

July 17, 1962

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3,044,233

HANDLING OF FLEXIBLE PLASTIC BAGS

Filed Oct. 9, 1961

2 Sheets-Sheet 1

FIG. 1

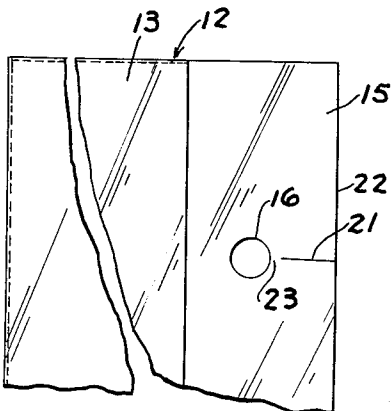
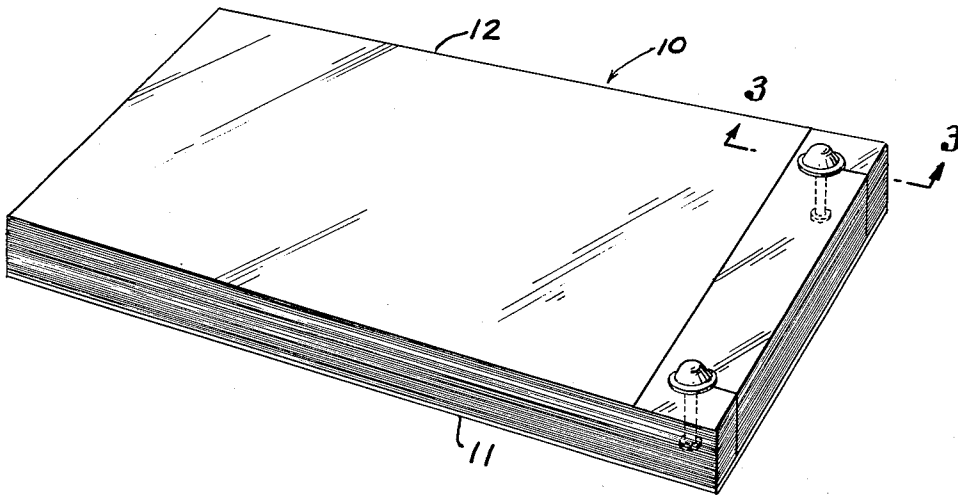


