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A. POTDEVIN

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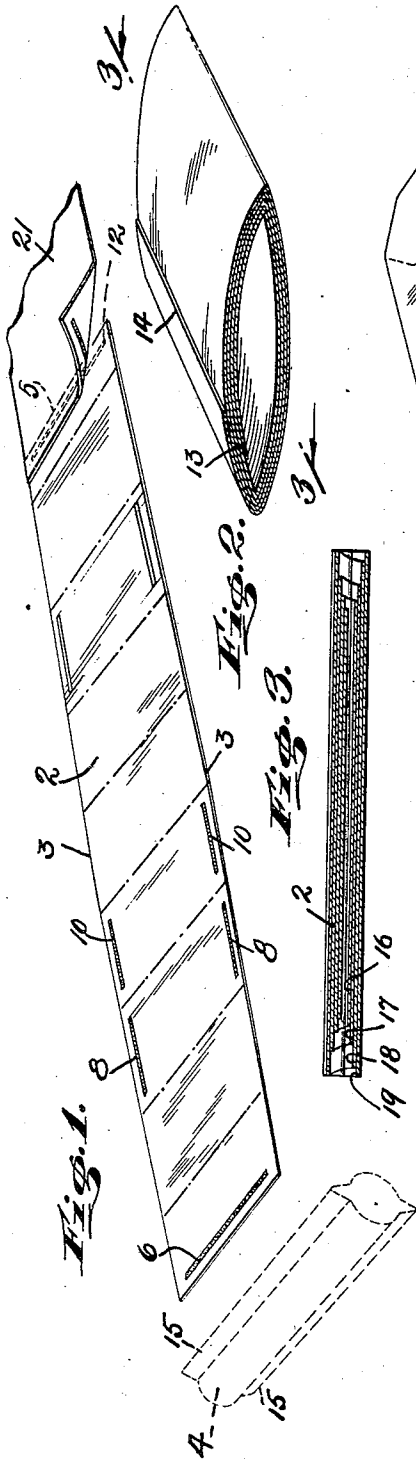


Fig. 2.

Fig. 3.

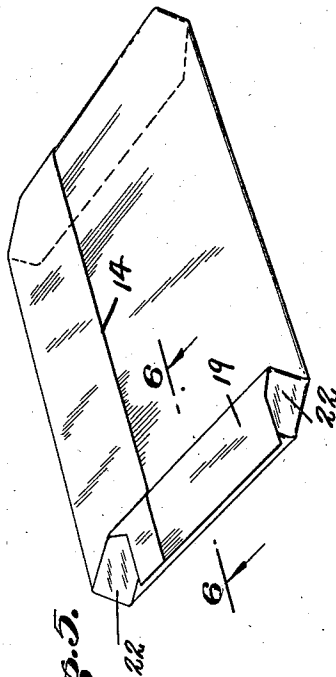


Fig. 5.

Fig. 4.

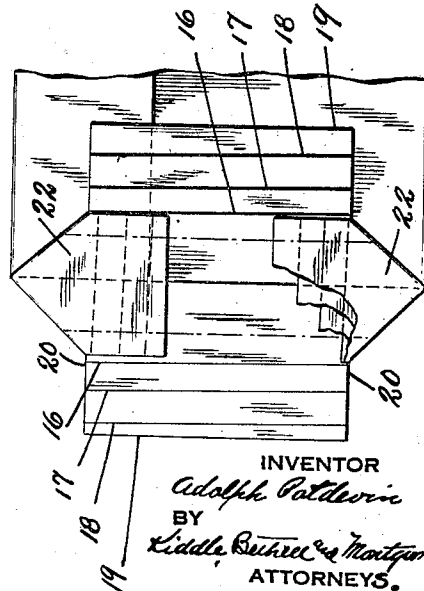
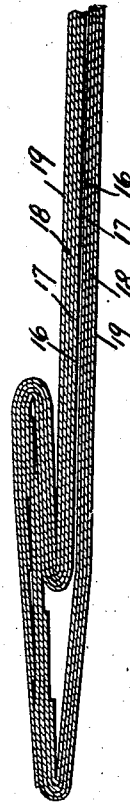


Fig. 6.



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3 Claims. (Cl. 229—55)

This invention relates to improvements in bags and to a method of making the same, being particularly directed to bags of the multi-wall type such as employed for cement.

In the manufacture of multi-wall bags of the type indicated, it is usual to tube a plurality of superimposed separate webs of bag making material, the tube being thereafter cut into bag lengths and bottomed in any desired manner.

The present invention has for one of its objects the provision of a method of making multi-wall bags wherein it is possible to produce a shingled multi-wall bag without the necessity of employing a plurality of webs of bag making material and without the necessity of employing a separate shingling step.

A further object of the invention is the provision of a multi-wall bag in which the minimum number of seams is necessary, my invention also lending itself to the use of a cover sheet, such as a printed sheet or a sheet of a different material from the rest of the bag, which in many cases is very desirable.

