

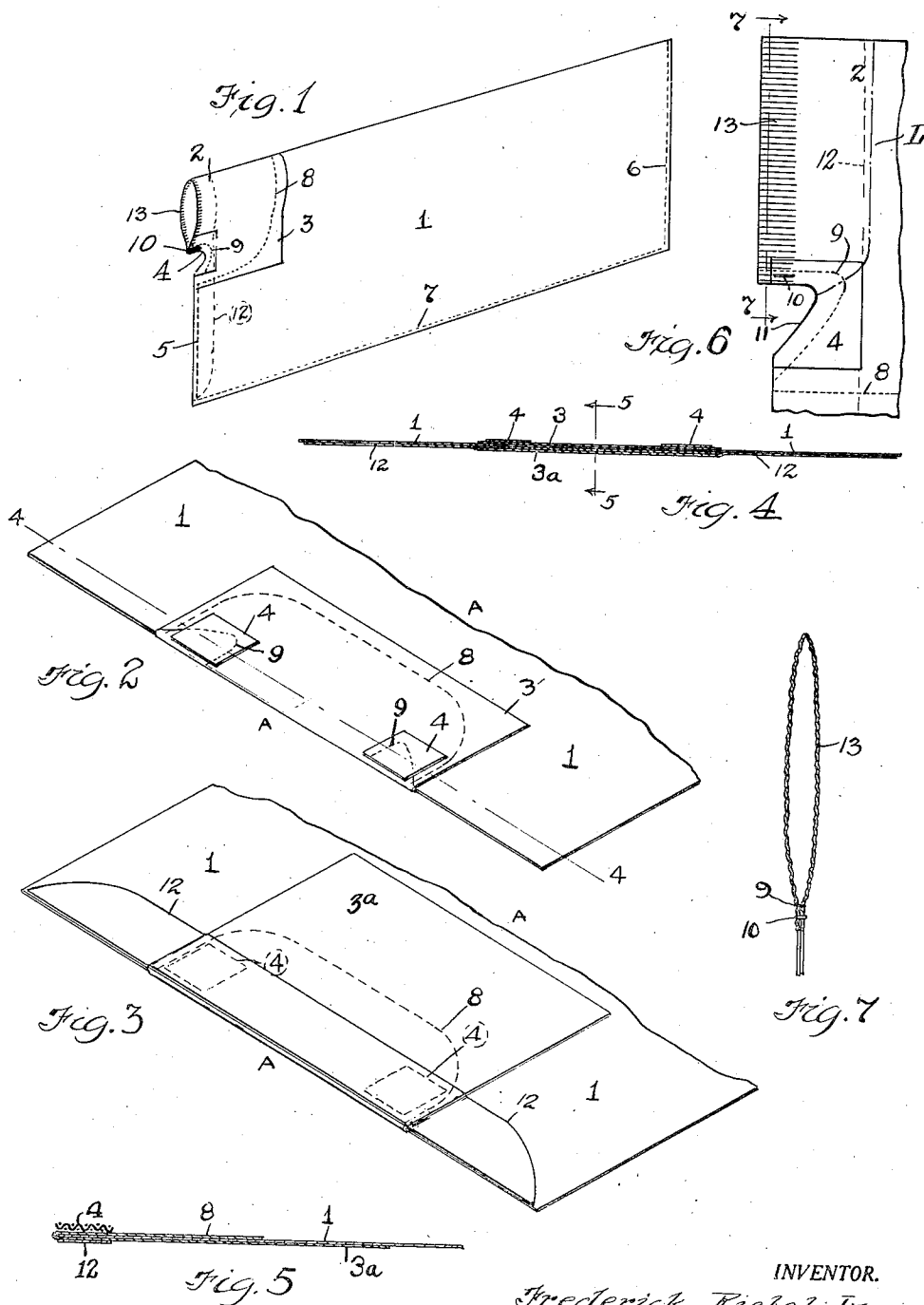
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SUCTION CLEANER DUST COLLECTOR

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SUCTION CLEANER DUST COLLECTOR

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9 Claims. (Cl. 183—51)

The present invention relating as nominally indicated to a vacuum cleaner dust collector bag, has more particular reference to the provision of means for reinforcing the neck and body portions of a sanitary porous paper type of dust-collecting and air-filtering bag. The improvements which are embodied in the principle of my present invention are more precisely adaptable to the type of bag described in the patent to Daniel B. Replogle, No. 1,416,876, issued May 23, 1922.