FIG. 2

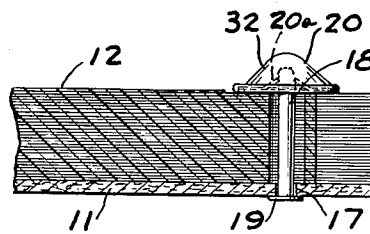


FIG. 3

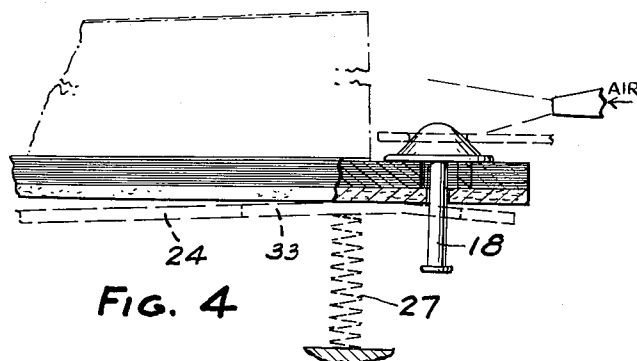


FIG. 4

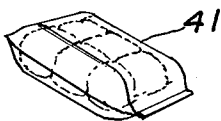


FIG. 5

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FIG. 6

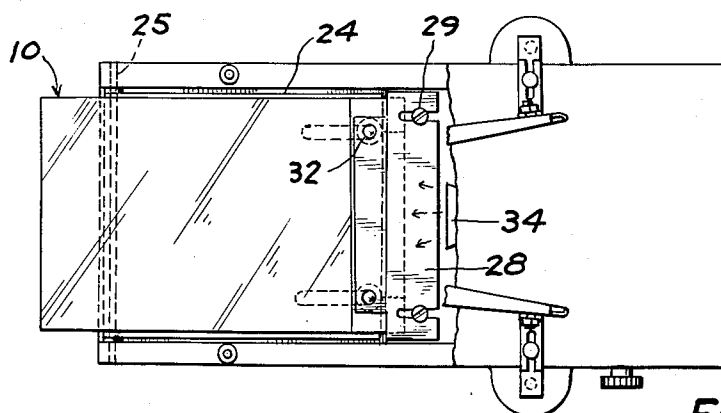
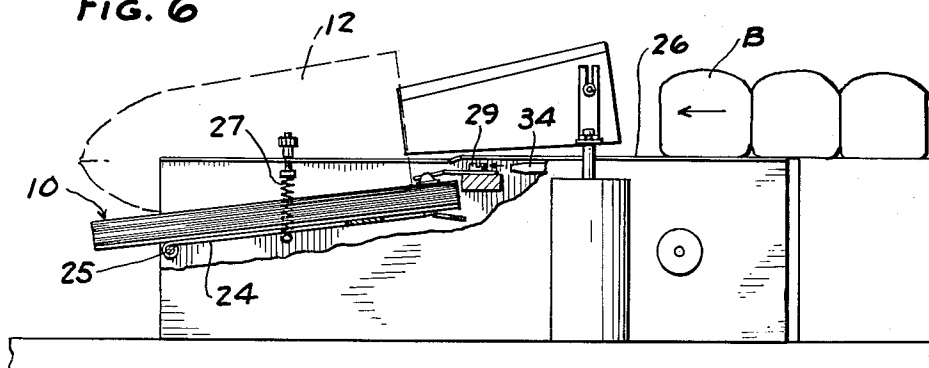


FIG. 7



FIG. 9

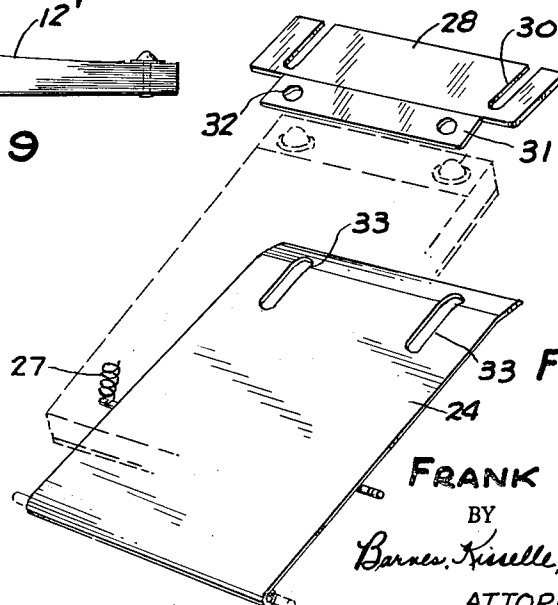


FIG. 8

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HANDLING OF FLEXIBLE PLASTIC BAGS

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Filed Oct. 9, 1961, Ser. No. 143,952
16 Claims. (Cl. 53-385)

This invention relates to the handling of flexible organic plastic bags such as are made of polyethylene having a thickness of less than 3 or 4 mils.

Thin flexible plastic bags are now being used extensively for packaging various products such as bakery goods, soft goods and other products. An inherent problem in the handling of such bags is that they are very thin and smooth so that when handled they tend to slip relative to one another. This makes them extremely difficult to handle.

In one bagging and filling machine for handling such bags now being used, a pile of bags are placed on a support. Each bag includes a lip and the support yieldingly urges the pile of bags upwardly causing the lips to engage a stop member. Air is introduced to the topmost bag to open the bag and then the product is inserted in the bag. By pulling the bag away from the stop member, the next bag is brought into position so that the air can open it up. The thinness and the tendency of the bags to slip make it very difficult to load such machines. In addition, more than one bag is often pulled off when the topmost bag is filled with the product.

