PLASTIC BAG DISPENSER SYSTEM

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ABSTRACT

Plastic bags which are each folded a number of times along parallel fold lines are arranged in overlapping sequence in the direction of the fold lines and are rolled up to form a cylindrically shaped coreless roll of bags. The cylindrical roll is contained within a package having an opening through which the leading bag can be pulled off the roll. The package is large enough to allow the roll to rotate when the bag is pulled off, and the bags are overlapped sufficiently so that the leading edge of the next bag will be rotated to a position of access through the package opening when the leading bag is pulled off the roll.

6 Claims, 5 Drawing Figures
PLASTIC BAG DISPENSER SYSTEM

BACKGROUND OF THE INVENTION

This invention relates to dispenser systems for pieces of folded sheet material such as plastic bags which are used as liners for garbage cans, trash cans, and general household and institutional use. In the past, large plastic bags such as used in dry cleaning plants to cover cleaned suits and dresses have been stored on large dispensing rolls in which the individual bags are joined to each other along perforated lines that can be relatively easily severed to separate one bag from the roll. Rolls of this type are, however, too large to be used for household garbage bags, which require a dispensing package that is small enough to conveniently fit on the average household cabinet shelf. In order for the garbage bags to fit into a small enough package, it is necessary to fold them several times along their length and this has precluded the use of perforated rolls. Accordingly, in the past, plastic bags for household garbage cans and trash cans have been folded into rectangles and stacked one on top of the other in relatively thin rectangular dispensing packages. A typical dimension for one such prior art package is 9 1/2 inches long, 7 inches wide, and 1 3/4 inches deep.

But although these prior art packages fulfilled their primary function of holding and dispensing the bags, they have several drawbacks. In the first place, thin rectangular packages are not conveniently shaped for storage on cabinet shelves. They take up too much room along their wide dimensions and not enough room along their thin dimension. In addition, such packages are not conveniently shaped for display on market shelves. In order to be stable, they must be stacked with their large surface in a horizontal plane, which exposes only their thin edge on the outside of the stack. This thin edge is too small to carry an advertising message or to attract attention to the packages. Moreover, because of their awkward shape, they are relatively hard to handle when they are being filled with bags at the factory and when they are being packed into cartons or removed from cartons or otherwise being handled individually. Finally, stacking the folded bags one on top of the other results in a relatively low density package that requires more storage volume per bag than would be required in a higher density package.

In view of the above, one object of the invention is to provide a dispenser system for pieces of folded sheet material which has a higher package density than those hereinbefore mentioned. A further object of this invention is to provide a dispenser system or package for pieces of folded sheet material which is easier or more convenient to use, easier to handle and to store and takes up less space than those hereinbefore mentioned. An additional object of this invention is to provide a dispenser system for pieces of folded sheet material in which the pieces are arranged in an overlapping sequence and are rolled up to form a substantially cylindrically shaped coreless roll.

SUMMARY OF THE INVENTION

In accordance with this invention, the above-noted objects are achieved by arranging the pieces of folded material in overlapping sequence in the direction of the fold lines, rolling the overlapped sequence of pieces up to form a substantially cylindrically shaped roll, placing the roll in a substantially square cross section carton which is large enough to allow the roll to rotate therewith, providing an opening in the carton through which pieces of folded material can be pulled off the roll, and the individual pieces being sufficiently overlapped so that the leading edge of the next piece is rotated to a position adjacent to the opening when the leading piece is pulled off the roll.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a cross-sectional view taken through a folded plastic garbage bag or trash bag with the individual sheets being separated from one another for clarity of illustration.

FIG. 2 is a plan view of several such folded plastic garbage bags or trash bags arranged in an overlapped sequence.

FIG. 3 is a side view of the overlapped sequence shown in FIG. 2.

FIG. 4 is a perspective view of one illustrative package of this invention containing a cylindrically shaped roll of overlapped plastic garbage or trash bags.

