

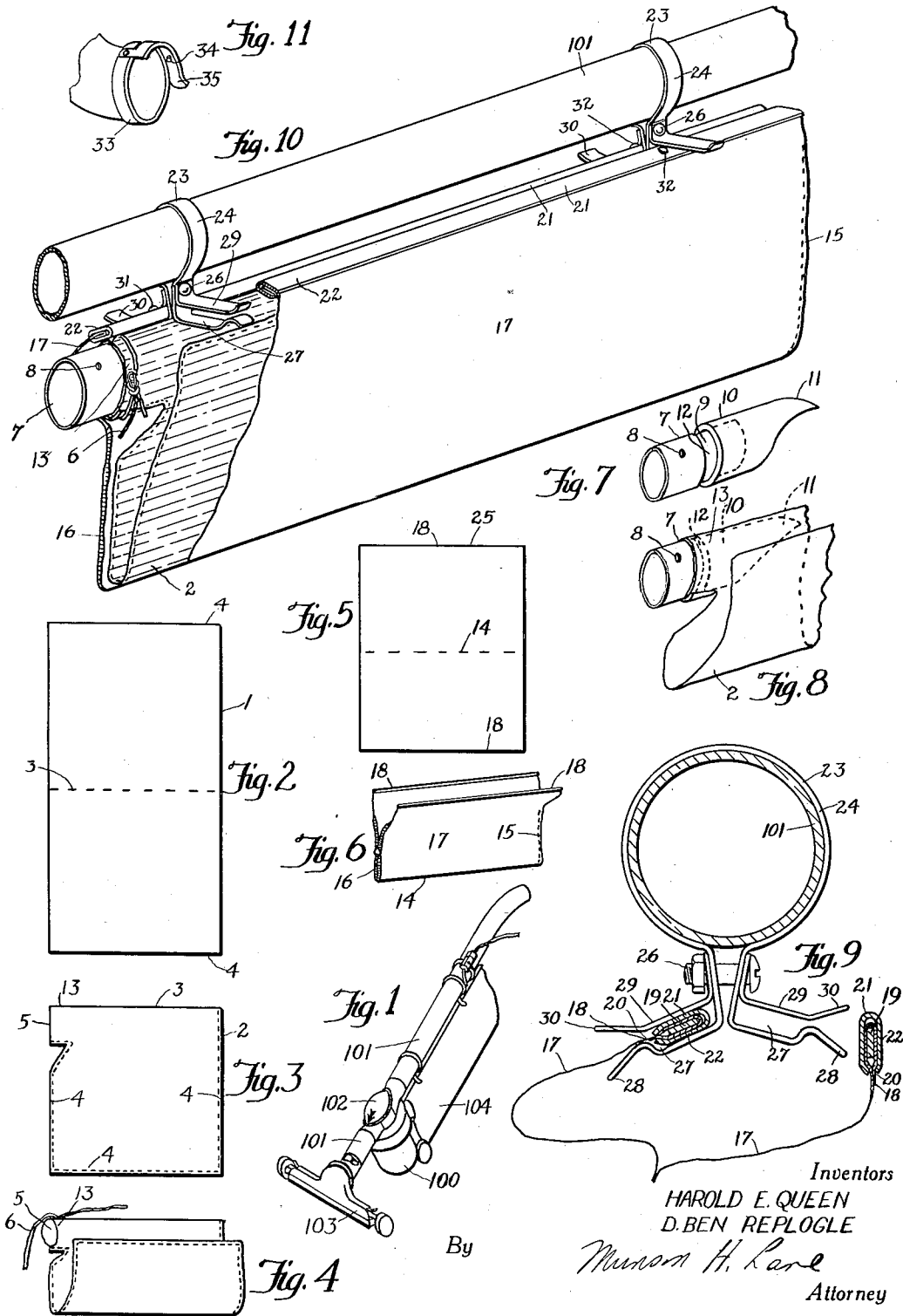
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DUST COLLECTOR FOR AIR METHOD CLEANERS

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DUST COLLECTOR FOR AIR-METHOD
CLEANERS

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10 Claims. (Cl. 183—51)

This invention pertains to dust collector bags such as are used in connection with pneumatic cleaners, but is more particularly applicable to that form of electrical motor driven portable cleaner in which suction producing means are directly connected to a suction pipe that carries the floor cleaning tool and are moved about manually with the pipe, or some part of it, used as a handle. Such cleaners are known commercially under the registered trade-mark "Air-Way".

The invention is in the nature of an improvement on the type of dust collector disclosed in Replogle Patent No. 1,416,876, dated May 23, 1922, and it is one of the objects of the present invention to provide a ready means for detachably securing the dust collector, consisting of an inner and an outer bag, to the handle of the cleaner. Another object is to simplify removal of the inner bag from the outer bag. A further object of the invention is to provide improved connecting means between the dust collector and the discharge pipe of the fan or suction producing means.

