Oct. 22, 1968 K. F. BARNETT 3,406,818

PACKAGE OF BAGS

Filed May 18, 1967

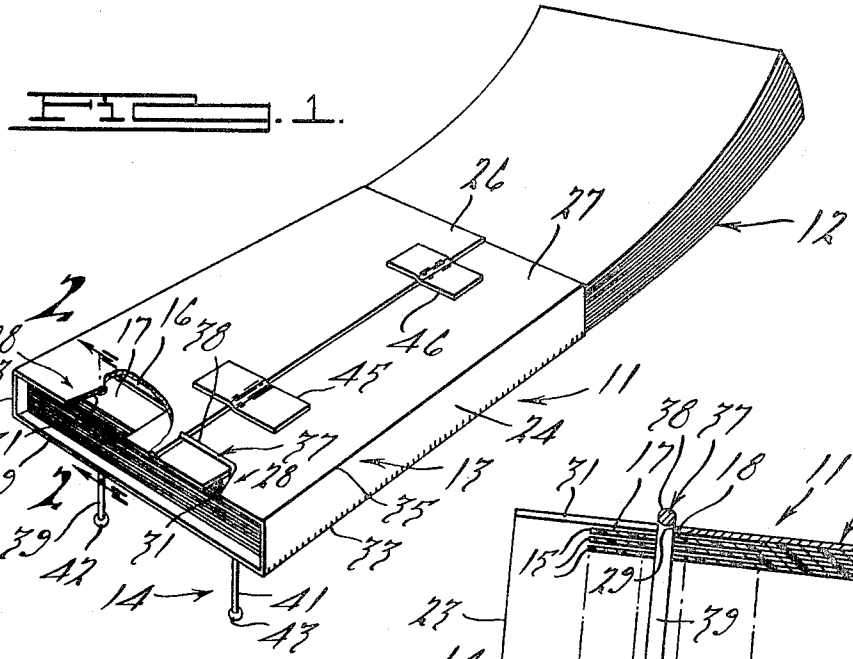


FIG. 1.

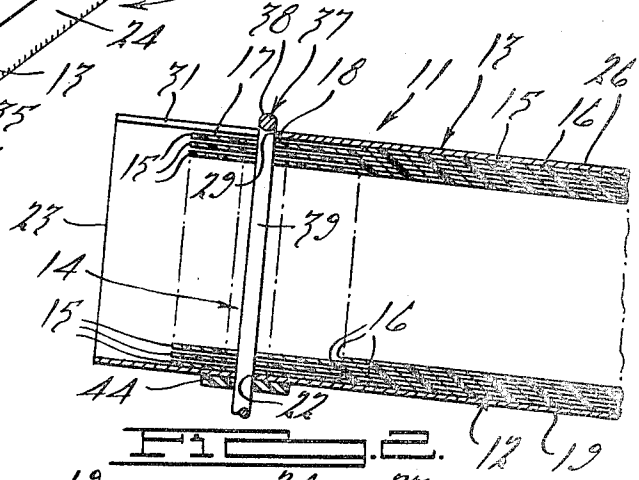


FIG. 2.

