Sept. 9, 1958 J. F. WELLEKENS 2,851,324

SUPPLY MAGAZINES FOR CAN-DISPENSING APPARATUS

Original Filed July 19, 1951 3 Sheets-Sheet 1

Fig. 2.

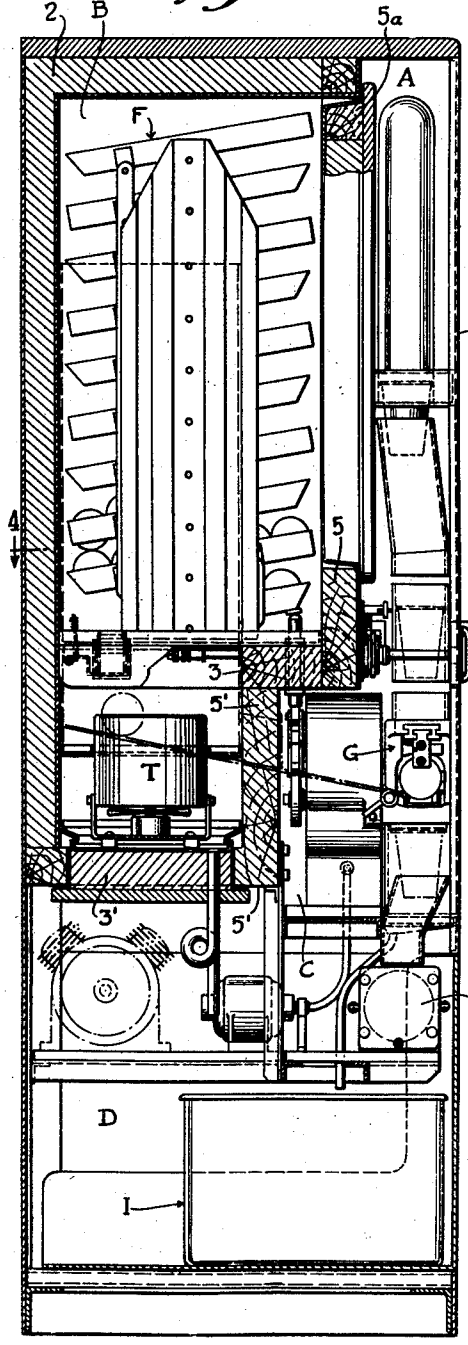
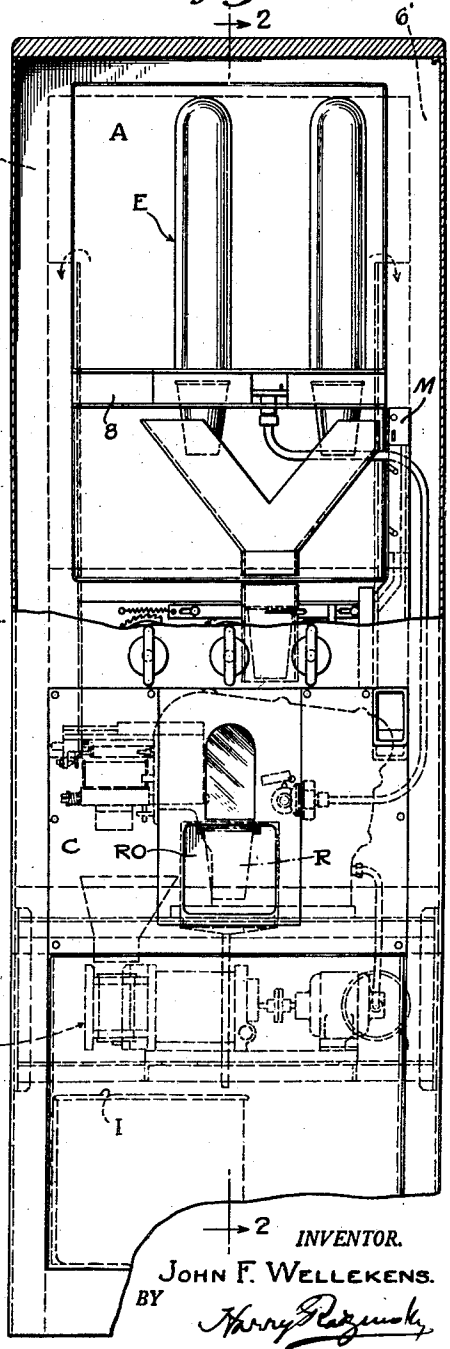


Fig. 1.



