

W. W. FARNSWORTH.
DUST COLLECTING BAG FOR CLEANING APPARATUS.
APPLICATION FILED APR. 8, 1920.

1,351,561.

Patented Aug. 31, 1920.

Fig. 1

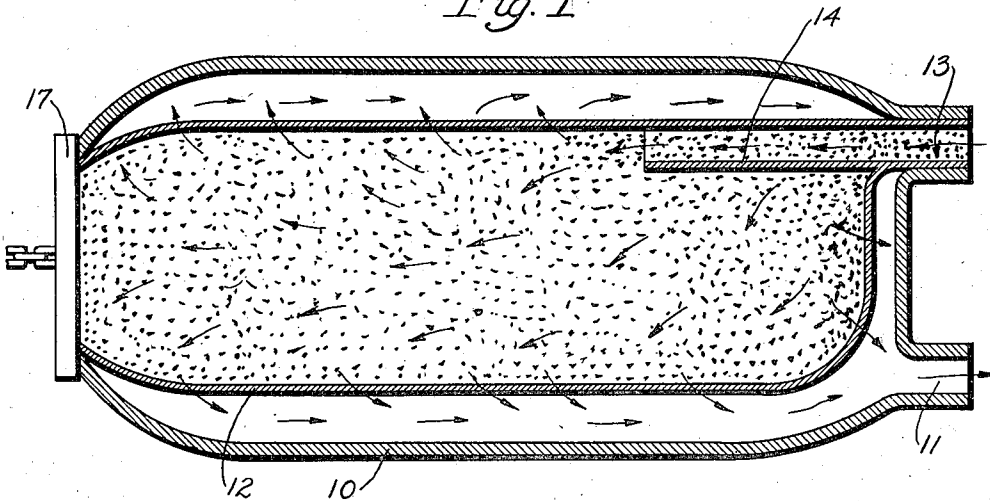


Fig. 2

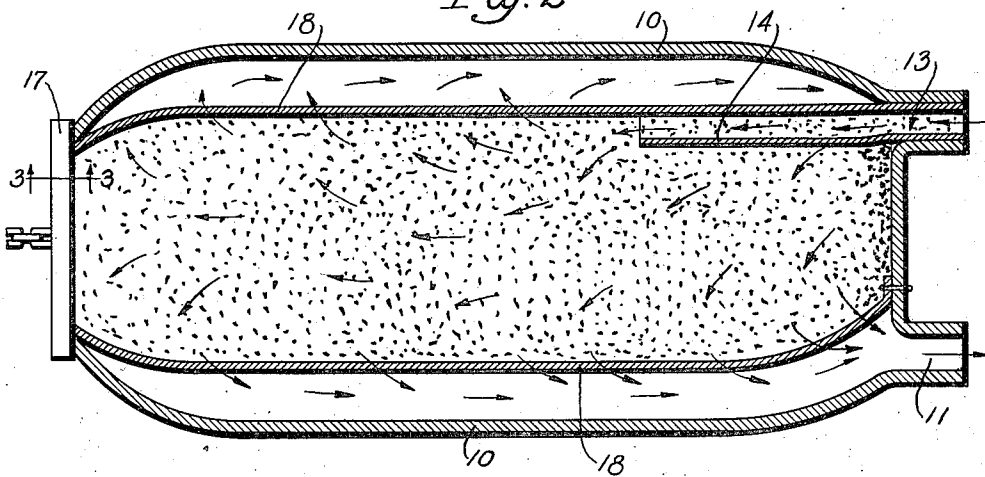
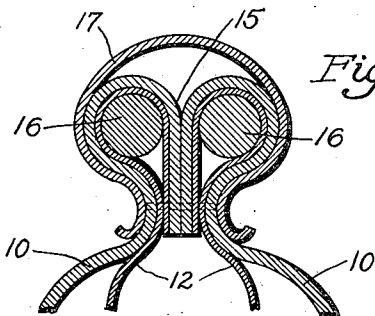


Fig. 3



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DUST-COLLECTING BAG FOR CLEANING APPARATUS.

1,351,561.

Specification of Letters Patent.

Patented Aug. 31, 1920.