The general object and nature of the invention is to provide a simplified and satisfactory form of reinforcement for those particular parts of a porous paper bag which are most subject to damaging stresses. It is a further object to provide a form of inlet neck connection which shall effect an air-tight and sanitary contact with the vacuum cleaner. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described, and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a perspective view of the assembled reinforced bag embodying the principle of my invention; Fig. 2 is a fragmentary perspective view of the outside portion of the bag before being folded and stitched together; Fig. 3 is a fragmentary perspective reverse view of Fig. 2; Fig. 4 is a section taken substantially upon the line 4—4 of Fig. 2; Fig. 5 is a section taken substantially upon the line 5—5 of Fig. 4; Fig. 6 is an enlarged fragmentary view of the neck portion shown in Fig. 1; and Fig. 7 is a section taken substantially upon line 7—7 of Fig. 6.

The bag consists essentially of the body portion indicated generally at 1 and the inlet neck portion 2 forming the upper left hand corner of the bag, the junction between the neck and body portion being indicated by the broken line L. The body portion 1 is composed of a porous paper material which is especially adapted for the purpose of efficiently separating dirt and dust laden air and which, consequently, is of foraminous texture having a very rough surface. In order to facilitate the entrance of dust into the bag without clogging the neck 2, to strengthen the neck, and to prevent erosion against the rough surface of the filtering material in the neck, I provide a mouth sheet 3a of smooth non-porous paper

which lines the interior surface of the neck 2. The mouth sheet 3a is formed integrally with a cape sheet 3 which overlies the outer side of the neck 2. The mouth sheet 3a and cape sheet 3 are formed integrally of a single sheet of paper which is folded around the edge of the neck 2 as indicated in Fig. 2. A line of stitching 8, extending simultaneously through both members 3, 3a and the porous paper body sheet 1, secures the mouth sheet and cape sheet flatly against the inner and outer surface of the neck and contiguous body portion of the bag. The mouth sheet 3a is desirably somewhat longer than the cape sheet 3, as indicated in Figs. 2 and 5.

The cape sheet 3 serves the function of providing a smooth surface upon which finely printed directions for using the bag may be placed, the texture of the body sheet 1 being too rough to receive ordinary printing. It also serves, in connection with the mouth sheet 3a, as a reinforcing swatch for the neck of the bag. The smooth edge which is produced by folding the sheets 3, 3a around the edge of the neck, facilitates the pushing of the bag neck into the coupling member hereinafter mentioned. There are no edges to catch or bind against the coupling member, the edge produced by the folding being stiff and quite sharp.

The members 3, 3a extend both longitudinally and laterally of the bag beyond the neck and into the body portion of the bag, and the line of stitching 8 is removed from the neck sufficiently so that bending strains will be transmitted from the reinforcing swatch to the bag body at a distance from the neck and distributed over a considerable area.

The ends of the body portion 1 are stitched together along the lines 5 and 6 and the bottom edge is stitched along the line 7.

The stitch 8 is made while the bag 1 is in unfolded position as shown in Figs. 2 and 3. The bag is then folded upon the line A—A so that the larger non-porous paper swatch 3a shall be on the interior of the bag, and the reinforcing fabric pieces 4 shall be positioned on the exterior of the bag. After the body portion 1 has been folded upon the line A—A and secured along its ends and sides by means of the stitches 5, 6 and 7, an additional stitch 9 is made in order to secure together the reinforcing fabric pieces 4—4. It is found in practice that the insertion of a metallic fastener or wire clip 10 adjacent the mouth of the inlet 2 serves to greatly strengthen that portion of the bag structure, and

to prevent loosening of the line of stitching at the termination thereof in the neck.

The line of stitching 9 extends around the junction between the neck and the adjacent end edge of the body portion, which latter junction forms only the terminal portion of the entire junction L between the neck and the body portion. At the junction between the neck and end edge of the body portion there is preferably provided a V-shaped notch 11, cut into the end edge of the bag after the stitching 9 has been sewed.

Additional fabric reinforcing pieces 4 are secured to the bag at the junction between neck and end edge of the body portion.

Since, in operation, the bag is customarily carried in an inclined position, there is a tendency for the collected dirt and dust to deposit in the lower left hand corner of the bag. In order to furnish an additional reinforcement and supporting means to counteract the effect of the weight of such collected dust, the reinforcing strip 12 is carried substantially to the outer edges of the body portion 1, as most clearly illustrated in Figs. 3 and 4.

When the above described form of bag is contemplated to be used in conjunction with the double cone-type of coupling or adapter described in my Reissue Patent 18,962, reissued October 3, 1933, original Number 1,900,366, dated March 7, 1932, Serial No. 540,525, filed May 28, 1931, it is found that the insertion of a plurality of crimps 13 around the mouth of the inlet neck 2 serves to produce an exceedingly air-tight fit. By virtue of the insertion of such preformed crimps 13, any wrinkles which would otherwise be set up in the neck portion 2 as the result of a crimping and contracting action will not be carried past such point of contraction.