Other features of the invention, and other objects and advantages thereof, will be apparent from a consideration of the following detailed description and the accompanying drawing, in which is shown an illustrative embodiment of the invention.

In the drawing:

Fig. 1 is a perspective view of a cleaner with our device in place;

Fig. 2 shows a flat rectangular sheet of paper suitable for the paper bag;

Fig. 3 represents the paper bag formed up;

Fig. 4 shows the inner bag folded ready for insertion;

Fig. 5 shows a sheet of cloth suitable for the cover;

Fig. 6 represents the outer bag formed up;

Fig. 7 is a perspective view of a nipple for connecting the inner bag to the fan case discharge tube;

Fig. 8 shows the same with the inner bag attached;

Fig. 9 is a detail of one of the double clip constructions, by which the outer bag is suspended from the handle;

Fig. 10 is a perspective view of the assembled device, with one corner of the outer bag broken away;

Fig. 11 is a view in perspective of a discharge of an "Air-Way" type cleaner to which the nipple is attachable.

Characters of reference used in any of the views denote like or similar parts where they are used in the other views.

The dust collector bag which is the subject of the present invention is particularly adapted for use with a cleaner of the type shown in Replogle Reissue Patent No. 16,224, dated December 15, 1925. A cleaner of this general type is illustrated in Fig. 1 with the dust collector applied thereto, and as shown, the reference numeral 100 denotes a suction producing means such as an electrical motor, fan and fan casing, 101 denotes a hollow conduit handle, 102 denotes a valve in the handle by means of which the suction can be directed from either end of the handle, 103 denotes a detachable application tool on the shorter end of the handle used when cleaning floors, and 104 denotes the dust collector bag which is the subject of this invention.

The dust collector includes an inner and an outer bag. Successive steps in the process of making the inner bag are illustrated in Figs. 2 to 4 inclusive, wherein numeral 1 represents a flat rectangular sheet of porous paper, approximately twice as long as its width, which is formed into a bag 2 by folding on line 3 and stitching or glueing along the joined edges 4, leaving opening 5. A cord 6 is attached to the bag near the mouth for attachment to nipple 7, which is provided with a small hole 8 in its wall adjacent its opposite end.

The nipple 7 is adapted to be inserted into the fan case discharge tube 33 of the suction producing means 100, and to be retained by engagement of peg 34, carried by spring latch 35, with the hole 8. Nipple 7 has a reduced section 9 upon which is shrunk a section of fibre tube 10 having a down-bent deflector tip 11 leaving an annular groove 12 adapted to receive the cord 6 when tied around the neck 13 of the mouth 5 of the inner bag.

Referring particularly to Figs. 5 and 6, numeral 25 represents a flat rectangular sheet of cloth which, when folded on line 14 across its middle, joined by sewing 15 at one end and by a zip hook 16 at the other end, forms the outer bag 17. The edges 18—18 of the outer bag 17 are tightly folded about a strip of stiff material 19, such as fibre, as shown in Figs. 9 and 10, to which strip it is glued or fastened by sewing to itself along line 20. A channel 2 of stiff material such as sheet aluminium is folded about the edges 18, forming a stiffened and enlarged beaded edge 22. The beads 22 are adapted to be releasably engaged in a suitable manner from spring clips

or the like carried by the cleaner handle. In this manner the entire dust collector, including the inner and outer bags, is detachably supported.

As shown, numeral 23 denotes a band of springy material such as spring steel or aluminium formed into a loop 24 encompassing and gripping handle 101 when tightened by screw bolt 26, and said band having recesses 27—27 near its ends 28—28 which are bent down to form guides for the beads 22—22. Short strips of springy material such as spring steel or aluminium form hold-down covers 29—29 adapted to retain beads 22—22 in recesses 27—27 until released by raising cover ends 30—30. Raised bumps 31 and 32 on each bead 22 serve to locate the bead under covers 29—29 against endwise movement.

The operation of the device will be apparent from the foregoing description. When the collector is in use the nipple 7 is retained rigidly in the discharge tube 33 of the fan case by means of a latch 35 carrying a peg 34 which engages in the aperture 8. The outer bag being smaller in size than the inner bag, it is necessary to fold the latter for insertion into the outer bag. Driven air from the fan outlet discharge tube 33 tends to balloon the inner bag and to partially expand the folds, but the inner bag is sustained from tearing by contact with the outer covering bag which is of stronger material. The assembled bags are restrained against endwise movement by the coaction of the projections 31 and 32 and the spring fingers 29.

