

[54] **PLASTIC BAG DISPENSING APPARATUS**

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53/385, 384; 150/1; 229/53; 206/57 A

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[57]

ABSTRACT

Apparatus for both dispensing and opening bags, particularly those formed of a thin film of flexible plastic material. A stack of such bags, each having at least one pair of aligned apertured therein, is suspended from a hollow tube or rod which passes through the aligned bag apertures. The aperture in the upper bag wall is sufficiently large so that it can readily pass over an enlarged flange on the end of the tube or rod, but the aligned aperture in the rear bag is of smaller size so that it can pass over the enlarged flange only by forcibly removing the bag from the dispensing apparatus. Pressurized air is forced through the interior of the tube or rod and is directed by a nozzle so as to inflate the topmost bag in the stack, thereby holding the bag open and facilitating the placing of articles therein.

4 Claims, 3 Drawing Figures

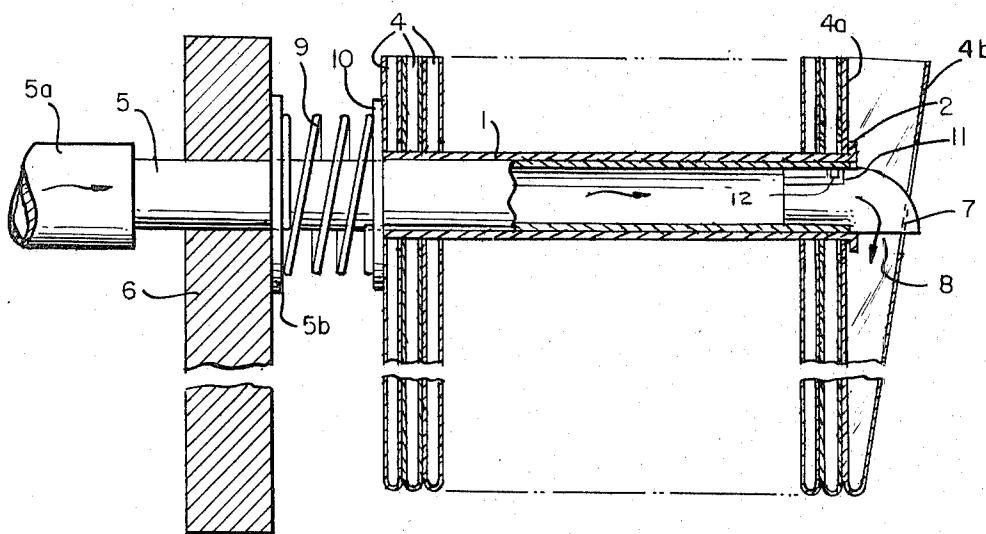


FIG. 1.

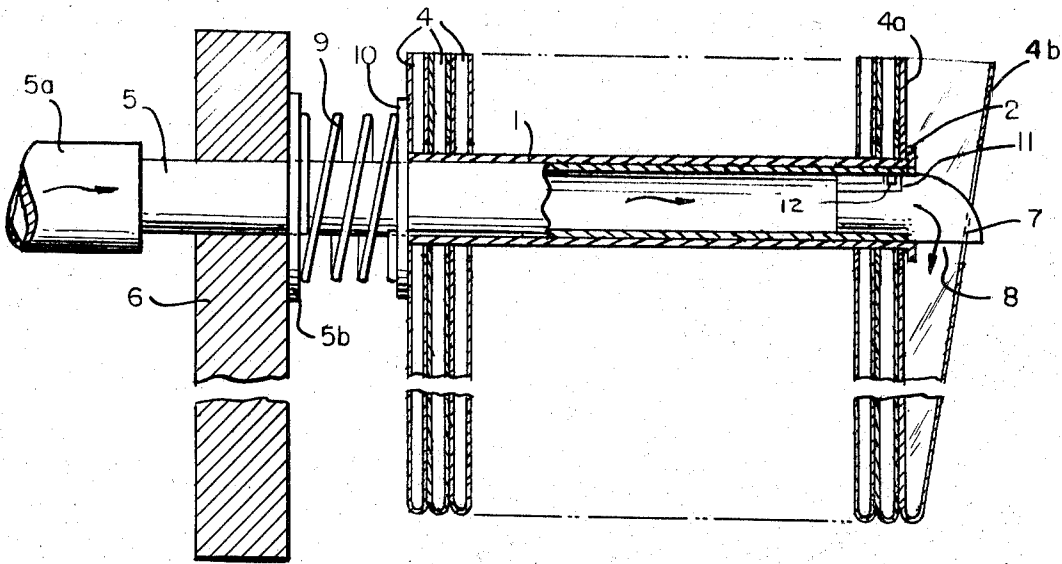


FIG. 2.

