

(No Model.)

W. P. MILLER.
CARPET CLEANER.

No. 288,720.

Patented Nov. 20, 1883.

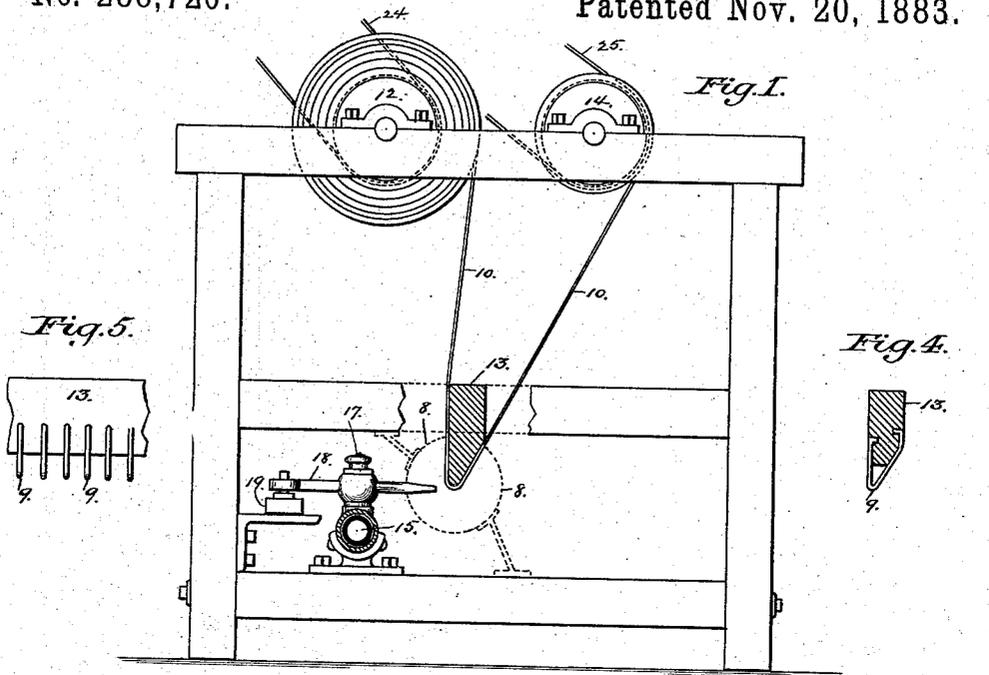


Fig. 5.

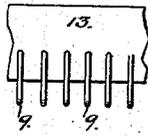


Fig. 4.

