FIG. 1

FIG. 2

FIG. 3

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This invention relates to receptacles and is particularly concerned with dust receptacles and the mounting and attaching means therefor together with the structural features of the cleaner which cooperate with the dust receptacle.

The present invention is a companion of the inventions disclosed in the earlier filed copending applications of Arnold H. Beede, Serial No. 587,756 filed April 11, 1945, now Patent No. 2,547,805, Emil Anderson, Serial No. 620,334, filed October 4, 1945, now Patent No. 2,493,199 and Emil Anderson, Serial No. 643,187, filed January 24, 1946, now Patent No. 2,574,683, and is designed to meet the same problems therein discussed and thus take advantage of the advantageous herein set down.

Accordingly it is among the objects of the present invention to provide a novel and improved bag closure and bag securing means.

Another object of the invention is to provide a self-closing and self-securing receptacle which is when in use of substantially uniform cross-section throughout its length.

Another object is to provide a self-sealing and self-retaining dust receptacle which includes a substantially rigid end member for supporting the receptacle in a position for maximum volume and for providing ample support for the flexible sealing portion of the mouth.

More generally an object of the invention is to provide a new and improved sealing and securing mouth for a self-closing receptacle.

Numerous other objects of the present invention will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a transverse vertical section of one embodiment of the present invention;
Fig. 2 is a detailed front view of the bag shown in Fig. 1 with the mouth in closed position;
Fig. 3 is a detailed view similar to Fig. 1 showing the bag mouth in applied position.

Referring now to the drawings, numeral 10 indicates a vacuum cleaner casing housing, having a conventional motor-fan unit 11 and dust separating means including a paper dust bag 13 of the present invention located within a cloth bag 12. The motor-fan unit produces flow of air from left to right through the casing 10 as shown in Fig. 1, drawing air through a flexible hose 14 connected in the inlet opening of the front cover 15. When the machine is in operation air enters the casing 10 with entrained dust and dirt removed from the rug or other surface being cleaned. The dust and dirt is separated from the air as it passes through the paper bag 13 and the clean air flows through the cloth bag 12 and out through the rear end of the housing 10. As noted in Fig. 1, it will be seen that the cloth bag 12 is secured to the housing 10 by engagement with a gasket 17 mounted between the housing 10 and the front cover 15. The paper receptacle 13, however, is secured on the front cover 15 independently of the housing 10 by engagement with a circular inlet tube 18 associated with the suction opening.

The bag 13, which is preferably formed of porous paper or like inexpensive material, is preferably substantially rectangular cross-section throughout, thus lending itself to economy of manufacture and providing maximum volume permitting simple folding operations, and providing minimum space for storage. Unlike the receptacle of the referred to applications, the mouth of the present bag is also substantially rectangular and is closed by the insertion of the ends 19 of the side walls between inner and outer apertured end walls 20 and 21 respectively. The end walls 20 and 21 are suitably secured together with the wall section of the bag 13 therewith as by staples 22 indicated in Fig. 2. The end walls 20 and 21 are preferably formed of a normally rigid and inexpensive material such as, for instance, cardboard and each is perforated to form a through aperture 23 which is adapted to receive a relatively snug fit in the inlet tube 18.

The aperture 23 of the bag mouth is normally closed by a pair of thin rubber overlapping sheets 24 and 25 which are secured between the ends 20 and 21 in any suitable manner as by staples 26 shown in Fig. 2. Both the sheets 24 and 25 are here shown as substantially rectangular. The sheet 24, however, is wider than the sheet 25 and extends downwardly beyond the center of the aperture 23 to provide an edge 27 which normally lies in overlapping relation to the upper edge of the lower sheet 25, thus normally closing the aperture of the bag mouth.

The sheets 24 and 25 are preferably formed of a very thin and flexible rubber, such as a latex preparation, the arrangement being such that upon application of the bag end to the aperture 23, the end of the end of the tube will stretch the rubber, forcing the overlapping edges to separate and to receive therewithin the end of the tube 18 as shown in Fig. 3. The edges of the sheets thereupon seal the bag mouth to the tube 18 and also act as a resilient means for securing the bag to the tube so that upon the removal of the cover 15, the bag will be retained with the tube 18 and be withdrawn from the cleaner.

However, when the bag is removed from the tube,
the members 24 and 25 will resume their overlapped relation as shown in Fig. 2 to close the bag mouth, thus preventing inadvertent discharge of collected dirt therefrom.

While for purposes of clarity the drawings disclose the end wall of the cloth bag 12 as spaced from the end wall of the paper bag 13, it will be understood that the longitudinal dimensions of the cloth bag may be such, in comparison with the longitudinal dimensions of the paper bag, that the end wall of the paper bag will contact and be supported by the end wall of the cloth bag, and thus it will not in every instance be necessary for the resilient contact of the bag closure with the tube 18 to be such as to resist the force of air pushing upon the end wall of the paper bag.

