

BAG

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FIG. 1.

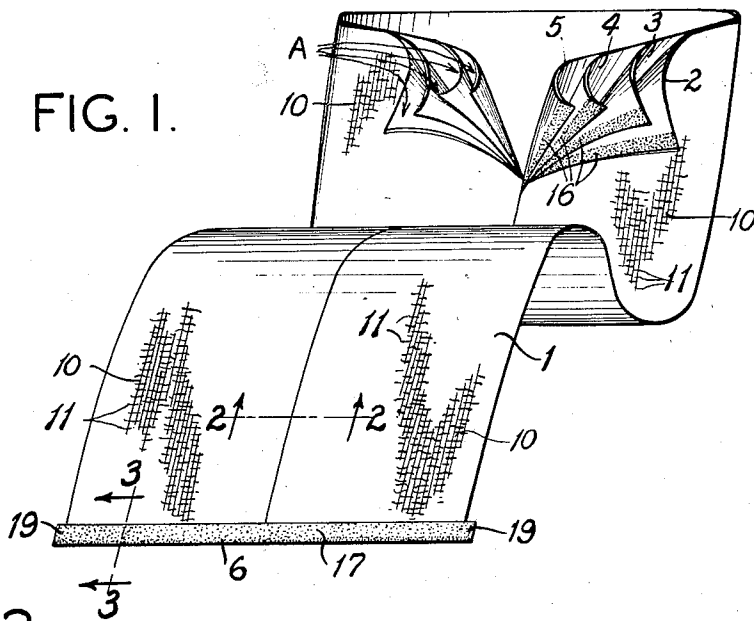


FIG. 2.

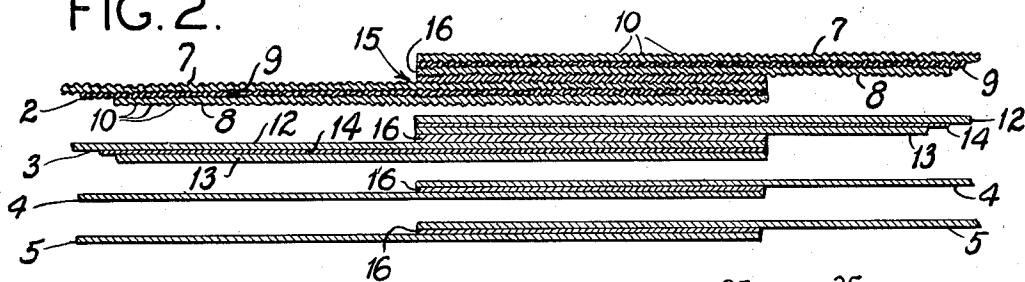


FIG. 3.

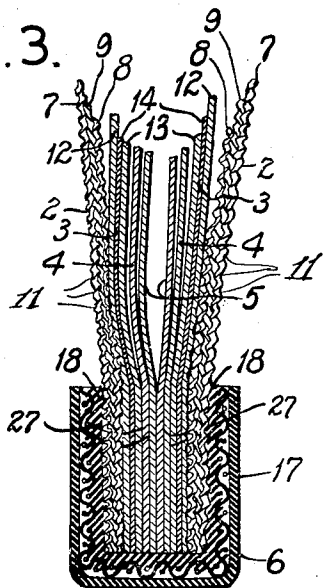
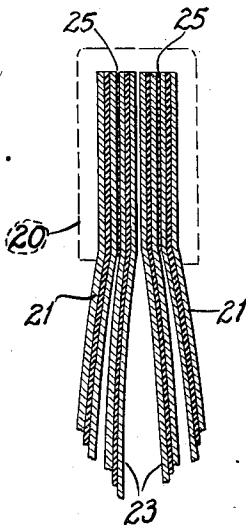


FIG. 4.



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UNITED STATES PATENT OFFICE

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BAG

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6 Claims. (Cl. 229—55)

This invention relates to bags, and with regard to certain more specific features, to heavy-duty paper bags.

