Jan. 19, 1943. H. B. FUGE 2,308,682

DUST BAGS FOR VACUUM CLEANERS

Filed Oct. 24, 1940 2 Sheets-Sheet 1

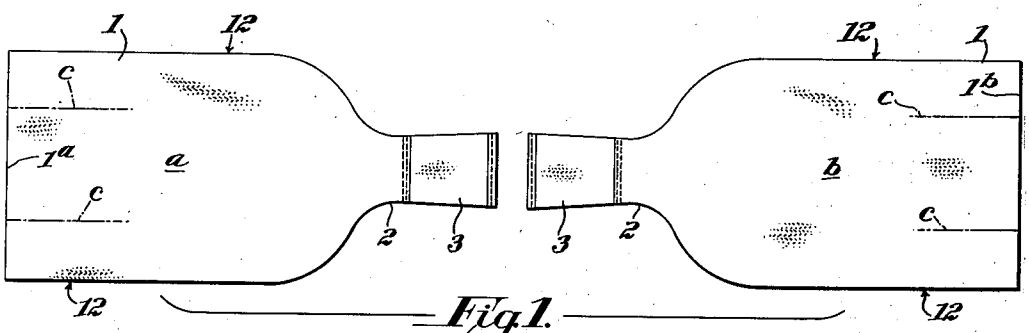


Fig. 1.

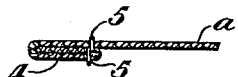


Fig. 2.

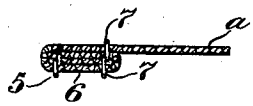


Fig. 3.

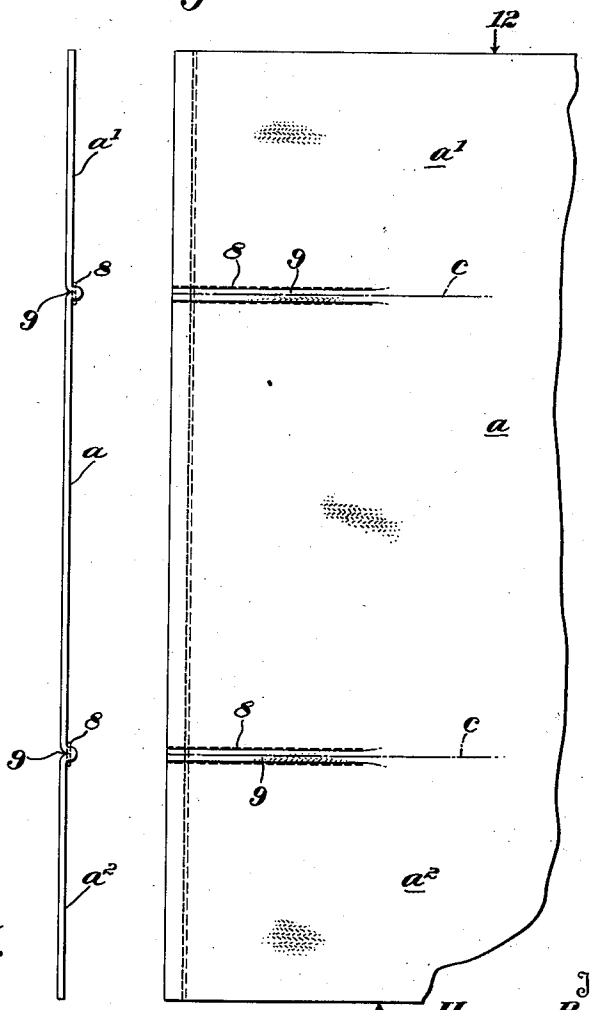


Fig. 4.

Fig. 5.

