

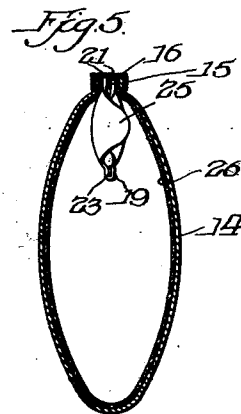
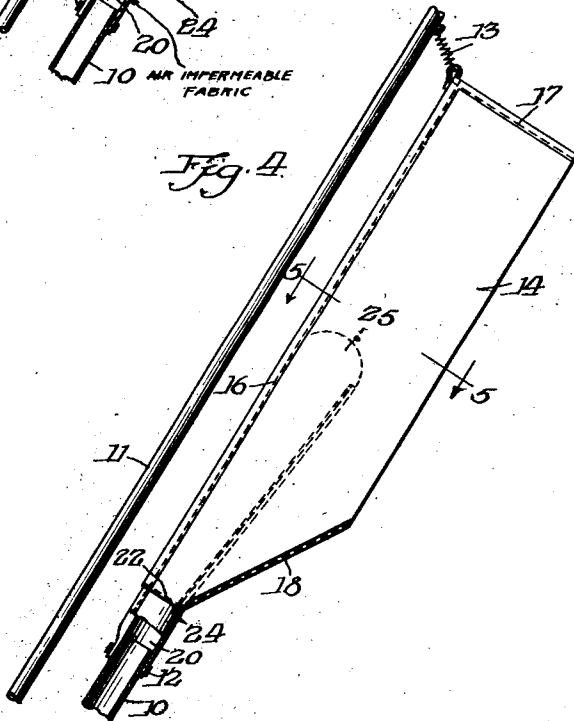
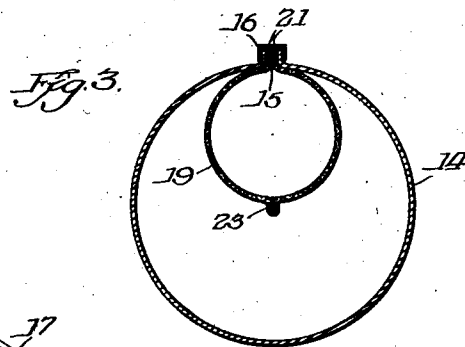
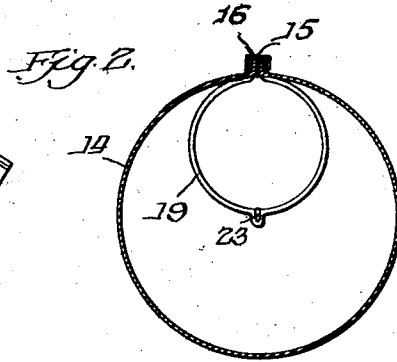
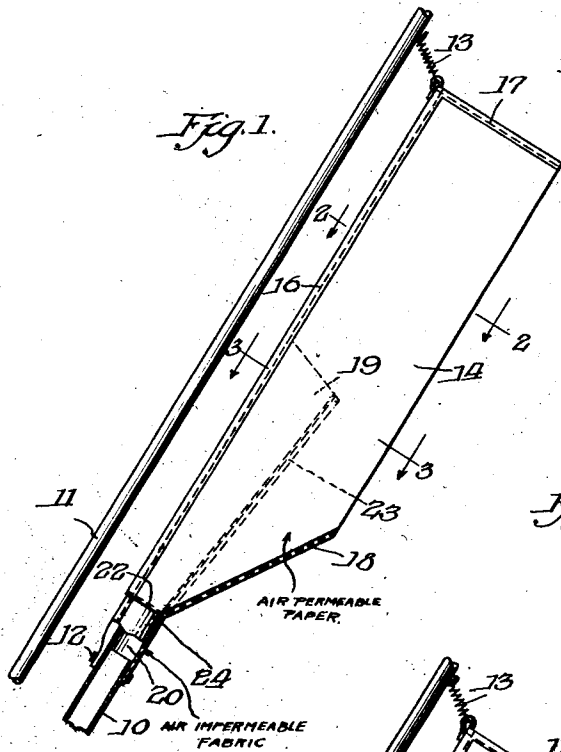
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1,923,299

DISCARDABLE DUST BAG FOR CLEANERS

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UNITED STATES PATENT OFFICE

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DISCARDABLE DUST BAG FOR CLEANERS

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Application May 1, 1931. Serial No. 534,240

1 Claim. (Cl. 183—51)

My invention relates to suction machines and particularly to an improved dust separator for use in connection therewith.

