

E. E. OVERHOLT.
PNEUMATIC CARPET CLEANER.
APPLICATION FILED SEPT. 11, 1905.

985,694.

Patented Feb. 28, 1911.

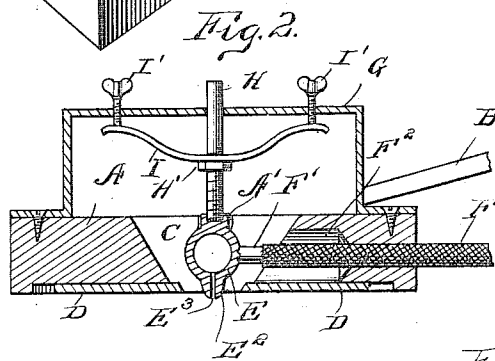
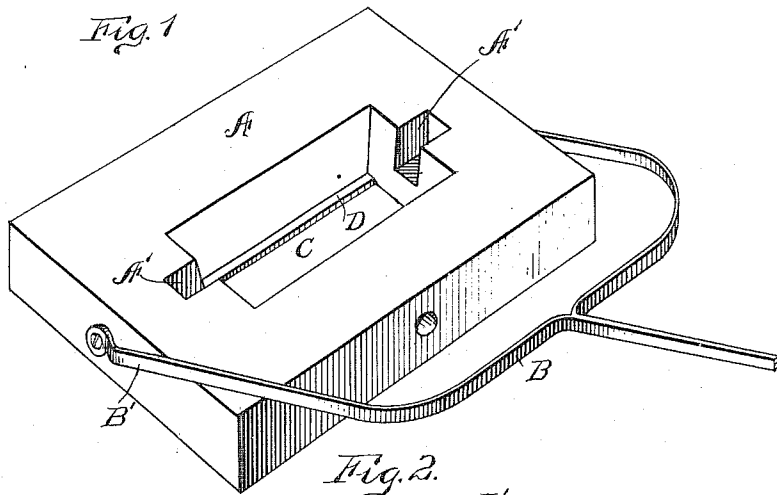


Fig. 4.

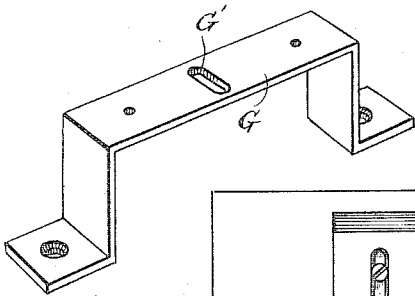


Fig. 3.

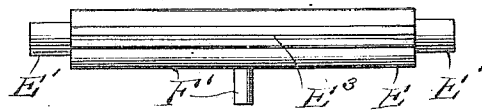
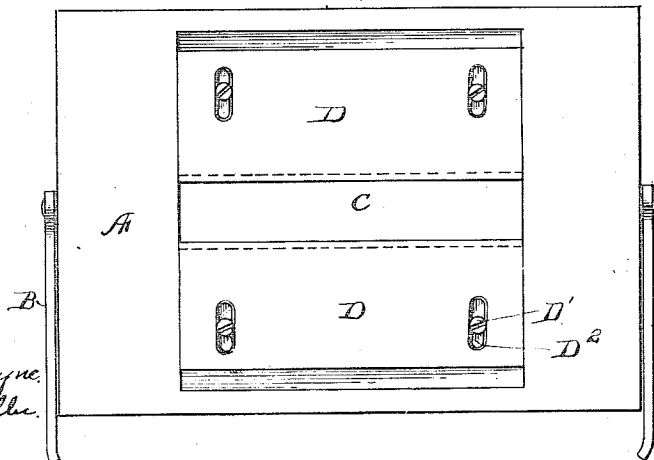


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDWIN E. OVERHOLT, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO MODERN COMPRESSED AIR CLEANING CO., A CORPORATION OF THE DISTRICT OF COLUMBIA.

PNEUMATIC CARPET-CLEANER.

985,694.

Specification of Letters Patent.

Patented Feb. 28, 1911.

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To all whom it may concern:

Be it known that I, EDWIN E. OVERHOLT, citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Pneumatic Carpet-Cleaners, of which the following is a specification.

My invention relates to pneumatic carpet cleaners of the class in which highly compressed air is forced into and through the entire fabric to be cleaned.

A broad plate, either heavy in itself or weighted, rests upon the carpet to be cleaned and is provided with a narrow opening, distant from any margin of the plate, through which the air under pressure is admitted to the carpet and through which it also escapes with such dust as it may remove. The air is delivered through a nozzle that is materially smaller than said opening in which it lies, and the air escaping from the nozzle ordinarily passes through the carpet to the floor, turns abruptly and passing upward escapes through the opening alongside the smaller nozzle. It is compelled to take this course because to escape otherwise it would have to travel horizontally, in the carpet, from the nozzle to the distant margin of the plate and any rapid current through such a mass of fibers is impossible. The nozzle normally projects below the plane of the plate, and preferably it is made vertically yielding and urged downward by an adjustable spring which reacts against the body of the apparatus, whereby if desired the whole weight of the body of the cleaner may resist upward movement of the nozzle and tend to force it into the pile of the carpet.

In the drawings, Figure 1 is a perspective view of a heavy plate to rest upon the carpet, the handle by which the apparatus is moved over the carpet being also shown, as pivoted to the plate. Fig. 2 is a central vertical section of the sweeper in a plane transverse to the pivotal axis of the handle, no hood being shown. Fig. 3 is a bottom plan of a certain nozzle. Fig. 4 is a detail view of a certain bail seen also in Fig. 2. Fig. 5 is a bottom plan view of the plate seen in Fig. 1.