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To all whom it may concern:

Be it known that I, WILLIAM W. FARNSWORTH, a citizen of the United States, residing at Littleton, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Dust-Collecting Bags for Cleaning Apparatus, of which the following is a specification.

This application is a continuation in part of my application Ser. No. 294,672, filed May 5, 1919, and relates more specifically to improvements in dust or impurities collecting bag or sack for cleaning apparatus, and one of the objects of the present invention is to provide an improved air-tight bag or sack of this character having its outer walls impervious to air and provided with a filter or cleaner therein for filtering or cleaning the dust-laden air. The bag is provided with an inlet and outlet for air currents and the inlet and outlet are out of communication with each other except through the said filter or strainer.

A further object is to provide an improved bag or sack of this character constructed of flexible material and embodying one bag within another, the outer bag being constructed of material impervious to air currents and the inner is of a considerably smaller size and is constructed of material pervious to air and operates as a filter or strainer for cleaning the air currents, the dust-laden air being delivered into the inner bag through an inlet and the purified air currents pass out of an outlet in the outer bag so that the same air currents may be used over and over again in the apparatus of the structure shown in my prior application above referred to. Each of the bags is provided with an opening through which access may be had to the interior thereof to clean the inner bag, a closure common to the opening in both of the bags is provided for sealing them.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts, hereinafter more fully described and claimed and shown in the accompanying drawing illustrating this invention and in which—

Figure 1 is a longitudinal sectional view of an impurities collecting bag or sack con-

structed in accordance with the principles of this invention.

Fig. 2 is a view similar to Fig. 1 of a modified form of the invention.

Fig. 3 is an enlarged detail sectional view taken on line 3—3 Fig. 2.

This bag or sack embodies an outer casing 10 of any suitable flexible material that is impervious to air and is provided with a discharge outlet opening 11 through which the purified air is discharged.

This sack may be of any desired size and configuration and arranged therein, in the form of the invention shown in Fig. 1, is an inner bag or sack 12 which is also constructed of any suitable flexible material such as fabric that is porous or pervious to air currents to permit the air currents to pass therethrough but the material of the inner sack will be of such a nature as to retain therein the impurities carried by the dust-laden air which enters the inner sack through an inlet opening 13. The inner sack 12 is preferably of a diameter somewhat less than the interior diameter of the outer sack so as to form a space therebetween for the reception of the purified air currents. The inlet 13, it will be seen, discharges into the inner sack 12 and the outlet 11 delivers the air currents from the outer sack and the inlet 13 and outlet 11 are out of communication with each other except through the inner sack 12. That is to say, the dust-laden air currents entering the inlet 13 must pass into the sack 12 before the air currents can be delivered through the outlet opening 11 of the outer sack. The inlet opening 13 has preferably connected therewith a tubular inlet portion 14 which extends for any desired distance into the inner sack, sufficient to prevent the dirt and foreign matter which has accumulated within the sack from passing out of the inlet 13 when a blast is not being created.

In order to provide a means whereby the dirt may be removed from the inner sack 12, the sack is provided with a clean-out opening as is also the outer sack to permit access to the inner sack. This clean-out is designated generally by the reference numeral 15 in Fig. 3 and is formed in any suitable manner preferably by shaping the ends of the two sacks over elements 16 so as to form shoulders and the openings are held closed so as to prevent the escape of any

air currents, in any suitable manner such as by means of a clip or fastening device 17 adapted to slide over the shouldered edges of the bags as shown more clearly in Fig.

3 which device is common with impurities collecting bags of this general character.

In the form of the invention shown in Fig. 2, the filter is formed by means of one or more partitions 18 constructed of flexible porous material similar to the material employed in the walls of the sack 12 in Fig. 1 and these partitions 18 divide the outer casing or sack 10 into a plurality of chambers, the inlet opening 13 being arranged on one side of the partitions and the outlet opening 11 being arranged on the other side of the partitions so that the inlet 13 will be out of communication with the outlet 11 except through the partitions.

With this improved construction it will be manifest that it is impossible for dust-laden air or particles of dust to pass out of the outer sack or bag through the walls thereof.

