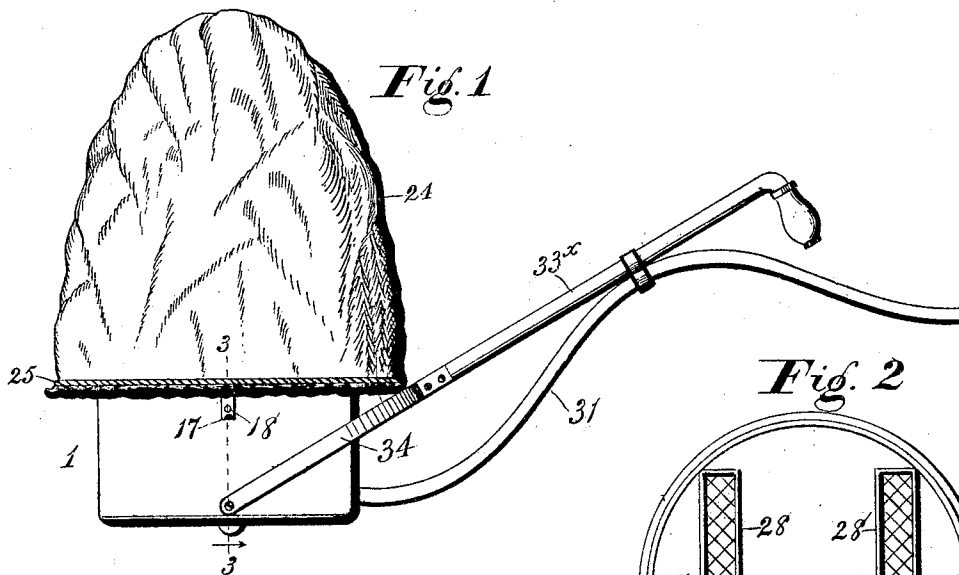
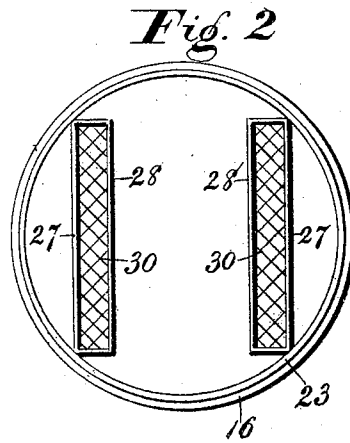
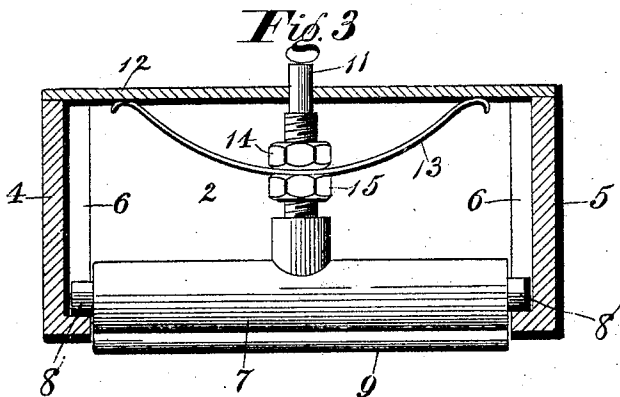
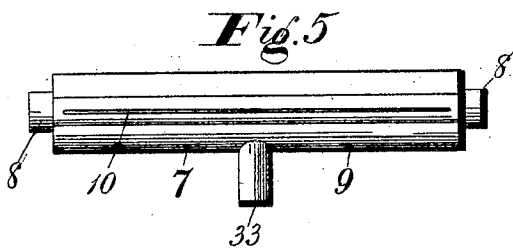
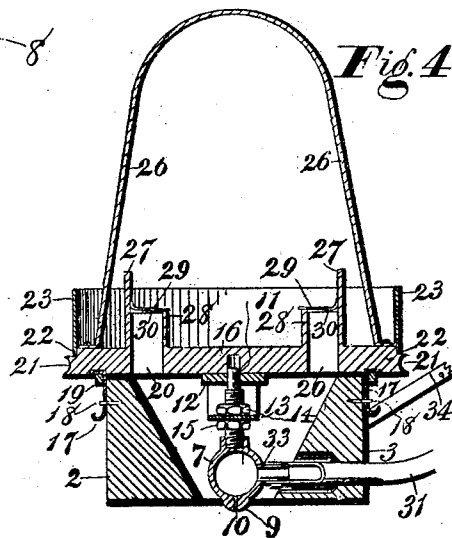