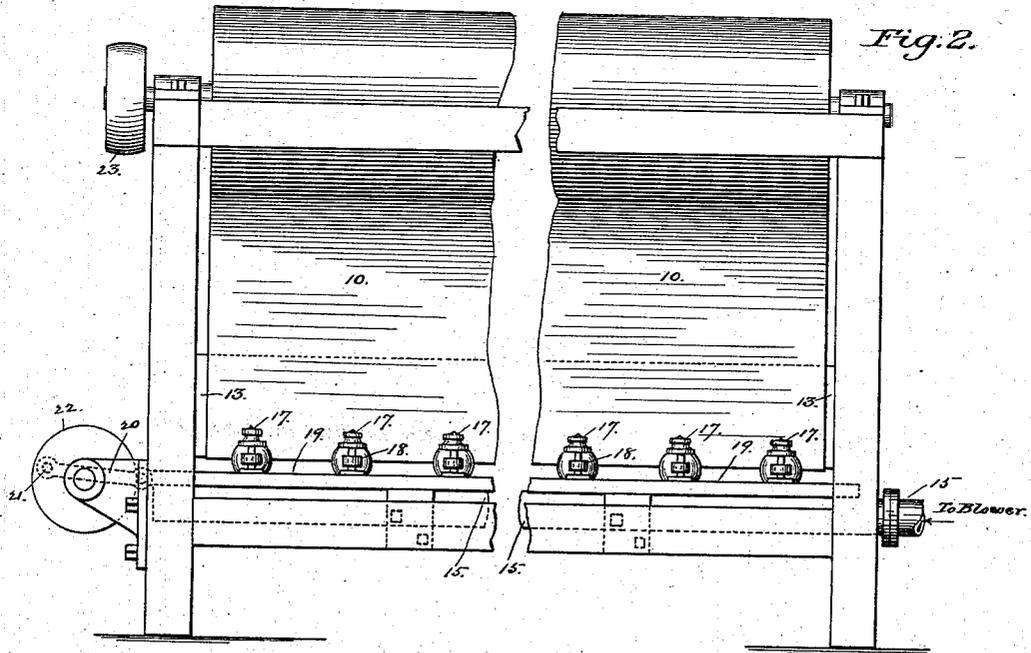


Fig. 2.

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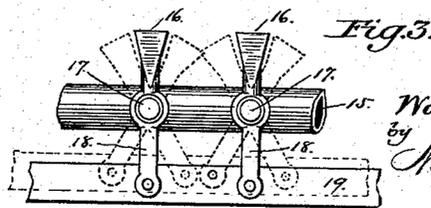


Fig. 3.

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UNITED STATES PATENT OFFICE.

WARREN P. MILLER, OF BROOKLYN, NEW YORK.

CARPET-CLEANER.

SPECIFICATION forming part of Letters Patent No. 288,720, dated November 20, 1883.

Application filed May 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, WARREN P. MILLER, a citizen of the United States, residing in the city of Brooklyn, county of Kings and State of New York, have invented certain new and useful Improvements in Carpet-Cleaners, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

It is the object of the present invention to provide an apparatus by which the dust and other loose impurities can be easily and effectually removed from carpets and other fabrics without the necessity of shaking, beating, or otherwise operating upon them in a manner which is more or less damaging.

The principle of the invention and the manner in which it may be practically embodied will be hereinafter so fully explained in connection with the accompanying drawings as to render an extended preliminary description unnecessary to a proper understanding thereof.

Referring to said drawings, Figure 1 is an end elevation, partly in section, of an apparatus embodying the invention in a simple form. Fig. 2 is a side elevation of the same. Figs. 3, 4, and 5 are detail views, to be hereinafter explained.

Referring to said figures it is to be understood that the carpet or other fabric, 10, to be cleaned is wound upon a drum or cage, 12, mounted in bearings in a frame-work of any suitable form, from which it is led to the cleaning mechanism, after which, as the cleaning progresses, it is rewound upon a second drum or cage, 14, mounted in some convenient position in the frame-work. Between the drums 12 14 the fabric is led over a suitable supporting-surface, represented in the present case by the beam or turning-bar 13. The beam or turning-bar 13 will preferably be so located that the fabric will make an abrupt turn in passing around it, and will preferably also be of such form that the point around which the fabric turns will be comparatively abrupt, thereby causing the piles of the fabric, if it be of that class, or the meshes, if it be of a smooth nature, to be drawn apart.

Lying parallel to the beam or bar 13 is a pipe, 15, which is supported in a suitable manner in the frame-work, and communicates with

a fan or other blower. This pipe is provided with a series of nozzles, 16, so positioned as to direct jets of air against the fabric 10 at the point at which it makes the abrupt turn around the bar 13, as shown in Fig. 1.

In order that the jets of air issuing from the nozzles 16 may extend over a greater area of the fabric, the ends of said nozzles will preferably be flattened, as shown in Figs. 1 and 3, so as to present oval or elongated instead of round openings. In order, also, that the jets of air issuing from said nozzles may act upon the entire surface of the fabric as it passes around the edge of the bar 13, and also that said jets may act at different angles, so as to reach all the interstices of the fabric, the nozzles are mounted in such a manner as to be capable of oscillation or vibration, and are provided with means by which they will be caused to assume different positions, as indicated by dotted lines in Fig. 3. To effect this the nozzles, instead of being attached directly to the pipe 15, are mounted so as to turn upon hollow arms 17, extending from said pipe, said arms and nozzles being constructed so as to communicate with each other in the same manner as an ordinary water-cock. The nozzles are provided with rearwardly-extending arms 18, which are engaged by studs projecting from a bar, 19, which is connected by a link, 20, with a crank, 21, located at the side of the frame-work, as shown in Fig. 2.