Witness:

John N. Cave

Inventor

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DUST BAGS FOR VACUUM CLEANERS

Filed Oct. 24, 1940 2 Sheets-Sheet 2

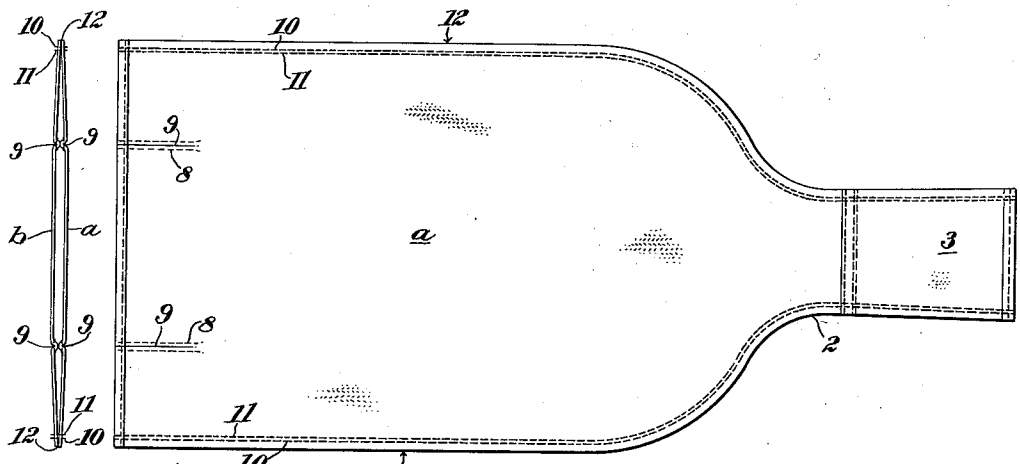


Fig. 7. Fig. 6.

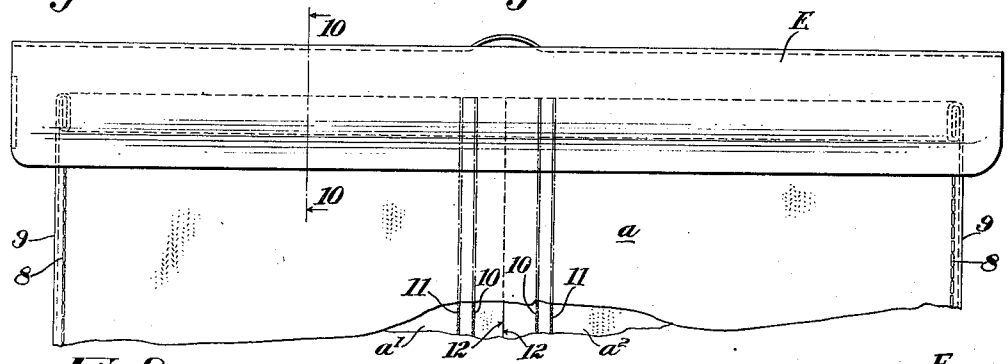


Fig. 9.

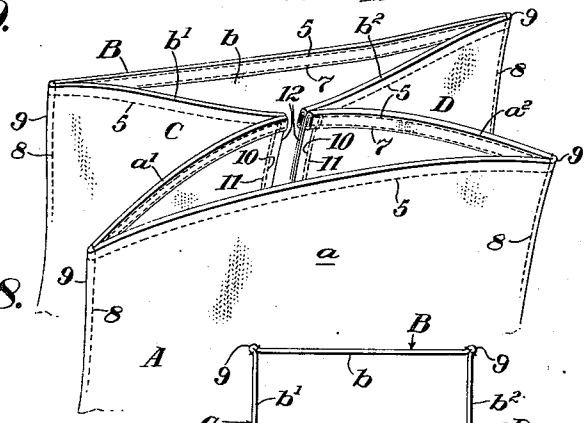


Fig. 8.

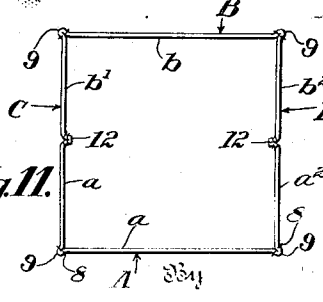


Fig. 11.

