Aug. 19, 1941. W. T. STANFORD 2,253,447

VENDING MACHINE

Filed Sept. 26, 1939 5 Sheets-Sheet 1

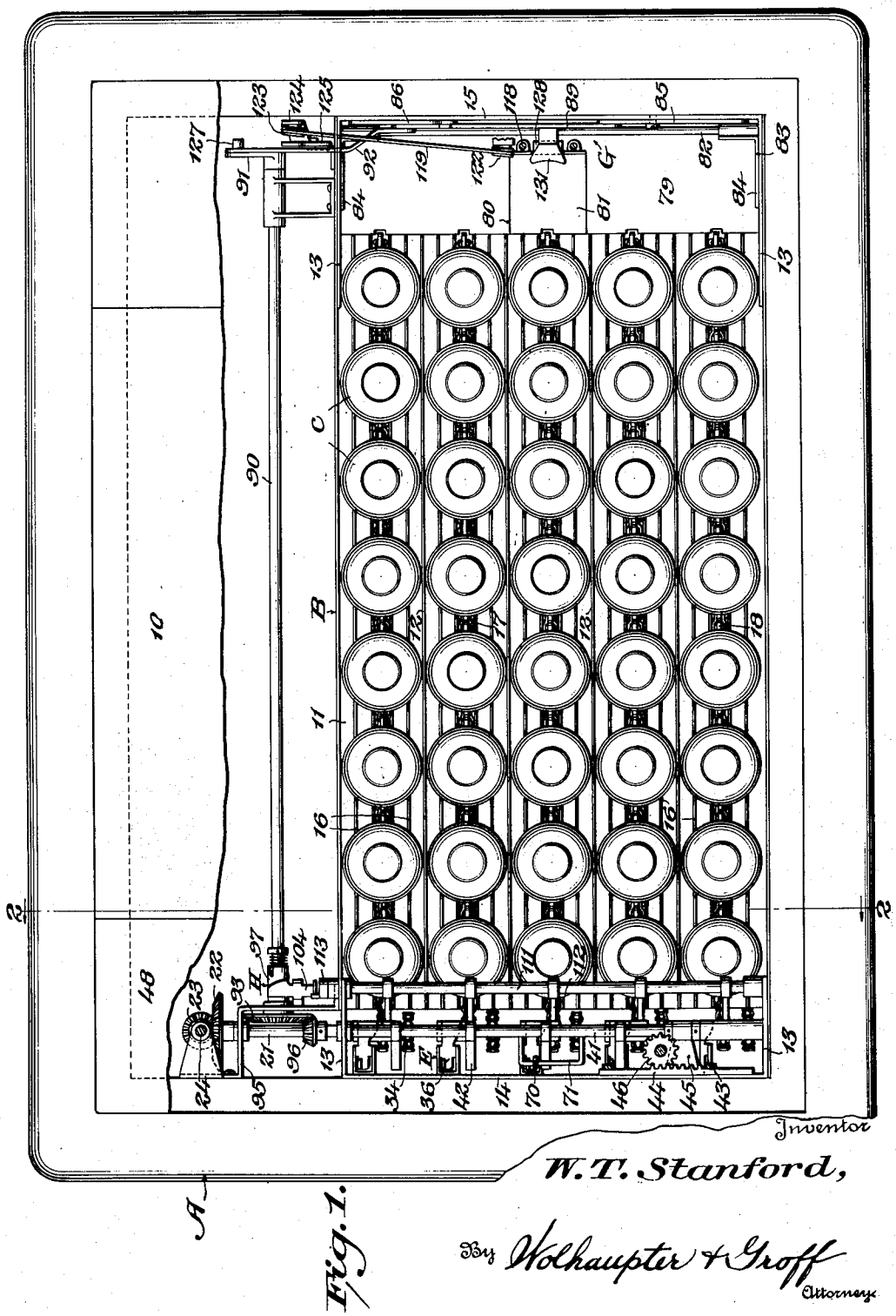


Fig. 1.

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Fig. 2.