At the present time, it is customary to make a package of a small number of the bags at the place of manufacture of the bags by interposing the bags between cardboard which is taped. Such a package is difficult to assemble because of the tendency of the bags to slip relative to one another. In addition, this package must be carefully handled during shipment and use at the machine because of the tendency of the bags to slip relative to one another.

It is an object of this invention to provide a novel means for handling thin flexible plastic bags.

It is a further object of the invention to provide a novel package which obviates the extreme care that has been heretofore necessary in the handling of such bags during manufacture, shipment and filling.

Basically, the invention comprises providing a package in the machine comprising a plurality of plastic bags having pairs of aligned holes in the lips thereof and pin members extending through and slidably received in the openings. A stop member on the bagging and filling machine is adapted to locate and engage the upper ends of the pin members while a support in the machine, having clearance for the lower ends of the pin members, is yieldingly urged upwardly to hold the pile of bags against the stop member. The uppermost bag is thus in position for opening by the air. When the bag is filled, it is pulled off of the package tearing along the pin members. The lip of each bag is preferably formed with a weakened portion between the openings and the free edge of the lip to facilitate the tearing of the lip.

In the drawings:

FIG. 1 is a perspective view of the package embodying the invention.

FIG. 2 is a fragmentary plan view of a bag utilized in the package of FIG. 1.

FIG. 3 is a fragmentary sectional view on an enlarged scale taken along the line 3-3 in FIG. 1.

FIG. 4 is a partly diagrammatic representation showing the manner in which the package is used in a machine.

FIG. 5 is a perspective view of a sealed bag after the product is inserted in the bag.

FIG. 6 is a partly diagrammatic view showing the package in position on a machine.

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FIG. 7 is a fragmentary plan view of the machine shown in FIG. 6.

FIG. 8 is an exploded perspective view showing the relative positions of the package and stop member used in the machine.

FIG. 9 is a side elevation of a modified form of package.

Referring to FIGS. 1-3, novel package 10 embodying the invention comprises a relatively rigid backing member 11 of cardboard or similar material on which a plurality of flexible bags 12 are positioned. Each bag is made of thin flexible organic plastic material such as polyethylene having a thickness on the order of less than 3 to 4 mils.

As shown in FIG. 2, each bag 12 includes a pair of walls 13, 14 which are joined along three sides. Wall 14 is longer than wall 13 thereby providing a lip 15 along the fourth side of wall 14. Each lip 15 is provided with a pair of spaced openings 16 which are aligned with openings 17 in the backing member 11. A rivet, nail or pin 18 extends through each set of aligned openings 16, 17. The pin 18 is formed with a head 19 that engages the underside of the backing member 11. A cap member 20 frictionally engages the free end of the pin 18 to hold the bag 12 on the backing member. Cap member 20 may be made of sheet metal and includes fingers 20a which frictionally engage pins 18.

Each bag is formed, in addition, with a slit 21 which extends from a point adjacent opening 16 to the free edge 22 of the lip 15. In this manner, only a small portion 23 of the lip holds the bag on pin 18.

Referring to FIGS. 6, 7 and 8, package 10 is adapted to be positioned on a support 24 that is pivoted at 25 to housing 26 of a bagging and filling machine. Support 24 is yieldingly urged upwardly by a spring 27. Support 24 urges the package 10 upwardly against a stop member 28 that is adjustably mounted on the machine by screws 29 that extend through slots 30 in the slot member. Stop member 28 is provided with a downwardly extending lip 31 that is formed with a pair of openings 32. Caps 20 on pins 18 are conical in external shape as at 32 and are so dimensioned that they extend into the openings 32 to locate the package 10 relative to the machine.

By this arrangement, the backing member 11 and bags 12 are yieldingly urged upwardly against the caps 20 and the stop member 28. Support member 24 is provided with elongated slots 33 so that the pins 18 clear the support member and move freely relative thereto (FIGS. 4, 6-8). Slots 33 provide clearance for pins 18 both during insertion of the package 10 in the machine and while the package 10 is held in the machine.

