

[54] **TRAY DISPENSER**

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221/287, 299, 298, 206, 93; 312/42; 211/13,
126, 128, 133; 206/56 K

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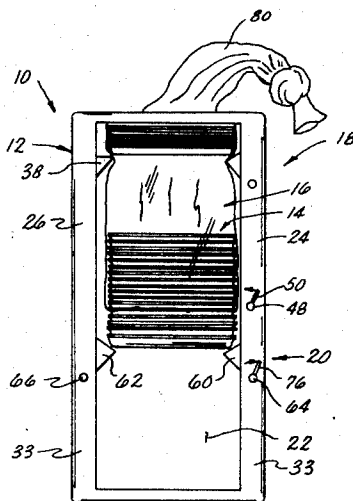
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[57]

ABSTRACT

This invention is a tray dispenser. It has a housing with a tray storage area in the upper portion thereof above a tray receiving portion. Clutches mounted in the housing hold a quantity of stacked trays in the storage area and other clutches hold and release a plurality of trays from the storage area into the receiving area. Separate controls operate the clutches independently. More particularly this invention is adapted to hold a quantity of trays in the storage area and release a small quantity of them into the receiving area.

3 Claims, 6 Drawing Figures



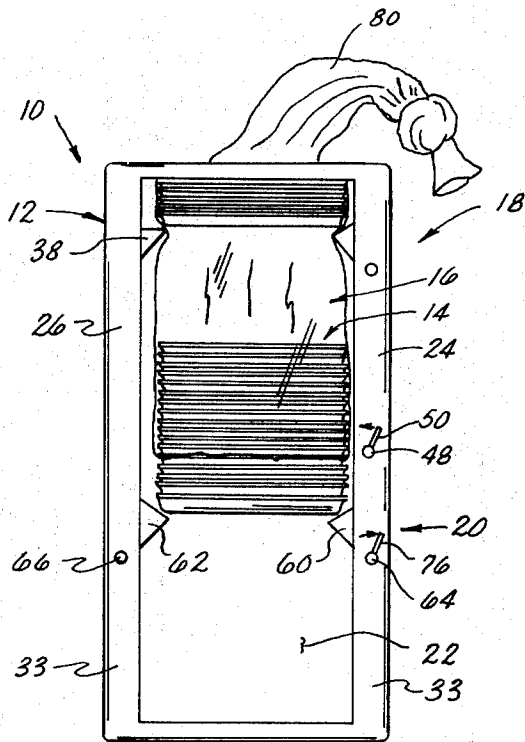


FIG. 1

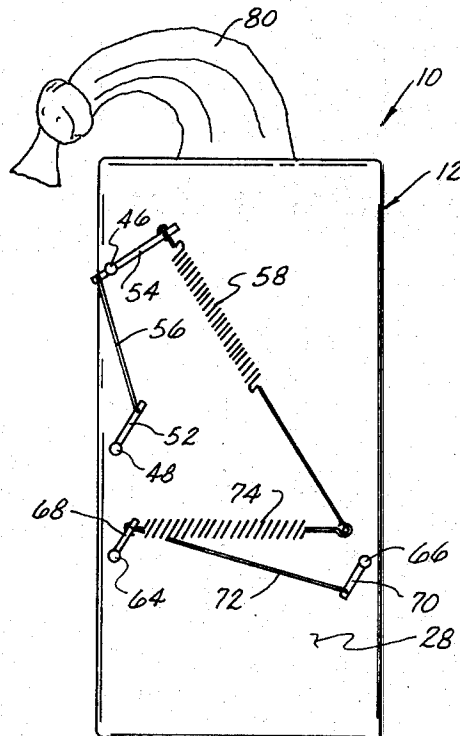


FIG. 2

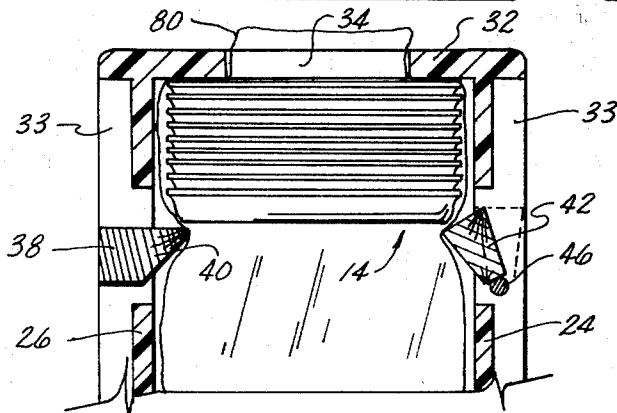
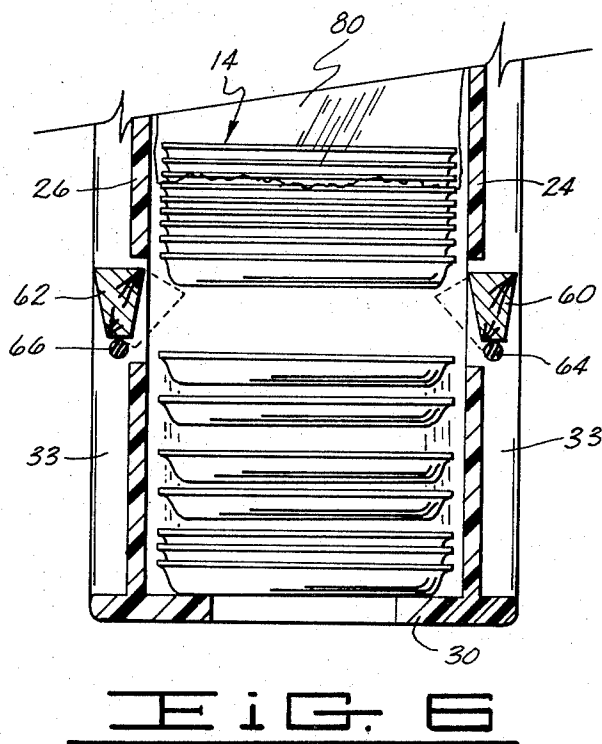
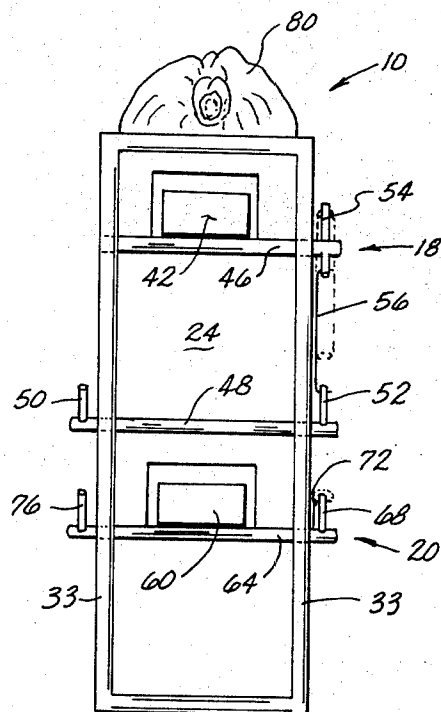
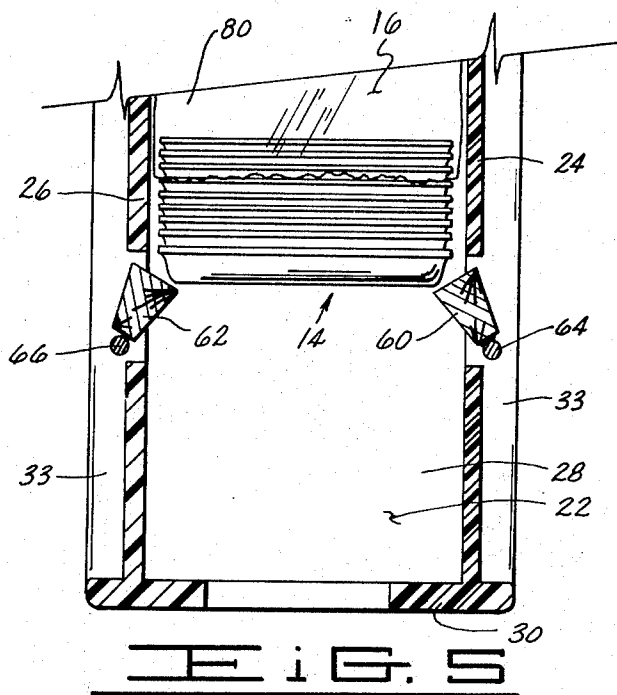