Among the several objects of the invention may be noted the provision of a heavy-duty paper bag which is made up of a plurality of laminations or layers affording increased strength with flexibility, impervious to moisture, and the like, and which has less tendency to present a stained appearance when packed; the provision of a bag of the class described which is provided with a surface permitting of more ready handling and stacking of the bag from whatever angle it is gripped; the provision of a bag of the class described in which several of the laminae are secured together by adhesive material and which is so constructed that the adhesive material is not likely to crack or disintegrate under service conditions; the provision, in a bag of the class described, of an improved form of end closure means, which is designed to prevent exudation of an adhesive material used to apply the end closure, and which is flexible so that it offers no resistance to the handling of the bag, such as in filling it; the provision of an end closure of the class described which has a surface adapted to reduce abrasion thereon when on a filled bag and adapted to reduce sliding or skidding upon a surface; and the provision of a bag of the class described which is economical to manufacture. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, in which are illustrated several of various possible embodiments of the invention,

Fig. 1 is a perspective view of a bag, certain portions thereof being opened for inspection;

Fig. 2 is an enlarged diagrammatic section taken substantially along line 2—2 of Fig. 1;

Fig. 3 is an enlarged diagrammatic cross-section taken substantially along line 3—3 of Fig. 1; and,

Fig. 4 is an enlarged cross-section of a closed bag top, showing an alternative embodiment of the invention.

Similar reference characters indicate corresponding parts throughout the several views of the drawing.

Referring now more particularly to Fig. 1, nu-

meral 1 indicates a bag made in accordance with the present invention. The bag 1 comprises nested envelopes 2, 3, 4, and 5, proceeding from the exterior to the interior of the bag. The lower end of the bag is closed by a closure strip 6, the details of which will be given more fully hereinafter.

Referring to Fig. 2, it will be seen that the outermost envelope 2 comprises laminated material having an outer layer 7 and an inner layer 8 secured together by adhesive material 9. The outer and inner layers 7 and 8 preferably comprise corrugated, creped paper. Fig. 1 indicates diagrammatically the surface character of this material. It will be seen that there are provided corrugations 10, relatively fine and close together, running lengthwise of the bag (illustrated in cross-section in Fig. 2). These corrugations 10 are provided at right-angles to the corrugations or creases 11 (illustrated in cross-section in Fig. 3) forming the characteristic appearance of the creped paper. Such paper is usually manufactured by rolling in the corrugations 10 after the creping 11 has already been applied to the paper stock. The particular purpose of employing this material in the present bag is that it affords a surface which may be gripped with facility in handling the bag, either prior to or after it has been filled. This will readily be understood when it is noted that the crepe corrugations 11 provide a frictional surface against longitudinal slippage. The corrugations 10 aid in this respect against lateral slippage but primarily prevent relative side slippage of unfilled or filled bags when laid flatwise and stacked.

The adhesive material 9 which is used to secure together the two paper layers 7 and 8 ordinarily comprises an asphaltic adhesive, as this material has been found to have suitable waterproof and like characteristics, when considered together with its cheapness, to make it decidedly economical to use. However, other adhesive materials, such as latex, may be employed to secure together the layers 7 and 8 when an unusual degree of stain-proofness is desired. While asphaltic cements, as above indicated, are found to be very economical for uses such as the present one, they have nevertheless several drawbacks which the present invention is designed to cure. For example, when the asphalt layer is provided in suitable thickness to attain the degree of waterproofness desired, it is frequently found that it is so thick that upon cooling below certain temperatures, it exhibits a brittleness or at least stiff-

ness which is disadvantageous. Brittleness, for example, may result in cracking or fracturing of the laminated paper 2 under service conditions, whereby the liquidproofness of the bag is impaired. Even the mere excessive stiffness of a thick layer is undesirable.

