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PATENTED AUG. 6, 1907.

C. S. BALDWIN.
PNEUMATIC CARPET CLEANING DEVICE.
APPLICATION FILED SEPT. 20, 1904.

Fig 1.

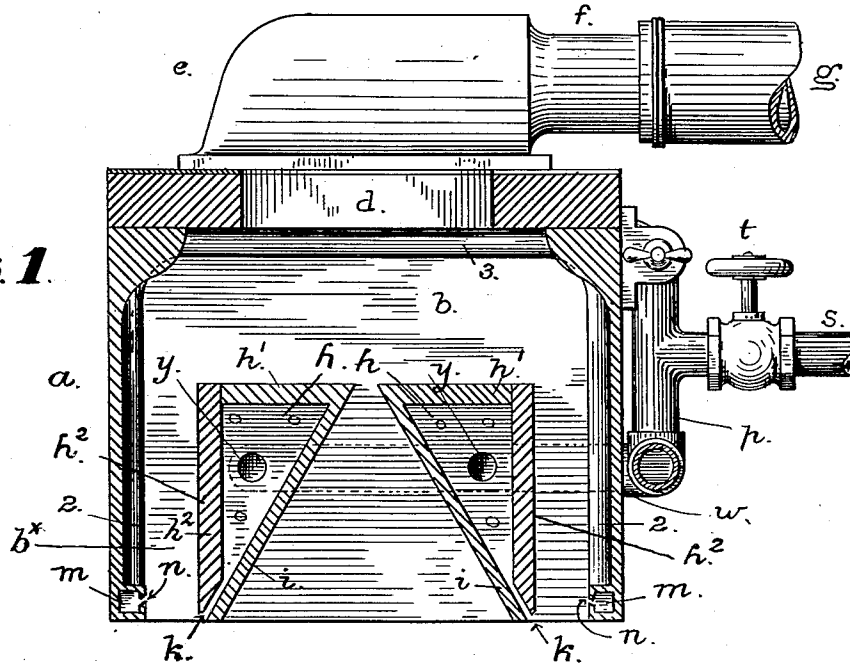


Fig 2.

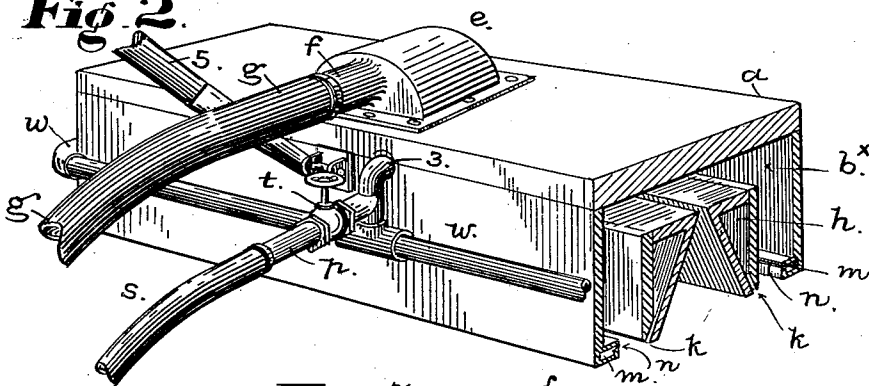
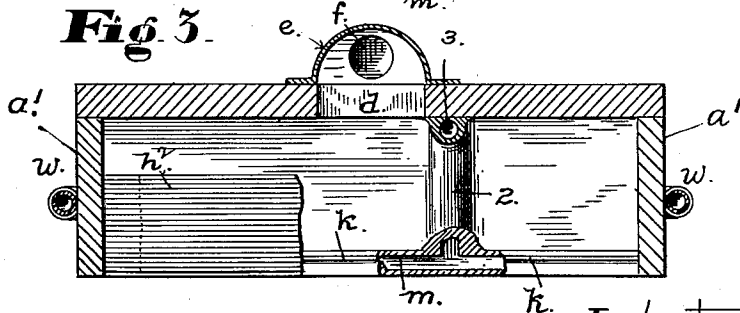


Fig 3.



