the manner described in my copending application, Serial No. 214,934, filed July 1, 1904, and allowed September 1, 1904.

12 is the exhaust or eduction pipe, connecting to a pump or other means of maintaining a partial vacuum and conducts away the dirt and dust removed from the carpet.

13 and 14 are air-inlets open to the external air at the end of the device or machine, and 15 and 16 are pivoted valves that admit external air to the chamber 10, being free to open or close, according to the position of the nozzles 5 and 6, as seen in Fig. III. When the nozzle 6 is operating as in Fig. III, the valve 15 is free to open, except as opposed by the spring 17, while valve 16 is held shut by its contact against the covered face 7, as shown in the drawings. The springs 17 and

18 are made with a tension sufficient to resist a predetermined amount of vacuum-suction, and the valve 15 opens or closes accordingly. If the implement passes over a seam or other obstruction that admits air beneath, it diminishes the vacuum and the spring 17 closes or partially closes the chamber 19. If in operating on a plane smooth surface the vacuum in the chamber is such as to produce undue pressure on the back of the implement, the spring 17 yields and the valve 15 opens accordingly. The same circumstances apply to the other side when the nozzles 5 and 6 are reversed, the valve 16, chamber 20, and spring 18 being the same as just described.

Referring to Figs. IV, V, VI, these represent what is technically called a "sweeper" or like implement similar to the one just described except as to the air-pressure nozzles for loosening the dust and dirt, only an exhaust or vacuum air-pipe being used. The air inlet-ways 13′ and 14′ are in this case at the side of the casing 1. The pivoted valves 15′ and 16′ have compression-springs 17′ and 18′, preferably made adjustable by means of the screws 22. The suction-pipe is pivoted at 23 and removably held by a screw-bolt 24. The bar 21 prevents the carpet from rising by suction at the bottom of the device. As the numerals of reference indicate corresponding parts to those on Figs. I, II, and III, further description is not required.

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

In pneumatic carpet-cleaning apparatus, a casing forming a collecting-chamber, open at the bottom, an induction-pipe leading to a source of air under pressure, an eduction-pipe leading to an air-exhaust for maintaining a partial vacuum in the chamber when the latter is applied to a plane surface, said chamber having inlet-passages for admitting air to modify the vacuum, and spring-valves for automatically varying the effective aperture of said passages proportionally to the degree of air exhaustion in the chamber, 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:
ELMER WICKES,
ALFRED A. ENQUIST.