In the accompanying drawing:

Fig. 1 is a perspective view of a web of bag material used in the manufacture of the bag of the present invention together with a diagrammatic view of a mandrel on which the material is wound in the process of fabricating the bag;

Fig. 2 is a perspective view of the wound material after removal from the mandrel;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a fragmentary view of the shingled end of the bag;

Fig. 5 is a perspective view of the completed bag; and

Fig. 6 is a sectional view on line 6—6 of Fig. 5.

Referring to the drawing in detail: 2 designates a sheet or web of material from which the bag is to be made. As will be seen from the drawing, the sides of this sheet diverge from the leading end to the point 3. From this point to the end of the strip at 5 the sides of the strip are parallel. The angle these divergent sides make with the longitudinal axis of the sheet depends upon the amount of "shingle" desired at the bag ends.

In making a multi-wall bag in accordance with the present invention, this sheet is fed to and wound upon a mandrel 4, such as illustrated diagrammatically in Fig. 1, with the narrower end of the material in the lead. The mandrel has been illustrated merely diagrammatically,

no claims to novelty as to the mandrel construction being made in this application.

If the strip is led over the top of the mandrel the narrower and leading end of the strip is provided on its upper face with a transverse stripe of adhesive 6 adjacent its edge whereby to secure the strip of material to itself on the first turn made by the mandrel 4. Longitudinal stripes of adhesive may also be applied to the web of material adjacent the sides of the web as at 8 and 10. A transverse stripe 12 is also applied to the underside of the trailing end of the strip.

It will be understood that the strip 2 is of a length to make one bag, and after it has been rolled about the mandrel 4, as indicated, it will be appreciated that the edge of the trailing or wide end of the material will be adhesively secured to the adjacent face of the material by adhesive stripe 12, as seen from Fig. 2, to provide an outside seam 14. It will be noted that there are but two seams in the bag walls, i. e., where the leading end of the strip is secured to the adjacent bag wall, as seen at 13, and where the trailing end is secured to the adjacent bag wall, as shown at 14, already referred to.

When the wound material is removed from the mandrel 4 and collapsed, as illustrated in Figs. 2 and 3, I have a tube, the ends of the walls of which are stepped or shingled with respect to each other, the shingling extending helically of the bag. For convenience in flattening the tube after it is removed from the mandrel 4, the latter may be provided with creasers 15, if desired. These will crease the material as it is being wound on the mandrel, as will be appreciated.

As will be seen from Figs. 3 and 4, the shingling extends helically of the bag, the end of the innermost wall 16 extending helically of the bag and gradually merging into the contiguous wall 17, the end of the latter extending helically and gradually merging into the wall 18, the latter extending helically to merge into the outer wall 19. The end of this wall does not extend helically because this wall is constituted by the straight-edged part of the bag material, that is, the part extending from 3 to the trailing end of the strip.

It will be appreciated that if one end only of the bag is to be shingled, then only one side edge of the bag material will extend at an angle to the longitudinal axis of bag material.

Should it be desired to have the outer wall of

the bag composed of a different material than the other walls of the bag, or a printed sheet, for example, a sheet of this material can be attached to the trailing end of the sheet 2. Such a sheet has been shown at 21 in Fig. 1. This additional sheet is long enough to make one full turn about the bag, and preferably will be straight edged.

After the bag tube, as shown in Fig. 2, has been formed it may be slit longitudinally at 20 and the corners 22 of the bag tube folded over, as shown in Fig. 4, and the ends folded over and pasted down to close the tube ends as shown in Fig. 5.

It will be appreciated that with my improved method the ends of the bag walls extend helically to provide a helical stepped or "shingled" effect, the forming of the multi-wall bag tube and the "shingling" being obtained in a single operation.

It is to be understood that various changes may be made in the method herein illustrated and described and in the bag structure without departing from the spirit and scope of my invention.

What I claim is:

1. The method of making multi-wall bags, which method comprises winding a tapered sheet of material upon itself to form a multi-wall tube, the ends of which are stepped or shingled, securing the outer end of the strip to the face of the adjacent wall of the tube, slitting the ends of

the tube lengthwise of the tube, folding the corners of the tube inwardly along said slits, and finally folding the ends of the tube intermediate the slits over upon the folded-in tube corners and sealing, to close the tube.

2. A bag having multi-ply walls comprising a single sheet of material having divergent sides throughout part of its length and parallel sides throughout the remainder of its length, the portion of the sheet having divergent sides and the portion of the sheet having parallel sides extending circumferentially of the bag, and each being of a length equal to at least one circumferential wrap, so that the inner plies of the bag walls composed of that portion of the sheet having divergent sides are shingled while the outer plies composed of the straight sided portion of the sheet are of equal lengths.

3. A bag having multi-ply walls shingled at their ends and composed of a single sheet of material having divergent sides throughout part of its length, and parallel sides throughout the remainder of its length, the portion of the sheet having divergent sides and the portion of the sheet having parallel sides extending circumferentially of the bag, and each being of a length equal to at least one circumferential wrap, said sheet being provided at suitable intervals with stripes of adhesive whereby the plies composing the bag wall are secured to each other.

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