When the inner bag becomes fouled after continued use, it may be readily removed and replaced by an unused bag. This is done by first partially opening the forward end of the outer bag by operating of the zipper 16 which permits the reinforced edges 22 of the outer bag to be withdrawn from the spring clips or clamps which normally retain the same in position. Either one or both of the edges of the outer bag may be withdrawn from the holding clips, which renders the inner bag accessible and permits the hollow connector or nipple to be withdrawn after the same has been released from the discharge tube of the fan case by lifting the latch 35 and disengaging the peg 34 from the hole 8. The hollow connector is now engaged within the reduced neck of a new bag which is secured in place by means of the cord 6, and the outer cover is placed about the inner bag which is folded as previously described, and the open end of the outer cover is again closed by means of the zipper. The hollow connector is then detachably secured to the discharge tube of the fan case and the reinforced edges 22 of the outer bag are detachably secured within their respective clips, being properly located endwise by the projections 32.

It will be noted that the rod supporting portions of the spring clips or clamps are arranged in pairs extending laterally outwardly on each side of the cleaner handle, said clips preferably including between them an angle of about 160°, and are accordingly approximately tangent to the surface of the outer bag when the same is inflated. This arrangement places less strain on the bag than would be the case if clips were parallel to each other and extended downwardly from the handle, and prevents the reinforced edges 22—22 of the bag from accidental removal. On the other hand, these reinforced edges may be readily applied or replaced individually, each independent of the other, so that either may remain in place while the other is lowered to allow access to the inner paper bag.

We claim:

1. In a device of the character described, a bag having one side open, stiff reinforcing members one on each side of said opening, means for supporting said bag, including spring clips detachably engaging each of said reinforcing members, and means carried by said reinforcing members for preventing endwise movement of the bag relative to the supporting means.

2. The combination as set forth in claim 1, in which the reinforcing members have raised projections which coact with the spring clips to prevent endwise movement.

3. In combination, a cleaner handle, a band of springy material encircling said handle, having its ends extending laterally on each side of the handle, auxiliary laterally extending spring fingers spaced from said ends, a cleaner bag having one side open, and stiff strips on each side of said opening releasably engaged between the spaced spring members, whereby the bag is supported from the handle.

4. In combination with the discharge tube of a suction cleaner, a dust collector bag, a connector for said dust collector bag, adapted to be detachably secured at one end to said discharge tube of the suction cleaner, with its other end fitting into the reduced neck of said dust collector bag, said connector comprising a nipple having an enlarged portion and a reduced portion, a small opening in the enlarged portion to coact with a spring pressed lug carried by the discharge tube, a fibre tube shrunk onto the reduced portion and spaced from the enlarged portion to provide a groove to facilitate attachment of the dust collector bag, and fastening means surrounding said reduced neck and cooperating with said groove for holding the bag in position.

5. In a dust collector for a pneumatic cleaner, a cover bag comprising a normally flat, substantially rectangular fabric member, one pair of opposite edges being rigidified, the rigidified portion of each edge comprising a flat stiff fiber strip about which the fabric is secured, and a metallic channel member folded about the covered fiber strip forming an enlarged beaded edge.

6. In combination with a pneumatic cleaner, an exhaust outlet and a handle; a dust collector adapted to be detachably carried by the handle and operatively and releasably connected to the exhaust outlet, said dust collector comprising a filtering liner having a mouth portion adapted to be operatively and detachably connected to said exhaust outlet, a cover portion having opposed side walls separated at their upper edges and adapted to be opened at least partway along their end edges, each wall being individually and detachably suspended from the cleaner handle, the mouth portion of the liner lying between one pair of the end edges of the cover, and zipper means for opening and closing the end opening about said mouth portion.

7. In combination with the discharge tube of a suction cleaner, a connector tube for a dust collector bag, said connector having one end fitting within said discharge tube, an aperture in one end of the connector, and a spring catch carried by said discharge tube extending circumferentially partway around the tube and having a lug extending through said aperture for detachably securing together the discharge tube and connector.

8. In a device of the character described, a band of springy material adapted to encircle the

handle of a pneumatic cleaner, with its ends forming prongs extending laterally one on each side of the handle, and auxiliary laterally extending spring fingers spaced from said first-named prongs and adapted conjointly with said prongs to releasably support the separated edges of a cleaner bag.

9. In a device of the character described, a pair of flexible prongs extending laterally from one another in opposite directions, a second pair of flexible prongs likewise extending laterally from each other and spaced from the first-named prongs to provide with the first-named prongs

two jawed spring clasps adapted to releasably engage the separated edges of a pneumatic cleaner bag, and common means adapted for supporting said spring clasps from the handle of the cleaner.

10. In a device of the character described, a main clasp adapted to be supported on the handle of a pneumatic cleaner, and a pair of supplemental clasps carried by the main clasp, extending and opening laterally therefrom, each adapted to separably engage one of a pair of separable edges of a cleaner bag.

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