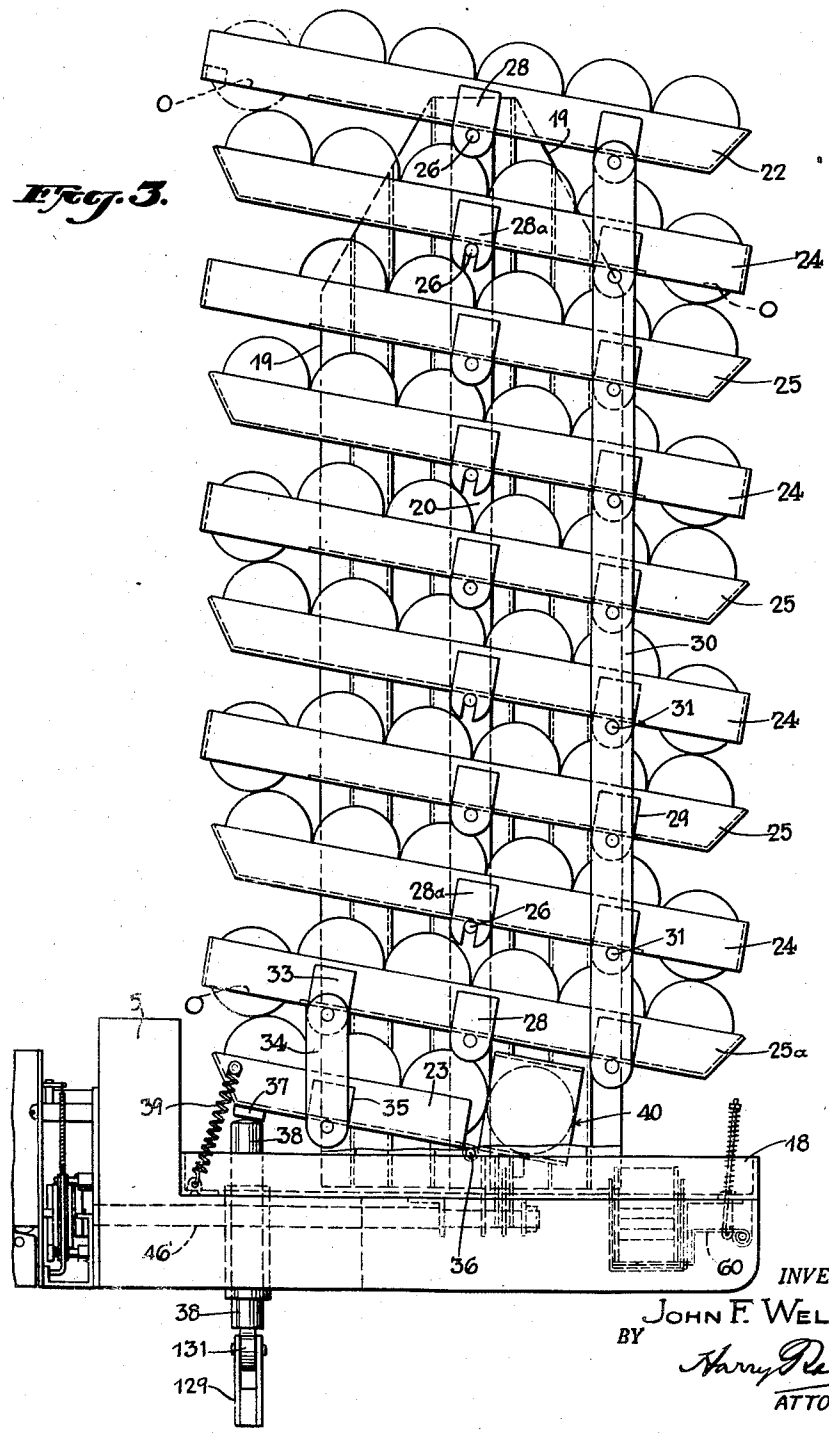
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Fig. 3.



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Fig. 4.

