G. BRAND.

VACUUM CLEANING MACHINE.

APPLICATION FILED JULY 24, 1914.

1,136,890. Patented Apr. 20, 1915.

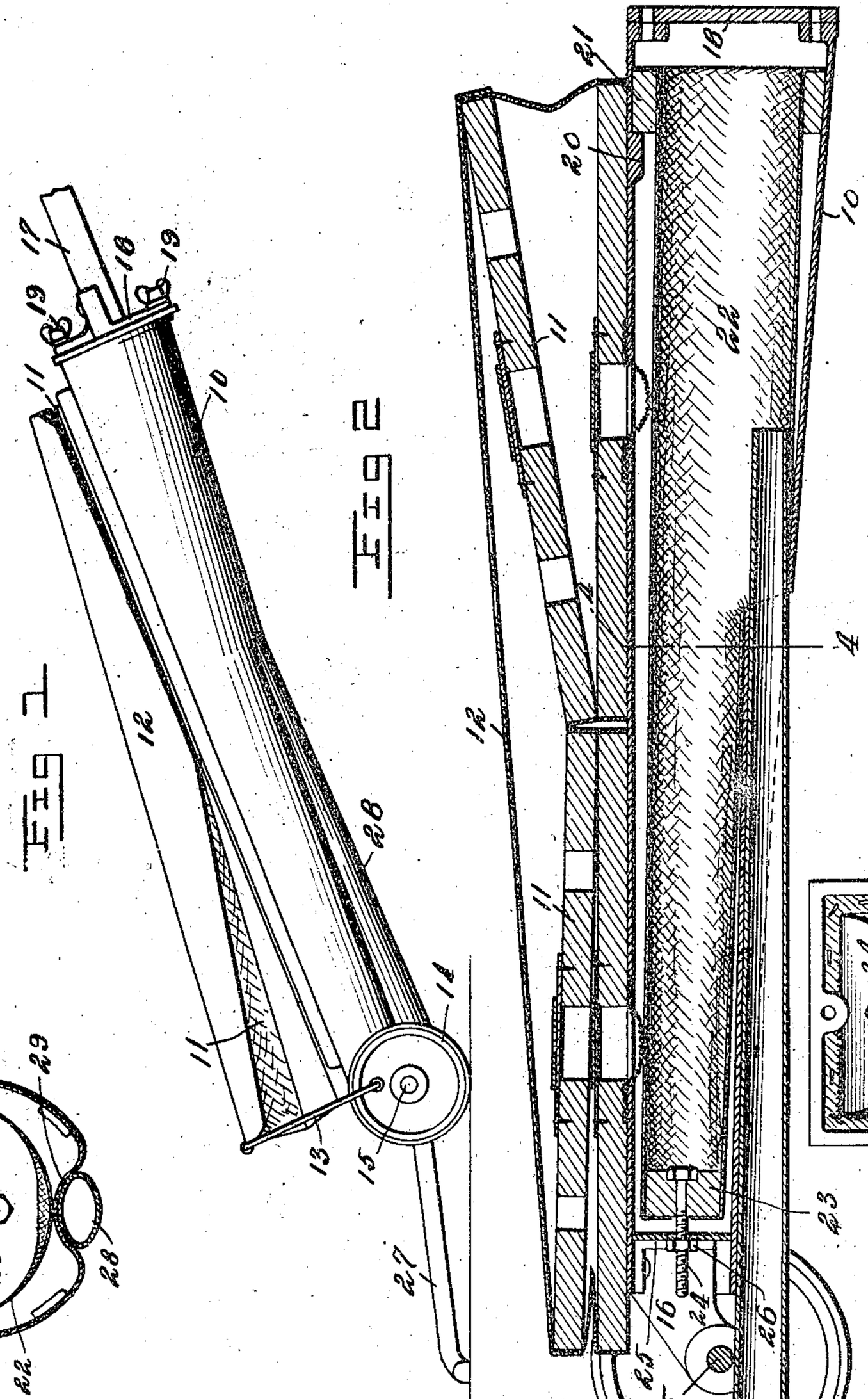


FIG 2

FIG 1

FIG 4

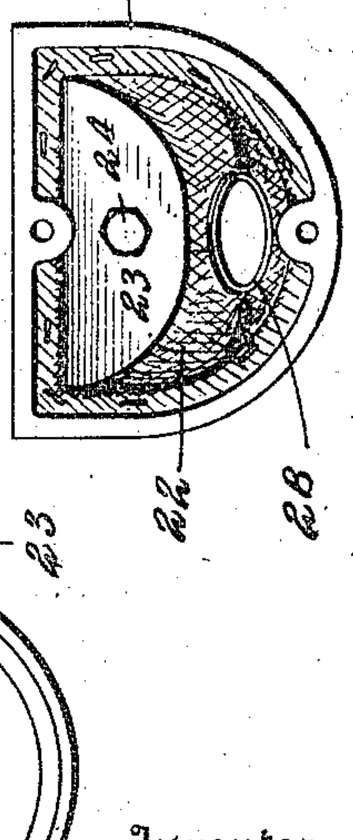


FIG 3

Witnesses

H. C. Pohlietta

J. Mawhinney

Inventor

George Brand

By Hyman, Cockburn & Pike

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE BRAND, OF BROOKLYN, NEW YORK.