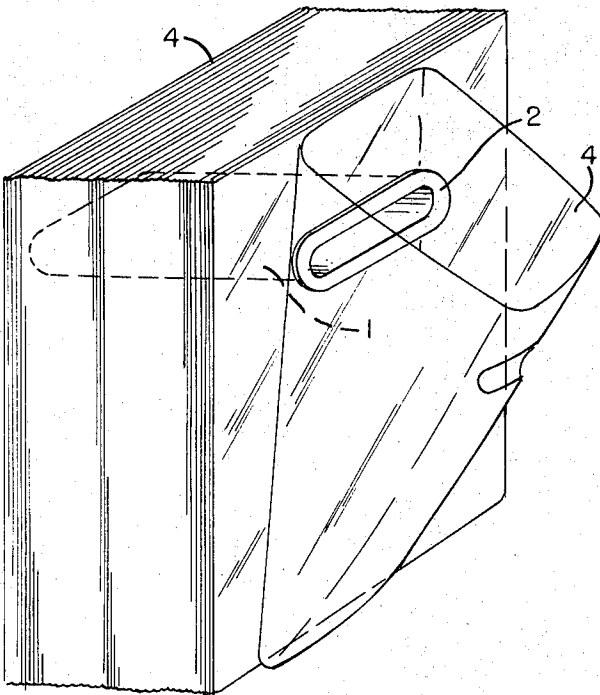
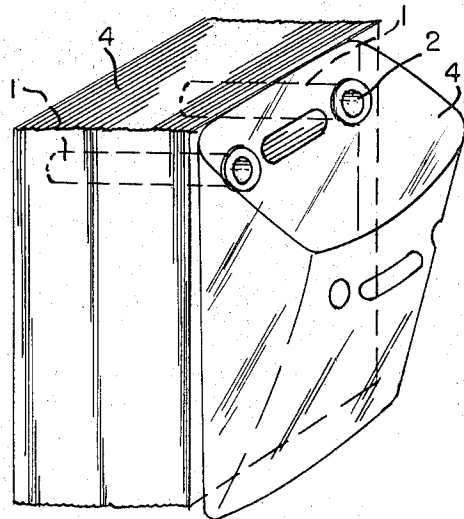


FIG. 3.



PLASTIC BAG DISPENSING APPARATUS

BACKGROUND OF THE INVENTION

Until the present time, paper bags have been used virtually exclusively in the packaging of groceries and the like in grocery stores, supermarkets, etc. The predominant use of paper for this purpose has continued despite the wide-scale introduction throughout the world of plastic bags formed of a thin film of flexible plastic material.

Plastic bags have several distinct advantages. Among these are its superior wet-strength characteristics since, as is well-known, a paper bag will be rendered virtually useless if the paper is soaked with water whereas a plastic bag retains its full original strength. A further advantage of plastic materials is the ability to provide them in a variety of colors and also the ability to print them with attractive designs in various colors so that the bags can provide an important advertising function for the retailer. This, coupled with the fact that such bags have a long life and can be re-used many times, renders the use of such bags attractive to a retailer because of the knowledge that the advertising on the bags will many times be effective long after the first use.

Despite these advantages of plastic bags, they have not heretofore been used to any significant degree in the packaging of groceries in supermarkets or the like. One of the chief reasons for this is that the high degree of flexibility of the plastic film has rendered it impossible for the bag to be self-supporting. In other words, when the cashier at a check-out counter of a supermarket is about to load groceries into the bag, it is important that the bag when opened is capable of staying open so that the cashier can then readily put articles into the bag without having to expend any further effort in maintaining the bag in its open condition. Obviously, the virtually total lack of stiffness of the thin film of plastic material used in plastic bags makes it impossible for such a bag to remain open and upright by itself.