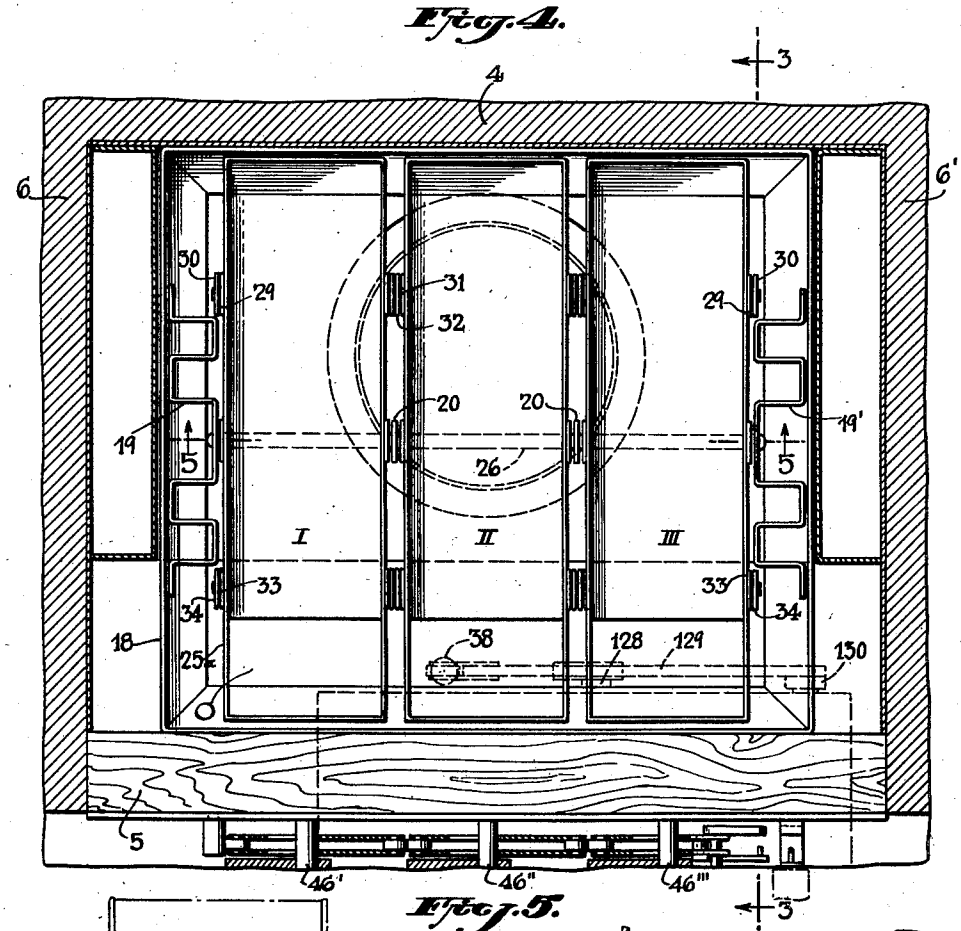


Fig. 5.

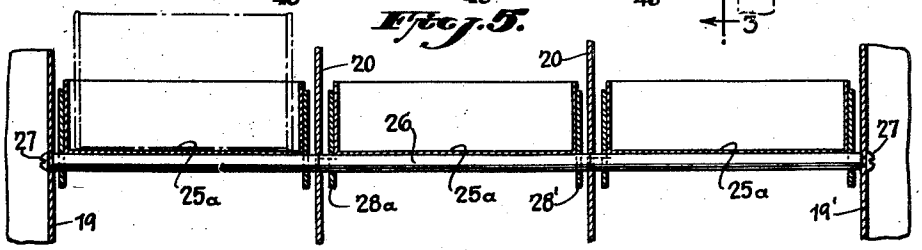


Fig. 6.

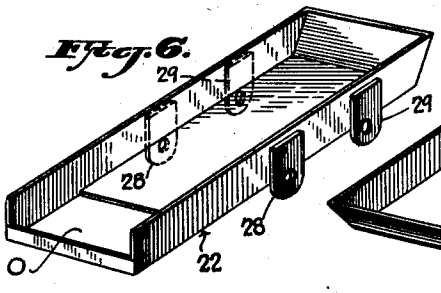
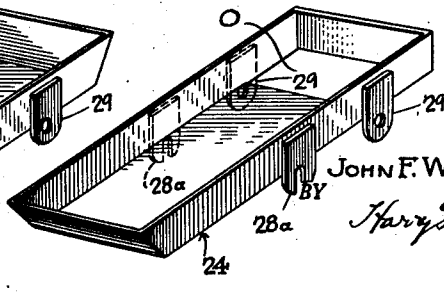


Fig. 7.



