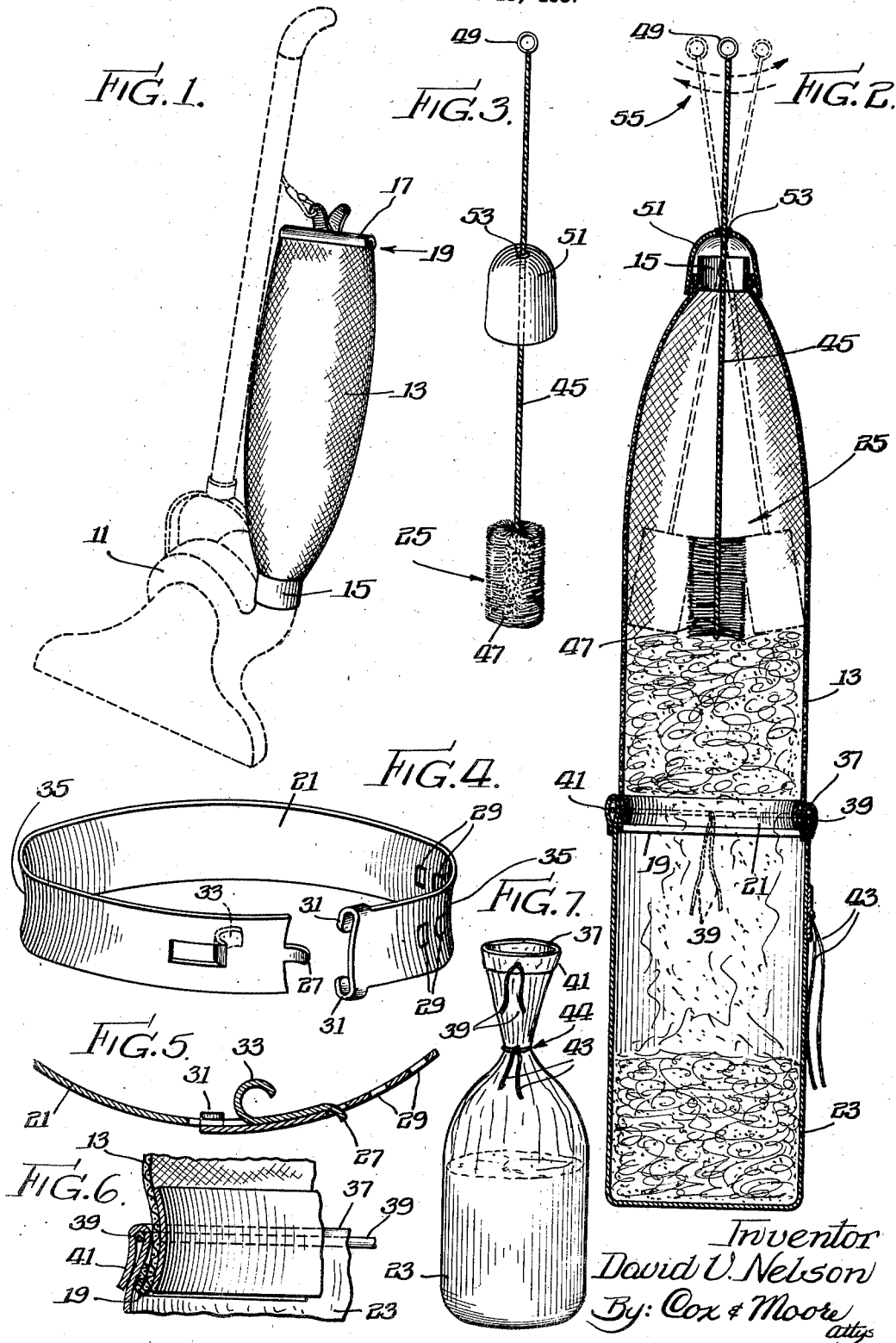


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CLEANER CONSTRUCTION

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CLEANER CONSTRUCTION

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My invention relates in general to cleaners and has more particular reference to the provision of an improved dust collector for vacuum sweepers and means for emptying and cleaning the collector.

An important object is to provide improved means for use with the collector bag of a vacuum sweeper to maintain the same in open condition to permit the contents of the bag to be readily removed; a further object being to provide an expandible holder readily attachable in the mouth of the bag and adjustable to hold the same in wide open position in order to facilitate the removal of the contents of the bag.

Another important object is to provide a holder of simplified and inexpensive construction and adapted to be readily mounted in the mouth of a bag to hold the same in wide open position to thereby facilitate loading or unloading operations, and while I have illustrated the holder of my present invention as particularly adapted for use on vacuum sweeper collector bag, it will be obvious that the holder may be utilized wherever it is desired to support the mouth portions of bags generally in wide open position.

Another important object is to provide a holder of the character mentioned comprising merely a strip of sheet metal punched and formed to provide an adjustable holder element.

Another important object is to provide an improved bag-like receiver adapted for use in combination with the holder heretofore mentioned in order to receive the materials discharged from the collector bag.