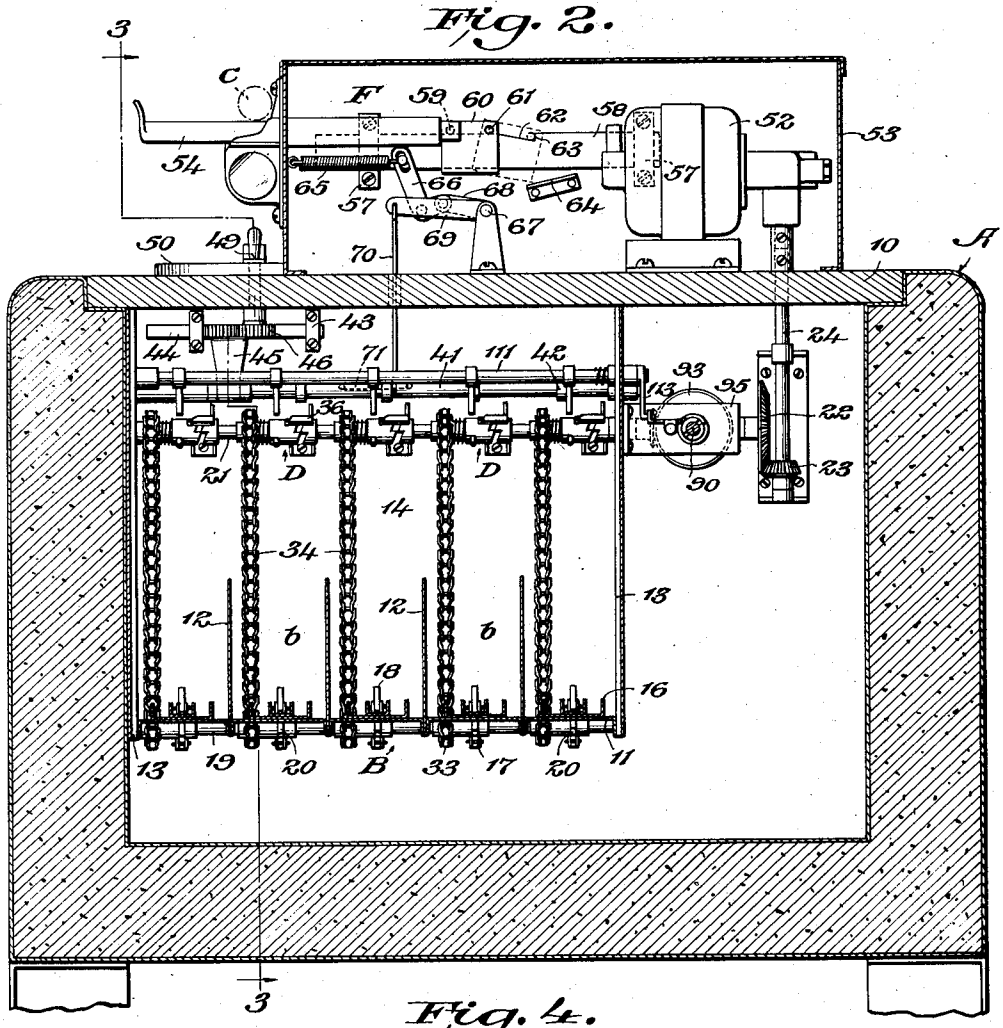
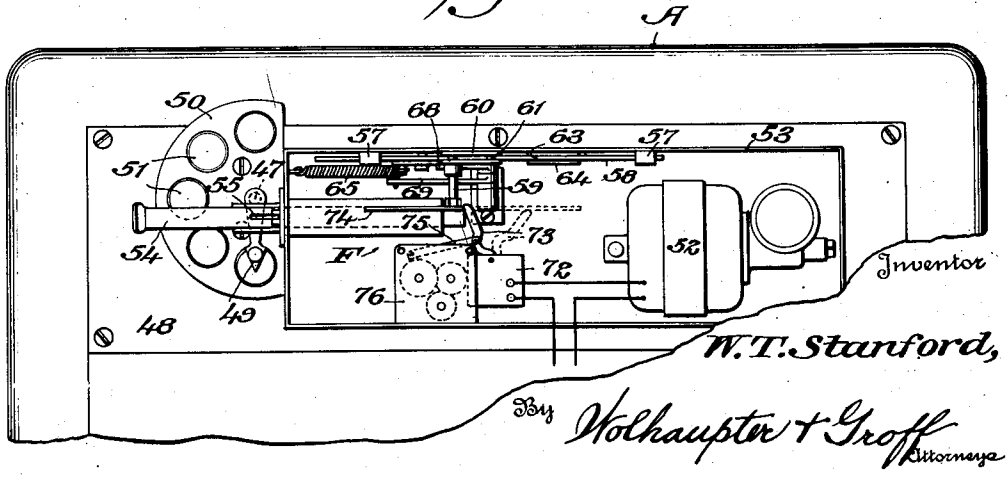