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2,851,324

SUPPLY MAGAZINES FOR CAN-DISPENSING APPARATUS

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Original application July 19, 1951, Serial No. 237,513, now Patent No. 2,765,005, dated October 2, 1956. Divided and this application September 10, 1956, Serial No. 609,013

3 Claims. (Cl. 312—45)

This invention relates to apparatus for dispensing beverages or other edible fluids from cans or other like sealed containers made of metal or other suitable puncturable material, and is especially adapted for coin actuation and pre-selection of one of a plurality of flavors or kinds of beverages or the like edible fluids.

This application is a division of my co-pending application Serial No. 237,513, filed July 19, 1951, now Patent No. 2,765,005, dated October 2, 1956.

It is an object of the present invention to provide means for delivering the cans to puncturing and pouring positions with means provided by which all of the cans of liquid stored in the machine will be agitated each time that a can is removed. It is another object of the invention to provide a can-feeding means by which the cans to be successively fed to opening position shall be disposed in an upright stack of superimposed trays arranged in spaced-apart relationship, with the trays pivoted intermediate their ends for rocking movement, each tray having a discharge opening at one end only and alternate trays having their openings disposed at one side of the stack, with intermediate trays having their openings at the other side of the stack. The invention further contemplates the provision of means for simultaneously rocking the trays in opposite angles of inclination to the horizontal, to thereby, on each rocking movement, not only agitate the fluid in the cans in the several trays, but successively discharge a can from an upper tray through the discharge opening in said tray into a successively lower tray.

With these objects, and other objects to be hereinafter set forth in view, I have devised the arrangement of parts to be hereinafter set forth and more particularly pointed out in the claims appended hereto.

In the accompanying drawing, wherein an illustrative embodiment of the invention is disclosed,

Fig. 1 is a front elevation, showing a machine in which the improved can-transferring mechanism is incorporated;

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1, showing the general arrangement of the parts in side elevation;

Fig. 3 is a somewhat enlarged side elevational view of the supply magazine unit, as viewed from the left hand side of the machine;

Fig. 4 is a cross-sectional view taken substantially on the line 4—4 of Fig. 2 to show certain portions of the structure in plan view;

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 4 showing certain details of the pivotal arrangement of trays forming a part of the supply magazine; and

Figs. 6 and 7 are perspective views showing typical examples of the individual tray units.

In the machine shown in detail in Figs. 1 and 2, a plurality of cans of the liquids to be dispensed are held in a thermally insulated chamber for maintaining the liquids at the desired temperature. In the embodiment

disclosed, the operating mechanism is released upon deposit of a required coin, and a can of the selected species is discharged from the supply magazine and transferred out of the insulated chamber through a movable door and into a can-opening and pouring unit where the can is punched or perforated to produce a pouring opening and a vent opening in it.

Referring particularly to Figs. 1 and 2, there is shown a cabinet or housing provided with a front compartment A; a thermally insulated chamber B; a beverage delivery compartment C, and a bottom compartment D. Suitable cup-dispensing mechanism, designated in general as E, is disposed in the front compartment A; the supply magazine mechanism to which the present invention relates, is shown at F, and is disposed within the thermally insulated chamber B. A can-opening and pouring unit, designated in general as G is disposed within the beverage delivery compartment C; an empty can-crushing unit, designated in general as H, is disposed within the bottom compartment D in such position beneath the can-pouring unit G as to receive empty cans discharged therefrom; a suitable bin or drawer I is likewise disposed within the bottom compartment D beneath the crushing unit H for receiving and collecting crushed cans; an opening RO is provided in the beverage delivery compartment for ready access to a cup or drinking receptacle R delivered thereto from the dispensing unit E. Suitable thermal conditioning means, generally designated as T, is provided for maintaining the compartment B at the desired temperature, which may be below normal temperature for cool beverages such as soft drinks or beer, or above normal for hot foods such as soups, etc., it being understood that suitable circulation ducts are provided. Also suitable coin selective means is provided for controlling the operation of the apparatus, and is indicated in general as M.

The compartment B is defined by a top wall 2, bottom wall panels 3—3', a rear wall 4, front wall panels 5—5' and side walls (Fig. 4) 6 and 6'. The front panel 5 is provided with a door 5a to permit ready access for loading the magazine F, and the front wall of the cabinet is provided with a glass or other suitable transparent panel 7 for visual inspection of the supply of cups in the dispenser unit E, and this panel is readily removable or openable for access to compartments A and B. The cup-dispensing mechanism E is conveniently supported on the door 5a by means of a bracket 8, so that upon opening the door the cup-dispensing mechanism will be similarly moved for free access to the chamber B.

The can-supply mechanism, to which the present invention relates, has a main supporting frame comprising a base 18 (Fig. 3) resting on and secured to the bottom panel 3 of the chamber B. It is also secured to laterally-spaced upright side members 19—19' (Fig. 4) which may be channeled for stiffening purposes and to provide circulation ducts. Base 18 is also secured to the intermediate members 20.

A series of vertical stacks I, II and III (Fig. 4) each comprising a top tray such as 22, a bottom tray such as 23, intermediate trays such as 24 and alternate trays such as 25 and 25a are arranged and supported in a manner now to be more specifically described. The lowermost of the alternate trays is designated as 25a to indicate a structural difference to be hereinafter referred to.

The respectively corresponding trays of the several series are arranged in tiers, i. e., in lateral alignment and are supported for rocking movement about a transverse axis disposed intermediate their front and rear ends, such as being pivotally supported on cross bars as indicated at 26, whose opposite ends are secured to the side frame

members 19—19' as by screws 27 (Fig. 5). Preferably the trays are each mounted on their supporting rods 26 by means of a pair of pivot lugs secured, as by welding, to the opposite side walls of the trays. The lugs on trays 22 and the alternate trays such as 25 and 25' (Figs. 4–6) are designated 28 and are provided with holes through which the rods 26 pass; while the lugs 28*a* (Figs. 3, 7) on the intermediate trays (Figs. 5, 6) such as 24, are provided with slots in which the rods 26 are received to permit limited movement of those trays upwardly from their rods to facilitate loading, as will be more fully explained hereafter. Between the pivot lugs, such as 28 or 28*a* and their rear ends, the trays 22, 24, 25*a* and 25 of the three series I, II, and III carry operating lugs such as 29 rigidly secured thereto as by welding. The lugs 29 on the outer sides of said trays of series I and III (Figs. 4 and 3) are pivotally connected to a pair of outer operating links such as 30 while the lugs 29 on the inner sides of the trays of series I and III and the respectively contiguous lugs of the trays of series II are separately pivoted together by pins such as 31, passing through intermediate operating links such as 32. Each of the trays 25*a* of each of the series I, II and III are provided intermediate their pivotal lugs 28 and their forward ends, with a pair of lugs such as 33 rigidly secured to the sides thereof (Figs. 3 and 4). The lugs such as 33 are pivotally connected respectively to the upper ends of short operating links such as 34 whose lower ends are pivotally connected to lugs such as 35 rigidly secured to the lowermost trays 23 of the three series I, II and III. The trays 23 are supported for rocking movement about a common pivotal axle 36 in alignment with the axes 26 of the other trays (Fig. 3). It will thus be seen that upon rocking movement of the lowermost trays 23 about their axis 36 this movement will be transmitted through the operating links 34 and 30 to effect a corresponding and simultaneous movement of the remaining trays of the three stacks about their respective pivotal axes.

The lower trays 23 are provided with a striking plate 37 (Fig. 3) which is fastened across the bottoms of these trays and is abuttingly engaged by a vertical plunger 38 actuated from the driving mechanism of the apparatus. When the plunger 38 is raised, by a roller 131 on cam arm 129, the trays are rocked about their axes in a clockwise direction to the position shown in Fig. 3 where they are inclined rearwardly and downwardly from the horizontal; and when the plunger is lowered the trays are returned in the opposite direction by a spring 39 and at their opposite position are inclined forwardly and downwardly from the horizontal.

It will be noted (Figs. 3, 4, 6 and 7) that the alternate trays 22, 25 and 25*a* have front end walls at substantially right angles to their bottoms and immediately adjacent said ends the bottoms are provided with discharge openings O slightly larger than a can to be dispensed; while the opposite or rear ends of intermediate trays such as 24 are similarly arranged. The end wall of the top tray 22 is preferably of reduced height (Figs. 3 and 6) to facilitate loading. The rear ends of the alternate trays 22, 25 and 25*a* and the front ends of the intermediate trays such as 24 are preferably inclined or beveled inwardly and downwardly to facilitate loading and discharge. From this it will be seen that when a can is dispensed from the lowermost tray of a stack the supply in the upper trays will be caused to progressively cascade from an upper to a successively lower tray upon the successive rocking of the trays in alternately opposite angles of inclination.