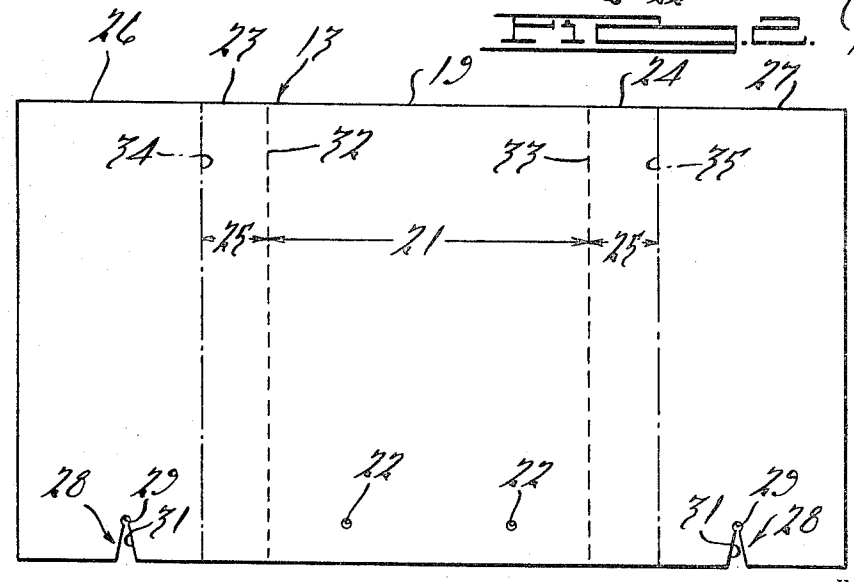


FIG. 3.

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United States Patent Office 3,406,818 Patented Oct. 22, 1968

3,406,818

PACKAGE OF BAGS

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Filed May 18, 1967, Ser. No. 639,565
11 Claims. (Cl. 206—57)

ABSTRACT OF THE DISCLOSURE

This application discloses a package of bags, a method for making such a package and a protective sleeve for the bags. The package is comprised of a stack of collapsed bags formed from a plastic such as polyethylene. These bags are formed with a lip at their open end in which a pair of apertures are formed. These apertures are aligned when the bags are stacked and are aligned with like apertures formed in an open ended sleeve that encircles the stack of bags. This sleeve is formed from a substantially more rigid material than the bags and has a somewhat shorter length than the bag. A fastening means in the form of a U-shaped wicket extends through the apertures in the sleeve and in the bags to fix these elements in aligned relationship with each other. The sleeve is perforated along two of its edges to facilitate its removal.

Background of the invention

This invention relates generally to the packaging art and more particularly to the packaging of a lift of bags to be used in a hand or automatic filling operation.

In one well known type of packaging, each bag in a stack of collapsed bags is formed with a lip at its open end which lip is formed by extending one side of the bag for a greater distance than the other side. A fastening device is passed through apertures in this lip to hold the bags in a stacked relationship. The uppermost bag is then opened either manually or by directing a blast of air into its open end and the article to be bagged is inserted. The filled bag is then torn from the fastening means and closed. This operation is repeated until the stack has been consumed. In order to prevent shifting or blocking of the bags and to maintain a package or lift of bags that can be conveniently handled, it has been previously common practice to use top and bottom backing sheets for the assembled bags and rubber bands for holding the parts together. This construction is not only costly but is time consuming both in assembly and when disassembling for the described filling operation.

It is, therefore, a principal object of this invention to provide an improved method for packaging bags.

It is another object of this invention to provide an improved package of bags.

It is a further object of this invention to provide an improved sleeve for protecting a lift of bags.

Summary of the invention

A package embodying this invention is particularly adapted for maintaining a plurality of collapsed bags in a preassembled relationship. The bags are formed with an aperture therein and are disposed in a stacked relationship in the package with the respective apertures being aligned. An open ended sleeve encircles the stack of bags for a substantial portion of their length. The sleeve is formed from a material that is substantially more rigid than the material of the bags and has at least one aperture formed in one side which is aligned with the apertures in the stack of bags. Fastening means including means extending through the apertures in the bags and through the aperture in the sleeve are provided for retaining the bags and sleeve in assembled relationship.

A sleeve embodying this invention is particularly

adapted for use in a package as described in the preceding paragraph. The sleeve has a first face that is adapted to engage a face of the stack of bags, a pair of side faces extending at one edge thereon from a respective side of the first face and first and second flaps extending from the other edge of the respective side faces. The juncture between the first face and each of the side faces and the juncture between each of the side faces and the respective flaps are scored to facilitate folding. A pair of apertures are formed in the first face and openings are formed in each of the flaps that are adapted to overlie a respective one of the apertures in the first face when the sleeve is in its folded condition.

Brief description of the drawings

FIGURE 1 is a perspective view of a lift of bags embodying this invention, with a portion of the protective sleeve being broken away to more clearly show the construction.