Various types of store fixtures have been devised whose function is to hold a plastic bag in the open position. However, the prior art types of fixtures have not been entirely convenient to use and have therefore not been placed in use to any significant degree.

SUMMARY OF THE INVENTION

The apparatus of this invention has its principal object to provide for the convenient dispensing of bags and particularly thin-film plastic bags at, for example, a supermarket check-out counter. The plastic bags which are intended to be used with the apparatus of this invention are each provided with at least one set of aligned apertures in the respective front and back bag walls.

A stack of such bags is placed over a hollow tube which is supported at one end and has its other end free. The free end of the tube supports a flange whose diameter is somewhat greater than that of the rest of the tube. The two aligned apertures in the front and back walls are preferably of a different size. The front or top bag wall, i.e. the bag wall which is nearer the free end of the tube, is of such size that it can quite readily pass over the enlarged flange adjacent the free end of the tube. The other aperture which is in the opposite wall of the bag is smaller and is of such a size that it cannot readily pass over the flange and can thus be re-

moved from the tube only by the application of some force to the bag which tends to distend the opening in the rear bag wall so that it can pass over the enlarged flange.

Air under pressure is admitted into the tube passing outwardly of the tube at its free end. The free end of the tube is provided with a nozzle which directs at least a part of the stream of air behind the topmost bag wall so that such air thus actually passes into the interior of the topmost bag in the stack thereby inflating such bag at least partially and quickly causing the removal of the front bag wall with the enlarged aperture over the flange so that the bag is readily opened, thereby permitting easy entry of various items such as groceries into the bag's interior. When the bag has been filled, the rear bag wall can very readily be removed by the application of slight force thereto which then permits the rear bag wall to slip over the flange.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational, cross-sectional view of the bag dispensing apparatus of this invention;

FIG. 2 is a perspective view of the apparatus of FIG. 1; and

FIG. 3 is a perspective view of a modified form of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The apparatus as shown in FIGS. 1 and 2 comprises a supporting member 6 having an aperture through which is fitted a hollow tube 5. The left end of tube 5 protrudes a short distance from the rear wall of supporting member 6, and on such protruding left-hand portion of tube 5 is mounted a suitable pipe fitting 5a which provides for the entry of air under pressure into the interior of tube 5. A flange portion 5b which is integral with the tube 5 is fastened as by screws or the like to the support member 6 so as to provide a rigid support for tube 5. Fitted over the outwardly extending right-hand end portion of the tube 5 is an outer tube 1 having a flange 3 which abuts the previously-mentioned flange 5b. Tube 1 is locked into place on tube 5 by means of the engagement of pin 12 on tube 5 into slot 11 on tube 1. At the right-hand end of outer tube 1 is a lip 2 having a diameter somewhat in excess of the remainder of outer tube 1, and at the extreme right-hand end of tube 1 there is formed a nozzle 7 whose purpose is to deflect the air stream 8 downwardly.

A plurality of bags formed of a thin film of plastic material is shown as being fitted over the tube 1. As indicated in FIGS. 1 and 2, aligned apertures are formed in the rear and front bag walls 4a and 4b of each bag 4 so as to permit the placing of a stack of the bags over the outer tube 1. FIG. 1 clearly illustrates that the aperture which is formed in the front bag wall 4b of each bag is larger than the aligned aperture in the rear bag wall 4a. The purpose of this is to make it readily possible for the front wall of each bag to be readily slipped off the outer tube 1 over the enlarged flange 2. At the same time, the rear bag walls 4a of each bag tend to be retained on the tube 1 since the size of the flange 2 is somewhat larger than the opening formed in the rear bag wall 4a so that the rear bag wall can be removed from tube 1 only by the application of some force to the bag wall which tends to distend the opening in the rear wall 4a so that it can pass over the enlarged flange 2.

It is possible to use the apparatus as shown in FIGS. 1 and 2 without making provision for the entry of pressurized air into the interior of sleeve 5 and thus without the discharge of air from the nozzle 7. Thus, it is readily possible for the user of the bag-dispensing apparatus to open a bag for the insertion of articles therein by merely grasping the front bag wall so as to slip it off of the tube 1 and thereby hold the bag open while the rear bag wall 4a is retained on outer tube 1 by means of flange 2. Then, when the bag has been suitably filled, it is a simple matter to remove the rear bag wall from the tube by forcing it over the enlarged flange portion 2.