In these drawings, A represents a plate shown, in this instance, as itself thick enough to give the apparatus the desired weight for holding it in close contact with the carpet in spite of the reaction due to downward delivery of compressed air. To

this plate is pivoted a forked handle B whose branches bend outward at B' so as to leave the upper portion of the marginal face of the plate free for the attachment of a hood, when, as will probably be the case in most instances, a hood is wanted. The plate is provided with a central slot C, shown as in the line of the handle's pivotal axis. This slot is at all points distant from the plate's margin so that air cannot pass from the slot to the margin at any point, when the plate rests upon a carpet, without passing for a long distance through the carpet itself. The width of the slot is varied at will by means of one or more plates D flush with the plate A and held thereto by screws D' working in slots D². In the slot C, and preferably at a little distance from each of its sides, is a nozzle E having closed ends E' adapted to slide vertically in ways A' at the ends of the slot C. This nozzle normally projects below the plate and preferably has its lower side narrowed so that the nozzle is somewhat wedge-like in cross-section, and at the lower side it is perforated to allow air to escape downward, the outlet being shown as a single slot E³ extending nearly from end to end of the nozzle. Air is admitted to the nozzle near its middle through a preferably flexible pipe F, which may be of rubber, and which may pass inward in the body of the plate and be secured to a short pipe or nipple F' upon the nozzle. The flexible pipe fits closely in the outer part of its channel in the plate, but the inner portion of that channel is enlarged at F² so that the pipe may swing when the nozzle moves. Midway between the ends of the plate A a rigid bail G spans the slot C and is detachably fixed to the plate. A stud H rises from the middle of the nozzle tube and passes through an oblong aperture G' in the bail, permitting the stud to swing whenever the ends of the nozzle tube rise or fall unequally, but preventing the swinging of the stud in a plane transverse to the nozzle. The stud is provided with a collar H' or the like and upon this rests the middle portion of a spring I whose ends rest against the bail or the ends of wing bolts I' working in threaded openings in the bail, the spring obviously serving to resist upward movement of the nozzle. If the wing bolts be screwed down far enough the force of the spring exceeds the weight of the apparatus and the rising of the

nozzle can occur only when the plate A is raised bodily.

No hood for collecting the dust is shown nor any conduit for conveying the dust away since such devices constitute no part of the invention herein claimed.

The plate A as shown is made thick enough so that its weight prevents the lifting of the apparatus by the reaction due to discharge of the air, and under all circumstances it presses the plate with some firmness upon the surface of the carpet upon which it may rest.

The independent movement of the two ends of the nozzle is important because the surface of a carpet is often by no means plane, and so, also, is the adjustability of the slot in which the nozzle lies since this regulates the velocity of the escaping air, which should practically all pass up through this slot, whatever the pressure and consequent volume of air delivered in a given time. The readily accessible wing bolts permitting adjustment of the pressure without interfering with any movements of the nozzle constitute a very useful feature. All these features are of practical moment, but the central and most important feature is providing a nozzle that normally projects below the body of the apparatus or of the member resting upon the carpet.

What I claim is:—

1. The combination with a plate provided with an oblong central opening and adapted to rest upon a carpet to be cleaned, of a tubular nozzle centrally located in said opening and projecting below the plate and nozzle-supporting devices permitting the ends of the nozzle to rise unequally.

2. The combination with a plate provided with an oblong central opening and adapted to rest upon a carpet to be cleaned, of a nozzle projecting downward through said opening ways guiding the ends, respectively, of said nozzle as it rises and falls, and nozzle-supporting devices allowing the ends of the nozzle to rise unequally.

3. The combination with a plate having an opening surrounded by a broad working face, of a nozzle narrower than said opening, lying therein and projecting below the plate and working in ways at the ends of the opening, a bail extending transversely over said opening and provided with an elongated aperture parallel to the nozzle, and a stud

rising from the nozzle into said aperture; whereby the nozzle is held against rotary motion while allowed to rise and fall unequally at its ends.

4. The combination with a plate having a suitable aperture and adapted to rest upon a carpet to be cleaned, of a nozzle narrower than the aperture but lying therein, and means for at will varying the width of the aperture.

5. In a pneumatic carpet cleaner, the combination with a base plate adapted to rest upon a carpet to be cleaned and provided with a central slot, of a nozzle narrower than the slot and located therein, and a plate secured to said base plate alongside the slot therein and arranged for adjustment toward and away from the slot, to vary the width of the latter.

6. The combination with the plate having the central slot opening, of the bail spanning said slot, the nozzle lying in the slot and provided with the shouldered stud projecting upward into an aperture in said bail, a spring resting centrally upon the shoulder of the stud, and wing bolts working in the bail and adjustably pressing the ends of the spring, respectively.

7. In a pneumatic carpet cleaner, the combination with a plate having a central aperture and adapted to rest upon a carpet to be cleaned, of approximately vertical, nozzle guiding ways located at the ends, respectively, of said aperture, a bar-like nozzle mounted to rise and fall in said ways and provided with a discharge opening in its lower side, and means to prevent the rotary movement of the nozzle upon its own axis; whereby the direction of discharge through the nozzle is constant.

8. The combination with a plate having an elongated central opening provided with vertical ways at its ends, and adapted to rest upon a carpet to be cleaned, of a bar-like nozzle lying in said opening and arranged to rise and fall at either end or both ends, means to prevent rotation of the nozzle, and means for yieldingly resisting all upward movement of the nozzle.

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

EDWIN E. OVERHOLT.

Witnesses:

WALLACE GREENE,
PAUL D. COOK.