The dust separator and container commonly used in the commercial or household variety of so-called vacuum cleaners, comprises a bag composed of close mesh fabric, one end of the bag being connected to the air outlet or nozzle of the motor-driven blowers. The air passes through the interstices of the fabric, the solids carried in the moving body of air being, to a large extent, retained within the bag. The dust and dirt accumulates in the bag settling to the lower end thereof adjacent to the outlet from the blower, and unless the bag is emptied frequently, the tendency is for quantities of accumulated material to fall into the nozzle during periods of disuse of the device. At any rate, the arrangement is such that the accumulated solid matter is constantly agitated and many particles that were too large to pass through the fabric become broken up and reduced in size to an extent that will permit them to pass through the spaces in the fabric with the air. Thus while the cleaner is in operation there is continuous emanation of fine dust particles through the pores of the bag. Obviously this is unsanitary and objectionable. Furthermore, the operation of emptying the bag is unpleasant and unsanitary and is to be avoided if possible.

In my construction, I utilize a bag composed of a fibrous material other than woven fabric, having in mind a material such as medium-rolled craft paper, which may or may not be creped as desired. This material has outstanding advantages; first, its closely matted character provides for the necessary escape of air therethrough but the passages are not straight as in woven fabric. Thus any minute particles of dust that would pass through the mesh of the closely woven fabric are caught and retained. Therefore, the extent of separation is much greater than in even the finest woven fabric; second, the cost of such material is so small that bags may be discarded and burnt with their contents at a very slight expense.

I further improve the common construction by providing in the fiber bag a tubular conduit extending longitudinally along one side and terminating at a point well toward the middle of the bag, the lower end of the tube projecting from the end of the bag and providing a neck for easy connection to the nozzle of the cleaner. This neck portion and preferably also the portion within the bag, will be composed of fabric,

the neck portion, at least, being treated to render it air-impermeable. For convenience and ease of manufacture I construct the entire tube of air impermeable material in order that the entire body of combined air and solids shall be discharged at a point substantially above the mass of accumulated dust and dirt in the lower portion of the bag. Thus there is no possibility of the accumulated material falling into the nozzle, nor is there any great disturbance of such material during successive operations of the machine.

The parts are suitably reinforced and assembled as will be more specifically described hereinafter.

My invention will be more readily understood by reference to the accompanying drawing, in which:

Fig. 1 is a side elevation partly in section, showing a cleaner bag constructed in accordance with my invention;

Figs. 2 and 3 are sectional views on the lines 2—2, 3—3 of Fig. 1, the views being considerably enlarged;

Fig. 4 is a view similar to Fig. 1 showing a slightly modified form of the invention, and

Fig. 5 is a sectional view on the lines 5—5 of Fig. 4.

In the drawing I have illustrated a nozzle 10, a handle 11 of a conventional vacuum cleaner. The bag is connected to the nozzle by a readily operable clamp 12 and to the handle by means of the flexible connection 13.

The bag of my invention is of elongated form, preferably tapered at its lower end as shown. It consists of a sheet of porous, fibrous material, such as craft paper, the sheet being cut to the required shape and doubled on itself to provide the body portion 14. The upper longitudinal edges are lapped with an intervening stiffening member 15, bound with a tape 16, and sewed through the lapped sections. This insures a strong reinforcement that will, with the connection 13 to the handle, suitably support the weight of the bag and the accumulated material. The stiffening member 15 may be composed of a material such as crinoline. The upper end is closed by sewing the edges along the line 17. The lower end is also closed by sewing along the diagonal line 18.

A tubular member consisting of a tube 19 and a neck 20 is likewise sewed into the bag, this tube preferably being composed of fabric treated to render it air tight. This is essential so far as the neck portion is concerned, although not essential as to the tube portion within the bag.

The use of fabric for the neck portion insures ample protection against breakage for the expected life of the bag. As will be noted, the tube portion is preferably shaped to provide a gradually increasing cross sectional area, thus reducing somewhat the velocity of the blast of air at the point of discharge. The tube is composed of a flat section of material double on itself and with its marginal edges 21 sewed within the lapped edges of the bag and within the binding strip 16, as best shown in Fig. 3. Stitching 22 joins the narrow opening in the bag to the tube insuring a thorough seal at that point. Preferably I also provide a stiffening member 23 along the lower edge of the tube at the point within the bag, the reinforcement extending past the joint between the bag and the tube, as indicated at 24 in Fig. 1. This prevents the collapsing of the tube by the weight of accumulated material in the restricted area at the lower end of the bag.

In the construction shown in Figs. 4 and 5, the parts remain identical except in that I may provide flaps 25 on the upper end of the tube for closing the outlet from the tube when the

machine is idle. The section in Fig. 5 illustrates the condition when the bag is collapsed, due to the absence of air pressure. This prevents the return of any of the accumulated dust into the tube if the bag is upset or placed in other than a vertical position in idle periods. I may also prefer to provide a porous fabric lining to the bag for greater strength. This is indicated at 26 in Fig. 5.

Obviously the construction is capable of modifications within rather wide limits, and I do not wish to be limited except as indicated in the appended claim.

I claim:

A dust collecting bag consisting of an elongated body of paper reinforced along one long edge to provide supporting strength, and a fabric tube providing a flexible connection for the bag to a cleaner nozzle, said tube projecting a substantial distance into the bag and connected to a long side thereof, and a flap for closing the inner end of the tube when the dust collector is idle.

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