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**A RUBBISH BIN SUITABLE FOR HOLDING MULTIPLE POLYBAGS
TO FACILITATE RUBBISH SORTING**

BACKGROUND OF THE INVENTION

Conventional rubbish bins for family use can generally be divided into two types, namely, the open type and the cover type. The open type rubbish bin is simple and can be manufactured at low cost while it is convenient in use, and is therefore, welcomed by the consumers. A disadvantage of the open type rubbish bin is that bad odors from the rotten food or used toilet paper discarded therein shall escape and tend to cause flies, mosquitos, etc. that adversely affects surrounding sanitation of our living environment. The cover type rubbish bin is therefore developed to eliminate the disadvantage existed in the open rubbish bin.

It is a general way of people when using the rubbish bin, either an open or a cover type, to put a suitably sized polybag in the rubbish bin for containing rubbishes therein. When the polybag is full, a user may simply tighten the opening of the polybag and hands the same to a rubbish collecting car. Another new polybag can be conveniently put into the rubbish bin for the next use. Although this is a very easy and simple way to use the rubbish bin and dispose the rubbishes, there are still some disadvantages when using the rubbish bin in such a way:

1. Generally, polybags with ears in different sizes used to pack in markets, supermarkets or grocery are reusable as a rubbish bag. However, since the rubbish bin has fixed dimensions and therefore not all the reusable polybags can be fitted over a certain rubbish bin. As a result, some of

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the reusable polybags are actually discarded after they have been used only once. This is, of course, an undesirable waste of our reusable resource.

2. Some of the reusable polybags have a width suitable for fitting over a rubbish bin but not a depth long enough for the polybag hung around a rim of the rubbish bin to contain a certain weight or amount of rubbishes without collapsing and falling down from the rim of the rubbish bin. The collapsed and fallen down polybag is not easily tightened in a convenient and sanitary manner.

3. It is an important work in the environmental protection to recover the reusable resources, and rubbish sorting in family is an important step in the recovery of reusable resources. However, since it is a present situation that only one polybag can be fitted over one rubbish bin and users will usually discard all kinds of rubbishes, including metal cans, waste paper, fruit skin, residues of food, worn clothes, glass bottles, etc., into one polybag without sorting them. That is, we do not actually effectuate the family rubbish sorting to support the recovery of reusable resources and the environmental protection.

It is therefore desirable to find a way to solve the problem of fully utilizing the reusable polybags and to easily and conveniently do the rubbish sorting at any place and at any time in our daily life.

SUMMARY OF THE INVENTION

A primary object of the present invention is to provide a rubbish bin which is provided around its opening flange with

a plurality of holding means for supporting polybags with ears or a plurality of clamping means for supporting polybags without ears, such that more than one polybags in different sizes can be fitted over and held in one rubbish bin to fully utilize reusable polybags and to facilitate the in-house rubbish sorting.

Another object of the present invention is to provide a rubbish bin which is provided around its opening flange at proper positions with anti-collapse means to prevent a polybag fitted over a rubbish bin from collapsing and falling down from the rim of the rubbish bin.

BRIEF DESCRIPTION OF THE DRAWINGS

The above-mentioned and other objects of the present invention, as well as the functions and features thereof, can be best understood by referring to the following detailed description of the preferred embodiment and the accompanying drawings, wherein

Fig. 1 is a perspective showing a rubbish bin of the present invention with more than one polybag fitted over its opening flange;

Fig. 2 is a fragmentary, elevational side view of the rubbish bin in Fig. 1, showing the structure of its opening flange;

Fig. 3 is a perspective showing a round rubbish bin of the present invention with a smaller polybag fitted over its opening flange;

Fig. 4 is a perspective showing a round rubbish bin of the present invention with more than one polybag fitted over its opening flange;

Fig. 5 is a fragmentary, elevational side view of the round rubbish bin in Figs. 3 and 4, showing the structure of its opening flange;

Fig. 6 is a perspective showing another way to fit a smaller polybag over the rim of the rubbish bin of the present invention;

Fig. 7 is a fragmentary, elevational side view of the rubbish bin in Fig. 6, showing the structure of its opening flange;

Fig. 8 is a fragmentary, elevational side view of another embodiment of the rubbish bin of the present invention;

Fig. 9 is a fragmentary, elevational side view of a further embodiment of the rubbish bin of the present invention; and

Fig. 10 is a fragmentary, elevational side view of a still further embodiment of the rubbish bin of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please refer to Fig. 1, the present invention relates to a rubbish bin 1 having a peripheral flange 10 formed around a top opening thereof. A plurality of holding means 3 are formed along the flange 10 for holding ears 21 of more than one polybag 2 in identical or different sizes at the same

time, so that rubbish sorting may be conveniently done within only one rubbish bin 1. There are also a plurality of anti-collapse means 4 formed along the flange 10 at predetermined positions to prevent a polybag 2 fitted over there from collapsing and falling down to a bottom of the rubbish bin 1.

In a preferred embodiment of the present invention, the flange 10 further includes two pairs of oppositely positioned edges, that is, a first and a second edge pair 101, 102 as well as a third and a fourth edge pair 103, 104. A plurality of sequentially spaced holding means 3 for holding ears 21 of polybags 2 are formed on the first and the second edges 101, 102 of the flange 10 at predetermined positions, such that more than one polybag 2 in identical or different sizes can be held on the rubbish bin 1 by hanging their ears 21 on two of the holding means 3. Please refer to Fig. 2, each of the holding means 3 further includes a top funnel-shaped cut 31, a middle narrowed neck 32 downward and communicably extended from a bottom portion of the funnel-shaped cut 31, and a lower expanded seat 33 downward and communicably extended from a lower end of the neck 32 to an adequate length. The funnel-shaped cut 31 allows an ear 21 of the polybag 2 to easily slide into the narrowed neck 32 and finally into the seat 33. The narrowed neck 32 may effectively prevent the ear 21 of the polybag 2 in a seat 33 from easily slide out of the seat 33. There are also anti-collapse means 4 formed on the third and the fourth edges 103, 104 of the flange 10 at predetermined positions. The anti-collapse means 4 each includes a plurality of sequentially arranged teeth or irregularly contoured projections 41 which may effectively frictionally hold and

widely open a polybag 2 fitted over the rubbish bin 1 and prevent the polybag 2 from collapsing and falling down from the flange 10 due to the weight of rubbishes in the polybag 2.

