Feb. 8, 1949. W. L. SHEPPARD 2,460,851

BAG COUPLING FOR SUCTION CLEANERS

Filed Jan. 26, 1946

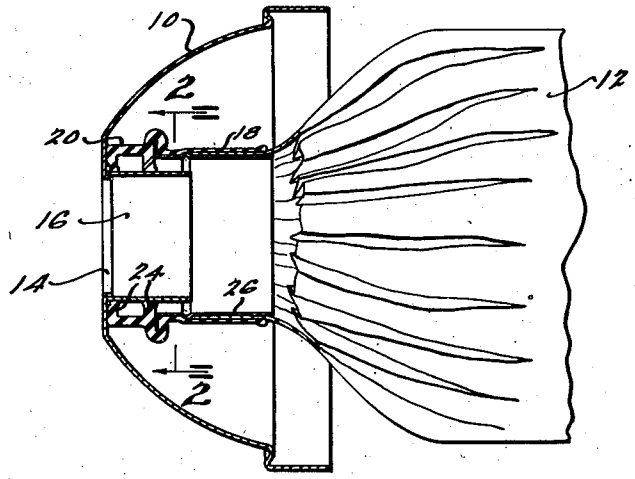


FIG. 1.

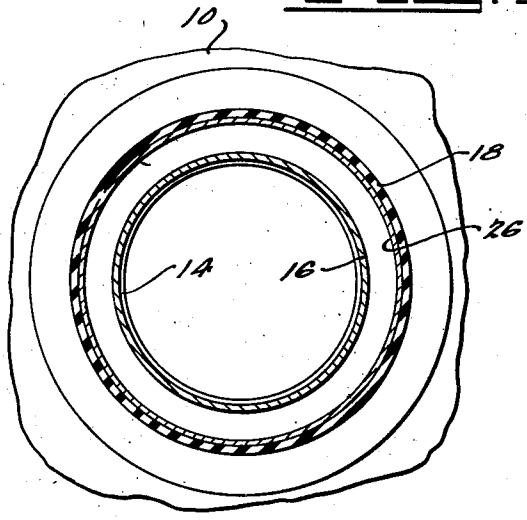


FIG. 2.

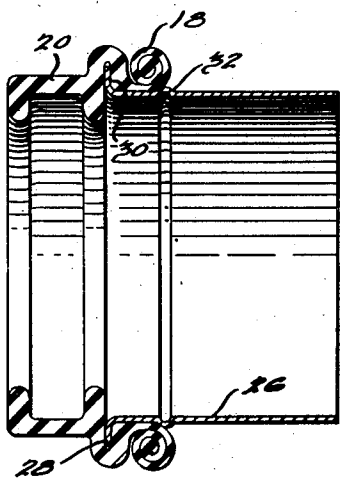


FIG. 3.

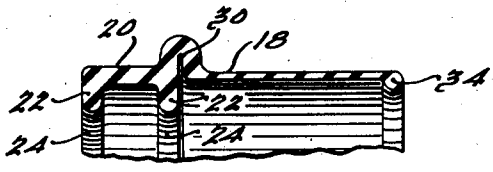


FIG. 4.

INVENTOR.
William L. Sheppard.
BY
E. J. Balluff
ATTORNEY.

Patented Feb. 8, 1949 2,460,851

UNITED STATES PATENT OFFICE

2,460,851

BAG COUPLING FOR SUCTION CLEANERS

William L. Sheppard, Farmington, Mich., assignor to Eureka Williams Corporation, a corporation of Michigan

Application January 26, 1946, Serial No. 643,820

7 Claims. (Cl. 285—71)

1

This invention relates to bag couplings for suction cleaners and has particular reference to a novel and efficient coupling which is particularly useful for detachably connecting a dirt collecting bag of a tank cleaner to the closure for the compartment in which the bag is arranged.

The invention has particular use in connection with cleaners employing paper bags, although in its broadest aspect the invention is not limited thereto. The idea of employing paper dirt collecting bags in suction cleaners is known. The principal difficulty in connection with their use heretofore has been the expense in making paper bags, as it is desirable to discard such bags with the dirt contained therein in order to simplify the problem of emptying the dirt from a suction cleaner.

This invention contemplates the provision of a coupling means for holding a paper bag in which the opening therein is made the same size as the remainder of the bag and in which no special provisions are made in or on the bag for connecting it to the cleaner.

Principal objects of the invention, therefore, are to provide:

A new and improved coupling;

A new and improved coupling for use in connection with paper bags in suction cleaners;

A readily detachable coupling means for connecting the bag of a tank cleaner to the closure thereof.

Other and further objects of the invention will be apparent from the following description and claims and will be understood by reference to the accompanying drawings, of which there is one sheet, which, by way of illustration, show a preferred embodiment and the principles thereof and what I now consider to be the best mode in which I have contemplated applying those principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims. I also contemplate that of the several different features of my invention, certain ones thereof may be advantageously employed in some applications separate and apart from the remainder of the features.

In the drawings:

Fig. 1 is a longitudinal sectional view through part of a tank type cleaner illustrating the invention and showing the closure for the suction compartment of the cleaner and a paper bag attached to the closure;

2

Fig. 2 is an enlarged sectional view along the line 2—2 of Fig. 1;

Fig. 3 is an enlarged longitudinal sectional view of part of the coupling means with the bag detached therefrom; and

Fig. 4 is a fragmentary sectional view of the resilient ring which forms a part of the coupling means.