Fig. 4.



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VENDING MACHINE

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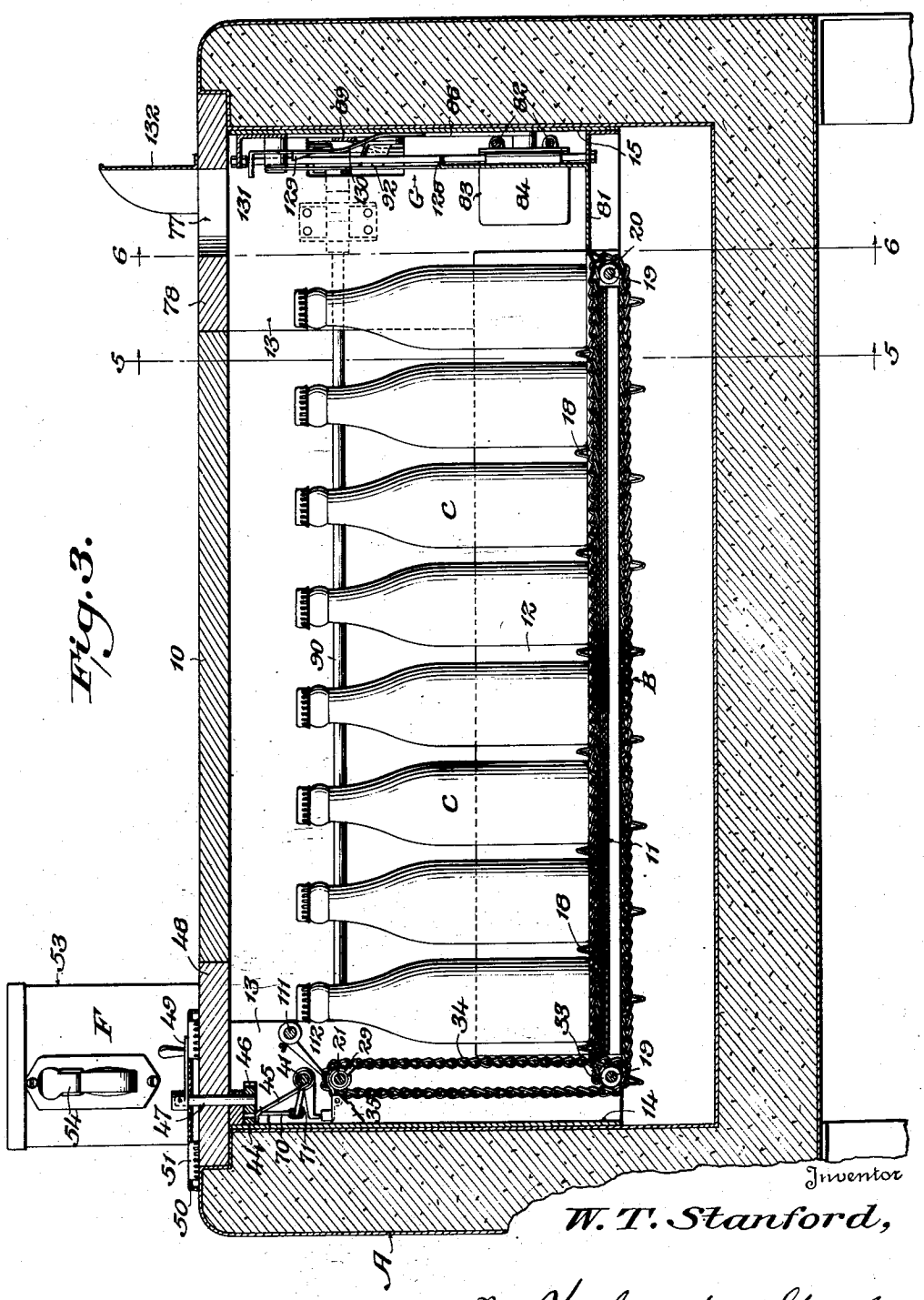


Fig. 3.

