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W. TRASKA

2,499,799

RECEPTACLE

Filed Aug. 1, 1945

Fig. 1

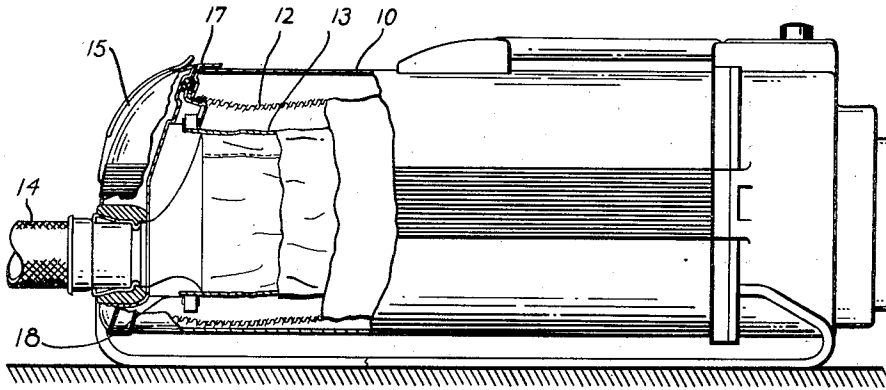


Fig. 2

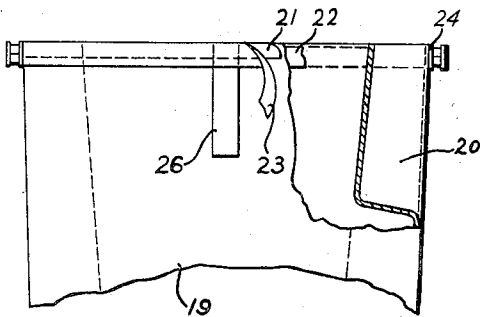


Fig. 3

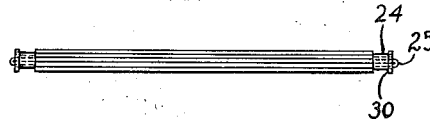


Fig. 4

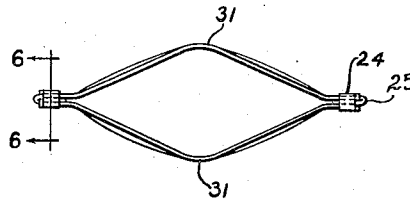


Fig. 5

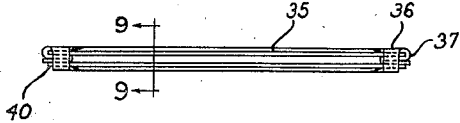


Fig. 6

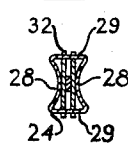


Fig. 7

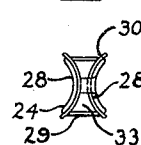


Fig. 8

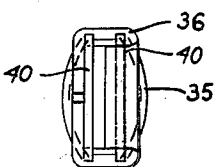
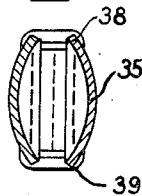


Fig. 9



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RECEPTACLE

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Application August 1, 1945, Serial No. 608,181

2 Claims. (Cl. 183—51)

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

The present application is an improvement over the invention disclosed in the earlier filed co-pending application of Arnold H. Beede, Serial No. 587,756, filed April 11, 1945, and is designed to meet the same problems therein discussed and thus partakes of the same objects and advantages therein set down. Suffice it therefore to say that the invention relates to dust bags for vacuum cleaners and the manner of attachment and more particularly to self-closing dust bags preferably disposable porous bags of paper or the like which are retained in position when in use by the action of the self-closing construction.

The above referred to prior invention provides a dust bag, the mouth of which is normally closed by a pair of cooperating leaf springs which when the bag is not in operating position, lie substantially parallel and thus through attachment with the bag mouth normally retain the mouth closed.

In operating position within the cleaner, the flexibility of the leaf springs is such that they act to secure the open mouthed bag in position and sealed to the inlet tube of the front cover of a vacuum cleaner. In this manner, the invention provides for the removal of the bag from the cleaner by and with removal of the front cover and further provides for automatic closing of the bag when it is withdrawn from its resilient engagement with the cover. Obvious advantages in ease of manipulation and cleanliness in handling are thus achieved.

In the prior invention security of complete closure when the bag was detached was enhanced by forming the leaf springs with a matching longitudinal convexity, thus forcing the central portions of the bag mouth together and thus compensating for the thickness of infolded side gussets of the bag at the extremity of the springs.

In the present invention a like security of sealing is achieved by a transverse curvature of the leaves and it has been found that certain advantages may be obtained by this alternative construction. The present invention is also concerned with other novel and improved structural features and advantages.

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

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;

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Fig. 2 is a detailed fragmentary view of the bag shown in Fig. 1;

Fig. 3 is a top plan view of the bag of Fig. 2 shown in closed position;

Fig. 4 is a top plan view of the spring member of the bag of Fig. 2 shown in open position;

Fig. 5 is an end elevation of the spring member of Fig. 3 shown in closed position;

Fig. 6 is a section taken on line 6—6 of Fig. 4;

Fig. 7 is a top plan view of a modified form of the spring member;

Fig. 8 is an end elevation of the spring shown in Fig. 7; and

Fig. 9 is a section taken on the line 9—9 of Fig. 7.