FIG. 4

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TRAY DISPENSER

Numerous devices are known in the art as operable to dispense articles from stacks. However, these devices are operable to remove articles one at a time from the stack and have no inherent place to contain the article for easy access after it has been separated from the stack. Prior art devices are not designed to hold a quantity of articles in a stacked storage condition and dispense a small quantity of some for use. Also these prior art devices are not adapted to storage of articles kept in a sanitary container and which must be sanitary prior to dispersal.

In a preferred specific embodiment of the tray dispenser of this invention a device is provided operable to hold a quantity of sanitary trays in a stack within a storage container and dispense a small quantity of them for use. The tray dispenser of this invention is adapted to handle trays of foamed plastic material of the type used in the packaging of meat and vegetable products. Heretofore such foamic plastic trays have been simply stacked about the working area in several stacks according to the various sizes of trays. These trays must be kept sanitary to prevent contamination of the packaged products; this protection heretofore has been difficult since the trays are removed from sealed sanitary containers, stacked in the working area, then picked up as needed. Since the trays are lightweight the trays are easily tipped over and cannot be stacked too high. The tray dispenser of this invention includes a vertically elongated and rectangular housing with a storage area in the upper portion thereof and a receiving area in the lower portion thereof. An upper clutching assembly is operable to hold trays and a sanitary container in the storage area and a lower clutching assembly is operable to release a small quantity of trays from the storage area to the receiving area as desired. The housing is preferably constructed closed on three elongated sides and open on the front side with a bottom, and a top with the top having openings therethrough. The clutches are positioned on opposite sides of the housing extendable therethrough to contact the side portions of the trays. The housing is preferably sized to contain the trays in easily sliding contact with the vertically elongated walls. The clutches are preferably constructed with rotatable wedgelike members supported from the sides of the housing and have separate controls.

One object of this invention is to provide a tray dispenser overcoming the aforementioned disadvantages of the prior art devices.

Still, one other object of this invention is to provide a tray dispenser having an elongated container housing structure with a tray storage area and a tray receiving area operable to provide a readily available supply of easily removable trays in the receiving area.

Still another object of this invention is to provide a tray dispenser having a clutch assembly to retain a large quantity of trays enclosed in a sanitary container in the storage area and a clutch assembly to retain and dispense a small quantity of trays from the storage area to the open receiving area.

Still one further object of this invention is to provide a tray dispenser economical to manufacture, simple to use and readily constructed in a variety of sizes adapted to handle different sized trays.

Various other objects, advantages, and features of the invention will become apparent to those skilled in the art from the following discussion, taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a front elevation view of the open front side of the tray dispenser of this invention having a quantity of trays therein the storage area with the trays contained partially within a plasticlike protective bag;

FIG. 2 is a rear elevation view of the tray dispenser shown in FIG. 1;

FIG. 3 is an elevation view of the control side of the tray dispenser shown in FIG. 1, with the control linkages shown opened in dotted lines;

FIG. 4 is an enlarged lateral cross sectional view of the upper clutch assembly of the tray dispenser shown with a quantity of trays in the tray dispenser and the upper clutch shown in open position in dotted lines;

FIG. 5 is an enlarged lateral cross sectional view of the lower clutch assembly shown with a quantity of trays in the lower end of the storage area partially contained in a plasticlike protective bag;

FIG. 6 is an enlarged lateral cross sectional view of the lower portion of the tray dispenser showing the lower clutch assembly in open position in solid lines and in closed position in dotted lines with a small quantity of trays passing into the receiving area.

The following is a discussion and description of preferred specific embodiments of the new tray dispenser of this invention, such being made with reference to the drawings whereupon the same reference numerals are used to indicate the same or similar parts and/or structure. It is to be understood that such discussion and description is not to unduly limit the scope of the invention.