Another important object is to provide an improved cleaner brush adapted for use in cleaning dirt and other foreign material from the collector bags of vacuum sweepers.

Numerous other objects, advantages, and inherent functions of the invention will become apparent as the same is more fully understood from the following description which, taken in connection with the accompanying drawing, discloses a preferred embodiment of the invention.

Referring to the drawing:

Figure 1 is a perspective view of a vacuum sweeper having a collector bag;

Figure 2 is a sectional view through the collector bag showing the several devices comprising my present invention in operation for the cleaning of the collector bag;

Figure 3 is a perspective view of a cleaning brush particularly adapted for brushing the interior of the collector bag without, however, per-

mitting the dirt to escape during the brushing operation;

Figure 4 is a perspective view of an improved holder embodying my present invention for use in maintaining the mouth of the bag in wide open condition during the cleaning operation;

Figure 5 is a sectional view of the holder in adjusted position;

Figure 6 is an enlarged fragmentary view of elements forming a part of the combination shown in Figure 2; and

Figure 7 is a perspective view of a dirt receiving bag or container.

To illustrate my invention, I have shown on the drawing a vacuum sweeper 11 having a collector bag 13 which may be of any usual or preferred construction. This bag is formed with an inlet nozzle 15 by means of which the bag may be attached to the vacuum cleaner 11 in position to receive dirt sucked through the cleaner and discharged into the bag. The bag at its end opposite from the nozzle 15 is formed with an opening 19 which, when the bag is operatively mounted on the sweeper 11, is sealed in any usual or preferred manner as by means of a closure clip 17.

During operation of the sweeper 11 the bag, of course, becomes filled with dirt and particles and requires cleaning from time to time. The collected dirt is in relatively finely divided condition rendering cleaning of the bag somewhat difficult due to the tendency of the finely divided dirt to escape from the bag during the cleaning operation. My present invention more particularly relates to the provision of means to facilitate cleaning of the bag 13 and includes the provision of novel means 21 for holding the bag opening 19 in wide open position during the cleaning operation, a receiver 23 having means to snugly secure the same on the wide open mouth 19 of the bag during the cleaning operation and an improved device 25 manually operable to dislodge the dirt from within the bag during the cleaning operation whereby to dislodge and permit the dirt to drop into the receiver 23. All of these devices are adapted for attachment on the bag 13 so that the same is entirely sealed up during the cleaning operation to the end that none of the dirt in the bag 13 may escape to the outer atmosphere.

To this end the holding device 21 comprises an expandible band adapted to be readily mounted in the opening 19 and to be expanded therein so that the same is held in place on the edges of the bag defining the opening 19 to provide a rela-

tively rigid collar at the bag opening 19 on which the receiver 23 may be snugly and firmly anchored. To this end the device 21 may comprise a resilient strip of sheet metal having a prong 27 at one end and a plurality of spaced openings 29 in the body of the strip adjacent the other end thereof. At said other end the strip is also preferably formed with curled ears 31 at the opposite edges of the strip adapted to form a way or guide in which the pronged end of the strip may be slidably assembled in position such that the prong 27 may engage in any one of the openings 29 so that the strip may be held in a desired expanded condition. A struck-out finger piece 33 is also preferably formed near the pronged end of the strip whereby said end may be drawn inwardly to disengage the prong 27 from an opening 29 in which the same may be positioned in order to change the relatively expanded position of the holder. It will be seen that the resilience of the strip will cause the prong 27 to remain seated in locked position in any of the openings 29 in which the prong is or may be assembled at any time. The strip 21 also is preferably bowed intermediate its opposite edges so that the strip when assembled in operative position presents an annular, outwardly facing groove 35 for a purpose hereinafter more fully explained.

After the bag 13 is removed from the sweeper 11 for cleaning purposes, the clip 17 may be removed and the holder 21 inserted in the opening 19, the holder being collapsed to a diameter sufficient to permit assembly thereof in the opening 19. The holder may then be expanded sufficiently to snugly grip the inner surfaces of the bag defining the opening 19 whereby the holder is secured in place in said opening. To expand the holder itself it is merely necessary to draw upon the finger piece 33 since the prong 27 has a somewhat ratchet-like operation in the opening 19 when the opposed ends of the element 21 are moved in a direction to expand the holder, the prong 27 automatically snapping successively into the openings 29 until a maximum expansion permitted by the size of the opening 19 is reached.

The receiver 23 preferably comprises a bag of any suitable material, such for example as paper, having an open top 37 provided with a draw string 39 which may be secured in the folded edges 41 of the bag defining the opening 37. After the holder 21 has been assembled as aforesaid in the opening 19 of the bag 13, the receiver 23 may be applied upon said opening with the draw string 39 extending opposite the groove 35 of the holder. By tightening the draw string 39 and tying the same in place, the receiver 23 may be secured upon the wide open end of the bag 13 in substantially tightly sealed condition, the draw string 39 cooperating with the grooved holder in the performance of this sealing function. Of course, a contractile band or other suitable holding device may be substituted for the draw string 39.