E. E. OVERHOLT.
PNEUMATIC CARPET CLEANER.
APPLICATION FILED SEPT. 1, 1904.

2 SHEETS—SHEET 1.



Witnesses
George H. Lamar
Joseph D. Wright

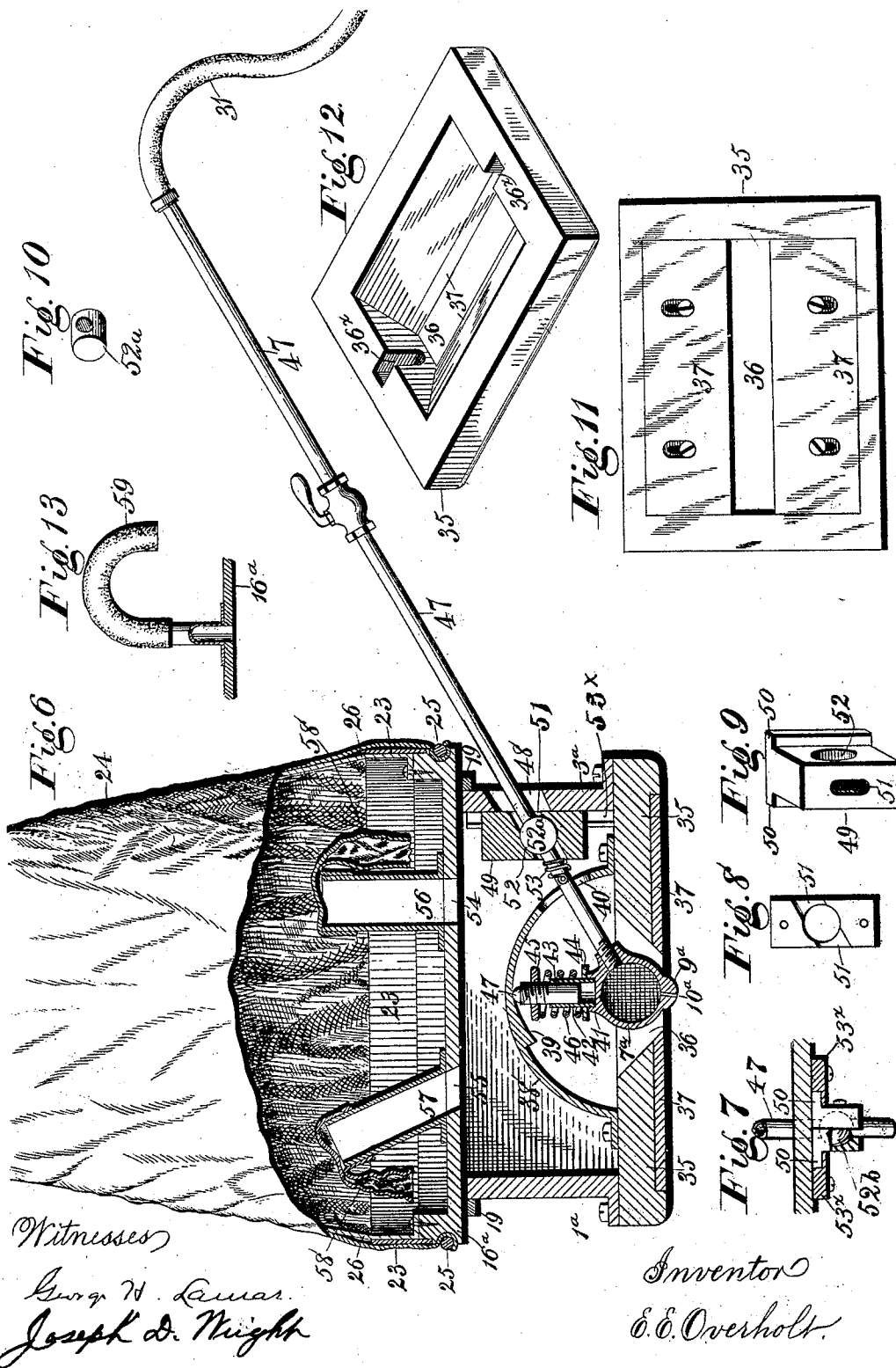
Inventor
E. E. Overholt

No. 799,575.

PATENTED SEPT. 12, 1905.

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2 SHEETS—SHEET 2.



Witnesses

George W. Lamar.
Joseph D. Wright

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UNITED STATES PATENT OFFICE.

EDWIN E. OVERHOLT, OF WASHINGTON, DISTRICT OF COLUMBIA.

PNEUMATIC CARPET-CLEANER.