Referring to the drawings in detail and in particular to FIG. 1, a tray dispenser of this invention, indicated generally at 10, includes a housing 12 shown with a quantity of trays 14 in the storage area 16. A portion of the quantity of trays 14 are retained by the upper clutching assembly 18 and a portion by the lower clutching assembly 20 above the receiving area 22.

The housing 12 includes three elongated rectangular sidewalls, walls 24 and 26 on the sides and a back wall 28 leaving the front open. The housing 12 has a bottom member 30 below the receiving area 22 and a top member 32 above the upper clutch assembly 18. The sides and back of the housing are supported by a frame structure having elongated vertical corner members 33 on the corners thereof attached to the top 32 and bottom 30. The top member 32 has an aperture 34 therethrough in the center thereof adapted to receive the top portion of the tray container bag.

The clutching assemblies 18 and 20 have members extendable inward through the sides 24 and 26 of the housing 12. The upper clutching assembly 18 has a stationary member 38 with a pointed edge portion 40 on the inward surface thereof and a movable wedge member 42 on the opposite side of the housing 12. The upper clutching assembly 18 is positioned a short distance below the top member 32 of the structure and is operable to hold a small quantity of trays and the tray container bag between it and the top member 32. With the small quantity of trays positioned above the upper clutching assembly 18 the container bag hangs in a rectangular fashion with its surface depending from the

periphery of the small quantity of trays and between the wedge members 38 and 42 forming a passageway for the trays below. The stationary member 38 is attached to the corner members 33 with the pointed inward edge 40 substantially within the housing sufficient to hold the trays. The movable wedge 42 is preferably trapezoidal shaped in lateral cross section and supported from below on a rotatable rod member 46 extending therethrough and supported by the corner members 33. Rotation of the upper wedge member 42 is controlled by a control rod member 48 mounted at a level below the other rotatable rod member 46. The control rod member 48 has a handle 50 on the front of the housing 12 and an arm member 52 at the rear of the housing. The other rod member 46 has an arm 54 extending from the rear of the housing joining a connecting rod 56 pivotally connecting same to the control arm member 52. The arm member 54 has a spring member 58 attached thereto operable to hold the wedge 42 in the normal engaged position. In operation when the handle 50 is moved to the left, as shown by the arrow in FIG. 1, the connecting rod 56 moves causing a rotating motion the rotatable rod member 46 and the wedge member 42. When the wedge member 42 is moved from under the trays supported above it, they drop to the lower portion of the storage area 16.

The lower clutching assembly 20 has two rotatable wedge members 60 and 62, similar in shape and function to the upper clutch wedge member 42, and supported on rotatable shafts 64 and 66 extending through the corner members 33. The rotatable shafts 64 and 66 each have linkage arms 68 and 70 respectively rigidly attached thereto and joined by a connecting rod 72 to rotate moving the wedges 60 and 62 correspondingly inward and outward. The wedge members 60 and 62 are held in a normally engaged position by a spring member 74 attached to the linkage arm 68. The wedge members 60 and 62 are moved from the normally engaged position by rotation of shaft 64; which has a handle 76 attached thereto positioned on the front of the housing 12 for easy rotation of the shaft. When the handle 76 is turned as indicated by the arrow in FIG. 1 the wedges 60 and 62 are rotated outward and trays held above them fall to the receiving area 22, as shown in FIG. 6. In operation the tray container bag is cut off approximately as shown in FIG. 6 such that it does not interfere with movement of the wedge members 60 and 62 or movement of the trays 14.

When in use the tray dispenser 1 of this invention is adapted to contain a quantity of foamic plastic trays 14 in the quantity and the container they are usually supplied to a place where they are used. Normally these trays 14 are supplied in a stack contained in a plastic bag indicated at 80 which is normally 28 to 36 inches in length. To place the bag of trays in the tray dispenser the lower clutch assembly 20 is opened, the bag of stacked trays inserted with the excess of the bag 80 gathered in one hand below the stack, the lower clutch assembly 20 is closed, with one quick upward motion of the hand the trays 14 are forced upward the uppermost few forcing the upper clutch assembly 18 open and passing a small quantity of trays therethrough with the remainder of the bag of trays 14 being enclosed in the storage area 16. With a portion of the trays held by the upper clutch assembly 18, the lower gathered portion

of the bag 80 is cut from the above portion which covers the stacked trays is removed and discarded, the upper end of the bag 80 then can be pulled upward through the aperture 34 in the top member 32 raising the cut end of the bag above the lower clutch assembly 20 to the approximate position shown in FIG. 1. The loaded tray dispenser 10 is shown in FIG. 1 with the bag 80 and a few trays hung by the upper clutch assembly 18 and the remainder supported by the lower clutch assembly 20.