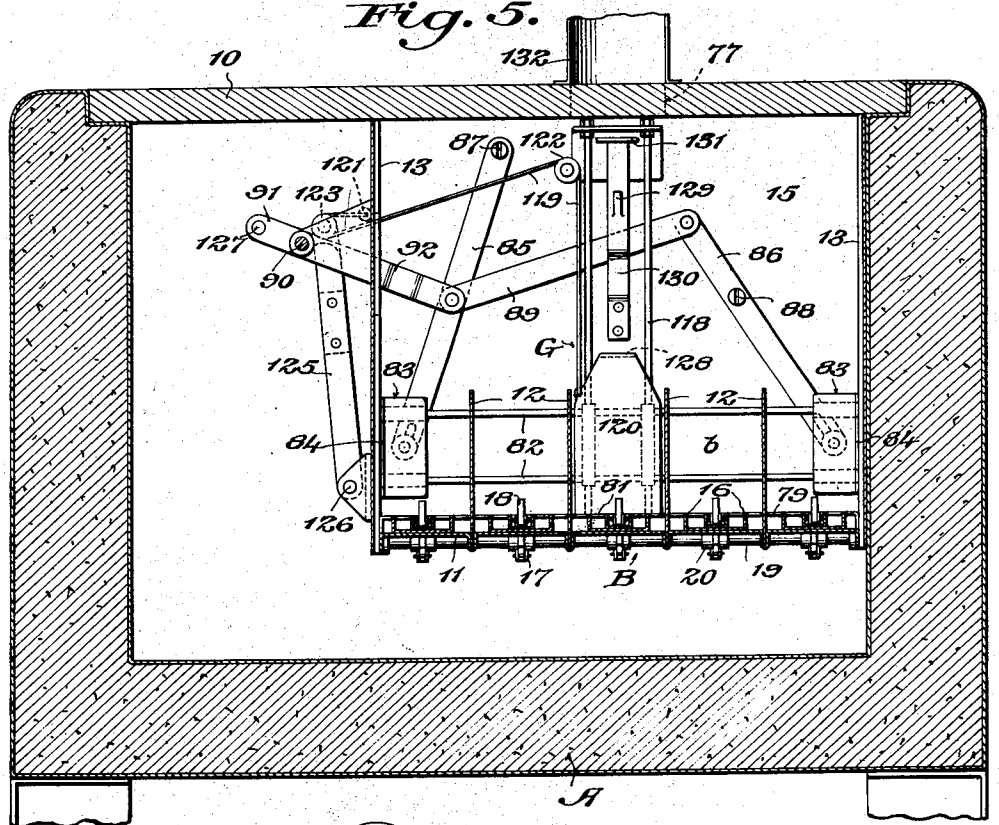
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VENDING MACHINE

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Fig. 5.