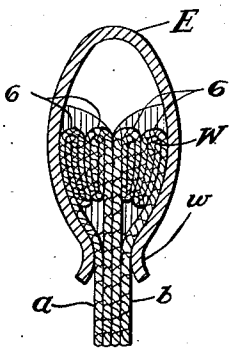


Fig. 10.

Witness:

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Patented Jan. 19, 1943

2,308,682

UNITED STATES PATENT OFFICE

2,308,682

DUST BAG FOR VACUUM CLEANERS

Harry B. Fuge, Elizabeth, N. J., assignor to The Singer Manufacturing Company, Elizabeth, N. J., a corporation of New Jersey

Application October 24, 1940, Serial No. 362,484

1 Claim. (Cl. 150—3)

This invention relates to dust bags for vacuum cleaners and it has as its primary object to provide such a bag of which the discharge end may be opened to the full diameter of the bag to facilitate removal of the contents therefrom.

A further object is to provide improved and simplified means for closing and sealing the discharge end of the bag to make it dust-tight.

These and other objects have been attained by so constructing the bag that the main body portion thereof, including the discharge end, is of uniform diameter, thus precluding any restriction of the dirt when emptying the bag. The sealing of the bag has been accomplished by folding the side walls of the bag inwardly between overlying front and rear walls and thereafter clamping all of those walls together in dust-tight contact. Preferably, the bag walls are clamped together by means of a channel-like clamping element, substantially C-shaped in cross-section, adapted to be slid lengthwise over the collapsed discharge end of the bag. Other forms of clamping devices, however, may be employed.

Heretofore, various forms of complicated constructions including metallic and other frames have been provided for collapsing the side walls of the bag in between the front and rear walls thereof so that the clamping means may be placed thereover.

I have attained this same result in a simplified way, without the use of any frame, by so constructing the bag that it will naturally assume this folded condition without the aid of any additional elements. This has been accomplished by forming the bag of two fabric sections sewed together at their adjacent edges by infolded seams, to form primary folds, and permanently creasing the bag at the juncture of the side walls and the front and rear walls to provide secondary or edge folds. Preferably the permanent creases are formed by creasing the bag wall and then sewing a seam therethrough adjacent the crease.

Other objects and advantages will be in part indicated in the following description and in part rendered apparent therefrom in connection with the annexed drawings in which:

Fig. 1 is a plan view of the two fabric blanks from which my improved bag is made.

Figs. 2 and 3 illustrate respectively a single and a double hem-fold which are applied successively across the larger ends of the two blanks as the first and second operations in the assembling of the blanks.

Fig. 4 is a plan view of a portion of one of the hemmed bag blanks having formed therein two permanent creases, later to be referred to.

Fig. 5 is an end view of Fig. 4.

Fig. 6 is a plan view of the two hemmed bag blanks united back-to-back by marginal stitching, thus forming an inverted dust bag.

Fig. 7 is an end view of Fig. 6.

Fig. 8 is a perspective view of the discharge end of my completed dust bag illustrating how the bag naturally collapses along predetermined lines.

Fig. 9 is an enlarged side view of the discharge end of the bag showing the bag-closing clamp thereon.

Fig. 10 is a section on the line 10—10 of Fig. 9.

Fig. 11 is an end view, on a reduced scale, of the discharge end of the bag, with the bag fully opened.

Referring more specifically to the drawings, the invention is disclosed as embodied in a dust bag made from two similar blanks *a* and *b* of substantially dust-proof fabric. Each blank consists of a large body portion 1 and a reduced back neck portion 2, the latter of which becomes the intake end of the bag which is attached to a vacuum cleaner. To each neck portion 2 there is secured a piece 3 of relatively thin fabric which, when the bag is completely assembled, becomes an inwardly extending and collapsible valve member which prevents dirt in the bag from re-entering the vacuum cleaner. This neck portion and valve member form no part of the present invention and further illustration and description thereof is, therefore, deemed unnecessary.