As trays 14 are needed the lower clutch control handle 76 is simply turned and released with a quick motion and a small quantity of trays 14 are dropped from the storage area 16 to the receiving area 22 as shown in FIG. 6. With only a small quantity of trays 14 in the receiving area 22 at one time, the advantage is that trays can be easily removed one at a time as needed while the majority of them remain covered by the sanitary bag. Also to promote sanitary conditions and prevent soiling the trays in the receiving area the unused trays therein can be easily reinserted in the storage area by a quick upward motion forcing them through the lower clutch assembly 20. When all the trays in the storage area below the upper clutch assembly 18 have been dispensed the upper clutch control handle 50 is turned releasing the trays and bag 80 hung above the upper clutch assembly 18 in the top of the storage area 16 to the lower portion of the storage area 16 and the empty bag 80 can be removed. As all the trays 14 are used the tray dispenser can be reloaded as described above. An advantage of the tray dispenser 10 to be noted is that it can be mounted on walls, tables or the like in and about a working area where such trays are used thus eliminating the heretofore inconvenience of maintaining open stacks of trays.

In the manufacture of the tray dispenser structure 10 of this invention, it is obvious that the housing 12 and clutch assemblies 18 and 20 can be easily constructed of numerous materials including wood, plastic, etc., of sufficient strength to support the clutch assemblies in operation and allow for mounting of the tray dispenser. Also it can be constructed in different dimensions to accommodate various sizes of trays.

In the use and operation of the tray dispenser 10 of this invention, it is seen that same provides a useful device due to the dispensing of a small quantity of trays for hand selection for packaging purposes. It is seen that the tray dispenser 10 provides a substantially sanitary means to hold trays until they are needed for packaging. Also, the tray dispensing device is conveniently mountable in a working area and the trays are easily accessible for use due to the open front of the device.

As will become apparent from the foregoing description of the applicant's tray dispenser, relatively inexpensive means has been provided to readily receive a quantity of trays in a sanitary container bag and dispense a small quantity of the trays, keeping them in a sanitary condition. The tray dispenser structure is economical to manufacture, simple to use, easily mountable in a working area, can easily be loaded with packaged sanitary trays and provides a readily available supply of trays.

While the invention has been described in conjunction with preferred specific embodiments thereof, it

will be understood that this description is intended to illustrate and not limit the scope of the invention, which is defined by the following claims.

I claim:

1. A tray dispensing means comprising:

- a. a housing having a tray storage area in an upper portion and a tray receiving area therebelow,
- b. clutching means mounted in an upper portion of said housing operable to hold a quantity of stacked trays within said storage area,
- c. clutching means mounted in said housing below said storage area operable to hold and release a plurality of said trays from said storage area to said receiving area,
- d. control means mounted operable with said upper clutching means and said lower clutching means, said tray dispensing means adapted in operation to hold a quantity of said trays in said storage area and dispense a small quantity of same to said receiving area,
- e. said housing has an elongated vertical and rectangular interior adapted to receive said stacked trays,
- f. said upper clutching means has a movable wedge member engageable with one side of said quantity of trays,
- g. said lower clutching means has a pair of simultaneously rotatable wedge members engageable with opposite sides of said quantity of trays, said wedge members having a base portion engageable with said trays and rotatable upwardly and outwardly to release said quantity of trays, an edge of said base portion first engageable with said trays on movement from the release to the normally engaged positions,
- h. said control means has an upper clutch control means to operably hold said upper clutching means in a normally engaged position and a lower clutch control means to hold said lower clutching means in a normally engaged position,
- i. said housing is substantially enclosed on five sides and has the front thereof open, and
- j. said upper clutching means and said lower clutching means are mounted through the sides of said housing, said upper clutching means is mounted in the upper portion thereof, said storage area and said lower clutching means is mounted in the lower portion thereof.