FIG. 5 is a perspective view of a second package of this invention containing a cylindrically shaped roll of overlapped plastic garbage or trash bags.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Although the disclosure hereof is detailed and exact to enable those skilled in the art to practice the invention, the physical embodiments herein disclosed merely exemplify the invention which may be embodied in other specific structure. The scope of the invention is defined in the claims appended hereto.

The drawings show two illustrative dispensing packages of this invention which are specifically adapted to handle flat plastic garbage or trash bags.

The plastic bags which are to be used in connection with the illustrated embodiments of the invention are made of relatively thin plastic sheet material. The flattened condition of one size and style of such a bag measures approximately 3 feet long by 2 1/2 feet wide. In order to reduce their width to a manageable size, i.e., a size that can be conveniently stored on a household cabinet shelf, the bags are preferably folded three times along fold lines 10, 12 and 14 as shown in FIG. 1 to reduce their width to approximately 8 inches. It should be understood, however, that the disclosed folds are exemplary and other folds could be employed if desired. The fold lines 10, 12 and 14 preferably extend parallel to the side edges 16 and 18 of the flattened bags, but it may be possible to have the fold lines extend parallel to the top and bottom edges of the bags if desired. The first described folds are, however, preferable because they leave the open edge of the bag exposed so that the user can find it without having to unfold the bag first and they also leave an open end through which air may be expelled during the rolling process to prevent the formation of air bubbles in the rolled bags.

In FIG. 1, the distance between adjacent side panels of the folded bag has been enlarged to illustrate the nature of the folds. In practice, however, the adjacent side panels are in contact with each other except when air bubbles are trapped between them.

The above-noted folds produce a folded configuration that has eight panels positioned one on top of the
other in contact with each other. When such a configuration is rolled up, there is a problem of keeping the panels straight and also of keeping air from being trapped between the panels. This is one of the reasons why it has been the practice in the past to fold such bags into rectangles and package them one on top of the other. In accordance with this invention, however, it has been found that such folded bags can be rolled up neatly and that the rolls provide a denser, more convenient and compact package than the thin rectangular packages used in the past.

Referring to FIGS. 2 and 3, physically discrete folded bags are arranged in an overlapping sequence in the direction of the fold lines. In the final product, the sequence of bags is rolled up, but for illustration purposes, the bags are shown as being flat in FIGS. 2 and 3. Thus the physically discrete folded bags are serially related and are sequentially dispensible. Three folded bags 20, 22 and 24 are shown in FIGS. 2 and 3, each of which has a leading edge L, a trailing edge T, and two parallel side edges S1 and S2. With the method of folding shown in FIG. 1, the side edge S1 would correspond to the fold line 10 in FIG. 1 and the side edge S2 would correspond to the fold lines 12 and 14 laid one on top of the other. The leading edges L are preferably the open ends of the bags and the trailing edges T are preferably the closed ends of the bags. The sequence of bags is arranged in the direction of the fold lines with the leading edge of each bag overlapping the trailing edge of the next bag in the sequence by a predetermined amount which will be discussed hereinafter.

The overlapped, folded bags are rolled up about an axis transverse to their side edges S1 and S2 to form a substantially cylindrically shaped roll of bags as indicated by the numeral 26 in FIG. 4. This roll may have a core but it is preferably coreless to increase the packing density. The bags are rolled from their closed end first to prevent the formation of air bubbles in the rolled bags. In this example, the closed end of the bag corresponds to the trailing edge T shown in FIGS. 2 and 3.

The roll 26 shown in FIG. 4 contains 20 of the above-noted plastic bags and is approximately 3¼ inches in diameter and 8¼ inches long. The roll 26 is inserted within a square cross section cardboard box or packaging 28 which is slightly larger in its dimensions that the roll 26 so that the roll is free to rotate within the package when the leading bag 30 is pulled off the roll. The package 28 has a hinged top 32 with downwardly depending side flaps 34 and a downwardly depending front flap 36. The hinged top 32 can be opened as shown in FIG. 4 to provide an opening through which bag 30 can be pulled off roll 26.

