P. B. NEWKIRK.

VACUUM CLEANER.

APPLICATION FILED NOV. 21, 1910.

1,082,356.

Patented Dec. 23, 1913.

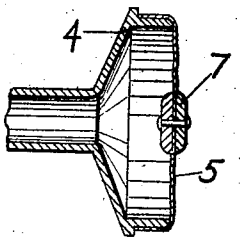

Fig. 3

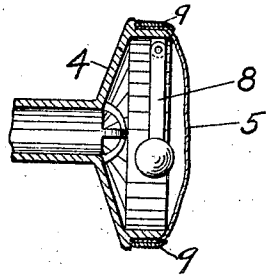

Fig. 2

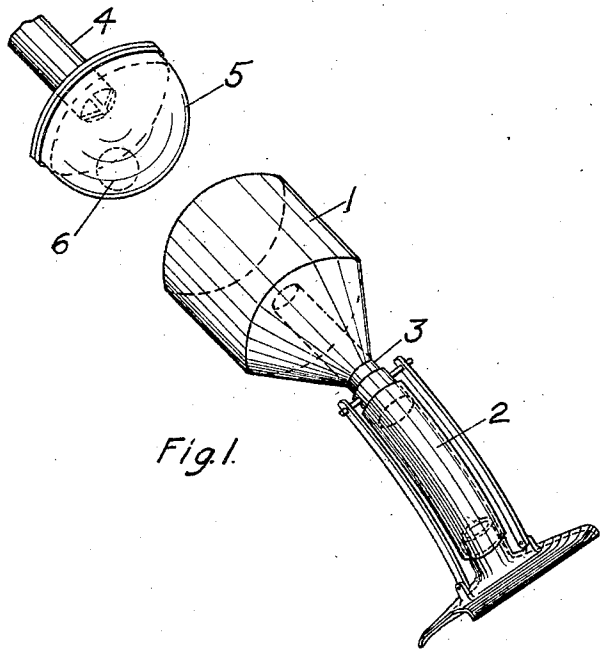

Fig. 1

Witnesses

C. B. Birkenbeuel.

W. A. Burke

Inventor.

Perry B. Newkirk

By

Attorney

UNITED STATES PATENT OFFICE.

PERRY B. NEWKIRK, OF PORTLAND, OREGON, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE HUGRO MANUFACTURING COMPANY, A CORPORATION OF ILLINOIS.

VACUUM-CLEANER.

1,082,356. Specification of Letters Patent. Patented Dec. 23, 1913.

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To all whom it may concern:

Be it known that I, PERRY B. NEWKIRK, a citizen of the United States, residing in the city of Portland, county of Multnomah, and State of Oregon, have invented certain new and useful Improvements in Vacuum-Cleaners, of which the following is a specification.

My invention relates to vacuum cleaners, and more particularly to means for preventing the dust and dirt gathered thereby from clinging to the dust cap or bag thereof so as to interfere with the free circulation of the air therein, and thus render the operation of the machine more difficult.

An objection common to vacuum cleaners having dust caps or bags for catching the dust and dirt gathered by the suction process, is, that this dust and dirt adheres or clings to the cap or bag, and, under the suction of the air, so fills the meshes of the bag that it interferes with the passage of the air therethrough, thus increasing the resistance and making more difficult the operation of the machine.

Another objection which my invention overcomes, is the necessity of shaking or beating the dust cap or bag by hand for the purpose of cleaning same. This dust cap or bag, when the meshes thereof are filled with dust and dirt, is, under the suction of the machine, drawn into a crimped or knotted condition, and it is necessary to straighten it out by hand so as to shake or beat the dust therefrom. This is a serious objection for the reason that the dust gathered by these cleaners is very fine and is carried by the atmosphere when released, and it not only soils the hands, but is thus released at such close range to the operator that it is inhaled by her.

Among the salient objects of the invention are,—to provide means for continuously tapping or beating the dust cap or bag whereby to keep the dust and dirt falling into the dust receptacle, thus preventing its clinging to said cap or bag, and thereby making it unnecessary to clean the same by hand; to provide means which operates automatically during the operation of the machine, and by which said cap or bag may also be cleaned by shaking that portion of the apparatus with the dust receptacle detached and the cap or bag exposed; to provide improvements in the construction of vacuum cleaners whereby it is possible to use a cap or bag of increased area without having it hang loosely from its holding member like a sack, but instead thereof, to provide a mouth-piece or the like for the suction pipe, of increased diameter with a dust cap or guard stretched across the mouth thereof, in a manner to be shown and described, whereby a vibrating weight or member is continuously, under the normal operation of the apparatus, knocking the dust and dirt from the cap by its movement.