No. 799,575.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed September 1, 1904. Serial No. 223,011.

To all whom it may concern:

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

This invention relates especially to carpet-cleaners which remove dust by the direct action of compressed air or the like upon the fabric to be cleaned. An important factor in producing the desired results is the use of an air-delivery nozzle that normally projects materially below the lower face of the body of the apparatus and is adapted to be pressed into the pile of the carpet by the weight of the apparatus. Preferably the nozzle is yieldingly held below the casing and preferably, also, the strength of the yielding resistance to the relative rising of the nozzle is adjustable at will.

In the accompanying drawings, Figure 1 shows one form of my apparatus in side elevation. Fig. 2 is a plan view of the same devices, a certain hood and its supports being removed. Fig. 3 is a section on the line 3-3, Fig. 1. Fig. 4 is a sectional view, the plane of section being perpendicular to the plane of section of Fig. 3. Fig. 5 shows the lower side of a nozzle that is seen also in Figs. 1 and 3. Fig. 6 is a view similar to Fig. 4, showing a modified construction on a larger scale. Figs. 7, 8, and 9 are respectively a plan, a side elevation, and a perspective view of a certain slide seen in section in Fig. 6. Fig. 10 is a perspective view of a rotary member coacting with said slide. Figs. 11 and 12 are respectively a bottom plan and a perspective view of a bottom plate through which the nozzle normally projects. Fig. 13 shows a modified form of certain dust-tubes.

In Figs. 1, 2, 3, 4, and 5, 1 represents a suitable box or casing forming the body of my apparatus and here shown as having its walls thick enough to give the desired weight for holding the casing in contact with the carpet and pressing a projecting nozzle into the pile of the same. Within the casing is a tubular bar 7, mounted, by means of reduced ends 8, to rise and fall in vertical grooves 6 in the end walls 4 and 5 and provided with a slot 10, extending nearly from end to end of the lower portion 9 of the bar, which projects through a slot in the substantially plane body of the bottom plates of the casing and forms a delivery-nozzle for compressed air or the like.

The slot is materially wider than the nozzle, so that air discharged may turn and pass upward along each side of the nozzle into the interior of the casing, and the bottom plate has considerable width on each side of the slot, so that the air delivered is practically prevented from passing laterally outward from beneath the box and is compelled to rise into the inclosed space in the casing. The nozzle is supplied with air by means of a flexible pipe 31, which passes through one of the longer walls of the box and is attached to a nipple 33 upon the nozzle-tube. The top or cover 16 of the casing is shown as circular and somewhat larger than the body of the casing, to which it is detachably secured by spring-catches 17, engaging pins 18. Relative lateral displacement is prevented by projections 19 upon the cover, and the latter is rabbeted at 22 to receive a thin band 23 and is grooved at 21 to receive the margin of a hood 24 and a band 25, which secures the hood in place. The cover is provided with apertures 20, surrounded by upwardly-extending flanges 28, forming short tubes that are normally closed by soft flap-valves 29, which close a netting 30, serving to prevent their entering the tube. Upon the hinge side of the valves the flanges 27 rise far enough to preclude too wide opening of the valves. The dust-hood is held measurably distended by means of a light curved bar 26, fixed to the cover.

The nozzle is normally pressed downward by a spring 13 reacting against a bar 12, fixed to the cover and held at its middle by nuts 14 15 upon a threaded portion of a stud 11, adjustably secured to the middle of the nozzle and projecting through the bar 12 into or through the top or cover of the casing. The flexible supply-tube allows the nozzle to rise and fall, and the rising is yieldingly resisted by the spring and with a force that is easily regulated, the weight of the entire apparatus being the limit, by adjusting the nuts 14 15. The box is guided by means of a handle 33^x 34, pivoted to the casing in the usual way.

In operation, air under pressure being admitted and the nozzle being pressed down into the pile of the carpet until the bottom plate of the casing rests upon the carpet by the weight of the apparatus and especially of the thick walls 2 3, dust-laden air rises upon each side of the nozzle, passes through the apertures 20 into the hood, whence the air gradually escapes, leaving the dust which collects in the

space below the plane of the valves. In this operation the escaping air from the nozzle suddenly expands and being delivered well down among the fibers which are laterally exposed to its action travels along each while strongly pressed against its surface, and thereby detaches dust from each and carries it upward, and the next instant a fresh set of fibers is submitted to the same action, owing to the advance of the sweeper. The powerful blast used when the air is delivered upon the surface of the pile is not needed, largely, perhaps, because the blast does not tend to compress the whole mass of the pile toward the floor and make it so compact that air enters with difficulty.