Another disadvantage of asphalt cement in thick layers, such as are normally required, is that they exhibit too great a tendency when under higher temperature conditions, to seep through the paper layers and thereby stain the exterior of the bag, which staining is of course disadvantageous from the standpoint of appearance. Thin layers are exhausted in amount before excessive striking through the paper is exhibited.

In order to avoid these disadvantages of thick asphalt cement layers, the present invention comprehends the provision of two or more laminated material envelopes nested together, each one of which has a relatively thin layer of asphaltic cement which, by itself, would not ordinarily provide the waterproofness and other characteristics desired, but which, when taken together, do provide such characteristics.

In the present embodiment of the invention, the envelope 3 comprises the second laminated material envelope. The envelope 3 comprises paper layers 12 and 13 secured together by a layer of asphalt cement 14. The paper in layers 12 and 13 need not be corrugated or otherwise provided with the surface as described in connection with the envelope 2, since it is not at the exterior surface of the bag and hence does not enter into the handling of the bag. For these reasons, it is more desirable to make the paper layers 12 and 13 of a smooth-surfaced paper stock, preferably with a greater strength or tear resistance than the layers 7 and 8 of envelope 2.

The inner two envelopes 4 and 5 are not ordinarily made of laminated material, but merely of single thicknesses of strong paper, such as kraft paper. These layers are not necessary for all types of bags. Their function is merely to contribute additional strength to the bags. Accordingly, they may be eliminated altogether (as shown in the Fig. 4 embodiment), or may be provided in numbers greater than two, in accordance with the particular requirements of the bag being manufactured.

The envelopes 2, 3, 4 and 5 are ordinarily formed by tubing suitable lengths of the material from which respective envelopes are made, by over-lapping the selvages of long strips and securing said selvages in a lapped seam by means of suitable adhesive. The seams are similar, in the present embodiment of the invention, in all of the envelopes 2, 3, 4 and 5. They are indicated broadly in Fig. 2 by numeral 15. Numeral 16 indicates the layer of adhesive material used to secure the same. Ordinarily, this adhesive material most advantageously comprises, at least in the laminated envelopes 2 and 3, the same adhesive as is used for securing the laminations together. In the envelopes 4 and 5, the adhesive 16 may readily comprise paste, or glue, of the characteristics ordinarily associated with such materials. In Fig. 2, the various seams 15 are shown as directly surmounting each other. This is for purpose of illustration only, as in practice, it is usually found more desirable to stagger the seams 15 in order not to unduly increase the thickness of the bag in one particular seamed region.

When the bags of the present invention are

designated for use with materials to be packed while hot, the simple lap seams 15 in the laminated material envelopes 2 and 3 are desirably replaced by seams of the type shown in Morrill and Pierce Patent No. 1,691,782. That is, the selvages of the outside ply or layer are stuck together in one region, and the selvages of the inside ply or layer are stuck together in another region. The advantage of such a construction is that, should the contents of the bag melt the asphalt adhesive securing the layers together, the seams will still bind together the edges of the respective layers.

Prior to closing the bottom of the bag, the edges of the several envelopes are desirably stuck together by an adhesive positioned therebetween. The regions for the application of such an adhesive are indicated by numeral 27 in Fig. 3. As suitable adhesives for this purpose, glue, asphalt, or latex adhesives may be used. The latex is usually preferred because of its flexibility.