It will thus be seen that I have provided an improved and exceedingly strong type of reinforced construction for porous paper filter bags which results in obviating weaknesses which have heretofore existed in such types of bags.

The reinforcing strip 12, being secured in flat face to face contact with the wall of the bag, and being flexible, allows the bag to flex below the neck, and solves a difficulty which was formerly experienced namely the breaking of the bag below the neck due to such flexing when loaded with a quantity of dust. The strip being looped around the neck, receives support from the coupler to which the neck is attached, and thus the lower region of the bag is hung upon the strip 12, which acts as a yoke to transmit the weight of the bag and the collected dirt in the lower corner thereof directly to the coupler member above.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. A porous paper air filtering and dust collecting bag including a body portion and an inlet neck, a mouth sheet lining the inner surface of the neck, and a cape sheet overlying the outer surface thereof, together formed of a single sheet of reinforcing paper, folded around the mouth of said neck.

2. A porous paper air filtering and dust collecting bag including an inlet neck formed at one corner thereof and a body portion, a mouth sheet

lining the inner surface of the neck, and a cape sheet overlying the outer surface thereof, each extending both longitudinally and laterally of the bag into engagement with the body portion thereof, and a line of stitching securing them both to the body portion beyond the junction of neck and body portion.

3. A porous paper air filtering and dust collecting bag including a body portion and an inlet neck, a mouth sheet lining the inner surface of the neck, and a cape sheet overlying the outer surface thereof, together formed of a single sheet of reinforcing paper, folded around the mouth of said neck, each extending both longitudinally and laterally of the bag into engagement with the body portion thereof, and a line of stitching securing them both to the body portion beyond the junction of neck and body portion.

4. A porous paper air filtering and dust collecting bag including an inlet neck forming a corner thereof and a body portion, a mouth sheet lining the inner surface of the neck and a cape sheet overlying the outer surface thereof, said sheets being together formed of a single sheet of reinforcing paper folded around the mouth of said neck, said cape sheet extending both longitudinally and laterally of the bag beyond the junction of neck and body portion and secured to said body portion by a line of stitching disposed beyond said junction and extending, within the area of said cape sheet, from one to the other of the two edges of the bag which define said corner.

5. A porous paper air filtering and dust collecting bag having an inlet neck forming an upper corner of one end and having a region constituting a dust collecting pocket depending below said neck, a cape sheet overlying and reinforcing said neck and a relatively narrow strip of reinforcing material looped in engagement with said neck its end portions depending and adhesively secured face to face to the walls of said pocket for the major portion of the height of said walls, said strip furnishing support to said collecting pocket to counteract the weight of collected dust therein.

6. A porous paper air filtering and dust collecting bag including an inlet neck forming a corner thereof, and a body portion, a mouth sheet lining the inner surface of the neck, a cape sheet overlying the outer surface thereof, together formed of a single sheet of non-porous paper, folded around the edge of the mouth of said neck and a strip of flexible reinforcing material looped in engagement with said neck, its end portions depending and secured to the walls of said body portion for the major portion of the height of said walls.

7. A porous paper air filtering and dust collecting bag including an inlet neck forming a corner thereof and a body portion, a mouth sheet lining the inner surface of the neck, and a cape sheet overlying the outer surface thereof, each extending both longitudinally and laterally of the bag into engagement with the body portion thereof, a line of stitching securing them both to the body portion beyond the junction of neck and body portion, a notch being formed at the junction between the neck and adjacent end edge of the body portion, and fabric reinforcing pieces stitched to said neck and body portion and extending around said notches.

8. A porous paper air filtering and dust collecting bag including an inlet neck forming a corner thereof and a body portion, a cape sheet embracing said neck, extending both longitudinally

and laterally of the bag beyond the neck into contact with the body portion, and secured to the body portion along a line disposed beyond the junction of the neck and body portion, and fabric reinforcing pieces secured to said cape sheet and to the bag along a line extending around the junction between the neck and the adjacent end edge of the body portion.

9. A porous paper air filtering and dust collecting bag including an inlet neck forming a

corner thereof, and a body portion, a cape sheet overlying and reinforcing said neck, and a fabric reinforcing piece superimposed upon said cape sheet over the junction between the neck and the adjacent end edge of the body portion and secured by a line of stitching extending through said cape sheet and the bag, said line of stitching extending around said junction.

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