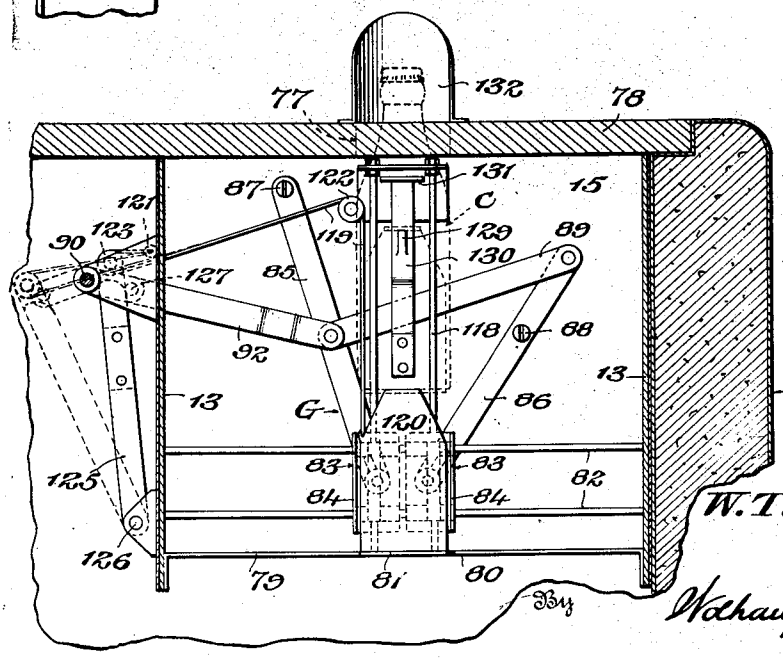


Fig. 6.

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VENDING MACHINE

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Fig. 7.

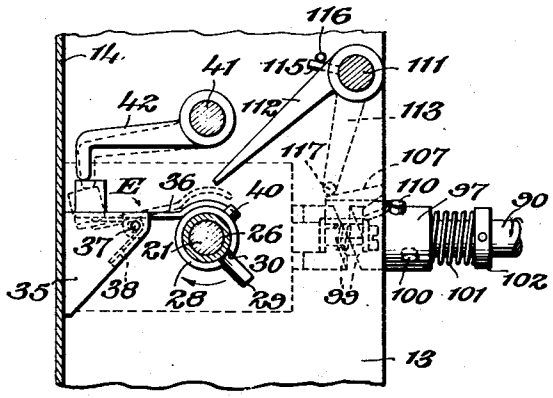


Fig. 9.

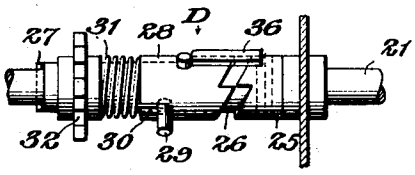
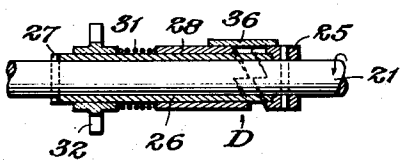


Fig. 10.



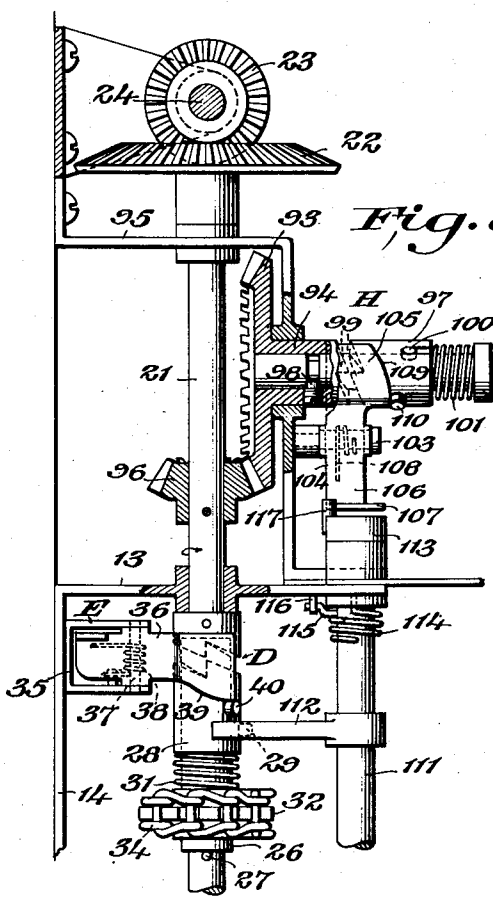
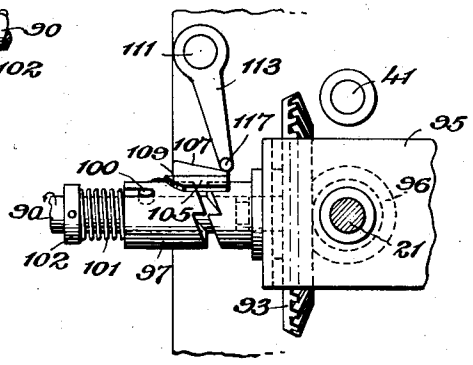


Fig. 8.