Heretofore considerable difficulty and inconvenience has been experienced with the so-called vacuum cleaners and especially with the dust-collecting bag in that the walls of the bag are porous and as the dust-laden air currents are discharged into the bag, considerable pressure is exerted within the bag and the air passes through the walls of the bag and into the room. With these air currents considerable of the fine dust and dirt is carried through the walls of the bag thereby causing the same to circulate in the room operating as a dust disturber and agitator in the room and which is very objectionable and unsanitary.

With the present invention it will be manifest that it is absolutely impossible for any of the dust-laden air or any of the particles of dust or dirt to pass through the walls of the outer sack as all of the particles of dust will be held within the sack.

It will also be manifest that with the present invention the same air currents are used over and over again with the result that the air currents in the room are not disturbed to any appreciable extent and the dust and dirt in the room will not be agitated or caused to circulate in the room by the air currents created by the apparatus.

In the present invention the air currents form what may be termed as an endless chain or belt which circulates through the bag and across the specific area of the carpet being cleaned and then back into the bag and this circulation is continued and caused by the apparatus as described in my prior application herein referred to in connection with the impurities collecting bag herein shown and described.

Obviously many changes may be made in the details of construction and in the combi-

nation and arrangement of the several component parts of the bag within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. An impurities collecting bag or sack for cleaning apparatus embodying an outer casing constructed of flexible material impervious to air and having a discharge outlet, a partition in the sack through which the air currents may pass to remove the impurities from the air before the air passes through the said outlet, and an inlet for conveying the impurities-laden air into the bag or sack, the said inlet and outlet being out of communication with each other except through the said partition.

2. An impurities collecting bag or sack for cleaning apparatus embodying an outer casing constructed of flexible material impervious to air and having a discharge outlet for the air currents, an inner sack or casing within the outer casing and having portions spaced from the outer casing, the said inner casing being pervious to air, whereby the air currents may pass through the wall of the inner casing and into the outer casing to remove the impurities before the air currents pass through the said outlet, and an inlet for conveying the impurities-laden air into the inner casing.

3. An impurities collecting bag or sack for cleaning apparatus embodying an outer casing constructed of flexible material impervious to air and having a discharge outlet for the air currents, an inner sack or casing within the outer casing and having portions spaced from the outer casing, the said inner casing being pervious to air, whereby the air currents may pass through the wall of the inner casing and into the outer casing to remove the impurities before the air currents pass through the said outlet, an inlet for conveying the impurities-laden air into the inner casing, the said inner casing having a clean-out opening, and means for securing the said clean-out opening closed.

4. An impurities collecting bag or sack for cleaning apparatus embodying an outer casing constructed of flexible material impervious to air, and having a discharge outlet for the air currents, a filter within the casing, said filter being constructed of flexible material pervious to air currents, there being an inlet opening for carrying dust-laden air into the casing, said inlet and outlet being out of communication with each other except through said filter, and a tubular extension forming a continuation of the said inlet and projecting for a considerable distance into the said casing.

5. An impurities collecting bag or sack for cleaning apparatus embodying an outer casing constructed of flexible material im-

pervious to air, and having a discharge outlet for the air currents, a filter within the casing, said filter being constructed of flexible material pervious to air currents, there being
5 an inlet opening for carrying dust-laden air into the casing, said inlet and outlet being out of communication with each other except through said filter, and a flexible tubular extension forming a continuation of
10 the said inlet and projecting for a considerable distance into the casing, said extension operating to collapse when no air current is passing therethrough to prevent the impurities from escaping through said inlet.

15 6. An impurities collecting bag or sack for cleaning apparatus embodying an outer casing constructed of flexible material impervious to air, and having a discharge out-

let for the air currents, a filter within the casing, said filter being constructed of flexible material pervious to air currents, there
20 being an inlet opening for carrying dust-laden air into the casing, said inlet and outlet being out of communication with each other except through said filter, a tubular
25 extension forming a continuation of the said inlet and projecting for a considerable distance into the said casing, one end of the casing being open to form a clean-out opening, and means for sealing said open-
30 ing closed.

In testimony whereof I have signed my name to this specification, on this thirtieth day of March, A. D. 1920.

WILLIAM W. FARNSWORTH.