2. The tray dispensing means as described in claim 1, wherein:

- a. said upper clutching means has a fixed wedge member,
- b. said movable wedge member of said upper clutching means is rigidly mounted on a rotatable support member, same extends from said housing and has a linkage means attached thereto connecting same to said control means, and a resilient means operable to hold same in said engaged position,
- c. said upper clutch control means has a rotatable rod member extending through said housing and has a linkage means connecting same to said rotatable support member and operable to rotate same,

d. said rotatable rod member has a handle portion positioned on said front side of said housing operable by finger pressure to actuate said upper clutching means,

e. said upper clutching means is positioned a distance below said housing top member thereof defining another upper storage area sized sufficiently to hold a small quantity of trays between same and said top member,

f. said upper clutching means is adapted to hold the trays thereabove with the trays enclosed in a container bag,

g. said lower clutching means is positioned a distance above the bottom member of said housing with said receiving area therebetween said lower clutch means and said bottom member, said receiving area is sized sufficiently to hold a small quantity of said trays in position to be removed therefrom by hand,

h. said lower clutch wedge members are rigidly attached to rotatable support members extending through said housing, said support members have a linkage means attached thereto operable to move same simultaneously in counter-rotating directions and said linkage means has a resilient means attached thereto operable to retain said lower clutching means in said normally engaged position, and

i. one of said lower clutch support members has a handle portion thereon and on said front side of said housing operable by finger pressure to actuate said lower clutch control means.

3. A tray dispensing means comprising:

- a. a vertically positionable housing having a storage area in an upper portion and a receiving area therebelow,
- b. clutching means mounted in the lower portion of said storage area,
- c. clutching means mounted in said housing below said first-named clutching means, and above said receiving area,
- d. a bag of stacked trays mounted in said housing, said upper clutching means holding a plurality of stacked trays thereabove in said storage area with said bag therearound, said lower clutching means holding a plurality of stacked trays thereabove in said storage area with said bag therearound,
- e. control means mounted operable with said upper and lower clutching means, said tray dispensing means adapted in operation to hold said trays in said storage area, dispense a quantity from the lower stack of same to said receiving area, and to dispense a quantity from the upper stack to the lower stack in said storage area,
- f. said vertically positionable housing has an elongated rectangular interior portion,
- g. said first-named clutching means has one movable wedge member engageable with one side of said bay of stacked trays,
- h. said second-named clutching means has a pair of simultaneously movable wedge members engageable with opposite sides of said stacked trays,
- i. said control means has a clutching control means operable to hold said first-named clutching means in a normally engaged position and said control

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- means has another clutching control means operable to hold said second-named clutching means in a normally engaged position,
- j. said first-named clutching means has a fixed wedge member mounted with said housing positioned opposite said movable wedge member, 5
- k. said first-named movable clutching wedge member is rigidly mounted on a rotatable support member which is mounted with said housing and extends therefrom and has a linkage means attached thereto connecting same to said first-named control means and a resilient means operable to hold same in said engaged position, 10
- l. said first-named control means has a rotatable member extending through said housing and has a linkage member connecting same to said linkage means adapted in operation to rotate said rotatable support member moving said first-named movable wedge member, 15
- m. said first-named control means rotatable member has a handle attached thereto positioned on the front of said housing operable by finger pressure to 20

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- operate said first-named clutching means,
- n. said first-named clutching means is positioned a distance below the top of said housing defining another storage area holding a small quantity of said stacked trays with said bag therearound,
- o. said second-named clutching means has said wedge members mounted on rotatable support members,
- p. said same rotatable support members are mounted extending through said housing and have a linkage means attached thereto operable to rotate same simultaneously in opposite directions, said linkage means is attached to a resilient means operable to hold said clutching means in said normally engaged position, and
- q. one of said last-named support members has a handle member attached thereto positioned on said front of said housing operable by finger pressure to disengage said second-named clutching means.

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