While the aperture 23 of the end member as shown in Fig. 3 is shown as of exaggerated dimension with respect to the dimension of the tube 18, it will be understood that its dimension may very closely approximate the external dimension of the tube 18, in which case a frictional securement of the bag mouth to the tube 18 is provided by engagement of the edges of the aperture 23 with the tube in which case the function of the sheets 24 and 25 may be solely as a self-closing device for the bag and their virtue as sealing and securing members is of diminished importance.

It will, of course, be understood that the invention is in no way limited to the specific structure or details herein set forth and numerous changes and modifications may be resorted to without departure from the spirit or scope of the invention as outlined in the appended claims.

What I claim is:

1. A disposable dust bag for separating and collecting dust from the air stream of a suction cleaner having an inlet tube, said bag having a body of relatively porous flexible material and having a relatively stiff end portion provided with an aperture for the reception of the inlet tube of the cleaner, said aperture being of a size substantially less than the size of the end of the bag and substantially conforming in size to that of the exterior of the inlet tube which it is adapted to receive, means for providing a relatively tight joint between such inlet tube and the end of the bag about the aperture when the inlet tube is inserted in said aperture and to obstruct the aperture when the inlet tube is removed, said means comprising elastic sheet material disposed across said aperture and providing a substantially self-closing opening adapted to accommodate and be displaced by said inlet tube when it is inserted into said aperture to provide communication through the tube with the interior of the bag, said sheet material being adapted to return to its normal position across said aperture upon removal of the inlet tube from the aperture.

2. A disposable dust bag for separating and collecting dust from the air stream of a suction cleaner having an inlet tube, said bag having a body of relatively porous flexible material and having a relatively stiff end portion provided with an aperture for the reception of the inlet tube of the cleaner, said aperture being of a size substantially less than the size of the end of the bag and substantially conforming in size to that of the exterior of the inlet tube which it is adapted to receive, means for providing a relatively tight joint between such inlet tube and the end of the bag about the aperture when the inlet tube is inserted in said aperture and to obstruct the aperture when the inlet tube is removed, said means comprising a plurality of sheets of elastic material disposed across said aperture and providing a substantially self-closing opening, each sheet covering a portion of said aperture and said sheets having overlapping portions whereby the aperture is covered by said sheets, said sheets being displaceable by said inlet tube when it is inserted into said aperture to provide communication through the tube with the interior of the bag, said sheets being adapted to return to their normal position across said aperture upon removal of the inlet tube from the aperture.

3. A disposable dust bag for separating and collecting dust from the air stream of a suction cleaner having an inlet tube, said bag having a body of relatively porous flexible material and having a relatively stiff end portion comprising a pair of sheet members secured together and provided with an aperture for the reception of the inlet tube of the cleaner, said pair of sheets having a size substantially less than the size of the end of the bag and substantially conforming in size to that of the exterior of the inlet tube which it is adapted to receive, means for providing a relatively tight joint between such inlet tube and the end of the bag about the aperture when the inlet tube is inserted in said aperture and to obstruct the aperture when the inlet tube is removed, said means comprising elastic sheet material disposed between said sheet members and extending across said aperture and providing a substantially self-closing opening adapted to accommodate and be displaced by said inlet tube when it is inserted into said aperture to provide communication through the tube with the interior of the bag, said sheet material being adapted to return to its normal position across said aperture upon removal of the tube from the aperture.

4. A disposable dust bag for separating and collecting dust from the air stream of a suction cleaner having an inlet tube, said bag having a body of relatively porous flexible material and having a relatively stiff end portion provided with an aperture for the reception of the inlet tube of the cleaner, said aperture being of a size substantially less than the size of the end of the bag and substantially conforming in size to that of the exterior of the inlet tube which it is adapted to receive, means for providing a relatively tight joint between such inlet tube and the end of the bag about the aperture when the inlet tube is inserted in said aperture and to obstruct the aperture when the inlet tube is removed, said means including a movable member of elastic material attached to said end and partially covering said aperture and another movable member attached to said end and covering that portion of said aperture left uncovered by said first member, said members being movable to admit said inlet tube upon insertion thereof through said aperture to provide communication through the tube with the interior of the bag, said members being movable upon withdrawal of said tube to close said aperture.

5. A disposable dust bag for separating and collecting dust from the air stream of a suction cleaner having an inlet tube, said bag having a body of relatively porous, pliable material including a relatively stiff end portion having an aperture and a relatively tight joint of the inlet tube of the cleaner, means for preventing exit of material through said aperture after the bag is removed from the cleaner comprising a displaceable member of resilient material overlying said
aperture when in closed position, a second displaceable member cooperating with said first member to close said aperture and prevent exit of material therethrough, said members being displaceable upon engagement therewith by said inlet tube to permit insertion of said tube into said bag and being adapted to return to said closed position upon withdrawal of said tube.

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