FIGURE 2 is an enlarged cross-sectional view taken along the line 2—2 of FIGURE 1.

FIGURE 3 is a plan view of the protective sleeve shown in FIGURES 1 and 2 prior to its being folded.

Detailed description of the preferred embodiment

In the drawings the reference numeral **11** indicates a package or lift of bags embodying this invention. The lift of bags **11** is comprised of a stack of bags, indicated generally by the reference numeral **12**, a surrounding open ended protective sleeve, indicated generally by the reference numeral **13**, and a fastening means, indicated generally by the reference numeral **14**, for securing the sleeve **13** and stack of bags **12** in assembled relationship.

The stack of bags **12** is comprised of individual bags each of which is in a collapsed condition. Each of these bags may be formed from polyethylene, some other suitable flexible plastic or paper. Each bag has a rear face **15**, front face **16** and side faces which are folded so that the front face **16** lies immediately adjacent the rear face **15**. The bottom edges of the front, rear and side faces are secured together and gusseted so that the individual bags are closed at their lower end. This lower end is the portion that protrudes from beneath the sleeve **13**. In their stacked relationship, the bags are positioned with the shorter front face **16** at the top with the difference in length between the front and rear faces defining an upwardly extending lip, indicated generally by the reference numeral **17**. A pair of spaced apertures **18** is formed in the lip **17** for a purpose which will become more apparent as this description proceeds.

Referring now primarily to FIGURE 3, the sleeve **13** is formed from chip board or some other suitable relatively rigid material which preferably has more rigidity than the material from which the bags are formed. The sleeve **13** has a first face **19** that is generally rectangular in shape and which has a width approximately equal to the width of the collapsed bags, this dimension being indicated by the reference numeral **21** in FIGURE 3. The length of the first face **19** is less than the length of the individual bags. A pair of circular openings **22** is formed adjacent the upper edge of the face **19** on centers having the same center-to-center distance as the distance between the apertures **18** in the individual bags.

First and second side faces **23** and **24** extend from opposite edges of the face **19**. Each of the side faces **23** and **24** has the same length as the face **19** but has a shorter width than the width of the face **19**. The width of the side faces **23** and **24** is identified by the dimension **25** in FIGURE 3 and this dimension is only very slightly greater than the thickness of the stack **12** at its upper end.

The opposite edges of the side faces **23** and **24** are integrally connected to flaps **26** and **27**, respectively. The

flaps 26 and 27 have the same length as the side faces 23 and 24 and the first face 19. The sum width of flaps 26 and 27 is greater than the width 21 of the first face 19. At the uppermost edge of each of the flaps 26 and 27 an opening 28 is formed. The opening 28 is comprised of a partially circular aperture 29 that is intersected by a V-shaped slot 31. The slot 31 intersects less than 180° of the circle 29 for a reason which will become more apparent as this description proceeds.

Each edge that connects the first face 19 with the side faces 23 and 24 is perforated, as at 32 and 33, respectively. Alternatively, a relatively deep score may be provided in this area. The perforations or scores 32 and 33 facilitate folding of the side edges 23 and 24 to a 90° angle with respect to the first face 19 and facilitates separation, as will become more apparent as this description proceeds. In a similar manner, the opposite edges of the side faces 23 and 24 at the connection to the flaps 26 and 27 are scored, as at 34 and 35, respectively. The scores 34 and 35 facilitate folding of the flaps 26 and 27 toward each other at a 90° angle with the folded side faces 23 and 24 and parallel to the first face 19. In this relationship, the openings 29 will be coaxially disposed with the holes 22. Preferably, the diameter of the openings 29 is slightly less than the diameter of the holes 22.