VACUUM CLEANING-MACHINE.

1,136,890. Specification of Letters Patent. Patented Apr. 20, 1915.

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To all whom it may concern:

Be it known that I, GEORGE BRAND, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Vacuum Cleaning-Machines, of which the following is a specification.

This invention relates to vacuum cleaning machines, has particular reference to an improved dust receptacle and bag therefor, and has for an object to provide a construction adapted particularly to hand-operated portable machines from which the accumulated dust and lint may be easily removed.

More specifically, the object of this invention is to provide a dust receptacle with a dust tube leading from the suction head and opening into the receptacle and dust bag in such a manner as not to obstruct the interior thereof. This arrangement admits of ready access to the bag throughout its entire length for the removal of the dust and lint. Furthermore, this novel construction prevents the dust and lint from collecting about the inner end of the dust tube such as occurs in prior structures where difficulty has been experienced in dislodging the dust and lint.

Another object of the invention is to provide within the dust receptacle a peculiar mounting for the bag, whereby the same may be placed under tension, and the tension be regulated to maintain the bag in distended or stretched position to take advantage of the entire cubical area of the bag and to hold the fabric in position to obtain the best results.

A further object is to provide a dust receptacle and bag which taper from end to end so that dust and lint may be easily removed by hand, or by gravity in tilting the dust receptacle.

Other objects and advantages of this invention will be brought out in the following detailed description of the present preferred embodiment of the invention, the same being illustrated in the accompanying drawing, wherein—

Figure 1 is a side elevation of the vacuum cleaning machine embodying the features of this invention. Fig. 2 is an enlarged longitudinal section thereof taken vertically through the central portion of the machine. Fig. 3 is a detail rear end elevation of the dust receptacle and bag, the cap being removed from the receptacle, and Fig. 4 is a transverse section through the dust receptacle on the line 4—4 of Fig. 2, looking toward the front end of the receptacle.

Referring to this drawing, wherein like parts are designated by similar characters of reference, 10 designates the body of the machine which in the present instance comprises the dust receptacle. Mounted on top of the dust receptacle is a pair of bellows 11 of the usual type having the movable leaves thereof secured to a rocking plate 12 for alternately operating the bellows. The rocking plate 12 is actuated by any suitable pitman connection 13 connected to the supporting traction wheels 14 mounted upon the forward end of the body 10. As shown in the present drawing, the wheels 14 are mounted upon an axle 15 held in brackets 16 projecting from the forward end of the body 10. The rear end of the body 10 is supported by handle 17 adapted to be grasped in the hand for the purpose of moving the machine over the surface to be cleansed. It is thus seen that when the machine is moved the supporting wheels 14 rotate and through the pitman connection 13 rock the plate 12 and thus actuate the bellows 11 to produce a practically constant suction through the body 10.

The body 10 or dust receptacle extends preferably throughout the entire length of the machine and tapers from its rear end to its forward end. The rear or enlarged end is open and is adapted to be closed by a cap 18 upon which the handle 17 is mounted, the cap being held to the receptacle by thumb screws 19, or other suitable detachable fasteners. Within the receptacle 10 and spaced slightly from the open end thereof are disposed lugs 20 against which rests a frame 21 carrying the forward end of a dust bag 22. The frame 21 is of ring form, the same having a formation corresponding to the inner walls of the receptacle 10 and being adapted to support the forward end of the dust bag 22 in open position. The dust bag 22 tapers to its opposite end to correspond to the shape of the body 10 and is secured at its inner end to a block 23 conforming to the shape of the inner end of the dust receptacle and adapted to hold the bag in distended position. A threaded bolt 24, or the like, is mounted in the block 23 and extends forwardly therefrom through the head or closed end 25 of the dust receptacle. The nut 26 is threaded upon the outer

end of the bolt 24 and bears against the head 25 to draw the block 23 forwardly and stretch the dust bag 22 and hold it in such stretched position.

The machine is provided at its forward end with a forwardly projecting suction head 27 of any approved form which may be supported upon the axle 15 as shown in Fig. 2, and which communicates with a dust tube 28 leading into the body 10. The dust tube 28 is preferably located beneath the body 10 at its forward reduced end and extends longitudinally beneath the body to a point approximately intermediate the ends of the dust receptacle. The tube 28 is gradually flattened from its forward to its rear end, the flattened end of the tube entering the receptacle 10, extending for a short distance within the receptacle and lying close against the inner wall of the same. As the tube 28 is flattened, and as it lies close against the inner wall of the receptacle, the receptacle, owing to its tapering form is practically unobstructed throughout its entire length. The tube 28 also passes into the side of the dust bag 22, the latter having an opening adapted to receive the tube 28. As shown in Figs. 2 and 4 of the drawing, the bottom of the body or receptacle 10 is arched upwardly as at 29 at the portion where the dust tube 28 enters the receptacle. This arched portion 29 gradually decreases toward the forward end of the receptacle owing to the tapering form thereof.