As shown in FIG. 6, the topmost bag 12 is adapted to be opened by air from nozzle 34 so that the product, such as a loaf of bread B, can be inserted in the bag. By moving the bag to the left, as shown in FIG. 6, it is removed from the package 10 by tearing the portions 23. This brings the next successive bag into position for the air from nozzle 34 to open it so that it is ready for filling. The distance between holes 16 is controlled to determine the degree of ballooning of each bag.

Where the bags are provided with a square bottom, the package 12' assumes the general configuration shown in FIG. 9, the square bottoms 40 forming a thicker package at the unattached ends of the bags.

After the bag containing the product is removed from the machine, the open end of the bag is closed by a suitable means as by heat sealing to form the package shown in FIG. 5.

It can thus be seen that there has been provided a novel means for handling flexible thin plastic bags that are made of polyethylene and the like and a novel package for said bags. Since the package holds the bags firmly, no special care need be exercised between the point of

manufacture and the point of use of the bags. Thus, a major problem in the handling of thin flexible bags is entirely eliminated. As many as one thousand bags can be handled in a single package.

I claim:

1. In a bagging and filling machine wherein air is supplied to the uppermost of a pile of flexible plastic bags, the combination comprising a package of flexible organic plastic bags, each said bag comprising two contiguous walls when the bag is in folded condition, one of said walls extending beyond the other to form a lip, said lip having a pair of spaced openings therethrough, said bags being positioned with said openings in alignment, pin means extending through said openings and slidable relative thereto, said pin means having enlarged upper and lower ends, a support on said machine yieldingly urging said plurality of bags upwardly, and means on said machine adapted to engage the upper ends of said pin means and locate said pin means, said support also engaging said bags and yieldingly urging said bags upwardly against said enlarged upper ends of said pin means whereby the topmost bag of said package is adapted to be opened so that it can be filled and pulled from said package, said lip being torn by said pin means when the bag is pulled from said package.

2. The combination set forth in claim 1 wherein each said bag includes a weakened portion extending between each said opening and the free edge of said lip.

3. The combination set forth in claim 1 wherein the enlarged upper end on each said pin means comprises an enlarged head engaging said means on said machine and including openings therein through which said enlarged heads partially extend to locate said package.

4. In a bagging and filling machine, the combination comprising a package of thin flexible organic plastic bags, each said bag comprising opposed walls which are in contact when the bag is folded, one of said walls extending beyond the other to form a lip, each said lip having an opening, a backing member on which said bags are piled, said backing member having an opening, the opening of said backing member being aligned with the openings in the lips of said bags, a pin member extending through said openings, the end of said pin member being enlarged, said member being movable relative to said bags and said backing member, a stop member on said machine, said stop member having aligning means adapted to engage the upper enlarged end of said pin member, and a support member on said machine positioned beneath said backing member and adapted to yieldingly urge said backing member and said bags upwardly against said stop member and relative to said pin member, said support member having portions thereof cut away to clear said pin member.

5. The combination set forth in claim 4 wherein the enlarged upper end of said pin member comprises an upwardly extending conical head, said aligning means on said stop member comprising an opening therethrough through which said conical head partially extends to locate said pin member relative to said stop member.

6. The combination set forth in claim 4 wherein each said bag is provided with a slit from a point spaced from the opening thereof in each said lip to the free edge of said lip thereby weakening said lip in the area between said opening and the free edge of said lip.

7. In a bagging and filling machine, the combination comprising a package of thin flexible organic plastic bags, each said bag comprising opposed walls which are in contact when the bag is folded, one of said walls extending beyond the other to form a lip, each said lip having a pair of spaced openings therein, a backing member on which said bags are piled, said backing member having a pair of spaced openings, the openings of said backing member being aligned with the openings in the lips of said bags, a pin member extending through each of said aligned sets of openings, the ends of said pin members

being enlarged, said members being movable relative to said bags and said backing member, a stop member on said machine, said stop member having aligning means adapted to engage the upper enlarged ends of said pin members, and a support member on said machine positioned beneath said backing member and adapted to yieldingly urge said backing member and said bags upwardly relative to said pin members against the upper enlarged ends of said pin members and, in turn, urge the upper enlarged ends of said pin members against said stop member, said support member having portions thereof cut away to clear said pin members.