Referring now to the drawings, numeral 10 indicates a vacuum cleaner casing housing a conventional motor fan unit not shown and a dust separating member including a cloth bag 12 and a paper dust bag 13 of the present invention located within the cloth bag 12. The motor fan unit produces the flow of air from left to right through the casing 10 as shown in Fig. 1, drawing air through a flexible hose 14 connecting in the inlet opening of the front cover 15. When the machine is in operation air enters the casing 10 with intrained 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 an internal boss 18 surrounding the suction opening. The boss 18 is of an external configuration conforming to the configuration of the receptacle opening when the springs of the mouth thereof are distended as hereinafter discussed. With such configuration of the boss 18, the self-closing tendency of the bag mouth will act to resiliently retain the bag in sealing contact with the boss.

The bag body 19 which is preferably formed of porous paper or other light inexpensive material is of substantially rectangular cross section when in distended position. In folded position two opposite sides, one of which is shown at 20, Fig. 2, of the bag are inwardly folded to form a flat folded bag. The folds of the sides extend upwardly to the mouth and are permanently joined to the adjacent sides at the bag mouth. The bag mouth 21 extends between, and is folded outwardly down and around a pair of spring strips 22, the outer fold being secured by a tape 23 or the like. The springs 22 extend beyond

the edges of the mouth and are secured together therebeyond by clips 24. The external joined ends of the strips 22 are preferably spaced apart by spacers 25 formed by an intumed portion of the clips 24 and which are in thickness equal to the combined thickness of the bag material lying between the strips 22 thus insuring a complete longitudinal parallelism of the strips when the bag is in its normal closed position. Intermediate the ends of each strip 22, the bag mouth is provided with actuating tabs 26 which may be grasped and moved to exert transverse outward moments of force at the central intermediate portions of each strip.

In that form of the invention shown in Figs. 2 through 6, it will be noted that the springs 22 are preformed with matching transverse convexity (see Fig. 5) and stay in such position when lying parallel while the bag mouth is closed and thus their central innermost portions cause the edges of the bag mouth to be retained firmly in contact. It will be noted that the side members 28 of the clips 24 are of like matching convexity and form straight top and bottom surfaces 29 which are mounted inwardly of the extreme ends of the strips 22 and are fitted within notches 30 so as to be retained against accidental displacement outwardly from the ends of the strips.

When the bag is opened and placed over the boss 18, the springs will form a shape which is substantially a parallelogram as shown in Fig. 4 due to the fact that when flexing of a strip of the transverse curvature the bend will occur at the point at which the flexing pressure is applied, in this case at the tabs 26. At such bending point the preformed transverse curvature is deformed to straighten the strip as indicated at the points 31 in Fig. 4 where the flexing stress has overcome the inherent transverse curvature.

It will, of course, be noted that a like localized bending of the strips occurs at the ends where they are secured by the clips 24 and thus as shown in Fig. 6, upon such flexing of the strips the ends will lie parallel as indicated at 32. Thus while there is a space formed between the contacting edges of the bag mouth when the bag is in closed position as shown at 33 in Fig. 5, such space is closed when the bag is applied to the boss 18 because of the fact that the ends of the strips move to parallelism when the centers are flexed. Such movement of the ends is permitted by the convexity of the clips 24 and the broad end surfaces 29 thereof.

By virtue of the parallelogram configuration of the bag mouth when open, it will be seen that the boss 18 may be of substantial diamond shape conforming to the parallelogram configuration of the bag mouth. Such configuration is easily designed and easily manufactured and avoids the niceties of curvature required when flat leaf springs are employed and since the flexing of transverse curved strips is localized the structure will lend itself to following of the configuration of the boss 18 so as to compensate for size variations between different bosses.

Referring now to Figs. 7 through 9 of the drawings, it will be seen that if desired the strips may be formed with matching concavities rather than convexities in which case a double sealing of the bag mouth is achieved. The strips are indicated by the numeral 35 and are secured by clips 36 similar to the clips 24, being spaced at their ends by the internal extending bent portions of the clips and as shown in Fig. 9, both the top edges 33 and

the bottom edges 39 of the strips 35 cause the bag mouth to contact at two spaced areas. In this form of the invention, however, the clips do not follow the contour of the strips but it is here preferable to apply the clip with such pressure as to deform the end portions 40 out of their normal concavity thus helping to localize the bending of the strips at their ends when flexed.

By the foregoing construction, it will be seen that a self-closing and self-securing dust receptacle for a vacuum cleaner is attained in such manner as to provide when open a substantial diamond shape bag opening by virtue of which the curvatures are minimized so as to make the forming of the boss 18 less difficult and less critical than found to be the case in the use of flat springs and it is also found that the sealing of the mouth when in closing position is highly efficient due to such transverse curvature.

It will, of course, be understood that the invention is in no way limited to the specific structure or details herein set forth and that 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 receptacle comprising a body, a flexible mouth portion for said body, resilient means for normally restraining said mouth portion to closed position, said means comprising a pair of leaf springs preformed with matching convex curvatures and disposed on either side of said mouth portion with the convex surfaces in opposed relation and with said mouth portion disposed therebetween, means for uniting said springs at their extremities beyond the edges of said mouth portion, said united extremities being spaced apart a distance equal to the thickness of the mouth material therebetween whereby said springs will normally lie in substantially parallel planes with opposite sides of the mouth portion maintained in contact therebetween.

2. A receptacle comprising a body, a flexible mouth portion for said body, resilient means for normally restraining said mouth portion to closed position, said means comprising a pair of leaf springs preformed with matching convex curvatures disposed on either side of said mouth portion with the convex surfaces in opposed relation and with said mouth portion disposed therebetween, spacing means equal to the thickness of said mouth portion disposed between the extremities of said springs whereby said springs will normally lie in substantially parallel planes with opposite sides of the mouth portion maintained in contact therebetween, and means for uniting said spaced extremities comprising clips adapted to surround said extremities, the side walls of said clips being preformed of convex configuration complementary to the convex curvature of said springs.

WILLIAM TRASKA.

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