The different parts of the apparatus will be driven in any appropriate or convenient manner, as by belts passing around pulleys, as 22 23, so as to transmit motion from any convenient source of power.

The turning edge of the bar 13, instead of being made solid, as shown in Fig. 1, will usually be so formed as to permit the air to pass through the fabric, which will greatly facilitate the cleaning. This may be done, as illustrated in Figs. 4 and 5, by providing the edge of the bar with a series of loops, 9, which will act as guides and hold the fabric a sufficient distance from the solid part of the bar to permit the air to circulate freely through it. The same result may be attained by making the bar 13 or its turning-edge of wire-gauze, or of sheet metal provided with a large number of perforations.

The operation of the apparatus is as follows: The carpet or other fabric to be cleaned having been wound upon one of the drums, as 12, and its free end passed around the bar 13 and secured to the drum 14, the belt 25 will be placed upon the pulley 23 of the drum 14, the belt 24 being of course removed from the pulley 23 of the drum 12, and the apparatus will be set in motion. The fabric 10 will then be slowly unwound from the drum 12 and rewound upon the drum 14, in which operation it will be drawn around the abrupt edge of the bar 13, so as to have its piles or meshes drawn apart or separated to permit the entrance of the air, while, owing to the fact that the bar 13 is stationary, this point of bend will always be in exactly the proper position to be subjected to the blast of air issuing from the nozzles 16, which nozzles will, through the pulley 22 and the connections described, receive an oscillating or vibrating motion, so as to direct the blast of air at different angles against the whole surface of the fabric, thereby effectually removing all dust and loose matter therefrom, and this will continue until the whole of the fabric has passed from the drum 12 to the drum 14. If the fabric is not sufficiently cleaned in passing once before the air-blast, the belt 25 may be removed and the belt 24 placed upon the pulley 23 of the drum 12, so as to reverse the winding apparatus and pass the fabric a second time before the air-blast, and this operation may be repeated until the fabric has been passed before the blast a sufficient number of times to be thoroughly cleaned.

The drums 12 14 will each be provided with a suitable brake or tension apparatus, by which the fabric will be kept at a proper tension as it passes around the bar 13.

Many modifications may of course be made in the details of the apparatus without departing from or losing the advantages of the invention, the particular apparatus shown being, as already stated, adopted for the purpose of illustrating the principle and operation of the invention.

The feeding of the fabric to present its surface to the blast of air may of course be effected by any convenient form of mechanism for the purpose; so also any other suitable device may be adopted for vibrating the nozzles 16.

The nozzles also may, if preferred, be made independent of the pipe 15, and communicate therewith by means of flexible connecting-tubes.

To prevent the dust blown from the fabric from circulating in the room in which the apparatus is located, the ends of the nozzles and the part of the fabric being operated upon may be surrounded by a casing, 8, as indicated by dotted lines in Fig. 1, which will form a substantially-closed chamber to receive the dust, and from which it will be carried to a suitable receptacle, or to the open air, by the current of air generated from the nozzles 16.

What I claim is—

1. In an apparatus for cleaning carpets and other fabrics, the combination, with a series of air-blast nozzles, as 16, and means for vibrating said nozzles, of means for supporting the fabric within the range of said nozzles, and means for advancing the fabric as the cleaning progresses, substantially as described.

2. In an apparatus for cleaning carpets and other fabrics, the combination, with means for advancing the fabric and means for giving to the same an abrupt bend, of a series of air-blast nozzles arranged to direct jets of air against the fabric at the point of said bend, and means for vibrating said nozzles, substantially as described.

3. In apparatus for cleaning carpets and other fabrics, the combination, with the bar 13, of the series of air-blast nozzles 16, and means for vibrating said nozzles, substantially as described.

4. In an apparatus for cleaning carpets and other fabrics, the combination, with the stationary bar 13, having an open or hollow turning edge, of means for drawing the fabric around said edge, and a series of air-blast nozzles arranged to direct jets of air against the fabric as it passes said open or hollow edge, and means for vibrating said nozzles, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WARREN P. MILLER.

Witnesses:

T. H. PALMER,
J. A. HOVEY.