The folded sleeve 13 is maintained in assembled relationship with respect to the stack of bags 12 by means of the fastening means 14. The fastening means 14 is comprised of a generally U-shaped wicket 37 which may be formed from a bent metal rod or the like. The wicket 37 has an intermediate leg 38 from which a pair of depending legs 39 and 41 integrally extend. The center-to-center distance between the legs 39 and 41 is substantially the same as the center-to-center distance between the holes 22 and apertures 18. The lower termination of the legs 39 and 41 are formed with enlarged end portions 42 and 43, respectively. In the assembled relationship, the intermediate leg 38 extends across the top of the folded flaps 26 and 27 and the legs 39 and 41 extend through the holes 29 in the flaps, the apertures 18 in the bags and the holes 22 in the sleeve face 19. A pair of annular rubber grommets 44 (FIGURE 2) are received on the legs 39 and 41 and abuttingly engage the underside of the face 19 to hold the package together. In addition, strips of pressure sensitive tape 45 and 46 may be secured across the overlapping portion of the flaps 26 and 27 to hold the sleeve 13 in its closed position. Alternatively, interlocking tabs or the like may be provided for this function.

In assembly, the individual bags are formed and stacked upon the wicket 37 or, alternatively, the bags may be stacked and the wicket 37 inserted through the aligned openings 18. As has been previously noted, the bags are stacked in such a manner that their short front face 16 will all be on the top side of the stack 12. The unfolded sleeve 13 is then inserted over the legs 39 and 41 of the wicket, the openings 22 being larger in diameter than the end portions 42 and 43 to facilitate this assembly. The side faces 23 and 24 are then folded through a 90° angle about the perforated lines 32 and 33. The flaps 26 and 27 are then folded about the scores 34 and 35. The upper ends of the flaps 26 and 27 may be inserted under the wicket leg 38 and around the legs 39 and 41. The V-shaped groove 31 facilitates this assembly. The pressure sensitive tape 45 and 46 can then be assembled as can the grommets 44.

The thus assembled sleeve serves to hold the stack of bags 13 in its pre-established relationship and will preclude blocking or other jamming of the bags. Since the side faces 23 and 24 engage the sides of the bags and have only a slightly greater width than the thickness of the bags, it should be readily apparent that shifting will be precluded. The sleeve 13 is shorter than the overall length of the bags and terminates short of their gusseted bottom ends since the stack will be thicker in this area due to the additional thicknesses of material present there.

The thus formed lift of bags 11 may be positioned upon an automatic or hand filling bag apparatus in the position shown in FIGURE 1. The sleeve 13 may be readily removed by grasping the flaps 26 and 27 and exerting upward pressure upon them while exerting an opposing force upon the stack of bags 12. This will cause the sleeve to tear along the perforations 32 and 33 leaving a substantially more rigid backing beneath the bags 12, which backing is formed by the remaining face 19. The perforations 32 and 33 by themselves may be sufficient to make it unnecessary to score these edges to facilitate folding. For this reason, the term "scoring" as used in the specification and the claims is intended to cover constructions wherein a row of perforations is formed along a line, a line is scored or the line is scored and perforated. The thus exposed bags may then be filled in any of the known manners, such as that previously described.

While it will be apparent that the preferred embodiment of the invention disclosed is well calculated to fulfill the objects above stated, it will be apparent that the invention is susceptible to modification, variation and change without departing from the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. A package comprising a plurality of collapsed bags, said bags being formed with apertures therein and being disposed in a stacked relationship with the respective apertures being aligned, an open ended sleeve encircling said stack of bags for a substantial portion of their length, said sleeve being formed from a material substantially more rigid than the material of said bags, said sleeve having side faces facing opposite sides of said stack of collapsed bags, a bottom face in engagement with the lowermost bag of said stack and a top face facing the uppermost bag, the width of said side faces being only slightly greater than the thickness of said stack of bags for precluding shifting and blocking of the bags of said stack, apertures formed in the top and bottom faces of said sleeve, said apertures in said sleeve being aligned with the apertures in said stack of bags, fastening means including means extending through said apertures in said bags and through said apertures in said sleeve for retaining said bags and sleeve in assembled relationship, and means for facilitating tearing of said sleeve adjacent the outer edges said bottom face.