Witnesses.
Arthur D. Slee.
M. Regner

Inventor
Charles S. Baldwin
E. G. Osborn
Attorney

UNITED STATES PATENT OFFICE.

CHARLES S. BALDWIN, OF SAN FRANCISCO, CALIFORNIA.

PNEUMATIC CARPET-CLEANING DEVICE.

No. 862,695.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed September 20, 1904. Serial No. 225,168.

To all whom it may concern:

Be it known that I, CHARLES S. BALDWIN, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have
5 invented new and useful Improvements in Pneumatic Carpet-Cleaning Devices, of which the following is a specification.

This invention relates to improvements made in devices that operate to remove dust from a carpet by the
10 application of jets of air to the surface while the carpet is in place on the floor; and the improvements comprise a novel construction of casing inclosing one or more nozzles through which jets of air are applied at an angle to the surface of the carpet, and the dust is dis-
15 charged from the casing by the joint action of suction and jets of air applied to the dust-chamber or receiver all as hereinafter more fully described and pointed out in the claims at the end of this specification.

The following description explains at length the nature of my improvements, and the manner in which the same are applied and carried out; the accompanying drawings forming a part hereof being referred to therein.

Figure 1 is a sectional-view of a carpet-cleaning device embodying my invention, the section being taken
25 in a vertical plane transversely through the casing, and showing the tubes or hose that connect the casing with the pneumatic and the suction appliances of the apparatus. Fig. 2 is a perspective-view of the device showing one end of the casing broken away to disclose the
30 internal construction. Fig. 3 is a longitudinal section on a reduced scale taken through the center of the casing and having portions of the pneumatic nozzles broken away.

The casing *a* is a rectangular box closed on the top, ends and sides, but open on the bottom. From the inclosed space *b*, which forms a receptacle or chamber to confine the dust as it is dislodged from the carpet, an opening *d* communicates with a hood *e* on the top of the casing over the opening. A hose or flexible tube *g* secured to a coupling *f* on the hood connects that part
40 with the suction-apparatus with which carpet-cleaning devices that operate to carry off the dust by suction are usually connected. Within the inclosed space *b* are closed compartments *h* separated from the space by the
45 partitions *h*¹ *h*² *i* and extending longitudinally from one end-wall *a*¹ to the other of the casing.

The inner partition *i* is inclined to the outer partition *h*² at an acute angle downward toward the lower edge; and at the angle formed by the two sides of the compartment an elongated or narrow aperture *k* opens from the inclosed space *h* to the outside. The mouth of this elongated nozzle *k* is flush with the bottom edge of the casing *a*, and the two compartments *h* are so arranged within the casing that their apertures *k* are inclined at opposing angles from the center towards the
50 sides of the casing. Openings *y* in the ends of each

compartment connect the interior space with a tube or passage *w* on the outside of the casing, and to the tube *w* an air-supply tube or hose *s* is connected by a coupling *p*.

The hose *s* for making connection between the casing and the source of air under pressure, in the usual manner of operating devices of this character, is of sufficient length to reach from the place where the air-compressing and exhausting engine is situated, to the place
60 where the cleaning device is being operated; and also to allow of the casing being moved about over the carpet. The engine and other parts constituting the complete apparatus that furnishes the air and produces the suction in the casing are not shown in the drawing and
70 do not require to be described, for the reason that the same are well known parts of similar apparatus already in use and their construction forms no part of my present improvements.

The passages *b*^x extending upward between the sides of the casing and the perpendicular sides *h*² of the compartment *h* open into the common space *b* in the casing, and being under the continuous exhausting force set up in the space *b* while the device is in operation, they serve to confine and carry off the dust from the locality
80 where it is dislodged by the nozzles into the space above. The upward movement of the dust from the lower part of this passage *b*^x at the moment of its being dislodged from the carpet and when it is at its greatest density is accelerated and its discharge is rendered
85 more rapid by applying a jet or stream of air in an upward direction from an elongated slit or narrow aperture *n* along the inner side of the casing. This slit *n* opens into the passage *b*^x from a channel *m* extending along the lower edge of the casing from end to end, and
90 it is parallel to and continuous with the impinging aperture *k*. The slit *n* has an upward inclination for the purpose of directing the stream of air in the most favorable direction for accelerating the upward movement of the dust from the surface or locality where it is
95 dislodged by the impinging jet from the aperture *k*.