In operation, as suction is created through the receptacle 10 the dust and the like from the surface being cleaned passes through the suction head 27 into the dust tube 28, and from the dust tube into the dust bag 22. As the body 10 is held in a tilted position as shown in Fig. 1, the dust and lint from the tube 28 fall into the bottom of the dust bag, while the air from the tube 28 is drawn off by the bellows 11 through the sides of the dust bag 22. When it is desired to remove the dust and lint from the machine, the cap 18 is removed from the rear enlarged end of the receptacle, and the hand may be readily inserted within the open end of the bag 22 to withdraw the dust and lint collected therein. Owing to the tapering form of the bag and the receptacle, the accumulations within the bag may be readily removed, and if the receptacle is tilted rearwardly the dust and lint falls out of the bag as there are no shoulders or projections tending to retain the dust therein. Further, as the bolt 24 draws the bag and holds it in stretched position, there are no creases in the bag to retain the dust and as the sides of the bag are taut the dust will not adhere to the bag to any appreciable extent.

It is of course understood that various changes may be made in the construction of the within disclosed device within the scope of the claims without departing from the spirit of the invention.

I claim,—

1. In a vacuum cleaning machine, a dust receptacle, a dust bag within said receptacle and a dust tube extending in a straight line longitudinally of said receptacle on its exterior for a portion of its length, said dust tube passing through said dust bag and receptacle and terminating at the rearward end of the same and adapted to discharge toward said end.

2. In a vacuum cleaning machine, an inwardly tapering dust receptacle, an inwardly tapering bag mounted in said receptacle, means for holding said bag taut in the receptacle, and a dust tube opening through one side of the dust receptacle and bag near the enlarged ends thereof.

3. In a vacuum cleaning machine, a dust receptacle tapering throughout its entire length toward the forward end thereof and open at its enlarged end a removable cap adapted to inclose said enlarged end, and a dust tube extending in a straight line substantially parallel with the longitudinal axis of said dust receptacle on the exterior of the reduced or forward end thereof and extending into said dust receptacle near its enlarged end and toward the same.

4. In a vacuum cleaning machine, a tapering dust receptacle, a dust bag therein and a dust tube extending in a straight line longitudinally of the receptacle against the exterior forward end thereof and entering said receptacle and bag in the same straight line near its enlarged end and at one side thereof.

5. In a vacuum cleaning machine, a dust receptacle tapering from end to end, a dust bag in said receptacle, a dust tube arranged in a straight line against the outer reduced end of the receptacle and extending longitudinally thereof, said dust tube being flattened at one end and projecting in the same line into the receptacle and bag near the enlarged end of the receptacle whereby the flattened end of said tube is disposed adjacent the inner side of the receptacle and bag and discharges toward the enlarged end thereof.

6. In a vacuum cleaning machine, a tapering dust receptacle, a dust bag therein, and a straight dust tube flattened at one end entering one side of said receptacle and bag near the enlarged end of said receptacle, and lying adjacent the inner side of the receptacle in parallelism with its longitudinal axis.

7. In a vacuum cleaning machine, a tapering receptacle, a tapering bag mounted in said receptacle, and secured at its open end to the enlarged end of said receptacle, adjustable retaining means connected to the inner end of the bag and engaging the reduced end of the receptacle for holding said

bag in stretched position in the receptacle, and a dust tube entering said receptacle and bag through one side in parallelism with their longitudinal axes and discharging toward their enlarged ends.

8. In a vacuum cleaning machine, a dust receptacle, an open frame mounted in one end of the receptacle, a dust bag having its open end secured within said frame, a block secured in the inner end of the dust bag and adapted for sliding movement in the dust receptacle, a retaining bolt carried by said block and mounted for adjustment in the closed end of said receptacle, and a dust tube entering said receptacle and bag through one side in parallelism with their longitudinal axes and discharging toward their enlarged ends.

9. In a vacuum cleaning machine, a dust receptacle tapering throughout its entire length toward the forward end of the same, and a dust tube extending exterior of the reduced end of the receptacle in a straight line substantially parallel with the longitudinal axis of the latter and entering said receptacle at the enlarged end thereof, said dust tube lying adjacent the inner side of the receptacle and terminating short of said enlarged end whereby the same is adapted to discharge toward said enlarged end.

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

GEORGE BRAND.

Witnesses:
JOSEPH J. MILLER,
FRANCIS H. LEHMAN.