In Figs. 6, 7, 8, 9, 10, 11, and 12 I have shown a modified construction, the changes being principally in the slotted bottom plate of the box or casing, the air-admitting pipe and its accessories, the nozzle-pressing devices, and the valves. The bottom of the casing is a heavy plate 35, secured to walls 1^a 3^a and having in its upper face a recess converging to an opening 36 and provided with end grooves 36^x to receive the ends of the tubular nozzle 7^a, having the projecting portion 9^a and a slot 10^a. The opening is adjusted in width by means of plane plates 37, secured in the plate 35 and flush with its surface by means of screws working in suitable slots. Air is admitted to the nozzle through a flexible pipe 31 and a non-flexible tube 47, passing through a large opening 48 in the rear wall of the casing and shown as provided with a suitable valve. The opening 48 is closed by a block 49, having flanges 50, arranged to slide in vertical guideways 53^x upon the inner face of the casing. This block is bored horizontally at 52, and in the aperture thus formed rocks a cylindrical member 52^a, (shown detached in Fig. 10,) or it may be a ball 52^b, as shown in Fig. 7, in which the block is made in two parts. The tube 47 passes through the block in a vertically-disposed slot 51 and diametrically through the cylindrical member in which it fits closely and then is screwed into the nozzle. The block is pressed against the wall of the casing by a spring 53 upon the tube 47. This construction allows the tube and nozzle to make the necessary movements without allowing material escape of air. A rigid upwardly-curved plate 38 is fixed to the bottom plate of the casing in position to extend over the middle of the nozzle and is slotted at 40 for the passage of the tube 47 and provided on its lower face with a cam-surface 39. Below this arch the nozzle is provided with a boss 41, in which is secured a tube 42. In the tube slides a threaded stud 43, bearing in a hollow in its upper end an antifriction-ball 47. A coiled spring 46, lying between a shoulder 44 and a nut 45 upon the threaded portion of the stud, pushes the nozzle downward. The active force of the spring may be regulated

by adjusting the nut, and it will automatically adjust itself if the nozzle rocks upon its axis.

Instead of the valves of the primary form I provide here openings 54 55 in the cover 16^a, from which tubes 56 57 extend upward, and these have as extensions soft collapsible tubes 58, which are normally so far closed that dust does not return through them to the space within the casing.

In Fig. 13 the top of cover 16^a of the casing bears a vertical tube corresponding to 56 or 57; but the collapsible extension is replaced by a downwardly-curved non-collapsing tube 59.

What I claim is—

1. In a pneumatic carpet-cleaner, the combination with a plate provided with a suitable aperture and adapted to rest upon the surface of a carpet to be cleaned, of a nozzle connected with said plate and arranged to project through said aperture to a point materially below the lower surface of said plate, and automatic means for resisting the relative rising of said nozzle.

2. The combination with a plate adapted to rest upon a carpet to be cleaned and provided with a suitable opening, of a nozzle connected with said plate and lying in said opening, automatic means independent of the handle, tending to compel the nozzle to project through the aperture into the pile of the carpet beneath.

3. The combination with a plate adapted to lie flat upon a carpet to be cleaned and provided with an approximately central opening, of a nozzle normally lying in said opening and projecting below said plate, automatic means for pressing the nozzle toward its lowest position, and additional means for at will varying such pressure.

4. The combination with a casing adapted to rest upon a carpet to be cleaned and provided with a suitable nozzle-opening, of a nozzle mounted in said opening to move vertically, a spring tending to depress the nozzle, and means for at will varying the pressure of the spring.

5. The combination with a suitable plate, adapted to rest upon a carpet to be cleaned and provided with a central nozzle-opening, a nozzle revolvably mounted in said opening and projecting below said plate, automatic means for pressing the nozzle downward, and means whereby rotary movement of the nozzle may vary the pressure thereon.

6. The combination with a suitable plate, adapted to rest upon the surface of a carpet to be cleaned and provided with a suitable opening to expose the carpet, of a nozzle revolvably mounted in said opening, a spring pressing the nozzle downward, and means whereby rotary movement of the nozzle varies the tension of said spring.

7. The combination with a casing adapted to rest upon a carpet to be cleaned and pro-

5 vided with an opening in its bottom and with a dust-outlet above, of a movable nozzle lying in said opening, an air-supplying tube entering the casing through a relatively large opening allowing its lateral movement, and a slide fitting the tube within the casing and closing said large opening.

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

EDWIN E. OVERHOLT.

Witnesses:

SOLON C. KEMON,
S. BLANCHE FENTON.