After the bag is thus attached, the dirt in the container 13 may be dumped out through the opening 19 and into the receiver 23. In this manner, substantially all of the dirt may be transferred into the receiver 23. The receiver 23 is preferably provided with a tie string 41 sufficiently removed from the mouth 37 so that the same may be tied tightly around the body of the container in order to draw the parts together substantially as shown at 43 in Figure 7 of the drawing before the receiver is disconnected from the bag 13. After the tie string 41 is thus secured, the draw string 39 may be loosened and

the receiver bag 23 removed from the collector or bag 13.

The holder 21 may then be readily dismounted from the opening 19 merely by drawing upon the finger piece 33 to disengage the prong 27 whereupon the holder element 21 may be collapsed sufficiently to permit its removal from the mounted position in the opening 19. The opening 19 may then be closed and the closure clip 17 applied whereupon the collector bag 13 is ready to be mounted in operating position on the sweeper 11.

In order to ensure that all of the dirt is removed from the collector bag 13, I have provided the clean-out device 25 which preferably comprises a stem or handle 45 carrying a preferably stiff brush 47 at one end of the handle and being formed in any suitable or convenient fashion as at 49 to facilitate manipulation of the brush and to permit the same to be hung up as on a nail or hook when not in use. The stem 45 carries a cup-shaped cap 51 which may be and preferably is formed of rubber, the stem 45 extending in an opening 53 substantially centrally located in the cap 51.

During the cleaning operation the brush 47 may be inserted through the nozzle 51 of the bag 13 and the cap 51 applied about said nozzle in position to seal the nozzle opening against the escape of dirt therethrough during the cleaning operation. To this end the resilient, preferably rubber-like material of cap 51 may firmly clasp the outer surfaces of the nozzle. When the cleaning device is thus assembled on the collector bag the handle 49 thereof may be manipulated to move the stem 45 longitudinally through the opening 53 and also by rotating the handle in the manner indicated by the arrows 51 in order to apply the brush 47 on all of the interior surfaces of the collector bag whereby thus to dislodge all of the dirt within said bag and cause the same to fall into the receiver 23.

It will be seen from the foregoing that the devices of my present invention are adapted mutually to cooperate and to cooperate with the collector bag 13 in order to thoroughly clean the same of dirt while at the same time maintaining substantially sealed bag conditions during the cleaning operation so that the same may be accomplished with a minimum amount of muss and fuss. The devices of my present invention permit the collector bag 13 to be cleaned without permitting any of the dirt to escape. On the contrary, all of the dirt may be brushed or otherwise emptied from the bag 13 into the receiver 23 which may be closed before removing the same from the collector bag 13. In this way, the possibility of any of the dirt escaping into the atmosphere is substantially eliminated to the end that the bag cleaning operation may be conducted in a sanitary fashion.

My present invention, of course, relates particularly to devices for use in the cleaning of collector bags of vacuum sweepers, but several features of the invention are not necessarily restricted to use in connection with the cleaning of dirt receivers. On the contrary, the holder device 21 may, of course, be used wherever it is desired to hold in fully opened condition the opening of a flexible container. Likewise, the receiver 23 may have general utility and the cleaner device 25, of course, is not necessarily restricted to the cleaning out of the dirt collector of a vacuum sweeper. I do not necessarily wish to restrict the details of the invention to the

specific purpose which I have described for the sake of illustrating the present invention.

It is thought that the invention and its numerous attendant advantages will be understood from the foregoing description and it is obvious that numerous changes may be made in the form, construction, and arrangement of the several parts without departing from the spirit or scope of the invention and without sacrificing its attendant advantages, the forms herein described being preferred embodiments for the purposes of demonstrating the invention.

I claim:

1. For use in cleaning out the dust collector bag of a vacuum sweeper, a bag holder comprising a strip of resilient material adapted for arrangement in annular position within the mouth of the bag, the opposed ends of said strip being formed for adjustable interlocking engagement to maintain the holder in expanded position within said mouth whereby to support the same in distended wide-open position facilitating the removal of dirt from the bag through said distended opening, one end of said strip being formed with lateral arms embracing and slidingly receiving the other end thereof and cooperating means on said ends for securing the same against relative sliding movement.

2. A bag holder, as defined in claim 1, in which the annular strip is provided with a concave, outwardly facing section whereby to provide an annularly disposed recess for receiving the mouth of the bag.

3. For use in cleaning out the dust collector bag of a vacuum sweeper, a bag holder comprising a strip of resilient material adapted for arrangement in annular position within the mouth of the bag, the opposed ends of said strip being formed for adjustable interlocking engagement to permit the expansion of the holder within said mouth whereby to support the same in distended wide-open position whereby to facilitate the removal of dirt from the bag through said distended opening, one end of said strip comprising an inner end adapted to reside radially inwardly of said outer end in annular relationship, said inner end terminating in a circumferentially extending prong inwardly of said outer end, spaced prong-receiving openings adjacent the said outer end, said circumferentially disposed prong being latchingly receivable in any of said openings and operative to positively resist contraction of the strip whereby the strip may be secured in annular arrangement in any one of a number of expanded positions determined by the opening.

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