Preferably, however, pressurized air is used to, in effect, inflate each bag so that the bag is held open by air under pressure, and there is then no need for the user of the apparatus to hold the bag open while it is being filled. When pressurized air is used, it will readily be apparent that a portion of the stream of air will flow into the interior of the righthandmost bag of the stack shown in FIG. 1 which then tends to inflate the bag partially and results in the front bag wall 4b of such bag slipping off of the outer tube 1 while the rear bag wall 4a is retained thereon. To facilitate the opening of the bags by the stream of air from nozzle 8, it is desirable to spring bias the stack of bags toward the right as seen in FIG. 1 in order that the bag which is the farthest to the right will be butted up against the flange 2 so that the air stream issuing from nozzle 7 can readily be effective to inflate such bag. Such spring biasing of the stack of bags may be provided, for example, by a coil spring 9 bearing against the flange 5b at its left-hand portion and bearing at its right-hand against a washer 10 or the like which pushes the stack of bags 4 to the right.

As can be seen in FIG. 2, the apertures in the bag walls may be of oval shape, and it is feasible to provide for only a single pair of aligned apertures in each bag, with one aperture being in the front bag wall and the other aperture being in the rear bag wall.

FIG. 3 illustrates that the stack of bags may each have more than one set of apertures passing through the rear and front bag walls. Thus, in FIG. 2, a central, generally oval-shaped aperture is used which acts as a convenient hand hole for the user. Each bag is then provided in addition with two sets of circular apertures adjacent the respective upper corners of the bag, and these aligned apertures in and front and rear bag walls are then disposed about a pair of tubes 1 each of which generally corresponds to the tube 1 of FIG. 1.

What I claim is:

1. Apparatus for dispensing carrier bags one at a time from a stack of such bags wherein each of the bags has a pair of aligned apertures in its respective front and rear walls when the bag is in its collapsed state, with each of said apertures being spaced from the bag mouth so that each aperture is surrounded by the material from which the bag is formed and with one of the apertures being larger than the other, said apparatus

comprising:

a tube having a configuration generally conforming to that of the apertures in said bag walls and adapted to pass through the aligned apertures in a stack of such bags,

means supporting said tube at one end thereof,

a lip adjacent the other end of said tube and of such a peripheral size as to readily permit the wall of the bag with the larger of the two apertures to pass over said lip while retaining on said tube the bag wall with the smaller aperture,

whereby a stack of bags positioned on said tube in such manner that the bag walls with the larger apertures face toward said lip can be opened one at a time by removing from said tube the bag wall with the larger aperture while the other bag wall is retained by said tube and thereafter the other bag wall can be removed from said tube by forcing said other bag wall over said lip so as to distend the smaller aperture.

2. The apparatus of claim 1 which further includes resilient means for forcing said stack of bags toward said other end of said tube.

3. The apparatus of claim 1 in which said tube is held low and supports at its said other end a nozzle which directs air admitted under pressure in said tube into the interior of the bag most closely adjacent said lip so as to inflate said bag and remove its bag wall having the larger aperture from said tube.

4. In combination:

a plurality of carrier bags each comprising generally coextensive front and rear bag walls and having through apertures adjacent the bag mouth which are aligned when the bag is in the collapsed state, the apertures in one wall of the bag being of larger size than the apertures in the other wall of the bag and with each said aperture being sufficiently spaced from the bag mouth to ensure that each said aperture is surrounded by the material from which the associated bag unit is formed,

bag dispensing apparatus comprising an elongate supporting member having a cross-sectional configuration generally conforming to that of the aperture in said bag walls and adapted to pass through the aligned apertures in a stack of such bags,

and lip means adjacent one end of said supporting member for permitting the aperture of larger size of each bag to slip readily off said one end while retaining one said member the bag wall with the smaller aperture,

whereby each said bag may be retained in an open position on said supporting member and then selectively removed therefrom by pulling on said bag so as to distend the smaller aperture and thereby permit the rear bag wall to pass over said lip means, said bags being stacked on said supporting means with the bag wall of each bag having the larger aperture being closer to said lip means.

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