When bag 30 is pulled off roll 26, it develops a turning moment which causes the roll 26 to rotate. It is desirable for the roll 26 to rotate just enough so as to bring the leading edge L of the next bag adjacent to the opening when the trailing edge T of bag 30 clears roll 26. The amount of rotation for roll 26 is determined by the amount of overlap between the adjacent folded bags and the degree of slip or coefficient of friction between them. In the case of some plastic bags, which tend to slip past each other quite easily, an overlap in the neighborhood of 50 to 60 percent of the bag length is preferred to achieve the desired degree of rotation. With other materials, where the bags tend to cling together, because of static electricity or otherwise, the overlap can be quite short. Accordingly, the amount of overlap may vary in proportion to the slipperiness of the overlapped portions.

FIG. 5 shows a different carton 38 for holding a cylindrical roll 40 of plastic bags, the roll 40 being the same size as the roll 26. This carton has an elongated corner opening or slot 42 through which the leading bag 44 can be pulled off roll 40. The slot 42 is defined by a perforated tear line and is opened by the consumer when he or she is ready to remove one of the bags from the package. The slot 42 could have other shapes and positions, and it should therefore be understood that any opening which allows the bags to be conveniently removed therefrom is suitable.

The packages 28 and 38 are both 8½ inches long, 3½ inches wide, and 3½ inches deep. This size is very convenient for handling and storage, and each side of the package is large enough to carry a clearly legible advertising message. The balanced configuration of the packages reduces the amount of cardboard required for the package and the coreless cylindrical roll gives a relatively high package density. The roll of bags within the packages turns easily so that the individual bags may be removed from the package quite readily. The removal of each bag pulls the leading edge of the next bag into a position adjacent to the opening in the package where the next bag can be easily grasped to be removed.

For the purpose of description, it has been assumed that the bags are arranged in overlapping sequence before they are rolled up, but in practice the two operations may proceed simultaneously, i.e., the bags may be rolled up while they are being arranged in overlapping sequence. For example, the bags may be wound on a turning roll one at a time with the trailing edge of each bag overlapping the leading edge of the previous bag by the required amount. This may be done either manually or by automatic machinery as desired. The insertion of the rolls into the packages may also be carried out either manually or by automatic machinery as may the closing and sealing of the packages.

While in the illustrated embodiment the cross section of the carton 28 is square, other cross sections which closely surround the roll 26 with little waste space can be used.

1 claim:

1. In a dispenser for physically discrete, serially related, sequentially dispensable plastic bags, each of which is folded a plurality of times along substantially parallel fold lines, the improvement in which said folded bags are arranged in overlapping sequence in the direction of said fold lines and are rolled up to form a generally cylindrically shaped roll, a package dimensioned to contain said roll, means defining an opening in said package through which the leading folded bag can be pulled off said roll, said package being large enough to allow said roll to rotate when said leading bag is pulled off said roll, and said bags being overlapped sufficiently to that the leading edge of the next bag is rotated to a position of access adjacent to said opening when said leading bag is pulled off said roll.

2. A dispenser as defined in claim 1 in which said roll is coreless.

3. A dispenser as defined in claim 1 in which the means defining an opening in said package comprises a perforated line defining a slot in said package, said
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5 slot being shaped to allow said folded bags to be withdrawn therethrough.

4. A dispenser as defined in claim 1 in which the means defining an opening in said package comprises a hinged top on said package which can be opened to allow said folded bags to be withdrawn therethrough.

5. A dispenser as defined in claim 1 wherein the cross-sectional shape of said package transverse to the axis of said roll is square.

6. A dispenser as defined in claim 1 wherein each folded plastic bag has an open end and a closed end, and wherein said bags are folded a plurality of times along parallel fold lines which extend between the open and closed ends of said bag.

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