In Fig. 1 there is illustrated part of a tank type cleaner including an end bell or closure 10 and a dirt collecting and filtering bag 12 formed of paper or other suitable air pervious material. In cleaners of this type, as is well known in the art, the bag 12 is arranged in the suction compartment, the opening to which is closed by a closure such as the end bell or closure 10.

The closure 10 is provided with an opening 14 to which a suction cleaning tool may be suitably connected, such for example as by means of a flexible hose, one end of which is connected to the end bell and inserted in the opening therein so that the interior of the hose will be operative to conduct dirt from the suction cleaning tool through the opening 14 into the interior of the bag which is connected to the end bell.

Interiorly the closure may be provided with a tubular part 16 which may be permanently or detachably secured in the position illustrated. A sleeve 18 of resilient material, such as rubber, has a portion 20 thereof which is telescopically related to the tubular part 16, the part 20 including one or more internal ribs or flanges 22, the inner periphery 24 of which is adapted to be fitted on the outer surface of the tubular part 16. The diameter of the inner periphery 24 of the flanges 22 is slightly less than the outside diameter of the tubular part 16 so that when the part 20 has been assembled to the part 16, as illustrated in Fig. 1, the frictional grip between the inner periphery of the flanges 22 and the outer surface of the tubular part 16 will retain the parts in the assembled position illustrated during the operation of the cleaner.

The sleeve 18 may be separated from the tubular part 16 by pulling the same away from the part 16, and may be assembled to the part 16 by sliding the part 20 over the end of the tubular part 16 and preferably up against the forward wall of the end bell 10. A relatively unyielding sleeve or collar 26 of metal or other suitable material is mounted in the resilient sleeve 18, the collar 26 being provided with a peripheral flange 28 which is received in a groove 30 formed on the inside of the resilient ring 18. The collar is provided with an outer bead 32. The collar

26 is adapted to be arranged in the mouth of the bag, and since the mouth of the bag is materially greater in cross section than that of the collar, the walls of the bag defining the mouth are wrapped or folded around the outside of the collar 26 with the end of the sleeve 18 arranged as illustrated in Fig. 3. The end of the sleeve opposite the portion 20 is adapted to be rolled up upon itself, as illustrated in Fig. 3, and retained in this position by the bead 32.

After the mouth of the bag has been wrapped around the collar 26, as previously described, the rolled up portion of the sleeve 18 is unrolled over the outside of the walls defining the mouth of the bag for clamping or securing the same between the resilient sleeve 18 and the collar 26. The end of the sleeve 18 may be provided with a bead 34 which serves to reinforce the end of the sleeve 18 and to insure the retention of the mouth of the bag between the end of the sleeve 18 and the collar 26.

Thereafter, the closure 10 with the bag 12 attached thereto may be secured in operative position on the cleaner. After the bag has been filled or partially filled with dirt, the closure 10 may be removed and the bag 12 separated from the closure 10 with the dirt in the bag which may be disposed of and a new bag may be secured to the closure 10 in the manner previously described.

Certain subject matter herein disclosed is disclosed and claimed in the prior copending application of Kemper M. Hammell, Serial No. 584,552, filed March 24, 1945, for "Suction cleaner," and assigned to the same assignee as the instant application.

While I have illustrated and described a preferred embodiment of my invention, it is understood that this is capable of modification and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. In a suction cleaner, a tubular air conducting part, a ring of resilient material detachably connected thereto, a member arranged within said ring and a bag having the walls defining its mouth clamped by and between said member and said ring, said ring being constructed and arranged so that at least the portion thereof clamping the mouth of said bag to said member is axially movable relative to said member to release the connection of the mouth of said bag with said member.

2. A suction cleaner as defined in claim 1 wherein said resilient ring is constructed and arranged so that it may be rolled up on said member so as to release the connection between the mouth of said bag and said member.

3. For use in a suction cleaner having an air conducting part: a resilient sleeve adapted to be detachably connected thereto, a member arranged and anchored within said sleeve and a bag having the walls defining its mouth clamped between said member and said resilient sleeve, the end of said resilient sleeve being adapted to be rolled up so as to release the connection between the mouth of said bag and said member.

4. In a suction cleaner, a tubular air conducting part, a resilient sleeve detachably connected thereto, a hard collar arranged and anchored within said sleeve and a paper bag having the walls defining its mouth folded around said collar and held thereon by said resilient sleeve, said resilient sleeve being adapted to be rolled up on said collar so as to release the connection between the mouth of said bag and said collar.

5. A suction cleaner according to the construction defined in claim 4 wherein said collar is provided with a bead for retaining said sleeve in its rolled up position.

6. For use with a suction cleaner, a resilient sleeve forming an air conducting passage, a member arranged and anchored within said sleeve and a bag having the walls defining its mouth fitted around said member and clamped thereon by said resilient sleeve, said resilient sleeve being adapted to be rolled up on said member so as to release the connection between the mouth of said bag and said member.

7. In a suction cleaner, a tubular air conducting part, a ring of resilient material telescopically related with said part and having a close fit thereon, and a bag having its mouth inserted between said ring and said part and clamped by and between said ring and said part, said ring being constructed and arranged so that at least the portion thereof clamping the mouth of said bag to said part is axially movable relative to said part to release the connection of the mouth of said bag with said part.

WILLIAM L. SHEPPARD.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,829,255	Ballou	Oct. 27, 1931
2,001,573	Hanshalter	May 14, 1935
2,167,865	Beecher	Aug. 1, 1939