Fig. 11.



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Patented Aug. 19, 1941 2,253,447

UNITED STATES PATENT OFFICE

2,253,447

VENDING MACHINE

William T. Stanford, Oklahoma City, Okla., assignor of fifty-seven and one-half per cent to J. I. Gibson and Leonard H. Savage, jointly; and forty-two and one-half per cent to William E. Attaway, all of Oklahoma City, Okla.

Application September 26, 1939, Serial No. 296,698

16 Claims. (Cl. 312—87)

This invention relates to vending machines, and has particular reference to a vending machine which is especially intended and adapted for the vending of bottled beverages, although the same may readily be adapted to vend various other commodities.

Generally speaking, the object of the invention is to provide a machine to contain a plurality of different kinds of bottled beverages or other commodities, and which embodies simple, practical means for the seletcion of the kind of bottled beverage or other commodity to be dispensed, and simple, practical, coin controlled means for effecting delivery of the particular kind of bottled beverage or other commodity selected.

A special object of the invention is to provide a vending machine mechanism embodying means as stated and which may readily be installed in a known type of refrigerating container for bottled beverages.

With the foregoing and various other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel features of construction and in the novel combination and arrangement of parts and mechanisms as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the accompanying drawings, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is a top plan view, with parts removed to disclose the underlying structure, of a vending machine constructed in accordance with one practical embodiment of the invention.

Figure 2 is a cross section on the line 2—2 of Fig. 1.

Figure 3 is a longitudinal section taken approximately on the line 3—3 of Fig. 2.

Figure 4 is a plan view showing particularly the selector means and the coin controlled mechanism.

Figure 5 is a cross section on the line 5—5 of Fig. 3 showing a normal status of the delivery mechanism.

Figure 6 is a cross section on the line 6—6 of Fig. 3 showing a partial delivery status of the delivery mechanism.

Figure 7 is an enlarged detail longitudinal section through a part of the mechanism.

Figure 8 is an enlarged detail horizontal sectional view through a part of the mechanism.

Figure 9 is an elevation of one of the clutches included in the mechanism.

Figure 10 is a longitudinal section through one of the clutches included in the mechanism; and

Figure 11 is another detail longitudinal section through a part of the mechanism.

Referring to the drawings in detail, A designates generally a container which may be of any suitable type but which appropriately is illustrated as being of the type commonly employed to contain bottled beverages and ice to maintain the beverages cold, since it is a feature of the invention that the present vending mechanism may readily be installed in such a container.

The container A includes, as usual, insulated side, end and bottom walls and a top closure 10 to be opened to afford access to the container for the purpose of supplying the same with bottles of beverage or other commodities to be dispensed and to be secured closed in any suitable manner to prevent unauthorized access to the container.

Since the invention as illustrated is particularly adapted for vending bottled beverages, such as soft drinks, it will be hereinafter assumed, for the sake of simplifying this description, that the commodity handled by the machine is bottled soft drinks of different kinds or flavors. It is to be expressly understood, however, that the commodity handled may be bottled, canned or otherwise packaged goods of various other kinds.

In accordance with the invention there is suitably mounted within the container A a supporting structure, designated generally as B, for the bottles, designated as C, to be vended or dispensed.

The supporting structure B may be of any suitable construction and is illustrated in the present instance as comprising a horizontally disposed plate 11 extending almost from end to end of the container A and having cooperating therewith a plurality of vertically disposed, longitudinally extending partition elements 12 dividing the space thereabove into a plurality of separate, longitudinally extending guideways *b*, each approximately of the same width as the diameter of a bottle C.

In the present instance the plate 11 is illustrated as being mounted within the container A by having its end portions disposed between and fastened to the inwardly extending side flanges 13 of a pair of brackets 14 and 15, each of U-shape as viewed in plan and fastened, respectively, against the end walls of the container A. Also, in the present instance, the two outermost partition elements 12 are illustrated as being mounted in operative relationship to the plate 11 by having their ends suitably fastened to the

side flanges 13 of the brackets 14 and 15, and the intermediate partition elements 12 are illustrated as being removably mounted for cleaning purposes by having their lower edges engaged in grooves formed in the plate 11. However, the plate 11 and the partition elements 12 may be mounted in any other suitable or desired manner, or the guideways *b* may be provided in any other suitable or desired manner.