To do rubbish sorting by using a rubbish bin 1 of the present invention, multiple polybags 2 in identical or different sizes may be fitted over the rubbish bin 1 by following steps.

First decide positions on the rubbish bin 1 to locate the polybags 2. Then, decide the holding means 3 and/or anti-collapse means 4 to be utilized. Insert one of the ears 21 of a selected polybag 2a into the funnel-shaped cut 31 of a selected holding means 3 on the first edge 101 of the flange 10. Cause the ear 21 to slide from the cut 31 down into the narrowed neck 32 and then the expanded seat 33. Insert the other ear 21 of the polybag 2a into another suitable holding means 3 on the second edge 102 of the flange 10 in the same steps as above described. Pull one top edge 22 of the polybag 2a to wrap over the teeth or projections 41 of the anti-collapse means 4 on the third edge 103 of the flange 10, so that the polybag 2a is widely opened to facilitate convenient collection of rubbishes therein. The first polybag 2a is now well positioned in the rubbish bin 1. Repeat the above described steps to fix other polybags 2b, 2c, etc. over the rubbish bin 1, as shown in Fig. 4, and the latter may be effectively divided into more than one rubbish spaces. Again, the polybags 2a, 2b, 2c, etc. may be identical or different in their sizes. Into these polybags 2, different kinds of rubbishes may be separately discarded according to a predetermined rules, such as polybag for combustibile/incombustibile rubbishes, for metal cans, waste

paper, fruit skins, food residues, worn clothes, or glassware, etc. Thereby, a complete rubbish sorting can be conveniently done and recovery of reusable resources can be effectuated from our daily life to meet the requirements of environmental protection. For convenient and sanitary purpose, it is also possible to use a polybag matching with the size of the rubbish bin to spread over the latter first and serve as an outer bag. Then, other reusable smaller polybags 2 may be located as above-mentioned. Whenever a small polybag 2 is full, it can be separately lifted and tightened at the opening, and put it in the outer polybag. Another small polybag 2 may be hung on the rubbish bin 1 to replace the first one. When the outer polybag is full with the small polybags 2, too, it may be tightened at the opening and sent to the rubbish collecting car.

It is to be understood that the form of the invention shown and disclosed is to be taken as a preferred embodiment of the invention and that various changes, modifications, etc. in the shapes, size, and arrangements of parts as well as the steps of implementing the invention may be resorted to without departing from the spirit of the invention. For example, the holding means 3 may be designed to have different shapes, sizes, intervals, positions etc. to correspond to the shape and/or size of the rubbish bin 1. As shown in Figs. 6 and 7, a rectangular rubbish bin having a peripheral flange 11 may be formed at two diagonally opposite corners 110 with a holding means 3 each, at a first and a second edges 111, 112 with a plurality of sequentially spaced holding means 3, and at a third and a fourth edges 113, 114 with an anti-collapse means 4 each. Or, as shown in Figs. 3, 4 and 5, a round rubbish bin having a peripheral flange 10 may be formed on the flange 10 with alternately

arranged holding means 3 and anti-collapse means 4, or with holding means 3 only. Moreover, the seat 33 of the holding means 3 may have different shapes, such as a round hole, an elongated hole, or a small hole, as shown in Figs. 2, 5, and 7, or a rectangular, triangular, or dovetail shaped hole, as shown in Figs. 8, 9 and 10. Similarly, the neck 32 may also have different shapes, and combinations of differently shaped necks 32 may be adopted on the same rubbish bin 1, as shown in Fig. 5.



What is claimed is:

1. A rubbish bin suitable for supporting multiple polybags of identical or different size to facilitate rubbish sorting, comprising a rubbish bin having a flange surrounding a top opening thereof, said flange being formed with a plurality of sequentially spaced holding means for holding ears of more than one polybag thereon or clamping edges of more than one polybag without ears thereto, such that different kinds of rubbishes may be separately discarded into a certain specified polybag to facilitate rubbish sorting.
2. A rubbish bin as claimed in claim 1, wherein said flange is formed at predetermined positions with anti-collapse means to prevent polybags fitted over said flange from collapsing and falling down to a bottom of said rubbish bin due to the weight of rubbishes discarded therein.
3. A rubbish bin as claimed in claim 2, wherein said anti-collapse means each comprises a plurality of teeth.
4. A rubbish bin as claimed in claim 2, wherein said anti-collapse means each comprises a plurality of irregular projections.
5. A rubbish bin as claimed in claim 2, wherein said anti-collapse means each comprises a plurality of teeth and irregular projections.
6. A rubbish bin as claimed in any of the above claims, wherein said holding means each comprises a top funnel-shaped cut, a middle narrowed neck downward and communicably



extended from a bottom of said funnel-shaped cut, and a lower expanded seat communicably connected to a lower end of said narrowed neck, such that an ear of said polybag can be hung to two of said expanded seats via corresponding narrowed necks by inserting said ear into said funnel-shaped cuts corresponding to said seats.

7. A rubbish bin as claimed in claim 6, wherein said narrowed neck and said expanded seat of said holding means both can be identical or different in shapes.