8. The combination set forth in claim 7 wherein the enlarged upper ends of said pin members comprise upwardly extending conical heads, said aligning means on said stop member comprising openings therethrough through which said conical heads partially extend to locate said pin members relative to said stop member.

9. The combination set forth in claim 7 wherein each said bag is provided with a slit from a point spaced from the opening thereof in each said lip to the free edge of said lip thereby weakening said lip in the area between said opening and the free edge of said lip.

10. In a bagging and filling machine wherein air is supplied to the uppermost of a pile of flexible plastic bags, the combination comprising a package of flexible organic plastic bags, each said bag comprising two contiguous walls when the bag is in folded condition, one of said walls extending beyond the other to form a lip, said lip having a pair of spaced openings therethrough, said bags being positioned with said openings in alignment, pin means extending through said openings and slidable relative thereto, said pin means having enlarged lower ends, a support on said machine yieldingly urging said plurality of bags upwardly, and means on said machine adapted to engage the upper ends of said pin means and locate said pin means, said means also engaging said bags to serve as a stop against which said pin means are yieldingly urged by said support whereby the topmost bag of said package is adapted to be opened so that it can be filled and pulled from said package, said lip being torn by said pin means when the bag is pulled from said package.

11. In a bagging and filling machine of the type having a support on which a pile of flexible organic plastic bags is supported and a stop member against which the bags are yieldingly urged upwardly by the support and air is supplied to open the uppermost bag, the improvement comprising a package of flexible organic plastic bags, each said bag comprising two contiguous walls when the bag is in folded condition, one of the walls extending beyond the other to form a lip, said lip having a pair of spaced openings therethrough, said bags being positioned with said openings in alignment, a backing member on which said bags are piled, said backing member having openings in alignment with the openings in said bags, pin means extending through said aligned sets of openings and slidable relative thereto, each said pin means having enlarged upper and lower ends, the upper ends being shaped in such a manner that they are engaged and located by the stop member of the machine.

12. The invention set forth in claim 11 wherein the enlarged upper ends of said pin means are substantially conical in shape for engagement with openings in said stop member.

13. In a bagging and filling machine wherein air is supplied to the uppermost of a pile of flexible plastic bags in a package of flexible organic plastic bags, each said bag comprising two contiguous walls when the bag is in folded condition, one of said walls extending beyond the other to form a lip, said lip having a pair of spaced openings therethrough, said bags being positioned with said openings in alignment, pin means extending through said openings and slidable relative thereto, said pin means having enlarged upper and lower ends, the combination comprising a support on said machine yieldingly urging said

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plurality of bags upwardly, and stop means on said machine engaging the upper ends of said pin means and locating said pin means, said support engaging said bags and yieldingly urging the upper ends of said pin means against said stop means whereby the topmost bag of said package is adapted to be opened so that it can be filled and pulled from said package.

14. The combination set forth in claim 13 wherein said stop means includes openings therein through which said enlarged upper ends are adapted to partially extend and locate the package.

15. The combination set forth in claim 13 wherein said support member has portions thereof cut away to clear the enlarged lower ends of said pin means.

16. In a bagging and filling machine wherein air is supplied to the uppermost of a pile of flexible plastic bags in a package of flexible organic plastic bags, each said bag comprising two contiguous walls when the bag is in folded condition, one of said walls extending beyond the other

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to form a lip, said lip having a pair of spaced openings therethrough, said bags being positioned with said openings in alignment, pin means extending through said openings and slidable relative thereto, said pin means having enlarged upper and lower ends, means yieldingly urging said package of bags upwardly, the improvement comprising stop means mounted on said machine against which the package of bags is urged upwardly, said stop means having portions thereof engaging and locating the upper ends of said pin means.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,044,233

July 17, 1962

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It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the drawings, Sheet 1, in Fig. 2, the longer wall, described in column 2, lines 14-16, should be identified by numeral 14 with its lead line extending to the wall provided with lip 15.

Signed and sealed this 8th day of January 1963.

EAL)
test:

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Testing Officer

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