There may be any suitable number of the guideways *b* and they are, of course, disposed in side to side relationship, each to contain a plurality of the bottles C to be vended. In any given runway all of the bottles contain a beverage of the same kind or flavor, whereas, in the different runways, the kinds or flavors of the beverages contained in the bottles are different.

At the bottom of each guideway *b* is a skidway 16 on which the bottoms of the related row of bottles rest for free and easy sliding movement longitudinally through the guideway, each skidway 16 being comprised, for example, by a pair of laterally spaced, longitudinally extending flanges which rise from the plate 11 and on the narrow upper edges of which the bottoms of the upright bottles C rest.

Also at the bottom of each guideway *b* is a suitable conveyor 17 for moving the related row of bottles longitudinally along the guideway, each conveyor comprising, for example, an endless chain extending longitudinally of its related guideway and having upper and lower reaches of which the upper reach is disposed above the plate 11 between the skidway flanges and the lower reach is disposed below said plate. The skidway flanges extend slightly above the upper reaches of the conveyor chains so that the bottles do not rest upon the conveyor chains and thereby do not interfere with free travel of the latter, but on each conveyor chain is a series of fingers 18 which are spaced apart longitudinally therealong distances apart corresponding substantially to the diameters of the bottles and which project from the upper reach of the chain above the top edges of the skidways so as to engage between the bottles C and respectively advance the latter when the conveyor is moved. In other words, when any given conveyor 17 is advanced, it operates to advance all of the bottles in the related guideway longitudinally therealong, each individual bottle being separately advanced by a related finger 18 on the conveyor. A transverse, horizontal shaft 19 is suitably mounted adjacent to each end of the plate 11, and loose on shafts for rotation with respect thereto, are sprocket wheels 20 over which the conveyor chains 17 extend.

Above the shaft 19 at one end of the container A is a transverse, horizontal shaft 21 which is journaled for rotation in bearings carried by the flanges 13 of the bracket 14 and which has fixed thereon a bevel gear 22 with which meshes a bevel gear 23 on a vertically disposed power shaft 24 whereby said shaft 21 is adapted to be power driven.

On the shaft 21 is a plurality of clutches D which are duplicates of one another and which correspond in number to the number of guideways *b* and conveyors 17, there being in the present instance five of said guideways and conveyors and, consequently, five of said clutches, one related to each guideway and conveyor.

Each clutch D comprises (see Figs. 7 to 10), a toothed clutch element 25 fixed to the shaft 21; a sleeve 26 rotatable on said shaft and confined between the clutch element 25 and a pin 27 or other suitable abutment on the shaft 21 whereby it is held against longitudinal movement relative to said shaft; a second toothed clutch element 28 longitudinally slidable on the sleeve 26 into and out of clutching cooperation with the clutch element 25, but held against rotation relative to said sleeve in any suitable manner, as, for example, by means of a pin 29 extending radially outward from said sleeve through an elongated, longitudinally extending slot 30 in said second clutch element; and a suitable spring 31 tending constantly to urge the second clutch element 28 along the sleeve 22 into clutching cooperation with the clutch element 25.

Both clutch elements 25 and 28 are in the form of sleeves, the former embracing the shaft 21 to which it is fixed, and the latter embracing the sleeve 26, on which it is longitudinally slidable but non-rotatable, and the coacting teeth of said clutch elements are on their adjacent ends, whereby their engagement and disengagement is effected by sliding of the element 28 along the sleeve 26. Fixed on the sleeve 26 is a sprocket wheel 32, and in the present instance the spring 31, in the form of an expansion coil spring, surrounds said sleeve and is interposed between the hub of said sprocket wheel and the adjacent end of the clutch element 28, whereby it tends constantly to urge said clutch element 28 into engagement with the clutch element 25.

Obviously, when the clutch elements 25, 28 are disengaged, rotation of the shaft 21 does not impart rotation to the sleeve 26, but when said clutch elements are engaged, rotation of said shaft is transmitted through said clutch elements to the sleeve 26 and, as a consequence, rotation is imparted to the sprocket wheel 32.