2. A package as set forth in claim 1 wherein the top face of the sleeve is formed from flaps extending from the respective of the side faces and further including means for connecting said flaps together.

3. A package as set forth in claim 2 wherein the bags are open adjacent the apertures formed therein and are closed at their opposite ends.

4. A package as set forth in claim 3 wherein the sleeve extends from the open ends of the bags to a point spaced from their closed ends.

5. A package comprising a plurality of collapsed bags, said bags being formed with apertures therein and being disposed in a stacked relationship one upon another with the respective apertures therein being aligned, a sleeve open at each of its ends and encircling said stack of bags for a substantial portion of their length, said sleeve being formed from a material substantially more rigid than the material of said bags, said sleeve having at least one aperture formed in one side thereof, said aperture in said sleeve being aligned with said apertures in said stack of bags, fastening means extending through said apertures in said bags and through said aperture in said sleeve for retaining said bags and sleeve in assembled relationship, and means for facilitating tearing of said sleeve adjacent the outer edges of said one side for removal of substantially all of said sleeve except for said one side from said package with said one side of said sleeve and said stack of bags being retained in assembled relationship by said fastening means.

6. A package as set forth in claim 5 wherein each of

the bags in the stack is formed with a lip adjacent their open ends, the apertures in said bags being formed in said lip.

7. A package as set forth in claim 6 wherein the sleeve has apertures formed in its top and bottom faces aligned with the apertures in the lips of the bags.

8. A package as set forth in claim 7 wherein the fastening means comprises a U-shaped wicket having an intermediate leg extending across the top face of the sleeve and a pair of extending legs extending through the apertures in said sleeve and in the bags.

9. A package as set forth in claim 8 wherein the top face of the sleeve is formed by flaps formed integrally means for securing the ends of said flaps together.

10. A package comprising a plurality of collapsed bags, each of said bags being formed with a lip adjacent its respective open end, a pair of spaced apertures formed in each of said lips, said bags being disposed in a stacked relationship with the respective apertures being aligned, an open ended sleeve encircling said stack of bags for a substantial portion of its length, said sleeve having side faces facing opposite sides of said stack of collapsed bags, a bottom face in engagement with the lowermost bag of said stack and a top face facing the uppermost bag, the width of said side face being only slightly greater than the thickness of the said stack of bags for precluding shifting and blocking of the bags of said stack, the top face of said sleeve being formed by flaps formed integrally with the respective side faces, means for securing the ends of said flaps together, a pair of spaced apertures formed in said top and said bottom faces of said sleeve aligned with the respective apertures in said lips of said bags, fastening means including a U-shaped wicket having an intermediate leg extending across said top face of said sleeve and a pair of extending legs extending through said aperture in said sleeve and in said bags for retaining said bags and said sleeve in assembled relationship, and means for facilitating tearing of said sleeve adjacent the edges of its bottom face.

11. Package means comprising a plurality of collapsed equal sized flexible bags arranged one upon another in a squared off stack, a sleeve of relatively rigid material surrounding said stack, said sleeve having substantially parallel opposed top and bottom faces and substantially parallel opposed side faces extending between the respective edges of said top and bottom faces, the length of said sleeve being less than the length of said bags and the height of said side faces being just slightly greater than the height of said stack, fastening means passing through said top and bottom faces of said sleeve and each of the bags in said stack, means for separating said bottom face from said side and top faces along lines substantially parallel to and in the vicinity of the side edges of said bottom face, and means facilitating removal of said top face from said fastening means.

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U.S. DEPARTMENT OF COMMERCE

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,406,818 October 22, 1968

Karl F. Barnett

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 20, "bag" should read -- bags --. Column 2, line 4, "thereon" should read -- thereof --. Column 4, line 45, after "edges" insert -- of --. Column 5, line 13, after "integrally" insert -- with the respective side faces and further including --.

Signed and sealed this 3rd day of March 1970.

(SEAL)
Attest:

Edward M. Fletcher, Jr.
Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents