June 26, 1945. J. M. STEWART 2,379,112

BOTTLE DISPENSING DEVICE

Filed Dec. 27, 1941 5 Sheets-Sheet 1

Fig. 1.

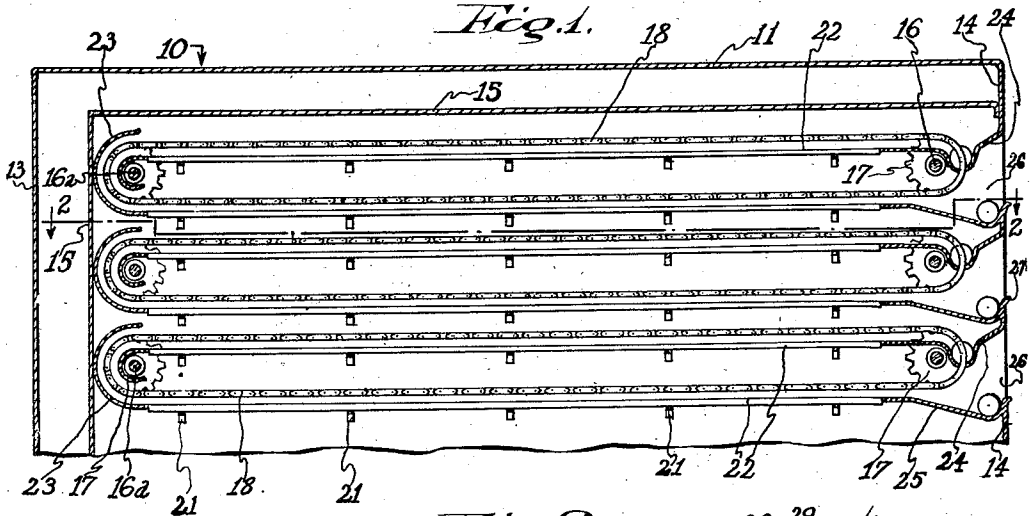
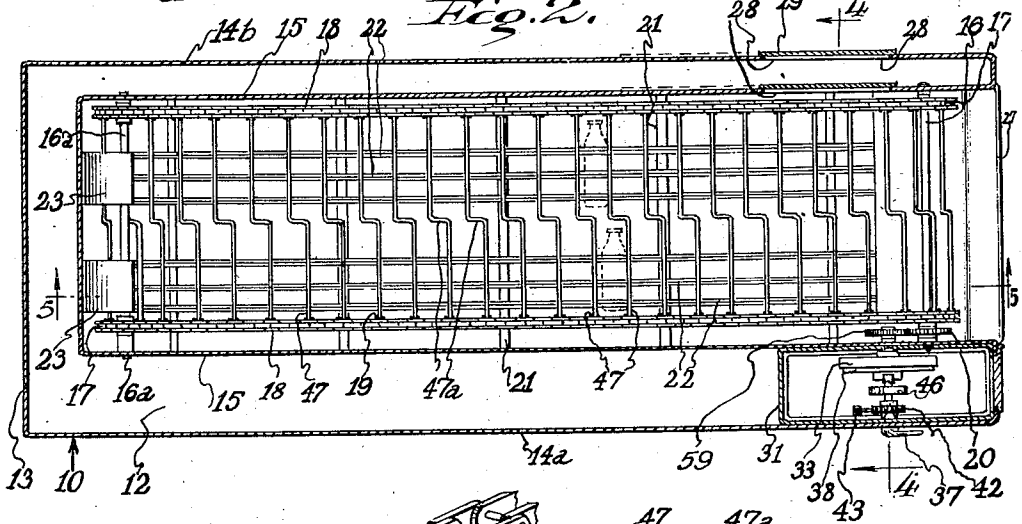


Fig. 2.



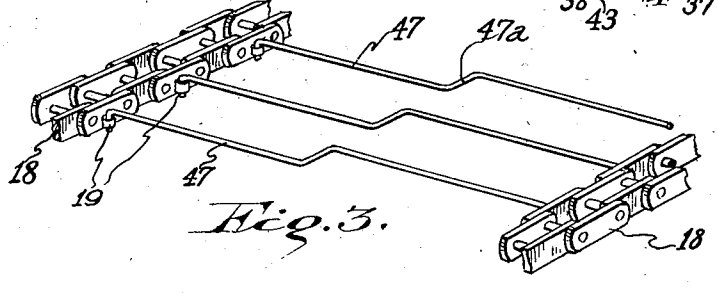


Fig. 3.

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BOTTLE DISPENSING DEVICE

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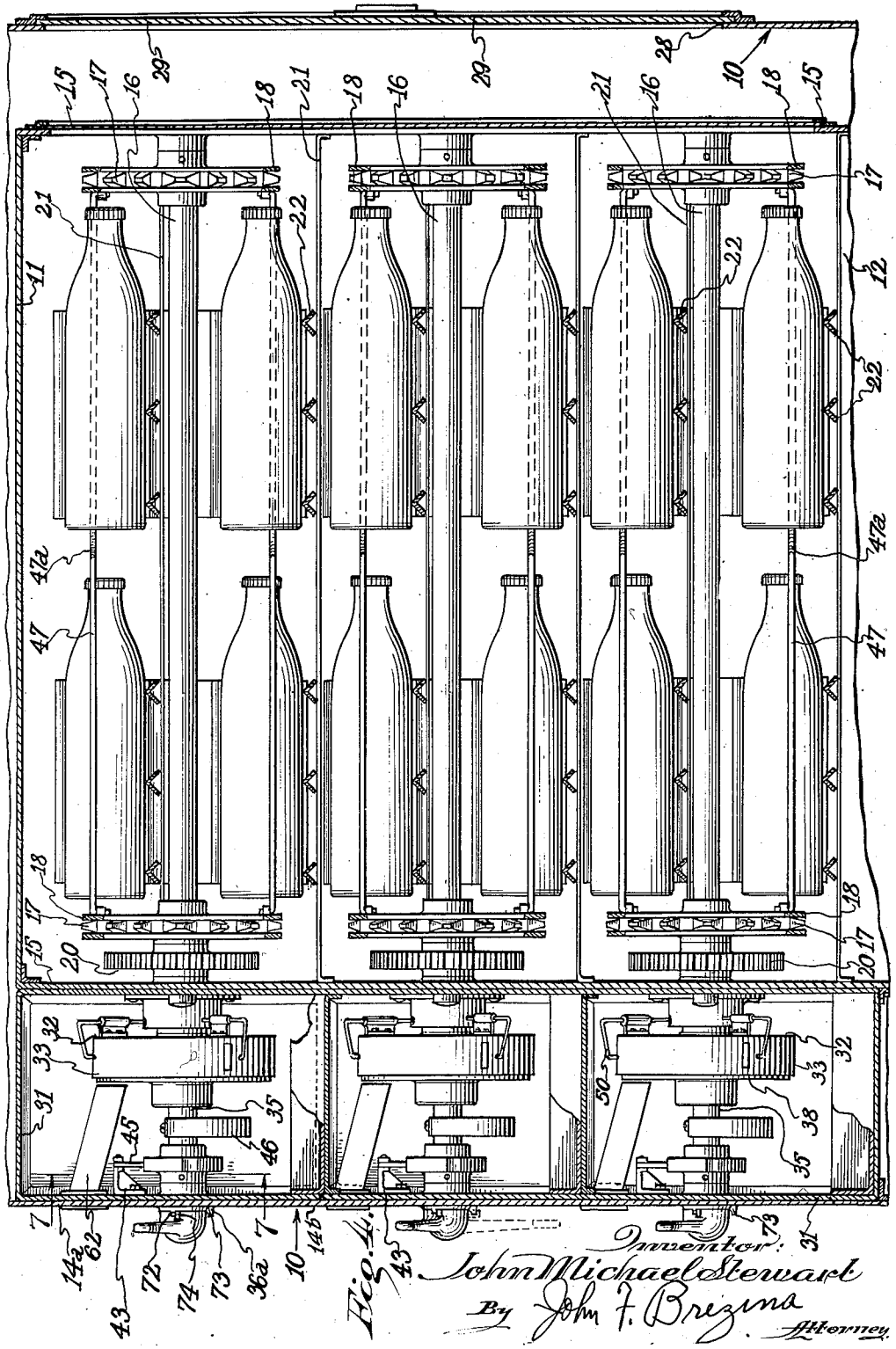

Fig. 4.

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BOTTLE DISPENSING DEVICE

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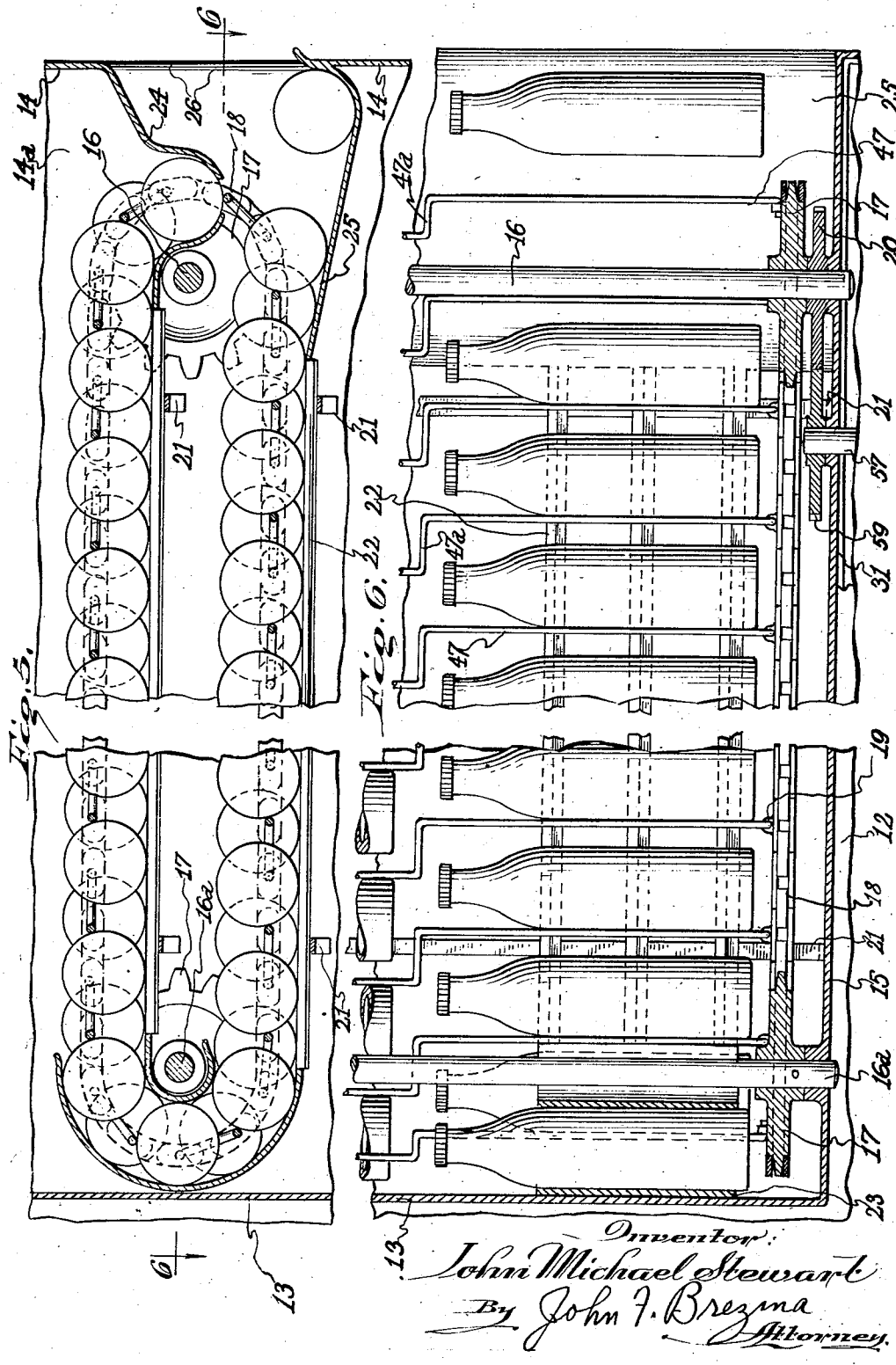

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BOTTLE DISPENSING DEVICE

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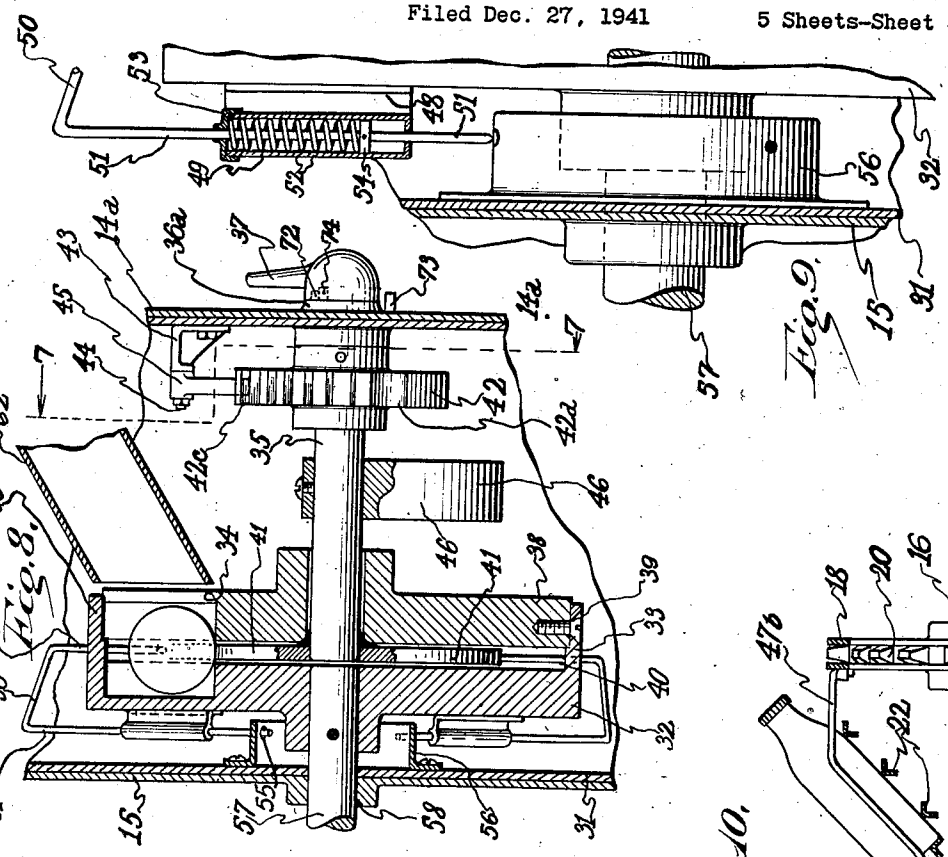

Fig. 9.

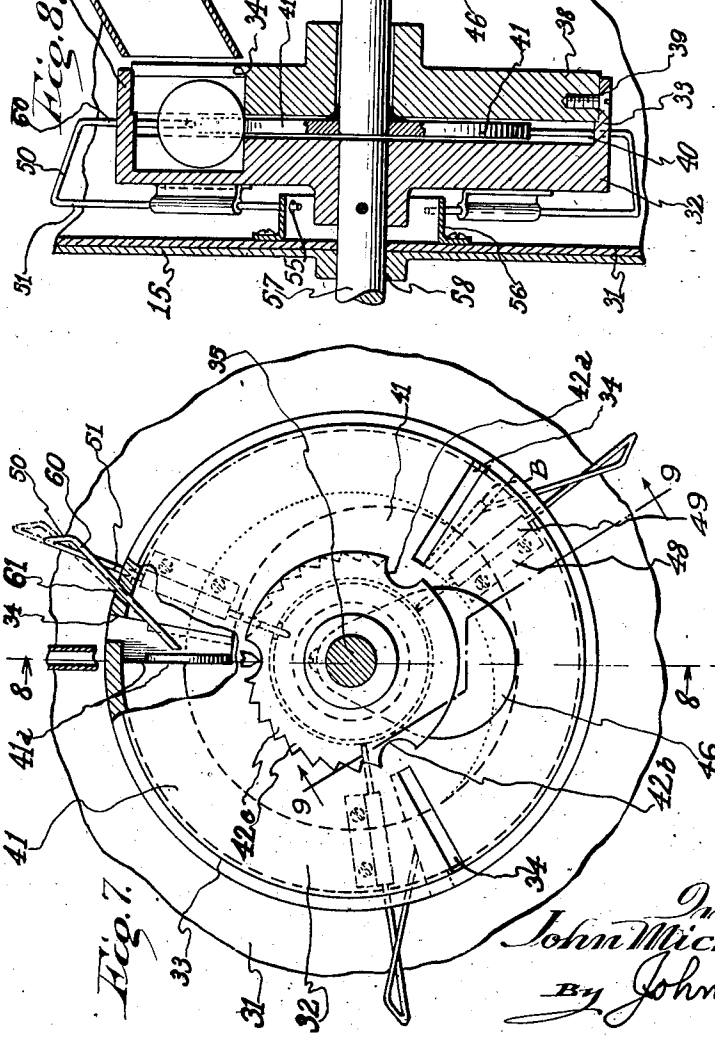

Fig. 8.

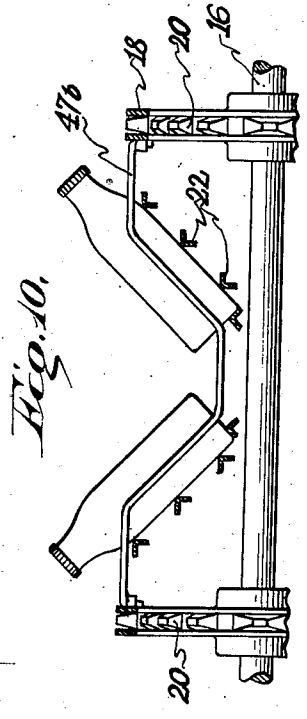

Fig. 10.

Fig. 7.

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BOTTLE DISPENSING DEVICE

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Fig. 12.

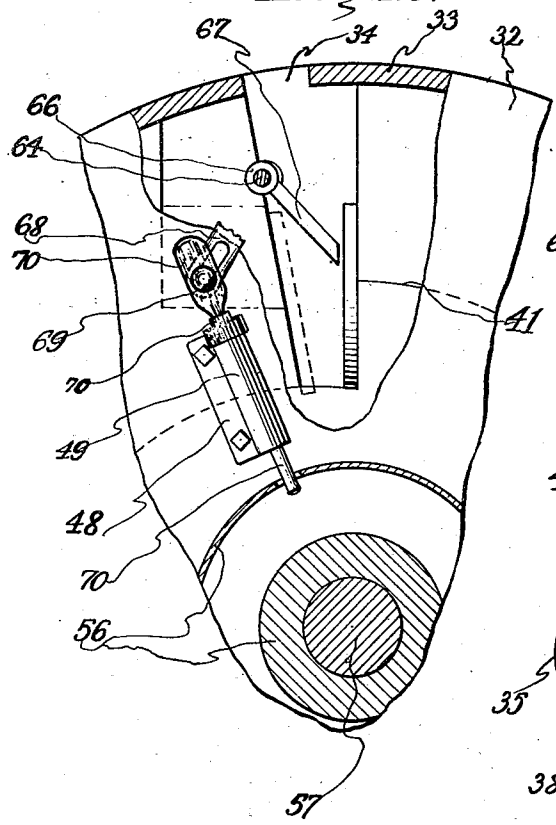
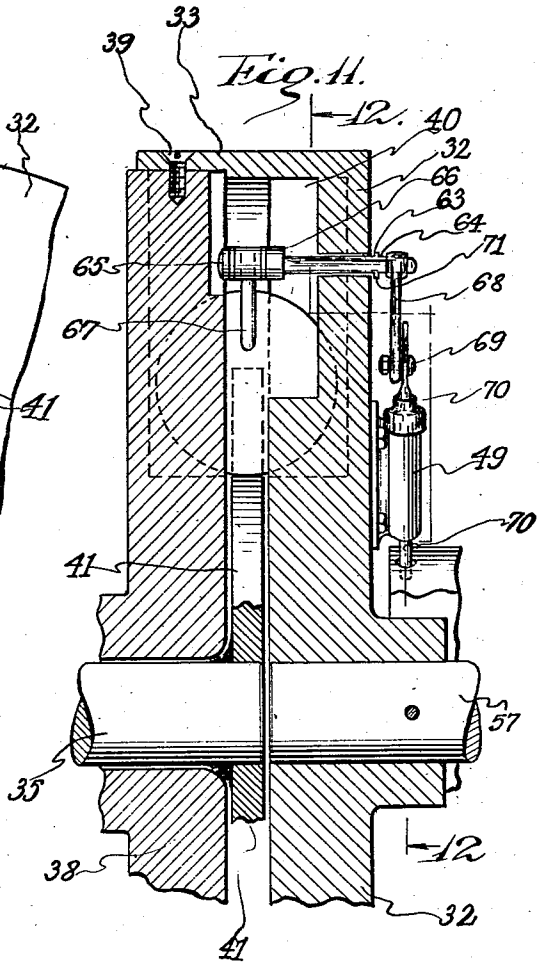


Fig. 11.



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Patented June 26, 1945

2,379,112

UNITED STATES PATENT OFFICE

2,379,112

BOTTLE DISPENSING DEVICE

John Michael Stewart, Chicago, Ill.

Application December 27, 1941, Serial No. 424,568

13 Claims. (Cl. 312—36)

My invention is directed to a novel means, mechanism and device for vending bottles, cans, packages or receptacles containing merchandise. More specifically, the preferred form of my invention hereinafter described is adapted for controlled delivery of bottles of the types usually used for beverages.

An important object of my invention is the provision of novel mechanism adapted to be manually actuated, for successively delivering bottles of beverages or the like from within a cooling cabinet to accessible positions.

Objects of my invention include the following:

To provide one or more conveyor mechanisms in a cooling or refrigerator cabinet which are adapted to hold the bottles or other receptacles of the goods in substantially horizontal or inclined positions;

To provide a novel conveyor system within a cooling cabinet which will support the bottle in substantially horizontal or lying-down positions and manually actuated mechanism, releasable by coin-actuating means, to move one conveyor in a direction to deliver one bottle or receptacle of merchandise to an accessible delivery opening;

To provide a package conveyor mechanism within a cooling cabinet which will support two or more adjacent rows of bottles or receptacles in staggered relation on the same conveyor so as to provide for movement of the conveyor a distance equal to one-half the distance between the center of two adjacent bottles, and whereby each succeeding movement delivers a bottle from that side of the conveyor device alternate or opposite to the side from which the previous bottle was delivered.

To provide a cooling merchandise dispenser for bottles or the like which has two or more individually operable conveyor units whereby one of several brands or flavors may be selected by the customer and by actuation of the provided mechanism delivers the selected brand or flavor to accessible position;

To provide a novel transmission mechanism for transmitting the manual power applied to an external part to move one of the conveyor and delivery mechanisms the distance to release and deliver one of the bottles or receptacles mounted thereon;

To provide a novel manual power transmission mechanism which is operable only upon deposit of the required coin and wherein the deposited coin will form the element to connect the cooler-contained conveyor means with the external customer-operated lever, and which will also forcibly eject the coin upon partial return movement of the operating lever;

To provide a manual power transmission means and delivery means and as part of said unit, operable only on deposit of a coin, which cannot be moved by unauthorized force or by partial reciprocation of the operating means to deliver more than one bottle at a time;

To provide a cabinet of holding and delivering mechanisms and parts within a cooling cabinet or the like which can be readily adapted to various types and sizes of cooling cabinets, and which are economically made and have a relatively small number of parts to provide for utility, efficiency and simplicity and ease of operation and economical maintenance.

Other and important objects of my invention will be apparent from the following specification and claims.

On the drawings:

Fig. 1 is a side sectional view of the upper portion of my device with parts broken away.

Fig. 2 is a plan section thereof taken on a horizontal plane and taken on lines 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmentary view of segments of the link chains with connecting carrying rods.

Fig. 4 is a vertical section taken on line 4—4 of Fig. 2.

Fig. 5 is a cross section of one conveyor unit taken on vertical plane and showing parts broken away.

Fig. 6 is a plan section of one conveyor unit taken on lines 6—6 of Fig. 5.

Fig. 7 is an enlarged vertical cross section taken on line 7—7 of Fig. 4 and Fig. 8 of the coin clutch mechanism and of the locking devices.

Fig. 8 is an enlarged cross sectional view of the transmission means and coin clutch unit taken on lines 8—8 of Fig. 7.

Fig. 9 is an enlarged fragmentary view taken on line 9—9 of Fig. 7 and showing one of the releasable locking devices.

Fig. 10 is a fragmentary view showing a slightly modified form of carrying or spacer rods which are bent angularly to normally hold the bottles in diagonally extending or inclined positions.

Fig. 11 is an enlarged cross sectional view taken on a vertical plane through the wheel member and movement transmission means and illustrating a slightly modified form of releasable locking means actuable by means herein described through an inserted coin.

Fig. 12 is an enlarged fragmentary view taken on line 12—12 of Fig. 11.

Numeral 10 designates a cabinet, shell or housing which is preferably made of metal and which may be of either substantially rectangular or other form. Numeral 11 designates the upper wall or top, 12 the bottom wall, 13 and 14 the opposite end walls, and 14a 14b the opposite side walls. Cabinet 10 is preferably, though not necessarily, provided with an inner metal shell 15, preferably made of metal, which is spaced from the actual cabinet walls to provide an efficient insulated unit. Said spaces may, if desired, be filled with any suitable known insulating material.

As shown in Figs. 1 and 2, a pair or pairs of transversely and horizontally extending shafts 16 and 16a are provided and have the respective ends journalled in the side walls of inner shell 15 so that said shafts are coplanar and at substantially opposite ends of said shell.

Two sprocket wheels 17 are securely mounted at substantially the opposite ends of each of said shafts and in positions a short distance from the side walls of shell 15. The sprocket wheels 17 on the corresponding ends of the two shafts 16, 16a are in alignment. An endless link chain 18 of suitable type, as for example such as shown in Fig. 3, is mounted on each of the respective pairs of aligned sprocket wheels 17, as shown in Figs. 1 and 2.

Every second link of the two chains 18 is provided with apertured lugs, flanges or eyelets 19 as shown in Fig. 3. Connecting and package supporting spacer or partitioning rods or bars 47, which have their ends bent at substantially right angles are either permanently or removably mounted to connect the endless chains or link belts 18 by having said bent ends mounted in the opposed eyelets or apertured flanges of the two link chains 18 in the manner illustrated in Fig. 3. Said connecting rods or bars 47 are preferably bent to form right angled portions 47a at such intermediate positions such as illustrated.

The particular positions of the bent portions 47a on the rods is determined by the particular size of bottles to be conveyed and delivered and by making said rods removable from the apertured flanges or eyelets 19, any particular cooling unit wherever located may usually be adapted to different size bottles without the necessity of rebuilding the same. Likewise where a particular machine is to be adapted to bottles of greater thickness, link chains 18 can be replaced with chains having longer links in order to space rods 47 farther apart.

Securely mounted on the end of the axle or shaft 16 which is adjacent the outlet end of the machine, is a gear wheel, 20 through which manual power is transmitted to rotate said shaft 16 and sprockets 17, as shown at lower right of Fig. 2.

A plurality of transversely and substantially horizontally extending cross bars 21 are mounted in coplanar position below both sections of each link chain 18 as illustrated in Figs. 1 and 2. Said cross bars have their opposite ends secured by welding or the like to the inner surfaces of the opposite walls of the inner shell 15 and these cross bars serve to support a plurality of longitudinally extending supporting bars or tracks 22 which are preferably of right angled cross section as illustrated, in Fig 4. These track bars 22 are mounted by welding or equivalent means upon the transverse cross bars 21 and in positions so that the apex of each thereof is up. These corners or apices present a very small surface upon which the bottles skid in their movement, thereby reducing friction with said bottles to a minimum.

A pair of curved substantially semicircular aprons 23 are mounted in the positions shown at left of Figs. 1 and 2, each of these aprons 23 being connected at one edge to the ends of the adjacent longitudinal track bars 22 and providing substantially semicircular spaces through which the bottles travel as they go around the end of the conveyor unit from above a link chain to below the same. These curved end aprons are shown in cross section at the left of Fig. 1, and in top plan at the left of Fig. 2.

Referring to the right hand end of Fig. 1, I provide a recessed loading panel or apron 24, which is arcuate in longitudinal cross section as illustrated, and upon which full bottles are placed and from which panel or apron they are picked up by transverse rods or bars 47 of each conveyor unit, as the same moves in a counterclockwise direction looking at Fig. 1.

At the delivery end of the cabinet, shown at right of Fig. 1, I provide a curved and downwardly inclined recessed delivery apron 25, each of which terminates in an upwardly extending portion to form a suitable holder into which the bottles of merchandise will roll and from which they are accessible to the customer through the delivery openings 26. Loading openings 28 of suitable size are provided in the side wall 14a and in the wall of shell 15 of each cooling cabinet which are shown at the right of Fig. 2 as being covered by removable flat plates or closure members 29 hereinafter described. The outer edge of each of said delivery aprons is preferably joined to the adjacent portion of the end wall 14 of the cabinet to thereby form stop flanges 27 which stop the roll of the bottles. As will be noted from the left of Fig. 6, each horizontal pair of the link chains 18 and the connecting rods 47 form individual sections or pockets whereby the individual bottles of one row are held in staggered relationship to the nearest adjacent bottles of the adjacent row. Also it will be seen that the path of travel of the lower run of the conveyor chains and of the connecting rods 47 connecting the lower run portions of said chains are sufficiently close to the longitudinal supporting and guide bars or tracks 22 to hold the bottles in lying-down position until the foremost bottle reaches an intermediate portion of the apron 25 whereat the upwardly moving cross bar, which has been in front of such bottle, has freed said bottle to roll down said inclined apron 25 to accessible position as illustrated in Fig. 5.

It is to be noted that one of the several important and advantageous features of my invention is the provision of a chain conveyor device which carries two rows of bottles or receptacles and providing sections or pockets for the individual bottles with the pockets of one row staggered with respect to the pockets of the other row so as to permit and require only a movement of the conveyor device a distance equal to one-half the distance between the longitudinal centers of two bottles mounted in normal position thereon. This construction requires less manual power through the actuating mechanism and permits the use of mechanism of the class herein described.

One side wall 14a of the cabinet and shell are provided with suitable openings 28, which are so located that bottles may be inserted therethrough

onto the loading panels 24 from where they are moved by the conveying mechanism in the manner described. Each loading opening is provided with a suitable closure or door 29 which is adapted to be locked when the loading is completed.

Referring to Figs. 2, 4 and 8, it will be noted that I provide a plurality of metal housings 31 to house the power transmission means whereby the manual power is transmitted to each of the shafts 16 which are adjacent the delivery end of the cabinet. These housings are relatively small as compared to the cabinet, three thereof being shown in cross section in Fig. 4. These housings 31 are secured to the side wall of the inner metal shell 15 and correspond in number to the number of conveyor units which are within the particular cabinet. These housings are one above the other and in positions substantially opposite the respective gear wheels 20 and within the confines of the actual cabinet side wall as illustrated in the drawings.

As shown in Fig. 4, the ends of the shafts 16 which are adjacent the outlet end of the cabinet extend through the side wall of the shell 15 and project through the inner wall of each of the housings 31 respectively. A centrally passaged wheel-like member 32, having a horizontally extending peripheral flange 33, is securely mounted on the projecting end of each of the shafts 57 as shown in Fig. 8. Said wheel-like members 32 each has three recesses 34 therein opening outwardly and located at points 120 degrees apart, as illustrated in Figs. 7 and 8. These recesses form a portion of coin receiving compartments as will be more fully explained hereinafter.

Referring to Figs. 4, 7 and 8, numeral 35 designates stub shafts, one for each conveyor and delivery unit, each of which shafts is journalled in a suitable mounting member which is mounted over an aperture in side wall of the shell in the cabinet. An operating lever or handle 37 is mounted on the outwardly projecting end of each shaft 35 as shown in Figs. 2, 4 and 8. The inner end of each shaft 35 is journalled for rotation in the hub of a metal circumferential plate 38. Each of the plates 38 seats within the peripheral flange 33 of the adjacent wheel-like member 32 and is secured in such position by a plurality of screws 39, which pass through flange 33 and thread into threaded passages in the periphery of plate 38. One of said screws 39 is shown in Fig. 8. Each of the plates 38 is so mounted that a space 40 defined by the flange 33 is provided as shown in Fig. 8.

The inner end of the stub shaft 35 in each conveyor unit extends through the hub of plate 38 and into the space 40 as shown in Fig. 8, and said projecting end has securely mounted thereon by welding or the like, a relatively thin metal cam element 41, which is recessed from its periphery to form a radially extending substantially straight edge surface 41a (Fig. 7). The outwardly curved edge of each of said cam elements defines a gradually outwardly flaring surface which is adapted to slidably engage the edge of a coin to eject the coin when the handle 37 and shaft 35 is returned toward initial starting position, as will be more fully explained hereinafter.

Each of the shafts 35 has secured thereon immediately adjacent the mounting member, a bevel toothed and peripherally recessed ratchet wheel 42 having teeth 42c. A right angled bracket 43 having an inwardly projecting stud 44 is mounted on the inner surface of the wall housing 31 by suitable screws as shown at the upper right of Fig. 8. A pawl 45 is pivoted on the stud 44 of said bracket 43, and said pawl by gravity maintains contact of its free end with the beveled gear teeth 42c so as to prevent return movement of the handle 37 and shaft 35 before said shaft and handle are pushed or pulled the full distance of normal movement representing 120 degrees.

Said ratchet wheel 42 has a pair of spaced apart relatively large peripheral recesses 42a and 42b as illustrated in Fig. 7, which are so located that when the ratchet wheel is rotated 120 degrees, the pawl 45 will drop by gravity into a downwardly extending direction and the pawl end will drop into said recess 42a, and be swung past a position normal to the gear and upon return movement of the operating handle and of the ratchet wheel to initial starting position, the end of the pawl 45 will merely slip over the top of the beveled teeth until it reaches recess 42b, which is located at the normal starting position of the ratchet wheel 42 and whereupon the pawl will swing to a position where it will again swing past dead center and into inclined position wherein its free end will slip over the ends of the teeth of ratchet wheel 42 when said ratchet wheel is rotated in clockwise direction.

Attention is called to Fig. 7, taken on line 7—7 of Fig. 8, wherein the ratchet teeth 42c and recesses 42a and 42b are illustrated in full lines at the top and to the left in the position which they assume before the handle is pulled downwardly and clockwise. As such clockwise movement takes place, the free end of pawl is swung to the right to a slightly inclined position and slips along the ratchet teeth 42c. If the operator stops the clockwise movement of the operating handle before he has moved it to its downward limit, which is a distance of 120 degrees, and at the same time attempts to "cheat" the device by trying to bring the operating handle back to starting position in an unauthorized attempt to move the conveyor unit a greater than required distance, the end of the pawl locks against one of the teeth 42c to prevent such return movement.

The dotted line position of ratchet teeth 42c in Fig. 7 is the position they take when the operating handle has been swung to its full limit after it has travelled 120 degrees. When that downward position is attained, the recess 42a is in the position of the recess illustrated at the lower right of this ratchet wheel in Fig. 7.

As shown in Figs. 4 and 8, I provide a suitable counterweight 46 which is mounted on the shaft 35 between ratchet wheel 42 and plate 38, and which extends in a direction to counter the weight of operating handle 37. The weight and position of counterweight 46 is sufficient to rotate shaft 35 to return it and the operating handle from the lowermost or "down" position to normal starting position.

I will now describe the releasable locking device which stops the wheel-like member 32 and its attached parts after each full 120 degree movement impelled by the operation of the handle 37. Securely mounted on that surface on wheel-like member 32, which is nearest to shell 15, are three metal brackets 48 which are spaced apart 120 degrees and each of which have an integral journalling sleeve or cylinder 49 as shown in Figs. 4, 8 and 9. These brackets are so positioned that the longitudinal axis of said sleeves 49 extend parallel or coincident to radial lines extending from the center of the wheel-like member 32. As shown in cross section in Fig. 9,

said cylinders 49 have openings at both ends and have slidably mounted therein one leg 51 of metal bail-like locking members 50 and the upper end of each of said cylinders 49 are closed by a centrally apertured metal cap 53. Each leg 51 of each bail-like locking member 50 is slidably mounted in the central aperture in cap 53 and in the opposite end opening of cylinder 49. A spiral compression spring 52 is mounted about leg 51 and within cylinder 49 and its end is normally pressed against a disk or washer 54 which is held in a position substantially as shown in Fig. 9 by a suitable pin or equivalent means.

The end of each of the legs 51 which projects outwardly from the cylinders 49 respectively is adapted to intermittently and one at a time snap into the aperture, recess or passage 55 in extending parts of locking member or collar 56 as the wheel-like member is rotated in the herein described manner. Metal locking member or flanged collar 56 is secured by screws or the like upon the inner wall of the housing 31 and concentric with a stub shaft 57 which stub shaft 57 is journalled in a suitable bearing 58 as shown in Fig. 8.

As shown in lower part of Fig. 6, stub shaft 57 extends a short distance inwardly of bearing 58 and of the wall of shell 15 and has securely mounted thereon a gear wheel 59 which meshes with gear wheel 20 (in each conveyor unit) as illustrated in Fig. 2. In Fig. 4, which is a cross sectional view taken on a vertical plane, the respective smaller gear wheels 59 are not visible, they being located behind the respective gear wheels 20.

Referring to Figs. 4, 7 and 8, numeral 60 designates the other leg of the bail-like locking member 50, and said leg 60 is bent so that it extends in a generally inclined direction and in a plane intersecting the plane of the leg 51, as illustrated in Fig. 7. This applies to each of the three locking devices illustrated as mounted for slidable movement in suitable apertures 61 in flange 33 and with respect to the wheel-like member 32. The lower end of each of the legs 60 is held by springs 52 respectively in positions to project into the adjacent coin receiving compartments respectively as shown in Fig. 7. It will be apparent that pressure applied against the projecting end of each of the legs 60 will push said bail-like locking member thereof upwardly against the normal action of the spring 52 in cylinder 49 of each unit as its turn comes in the cycle of operation.

Numeral 62 designates a coin chute, only part of which is illustrated in Figs. 7 and 8. This coin chute 62 is of a form adapted to receive the required coin and is positioned in inclined position and extending downwardly from its upper opening which registers with a suitable slot in the walls of the housing and cabinet. In Fig. 4 the entrance ends of the chute 62 are shown as terminating in suitable flange collars which are mounted in recesses in the housing and cabinet walls. The lower end of each coin chute 62 of each conveyor unit is positioned so that the rolling coin deposited therein will move into the coin compartment formed by one of the three recesses 34 in the wheel-like member 32. As stated, the three recesses 34 are formed in the wheel-like member 32, each 120 degrees from the adjacent recesses.

Description of operation of each dispensing unit

At the normal starting position the handle 37 is in horizontal position, and the lower end of leg 51 is seated in the aperture in collar 56, as shown in Figs. 7 and 8. The operator inserts a coin in the mouth of the coin chute, which coin slides through the chute and into the particular coin compartment or recess 34, which recess 34 is disposed in coin-receiving position as shown at the top of Figs. 7 and 8.

Upon the coin attaining the position shown in the upper part of Fig. 8, the operator rotates the handle clockwise. As the operator begins to rotate the crank in clockwise direction, the radially extending straight edge surface 41*a* of the cam element 41 presses against the flat side of the nickel and substantially against its center to cause the opposite flat side of the nickel to push against the downwardly extending and projecting end of leg 60, as shown at the upper part of Fig. 7, to cause upward movement of the slidably mounted bail-like locking element 50. This movement causes the lower end of the slidably mounted leg 51 to be withdrawn upwardly from locking engagement with the aperture in the horizontally extending flange of collar 56.

As the said clockwise movement progresses, the side portions of the coin push against the recess-defining wall surfaces of wheel-like member 32 and of plate 38 to rotate member 32 and plate 38 until the lower end of leg 51 of the next adjacent bail-like locking member (which is sliding on the surface of the annular flange of collar 56) snaps into the aperture in said collar. The extent of rotation of the cam element, of member 32 and plate 38 will be 120 degrees as the leg 51 will snap and lock in the aperture of collar 56 at such point.

Upon reaching downward limit of 120 degrees movement, the shaft 57 and gear wheel 59 will also have been moved 120 degrees and the coin will have reached the dotted line position designated as B in Fig. 7. The ratio between gear 59 and gear wheel 20 is such that in one such 120 degree movement described above, the chain conveyor will be moved one-half the distance between the straight portions of bars or rods 47. Upon such movement, a bottle moves to position where it rolls out upon part of the accessible apron or trough 25. Thereupon the counterweight 46 causes the shaft 35 and operating handle 37 to start its movement back to original starting position, whereupon the end of pawl 45, which at said time depends into recess 42*b* of said ratchet wheel 42, is swung to an inclined position to slide over the ends of the ratchet teeth 42*c* as said counterweight 46 returns said ratchet wheel and operating handle to starting position. When the ratchet wheel 42 and operating handle 37 has been returned to starting position, the end of pawl 45 drops into recess 42*a*, and upon the next operating movement of the handle 37 pawl 45 is swung to a slightly inclined position (extending downwardly and to the right looking at Fig. 7) so that as the next operating movement is consummated, it will slip along the end surfaces of the ratchet teeth to prevent the operator from "backing up" or returning the operating handle from any position less than a complete full operating movement due to engagement of said pawl 45 with said ratchet teeth 42*c*.

When the operating handle and shaft have been operated to the limit of the clockwise or forward movement, which movement is transmitted through the inserted nickel to the coin clutch device herein described, the leg 51 of the next adjacent bail-like locking device seats in the

aperture of collar 56 to lock the wheel-like clutch member against rotation, and as the counterweight, or the operator, returns the operating handle 37 in clockwise direction, the gradually outwardly flaring edge surface of the cam element 41 will slide against the edge of the coin in the coin clutch in all instances where the coin will not of itself fall by gravity from the slot into a suitable container (not shown) when it is in the downwardly inclined position indicated as B in Fig. 7.

The provision of the flaring cam element and its cooperating action is an important and advantageous feature in that attempts to cheat the machine by insertions of nickels having sticky substances thereon will nevertheless result in the forceable ejection of the coin where it does not itself drop by gravity.

As stated, a 120 degree rotation of the coin clutch in the described manner, causes transmittal of the said movement to stub shaft 57 and through gear 20, shaft 16 and the sprocket thereon to cause the chain conveyor unit to be moved a distance which is equal to one-half of the distance between any two parallel portions of the rods 47 to thereby, upon one movement, cause the foremost bottle (which is the one held nearest to the delivery apron 25 to be released and to cause it to roll to the accessible position illustrated in Fig. 1. The next succeeding movement as described will cause the bottle in the next adjacent row in the same conveyor device to be delivered upon the delivery apron as stated.

An advantage of the provision of a chain conveyor device of the construction which I have described wherein the bars are such as to hold the bottles in one row in staggered relationship with respect to bottles in adjacent row makes necessary movement of the chain conveyor device which is only one-half the distance which would otherwise be required, and the provision of this construction making it necessary to move the conveyor only one-half the distance, reduces the amount of work and the distance of movement of the operating handle 37.

In Figs. 11 and 12 I have illustrated a portion of my invention wherein the manual actuated movement which is transmitted through the cam element against the coin as hereinbefore described and wherein the releasable locking element and associated parts which lock the wheel-like member 32 against rotation are slightly modified from the form described in previous portions of this specification.

The structure of Fig. 11 may in part be compared to that of Fig. 8, the wheel-like member 32, the circular plate 38, the driving shaft 35, the opposite aligned shaft 57, and the cam element 41 being identical. In this form, I provide, in lieu of the leg-carrying bail-like locking element, the following. The bracketed cylinder 49 carries the integral apertured flange which is secured by bolts or the like to the vertical surface of the wheel-like member 32 at three desired positions as hereinbefore described and which positions are substantially illustrated in dotted lines in Fig. 7.

A locking pin or latch 70 is slidably mounted in each of the three secured cylinders 49 as shown at the right of Fig. 11, and the upper end of each of said locking pins 70 is preferably reduced and apertured.

At each of the three predetermined positions opposite the respective coin receiving compartments the wheel-like member 32 has a horizontally extending aperture or passage 63 formed therein in each of which is journalled a relatively short shaft 64 which is threaded on its inner end. Each of said shafts has an annular stop flange 71 formed thereon which engages the outer side surfaces of the wheel member 32 to maintain each said shaft against inward longitudinal movement. The threads upon the inner end of shaft 64 in Fig. 11 are not shown, though there is mounted on said threaded end of said shaft 64 an inner nut 66, and the transversely passaged shank portion of a lever arm 67, and also an outer threaded nut 65. Said lever arm 67 is held in the desired angular position with respect to the shaft 64 by the two opposing nuts 65 and 66, the normal angular position being such as substantially illustrated in Fig. 12 and so that said lever arm extends in a downward diagonally extending position substantially as illustrated in Fig. 12. The free end of lever arm 67 is preferably beveled, which beveled end terminates short of the outermost corner section of the cam element 41 so that when no coin is in position, no manual movement of the operator may be transmitted to the conveyor and delivery mechanism hereinbefore described.

As shown in Fig. 11, a lever 68 has one apertured end secured upon the outer projecting end of shaft 64, and has its other end slotted substantially as illustrated in Fig. 12. The normally lower slotted end of lever 68 is pivotally connected to the upper apertured end of pin 70 by a suitable pivot bolt 69 as illustrated in Figs. 11 and 12.

The cylinder 49 illustrated in Figs. 11 and 12 is preferably the same construction as that illustrated in Fig. 9 wherein it is shown in cross section, said cylinder 49 containing a suitable compressable spiral spring which normally exerts its force against a suitable washer 54 which is secured at a desired position upon the locking pin 70 in the same manner as such cross pin is secured upon the leg 51 shown in Fig. 9.

It will be apparent that the locking pin 70, lever 69, shaft 64 and lever arm 67 will normally be held in the locked and relative positions illustrated in Fig. 12 by the pressure of the spring 52. When the coin, illustrated in end view in Fig. 12, is inserted in the coin compartment in the manner hereinbefore described and the operator partially rotates the operating handle, one flat surface of the coin will transmit such movement against the lever arm 67 to move connecting lever 68 and locking pin 70 upwardly to thereby withdraw the lower end of locking pin 70 from one of the apertures in the collar 56 which collar is shown in cross section in Fig. 12. Such movement by the operator will continue approximately 120 degress, at which time the coin will drop out by gravity inasmuch as the entrance opening of the coin compartment will be in a downward direction, and the locking pin will, by spring impelled pressure, slip into the nearest aperture of the collar 56 to lock the wheel member 32, shafts 57 and 35 and plate 38 against further movement.

In any instances where the coin would not itself drop out by gravity when it is rotated 120 degrees, the coin will be forced out of its position between the radially extending edge surface of the shoulder or tooth of the cam and the lever arm 67 by the slidable and forcing-like engagement of the edge surface of the cam element against the edge of the coin as has hereinbefore been described.

As shown at the left hand end of Fig. 4 and partially at the right hand portion of Fig. 8, the

bushings 36 which are mounted in suitable registering holes in the adjacent walls of the coin mechanism housing and the cabinet side walls 14a, have annular collars indicated in Fig. 8 as 36a projecting outwardly from the surface of the cabinet side wall. Each of said collars 36a has two spaced apart integrally formed outwardly projecting studs 72 and 73 thereon which act as stop studs to limit the movement of the operating handles respectively. The enlarged portion of each of the operating handles have a suitable stud 74 formed integral therewith which engages the stop studs 72 and 73 when each of said handles are moved to its extreme positions in both directions. Said stop studs 72 and 73, being so spaced that the operating handle 37 can move only 120 degrees, thereby cause the rear member 32, plate 38 and connected parts to likewise move only 120 degrees so that when the operating handle 37 is moved to its forward "delivery" position, either the locking pin 70 or the leg 51 will be in position to be moved into the next adjacent aperture in the bushing 56 by action of spring 52.

I desire to point out that the foregoing constructions provide for foolproof operation of the device which absolutely prevents any unauthorized manipulation or movement of any one of the conveyor mechanisms, and that it insures that any one of the conveyor mechanisms which is moved in the hereinbefore described manner through the described transmission of manual movement will move the bottle or package carrying conveyor unit only the predetermined desired distance so as to deposit the bottle or package upon one of the accessible delivery panels for manual withdrawal through the opening of the cabinet end wall.

I also desire to emphasize that wherever herein I have described the respective parts in operation of one conveyor unit and of one movement transmission means, that such description and operation applies equally to each one of the conveyor units and movement transmission units where two, three or more such composite units are contained within a single cabinet. While I have illustrated in the drawings a three conveyor unit device, I desire it to be understood that my invention covers devices having one or a plurality of such units according to the particular requirements construction.

It will also be apparent that the embodiment of two, three or more conveyor units of the described construction, and each having its own individual movement transmitting mechanism permits one cabinet in a given location to dispense as many flavors or kinds of beverages as there are operative conveyor units to thereby provide for customer selection and greater sales of the contained merchandise.

I claim:

1. In a device for dispensing merchandise bottles or the like; a cabinet having closable inlet and outlet openings; an inner shell in said cabinet and spaced from the cabinet walls; a plurality of pairs of transversely extending shafts journalled at their respective ends on the walls of said shell, each pair of said shafts being coplanar and journalled substantially adjacent the opposite ends of said shell; a pair of sprockets on each of said shafts and substantially at the opposite ends of each shaft; the sprockets on the corresponding ends of said shafts being in substantial alignment; an endless link chain mounted to roll on each of the forward sprockets and on a corresponding aligned sprocket at the opposite end; a plurality of angular horizontally offset rods connecting each pair of link chains, said rods being spaced apart and disposed to maintain two rows of bottles therebetween and in horizontal and in staggered relative positions; an inclined delivery apron adjacent the cabinet outlet opening wherein bottles deposited thereon will roll to accessible position adjacent said delivery opening; a plurality of track bars mounted below the runs of each pair of link chains and adapted to support the bottles in positions between said cross rods; a gear wheel mounted on an end of one of said shafts; a manually operable mechanism including an external grippable operating handle and means for transmitting the movement of said handle to said gear wheel to thereby rotate said gear wheel and said shaft and to move the link chains drivingly connected thereto a pre-determined distance to thereby deliver the foremost of said bottles upon said delivery apron.

2. In a device for dispensing merchandise containers of substantially rounded form; a cabinet having an inlet opening and an outlet opening at one end thereof; an accessible inclined delivery panel mounted adjacent said outlet opening; a plurality of movable conveyor devices in said cabinet, each of said conveyor devices including a pair of coplanar shafts journalled substantially at opposite ends of said cabinet; a pair of sprockets secured on each of said shafts, the two sprockets on the corresponding ends of each pair of shafts being in substantial alignment; an endless link chain mounted on each pair of aligned sprockets, a plurality of connecting bars mounted in spaced apart relation and having their respective ends connected to the two substantially horizontally coplanar chains and adapted to hold a plurality of merchandise containers therebetween; a plurality of track rods mounted below each run of the pair of coplanar chains and below said connecting bars, said track rods being adapted to support the containers during the major part of their path of travel; a gear wheel on the end of one of said shafts; an accessible operable handle journalled on a wall of said cabinet; and mechanism for transmitting the power applied from said operating handle to said gear wheel to move the associated conveyor device a predetermined distance to effect delivery of the foremost of said containers upon said delivery apron.

3. In a device for dispensing bottles or the like, a cabinet having inlet loading openings and having accessible delivery openings and accessible delivery members adjacent said delivery openings; a plurality of conveyor devices movably mounted in said cabinet and adapted to move the bottles or the like in circuitous paths in said cabinet to accessible positions adjacent said delivery openings; each of said conveyor devices comprising a pair of spaced apart endless link chains; means in said cabinet for movably mounting said link chains of each conveyor device; a plurality of spaced apart bars connecting each pair of said endless link chains, each of said bars being angularly bent and offset horizontally at its central portion so that the bar sections on one side of said conveyor unit maintain the bottles therebetween in staggered relationship with respect to the bottles maintained in positions by the other sections of said bars respectively, tracks connected to said cabinet adapted to support the bottle during such movement each conveyor device thereby being adapted to move two rows of bottles in a circuitous path in

said cabinet wherein the bottles of one row are non-aligned and in staggered position with the bottles of the other row; manually operable handle and shaft means on a wall of said cabinet; gear and shaft mechanism for transmitting the manual movement from said handle and shaft means to move the associated bottle conveyor device drivingly connected thereto; and means for limiting the rotative movement of said operating handle, one full movement of said handle being adapted to cause movement of the conveyor device drivingly connected thereto a distance sufficient to deliver one bottle at a time to accessible position adjacent the delivery opening of said conveyor device.

4. In a device for dispensing bottles or the like, a cabinet having inlet loading openings and having accessible delivery openings and accessible delivery members adjacent said delivery openings; a plurality of conveyor devices movably mounted in said cabinet and adapted to move the bottles or the like in circuitous paths in said cabinet to accessible positions adjacent said delivery openings; each of said conveyor devices comprising spaced apart aligned endless link chains; means in said cabinet for movably mounting said link chains of each conveyor unit; a plurality of spaced apart bars connecting each group of aligned endless link chains, each conveyor device thereby being adapted to move the bottles in a circuitous path in said cabinet; tracks connected to said cabinet and below certain of said bars and adapted to support said bottles; manually operable handle and shaft means on a wall of said cabinet; gear and shaft mechanism for transmitting the manual movement from said handle and shaft means to move the bottle conveyor device drivingly connected thereto; and spaced apart studs on the cabinet adjacent said handle for limiting the rotative movement of said operating handle, one full movement of said handle being adapted to cause movement of the conveyor unit drivingly connected thereto a distance sufficient to deliver one bottle at a time to accessible position adjacent the delivery opening of said conveyor unit.

5. In a manually operable bottle dispenser; a cabinet having entry and outlet openings at one end; a conveyor device for moving bottles in a substantially horizontal and elliptical path from the entrance opening toward the end of the cabinet opposite to said entrance end and back to the outlet opening, said conveyor device including a plurality of aligned endless link chains; means in said cabinet for rollably mounting said chains including journalled shafts and sprockets thereon; longitudinally extending bars below the runs of said chains for supporting the bottles in their path of travel; angularly horizontally offset spacer rods connected to said chains and for maintaining the bottles in lying-down positions therebetween and in two rows, the bottles of one row being staggered with respect to the bottles of the other row; an operating handle and connected operating shaft journalled in a cabinet wall; and power transmission mechanism operatively connected to one of said chain shafts and adapted to transmit movement of said operating handle shaft to one of said chain shafts to cause movement of said conveyor device; a ratchet on said operating shaft. and a pawl pivotally connected to the cabinet wall, cooperating with said ratchet to prevent return movement of said operating handle and shaft from positions less than the full stroke position thereof.

6. In a manually operable bottle dispenser; a cabinet having entry and outlet openings at one end, a conveyor device for moving bottles in a substantially horizontal and elliptical path from the entrance opening toward the end of the cabinet opposite said entrance end and back to the outlet opening, said conveyor device including a group of alined endless link chains; means in said cabinet for rollably mounting said chains including journalled shafts and sprockets thereon; longitudinally extending bars below the runs of said chains for supporting the bottles in their path of travel; transverse spacer rods connecting said chains and providing spaces between which said bottles roll; a driven gear on one of said chain shafts; an operating handle and connected operating shaft journalled in a cabinet wall; and power transmission mechanism operatively connecting said handle shaft and said driven gear.

7. In a device for dispensing mechandise containers of substantially rounded form; a cabinet having inlet and delivery openings respectively at one end; a chain conveyor device mounted in said cabinet including a pair of sprockets, endless chains rollably mounted thereon, and tracks coacting with said chains; a plurality of spacing and guide rods connected to said chains adapted to engage the respective merchandise containers and move the same along said tracks from points adjacent the delivery opening of the cabinet toward substantially the end thereof opposite said delivery opening and thence back to points adjacent to the cabinet delivery opening; a journalled stub shaft extending through an inner wall in the cabinet; a driving gear on said stub shaft and being operatively connected to drive said sprockets and said chains, and a manually rotatable shaft journalled in a cabinet wall and operatively connected to said stub shaft, the rotation of said manually operable shaft being adapted to be thereby transmitted to move said conveyor chains a predetermined distance.

8. In a bottle dispensing device having a substantially enclosed cabinet with entry and delivery openings therein; a movably mounted conveyor mechanism in said cabinet, said conveyor mechanism including a plurality of endless chains, tracks coacting with said chains and a plurality of spaced apart horizontally bent rods connecting said chains, said rods being adapted to maintain said articles in separate substantially adjacent rows and in staggered non-aligned positions, said mechanism being adapted to move said articles along said tracks from points of loading of the articles to manually accessible points at the delivery openings of said cabinet, said conveyor mechanism being adapted to be moved a predetermined distance to deliver one bottle at a time to accessible positions upon movement of said conveyor mechanism a predetermined distance; a rotatable shaft journalled in said cabinet; an exterior manually operable handle connected to said shaft and mounted for rotatable movement; cooperating gears on a second rotatably supported shaft and on said conveyor mechanism respectively adapted to drive said conveyor mechanism; movement of said handle-operated shaft being adapted to transmit the rotative movement thereof to said second shaft to thereby move said conveyor device a predetermined distance; and stop studs on said cabinet for limiting the movement of said operating handle and shaft to a predetermined distance to in turn cause said conveyor device to be moved a dis-

tance sufficient to deliver one of the bottles carried thereby.

9. In combination with a dispenser unit for packaged merchandise having a cabinet; a plurality of horizontally extending and horizontally movable conveyor devices adapted to carry bottles or the like from points of loading to accessible positions at one end of said cabinet; each of said conveyor devices having a pair of endless link chains and a plurality of horizontally angularly offset rods connecting said chains tracks mounted in said cabinet below said chains and adapted to support the bottles, said rods being adapted to maintain bottles in separate rows, the bottles of one row being staggered with respect to the bottles of the other row; an operating handle and shaft means journalled in a cabinet wall; an inner shaft journalled within said cabinet and in substantial alignment with said operating shaft; gear means drivingly connecting said inner shaft and said bottle carrying conveyor device; and a releasable locking device operatively connected to said inner shaft adapted to releasably lock the same against rotation.

10. In a device for dispensing bottles or the like, a cabinet having a loading opening, an accessible delivery opening and a delivery member adjacent the delivery opening; a conveyor device movably mounted in said cabinet and adapted to move the bottles or the like in a circuitous path within the cabinet from the loading opening to the delivery member adjacent the delivery opening, said conveyor device including bottle supporting track means, a plurality of endless chains extending along and adjacent the track means, means movable with said chains providing a plurality of rows of adjacent bottle separating partitions transverse to said track means, the bottle separating partitions of said rows being offset longitudinally of the chains whereby the bottles of different rows are alternately delivered to said delivery member adjacent the delivery opening, and means in the cabinet movably supporting the chains; an operating member, means for limiting movement of the operating member during each actuation, and means connecting the operating member to said chain supporting means for effecting step-by-step delivery of bottles or the like sequentially from said rows in response to repeated actuations of the operating member.

11. In a device for dispensing bottles or the like, a cabinet having a loading opening, an accessible delivery opening and a delivery member adjacent the delivery opening; a supporting and conveyor mechanism in the cabinet adapted to carry adjacent rows of bottles or the like in a circuitous path within the cabinet from the loading opening to the delivery member adjacent the delivery opening, said supporting and conveyor mechanism including endless type movable elements and cooperating partitioning members carried thereby and medially offset horizontally to form parallel rows of bottle conveying sections with the sections of one row adjacent and staggered with respect to the sections of the other row; and means movably supporting said movable elements; an operating member, means limiting the continuous movement of the operating member, and means drivingly connecting the operating member to said movable elements for effecting step-by-step delivery of bottles or the like alternately from said rows to said delivery member adjacent said delivery opening in response to successive operations of the operating member.

12. An apparatus for dispensing bottles or the like comprising, in combination, a casing having a delivery opening, means in said casing for supporting and simultaneously advancing two rows of bottles in a common plane toward said delivery opening and defining two rows of bottle-retaining pockets one for each bottle with the pockets in one row offset relative to those in the other row by an amount equal substantially to half the diameter of each bottle, and actuating means for causing such advance of the bottles in successive steps corresponding to the degree of offset of the bottles whereby the bottles of alternate rows are delivered to said opening successively.

13. In a device for dispensing bottles or the like, a conveyor mechanism for supporting and simultaneously advancing two rows of bottles, said mechanism having a delivery end and including movable elements and cooperating medially offset partitioning members carried by said movable elements forming adjacent parallel rows of bottle conveying sections, said sections of one of the rows being staggered with respect to the sections of the other row by an amount approximately equal to one-half the width of each section so that bottles or the like carried in said sections are alternately delivered at the end of said mechanism from said adjacent rows.

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