The invention will be readily understood from the following description, reference being had to the accompanying drawings, in which,—

Figure 1 is a perspective view of a portion of one of the styles of vacum cleaners having a dust bag or sack attached to the suction pipe thereof; Fig. 2 is a detailed view, showing one embodiment of my invention and the reconstruction necessary to its embodiment in a vacuum cleaner; and Fig. 3 is a similar view of another embodiment of the invention.

Referring now to the drawings, 1 designates a dust and dirt receptacle or chamber, which may be of any desired shape, provided with a gathering nozzle 2, connected thereto in the usual manner by means of a tube or pipe 3, which is preferably extended into the dust receptacle 1, as indicated.

4 designates the suction pipe of one of the cleaners now on the market, being provided with a dust bag or sack, as 5, hanging from said suction pipe in the manner shown. My first attempt to overcome the objection hereinabove mentioned, namely, to keep the dust from adhering to said bag or sack and from filling the meshes thereof so as to prevent the free circulation or passage of air therethrough, was to place a weight or ball 6 loosely within said bag or sack, whereby the operation of the machine would keep said weight or ball moving within the cap and thereby knock the dust therefrom. This is partially successful. The present bag or sack, however, in order to get more area for the air to pass through, is made large and hangs from the suction pipe like a sack, as shown. The ball draws the bag downwardly under its weight and as the apparatus is moved, the ball swings therein hammock fashion, and unless the movement is unusual, as by jerks or vigorous shaking,

the ball moving with the bag does not succeed in keeping the dust from working into the meshes thereof, although it enables the machine to work longer before becoming clogged, than when no ball or weight is used therein. Under this showing of the present style of cleaners, said bag or cap hangs down into the dust receptacle 1 and must be carefully put into the receptacle when the parts are being put together, in order to prevent its becoming folded or crimped around the ring or mouth piece of the suction pipe and punctured or worn. This increases the difficulty in taking the parts away from each other for the purpose of emptying the dust receptacle and cleaning the bag.

Referring now to Figs. 2 and 3, I provide a mouth-piece of relatively increased diameter, whereby to enable me to get increased area of dust cap or guard without permitting it to hang loosely from the mouthpiece. I prefer to have this cap or guard stretched just loosely enough so that it can vibrate slightly in its middle portion. In Fig. 2 I have shown a weight mounted upon a pivoted arm 8, so pivoted that the slightest movement of the apparatus will cause said weight or ball to swing against the cap or guard 5, thereby operating at each movement of the machine to strike the cap and knock the dust therefrom. In Fig. 3 I have attached the weight or member 7 to the middle portion of the cap, whereby each movement of the apparatus causes the weight to move outwardly until the slack in the cap is taken up, the stopping of this movement suddenly, operates to throw or jerk the dust and dirt from the cap. Thus it will be seen, by thus agitating the cap or guard by these moving members or weights the dust is continuously kept knocked from the cap with each movement of the cleaner upon the surface being cleaned. I also provide an attaching band for securing said cap or guard to the ring portion of the mouth-piece, which said band is slightly inturned at its outer edge, as indicated at 9, whereby to overlap said cap or guard upon the edge of the mouth-piece, thereby protecting it at this point and also facilitating the insertion of the cap and mouth-piece into the open end of the dust receptacle.

I have shown and described my invention as applied to hand cleaners, but do not limit it to any particular kind of vacuum cleaner, but intend to cover it in its application to any vacuum cleaner where a fabric or other dust cap or guard must be kept free from the dust and dirt in order to secure the best results. I am also aware that modifications and changes can be made in the construction and application of the invention to the purposes intended, and I do not, therefore, limit the invention to the particular showings made for purposes of illustration.

I claim:

1. In a vacuum cleaner adapted to be moved bodily over the surface to be cleaned, the combination with the dust receptacle and dust cap thereof, of a movable weight in combination with said dust cap and adapted to agitate it with each bodily movement of said cleaner, for the purpose indicated.

2. A suction cleaner comprising a hollow body portion having a part to enable said body portion to be manually manipulated to move the cleaner over the surface to be cleaned and provided with an inlet at one end and an outlet at the other end, a dust separating device mounted within said body portion between said inlet and said outlet, and means actuated by the manipulation of said body portion in the normal operation of the cleaner to prevent the accumulation of dust on said device.

PERRY B. NEWKIRK.

Witnesses:
W. A. BURKE,
W. A. ROBBINS.