A conducting passage 3 extending transversely over or through the top of the casing from the coupling *p* where the passages *w* are connected to the opposite sides of the casing, connects the channels *m* with the source
100 of pneumatic pressure through the perpendicular passages 2 on the inside of the casing. Through these passages *w* the air is supplied to the channels *m* and the nozzles *h* at the same time. A single valve *t* in the coupling *p* will ordinarily be sufficient for regulating
105 both sets of jets—that is the impinging jets delivered against the carpet through the apertures *k*, and the upwardly-inclined accelerating jets from the slits *n*. It will be noticed in this construction that the parts *h* inclosed by the casing have the function of air-nozzles,
110 operating to deliver jets of air against the surface upon which the casing is placed and moved along, and that

the jets are directed at an angle to such surface by virtue of the inclination of the apertures. These have the effect, consequently, to dislodge and raise the dust from the surface more effectually than if they were
 5 directed perpendicularly downward against the surface. A handle 5 attached to the casing by a hinge-joint is provided for moving and guiding the casing over the surface to be cleaned.

It will be observed that the casing A is constructed
 10 to rest directly upon the surface to be cleaned and closes a space within which the cleaning operations take place, thereby preventing the escape of the dust that is raised by the operations of the apparatus into the apartment where the apparatus is being used. It will also be observed
 15 that the nozzle through which the impinging jet of air is discharged is arranged along one side of the air-and-dust-conducting passage and that the slitted air channel *m* through which the accelerating jet is discharged is arranged along the opposite side of said
 20 passage; and that the nozzle is so constructed and arranged that the air is directed toward the carpet at an angle thereto and very close to its surface, while the slit in the air channel *m* is arranged to deliver the air in an upward direction. I prefer to arrange two sets
 25 of air cleaning nozzles and of accelerating air discharge slits in a single apparatus, as shown, and to arrange the nozzles near the center of the apparatus, while the slits are arranged near the outside walls of the casing, though this arrangement is not essential to the principle
 30 of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a pneumatic apparatus adapted for the cleaning of carpets, the combination of a casing arranged to rest

directly upon the surface to be cleaned and to inclose an
 35 air space, an elongated nozzle within the casing arranged to discharge a jet of air downward against the surface to be cleaned, an elongated slitted air channel conterminous with the said elongated nozzle arranged to discharge a jet
 40 of air upward and away from the surface to be cleaned, and means for connecting the said nozzle and air channel with a source of air under pressure, substantially as set forth.

2. In a pneumatic apparatus for cleaning carpets, the
 45 combination of a casing arranged to rest directly upon the surface to be cleaned and to inclose a space within which the cleaning operations are carried on, an elongated nozzle within the casing arranged relatively near its transverse central plane and arranged to deliver a jet of air
 50 downward directly against the carpet, an elongated slitted air channel conterminous with the said elongated nozzle arranged near the side of the casing and opposite the said nozzle arranged to discharge a jet of air upward and in a
 55 direction away from the surface to be cleaned, and means for connecting the said nozzle and air channel with a source of air under pressure, substantially as set forth.

3. In a pneumatic apparatus for cleaning carpets, the
 60 combination of a casing arranged to rest directly upon the surface to be cleaned and to inclose within itself an air space, a pair of nozzles arranged relatively near the transverse central plane of the casing arranged to deliver jets
 65 of air downward against the surface to be cleaned and in directions inclined toward the opposite sides of the casing, a pair of slitted air channels *m* arranged along the sides of the casing opposite the said nozzles to deliver jets of
 70 air toward the nozzles and in an upward direction, and means for connecting the said nozzles and air channels with a source of air under pressure, substantially as set forth.

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

CHARLES S. BALDWIN.

Witnesses:

EDWARD E. OSBORN,
 ALFRED SAVAGE.