In constructing the improved bag from the blanks shown in Fig. 1, the first step is to form a single hem-fold 4 (Fig. 2) across the ends 1^a and 1^b of the blanks *a* and *b*. This hem-fold is held in place by means of a row of stitches 5 sewn therethrough. After this hem has been folded and stitched, the body material is folded over the hem to produce a double hem-fold 6 (Fig. 3) and that hem-fold is secured by a second line of stitches 7. This produces, along the ends 1^a and 1^b of the two blanks *a* and *b*, thickened portions or welts, the purpose of which later will be explained.

The next step consists in forming permanent creases in the blanks *a* and *b* along lines represented by the dot-dash lines *c* in Figs. 1 and 4. This may be effected in any one of several ways, such, for example, as by folding the blanks along the lines *c*, inserting between the plies thereof, along the lines *c*, narrow strips of tailor's "mending tissue" (i. e. sheet material which becomes

adhesive under the application of heat) and pressing the folded blank with a hot iron. Preferably, however, the permanent creases will be formed by folding the blanks along the lines *c* and then sewing, through the superimposed plies of material, lines of stitches 8. These lines of stitches draw the adjacent portions of the body material of the bag together and form therein permanent creases 9 upon which the material will naturally tend to fold.

The blanks *a* and *b* having been hemmed and permanently creased as above described, the next operation consists in sewing the two blanks together, back-to-back as shown in Fig. 7. This is preferably effected by a two-needle sewing machine which simultaneously produces the two parallel lines of stitches 10 and 11 spaced inwardly from the side 12 of the blanks. Except for the attachment to the neck or intake end 2 of the bag of a suitable connector adapted to secure the bag to a vacuum cleaner, this completes the manufacture of the bag which, however, at this stage is inverted or inside out. The bag is then turned right side out and is ready for use.

Referring now particularly to Figs. 8, 9 and 11, it will be seen that the bag naturally folds along the permanent creases 9 to cause the side walls C and D comprising, respectively, those portions *a'* and *b'* and a^2 and b^2 of the bag sections *a* and *b*, which are outwardly beyond the permanent creases 9, to be extended inwardly between the front and rear walls designated generally as A and B, respectively, in Figs. 8 and 11. This causes the edge-portions 12 to be brought together into abutting contact as shown in Fig. 9.

With the bag collapsed, the double hemmed ends of the front, rear and side sections are brought together in the form of a multiple welt W as shown in Fig. 10. To compress the bag walls against each other and maintain a dust-tight contact therebetween, a channel-like slidable clamp E substantially C-shaped in cross-section is slid endwise over the collapsed end of the bag. The main body portion of the clamp receives the multiple welt W and the walls of the restricted mouth *w* thereof bears upon the front and rear walls of the bag to compress those walls into dust-tight contact with the inwardly folded side walls. Inasmuch as the multiple welt W is materially wider than the mouth of the clamp E it will be apparent that the bag will be securely held in the clamp and that the two may be separated only by relative movement between the two lengthwise of the clamp.

From the foregoing it will be perceived that this invention has provided an all-fabric vacuum cleaner bag of which the discharge end may be opened to the full diameter of the bag to facilitate removal of the contents therefrom; which, without the aid of any framework or other means, will automatically fold on predetermined lines and will completely collapse; and which includes a simple form of clamp device for holding the collapsed walls of the bag in dust-tight contact with each other.

Having thus set forth the nature of the invention, what I claim herein is:

A dust bag for a vacuum cleaner comprising two similar blanks of substantially dust-proof material laid one upon the other and stitched together at their side edges, each of said blanks consisting of a main body portion of uniform width and having a reduced neck portion, a plurality of stitched creases formed in the body portion of said bag lengthwise thereof and serving to divide the bag into front, rear and side sections, said side sections being folded inwardly in opposite directions along said stitched creases to contact each other between said front and rear sections to close the discharge end of the bag, and clamp means engaging said front and rear sections and holding them in dust-tight contact with the infolded and contacting side sections thereof.

HARRY B. FUGE.