As indicated hereinbefore, the bottom of the bag is closed by a folded closure strip 6. The structure of this strip forms one of the principal objects of the present invention, and is illustrated in more detail in Fig. 3. By reference to Fig. 3, it will be seen that the strip 6 comprises a narrow strip of flexible fabric, such as burlap, folded upon itself and receiving in the fold the lower end of the nested envelopes 2, 3, 4 and 5. The strip 6 is manufactured with an outside coating or layer of cured rubber 17. The rubber layer 17 is of a soft but vulcanized nature, and penetrates the fabric sufficiently to secure a permanent attachment thereto. It is thick enough on the outside of the fabric strip that it substantially covers all of the fibers thereof. In applying the strip 6 to close the bottom of the bag 1, latex indicated by numeral 18 is employed as an adhesive. The latex layer 18 is prevented from penetrating the cover strip 6 by the rubber layer 17. Thus, it does not exude and cause the bag to stick against adjacent bags or the like. Further, the fact that the latex cannot penetrate the fabric strip outwardly means that its penetration will be enhanced in an inward direction, namely, into the paper of the envelopes 2, 3, 4 and 5, thus securing a firmer hold on said envelopes and more securely closing the bag. As indicated at numeral 19 in Fig. 1, the strip 6 projects a short distance at each end of the bag, and is there adhesively secured to itself to close the corners of the bag.

The outer rubber surface of strip 6 affords an advantageous anti-sliding, or friction-grip surface for the bottom of the bag. This surface is advantageous for example, when the bag is filled and standing on a cement floor, as it has a desirable tendency to prevent the bottom of the bag from slipping on the floor, and makes it easier to maintain the bag in an upright position. It also better resists abrasion under similar conditions.

Ordinarily, it is not necessary to secure the top regions of envelopes 2, 3, 4 and 5 together, as the filling devices mostly employed can be inserted readily into the innermost envelope and the flow of material into the spaces between the nested envelopes prevented without trouble. However, in some circumstances, it is desirable that the envelopes 2, 3, 4 and 5 be pasted together along their upper edges, namely, along the regions indicated by index character A in Fig. 1. If this is to be done, it may be done merely by suitable paste or glue or the like.

After the bag as thus described has been filled,

it may be closed by applying a cover strip similar to the strip 6 along the upper edge. Such a cover strip is indicated in dotted lines at numeral 20 in Fig. 4. If the cover strip 20 is made of the same material as the strip 6, it will be obvious that it has the same anti-slip nature and abrasion-resisting advantages.

Said Fig. 4 also shows an alternative construction wherein the free inner paper layers 4 and 5 are eliminated and only the compound outer layers are used. The compound layers in Fig. 4 are lettered 21 and 23, and in this embodiment, they are joined at their upper edges by means of adhesive 25. It is to be understood that the adhesive 25 is used before application of the cover 20, that is, the bag is presented to the one who fills it with the upper edges of the composite layers 21 and 23 joined by the adhesive 25 which has heretofore dried. It will be seen that the same result, namely, a pre-adhered edge is accomplished in the case of Fig. 1 by the alternative use of adhesive at the regions A.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A bag comprising a plurality of nested envelopes, at least some of said envelopes being formed of laminated material comprising a pair of layers of paper secured together by a layer

of asphaltic adhesive, the thickness of the asphaltic cement in any one envelope being insufficient to secure complete moisture-proofness.

2. A bag having a closure strip cemented to and closing the lower end of the bag, said closure strip having an exterior surface covered with cured rubber adapted to prevent slippage of the bag on the surface on which it rests.

3. A closure strip for the ends of bags and the like, comprising a strip of fabric bent upon itself, said fabric having an outer surface of cured rubber, and being inwardly provided with adhesive whereby it may be secured to the bag.

4. A closure strip for the ends of bags and the like, comprising a strip of fabric bent upon itself, said fabric having an outer surface of cured rubber, and being inwardly provided with adhesive whereby it may be secured to the bag, said adhesive comprising latex.

5. A bag comprising an outer laminated envelope and an inner laminated envelope therein, the outer laminated envelope comprising two sheets of rough-surfaced paper joined together by a layer of adhesive, and the inner envelope comprising two sheets of smooth-surfaced paper joined together by an adhesive.

6. A bag comprising an outer laminated envelope and an inner laminated envelope therein, the outer laminated envelope comprising two sheets of rough-surfaced paper joined together by a layer of adhesive, and the inner envelope comprising two sheets of smooth-surfaced paper joined together by an adhesive, said rough-surfaced paper comprising creped paper corrugated crosswise of the grain of the creping.

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