The rear ends of the bottom trays 23 (Figs. 3 and 8) terminate at about the pivot point 36, and these trays have no rear end walls to provide a free rear end delivery opening for each tray of this tier. Thus each stack is provided with its respective delivery opening or outlet. In order to more accurately and positively control the delivery of cans from said delivery outlets there is provided at each a sleeve 40 (Fig. 3) having walls turned inwardly at their lower ends to provide bottom shelves whereby the cans are guided in a predetermined position for delivery.

For loading of the supply magazine, access is had through the removable door or panel 5*a*, and with the magazine disposed as indicated in Fig. 3 (as viewed from the left-hand side of the machine) cans are placed in the respective stacks from the front ends of the trays, preferably starting with the lower end of the stack, as follows. The lowermost tray 24 is pivoted clockwise about its pivot pin 31, which is permitted by the slotted end of lug 28*a*, so as to thereby raise the front end of the lowermost tray 24 to provide for ready access to the tray 25*a*. Cans are then inserted through the opening O in the front end of the tray 25 and are successively passed through the opening O until the lower tray 23 is filled and until the tray 25*a* is also filled. The lowermost tray 24 is then returned to its normal position where the lug 28*a* rests on its cross rod 26. The next uppermost tray 24 is similarly rotated about its rear pivot 31 to permit access to the next lower tray 25 through the open forward end of which the next lower tray 24 is loaded, etc., until the remaining trays 25 and 24 are loaded. The upper tray is loaded from its forward end which is facilitated by the cut-away forward panel 7, and cup-dispensing mechanism E is then returned to operative condition and the machine is connected to a suitable source of electrical energy for operation of the drive motors and the refrigerating or other thermal control unit such as T.

The arrangement described is such that each time the lowermost tray 23 is rocked for removal of a can therefrom, all of the trays in the stack will be rocked about their axes and the cans will progressively cascade from the upper to the lower trays. The movement of the trays as above described causes agitation of the can contents which is desirable with many edible fluids. The arrangement of the trays is such that the first cans loaded in the machine are those which are first dispensed.

These and other advantages are secured by the structure described, one embodiment of which is herein shown without limiting the invention thereto, the same being broad enough to cover all structures coming within the scope of the annexed claims.

What I claim is:

1. In apparatus for dispensing canned liquids, the combination of a plurality of trays disposed in registered alignment in an upright stack in superimposed spaced-apart parallel relationship and mounted intermediate their ends for simultaneous rocking movement in the same direction, said trays having a discharge opening adjacent one end only and alternate trays having their openings disposed at one side of said stack and intermediate trays having their openings disposed at the other side of said stack, and means for simultaneously rocking said trays in the same direction and to opposite angles of inclination to the horizontal, to thereby successively discharge a can from an upper tray through its discharge opening into a respectively successive lower tray.

2. In apparatus for dispensing canned liquids, the combination of a plurality of trays disposed in registered parallel alignment in an upright stack in superimposed spaced-apart relationship, each of said trays being individually pivotally mounted intermediate its ends for rocking movement about a fixed axis and said plurality of trays being interconnected for simultaneous rocking movement in the same direction, said trays having a discharge opening adjacent one end only and alternate trays having their opening disposed at one side of said stack and intermediate trays having their openings disposed at the other side of said stack, and means for simultaneously rocking all of said trays in the same direction and to opposite angles of inclination to the horizontal, to thereby successively discharge a can from an upper tray through

its discharge opening into a respectively successive lower tray.

3. In apparatus for dispensing canned beverages, the combination of a plurality of trays disposed in registered alignment in an upright stack in spaced-apart relationship and mounted for rocking movement about transverse axes intermediate their ends, each of said trays having an opening adjacent one end only and alternate trays having their openings disposed at one side of said stack and intermediate trays having their openings disposed at the other side of said stack, alternate trays being pivotally mounted about transverse axes disposed beyond said rocking axes in a direction toward said end openings and said trays being free to move about said pivotal axes in a direction upwardly from said rocking axes, whereby a given alternate tray may be pivotally moved to raise its closed end with respect to the opening in the next succeeding intermediate tray to thereby facilitate loading said intermediate tray and the respectively lower alternate tray.

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