Extending over the sprocket wheel 32 of each clutch D and over a related sprocket wheel 33 loose on the underlying shaft 19 but fixed with respect to a related conveyor sprocket wheel 20 on said shaft 19, is a sprocket chain 34. Accordingly, whenever the clutch elements 25, 28 of any given clutch D are engaged with each other and the shaft 21 is rotated, the related conveyor 17 is driven. In this connection it is pointed out that the direction of rotation of the shaft 21 is such as to cause any conveyor 17 operated thereby to advance the bottles C toward the end of the container A remote from the end adjacent to which the shaft 21 is located.

Related to each clutch D is a means, designated generally as E, which serves normally to hold the clutch element 28 disengaged from the clutch element 25; which may be tripped to permit the spring 31 to act to effect engagement of the clutch element 28 with the clutch element 25, and which operates, responsive to a predetermined amount of rotation of the clutch element 28, to effect disengagement of the latter from the clutch element 25.

Each means E comprises a suitable support 35 secured, for example, to the bracket 14, and a finger 36 pivoted intermediate its ends, as at 37, to said bracket and having what may be termed its forward end portion overlying the clutch element 28 of the related clutch D. The said forward end portion of the finger 36 is curved corresponding to the curvature of the clutch element 28 and a suitable spring 38 tends constantly to rotate or rock said finger on its pivot in a direction to cause the said forward end of said finger to rest normally upon the top of said clutch element 28. The edge of the

curved, forward portion of the finger which faces the outer end of the clutch element 28 is inclined as indicated at 39 (Fig. 8) and on the clutch element 28 is a short, radial, outwardly projecting pin 40 which cooperates with said inclined edge 39 when the forward end portion of the finger is in its normal position, to effect longitudinal shifting of the clutch element 28 and its disengagement from the clutch element 25 responsive to rotation of said clutch element 28 by the clutch element 25. By depressing the rear end portion of the finger 36 its forward end portion is elevated above the pin 40 and the spring 31 is permitted to shift said clutch element 28 into engagement with the clutch element 25. If, then, the finger 36 is released, the clutch element 28 remains engaged with the clutch element 25 until a complete rotation of the clutch element 28 occurs, but during the final portion of said complete rotation the pin 40 coacts with the inclined edge 39 of the finger 36 to effect disengagement of the clutch element 28 from the clutch element 25. A complete rotation of the clutch element 28 produces a complete rotation of the sleeve 26 and of the sprocket wheel 32 carried by said sleeve, and one complete rotation of said sprocket wheel is effective to advance the related conveyor chain 17 an amount corresponding to the spaced apart relationship of the bottles C in the related row.

From the foregoing it is apparent that, so long as the several fingers 36 are in their normal positions holding the clutch elements 28 of the several clutches D disengaged from their related clutch elements 25, rotation of the shaft 21 will not effect driving of any conveyor chain 17. On the other hand, it is equally apparent that, when any given finger 36 is tripped by depressing its rear end, the related clutch element 28 will, by its spring 31, be instantly engaged with its related clutch element 25 and the related conveyor chain will be driven until disengagement of the clutch element 28 from the clutch element 25 is automatically effected by the coaction of the pin 40 with the inclined edge 39 of the finger 36. Thereafter the clutch will, of course, remain disengaged until the finger 36 again is tripped.

Above the shaft 21 and parallel therewith is a longitudinally shiftable and rockable shaft 41 which carries a number of tripping fingers 42, one related to each of the aforesaid fingers 36. The fingers 42 are spaced along the shaft 41 so that by longitudinally shifting said shaft any given finger 42 may be brought to a position in overlying relationship to the related finger 36. Moreover, the fingers 42 extend rearwardly from the shaft 41 to cooperate with the rear end portions of the fingers 36, so that when, as a result of longitudinal adjustment of the shaft 41, any given finger 42 is brought into overlying relationship to the related finger 36, rocking of the shaft 41 in a direction to effect downward movement of the fingers 42, will result in tripping of the finger 36 with which any given finger 42 is alined. Furthermore, the spacing of the fingers 42 along the shaft 41 is such that when any given finger 42 is in operative, overlying relationship to its related finger 36, all other of the fingers 42 are disalined from their related fingers 36. Accordingly, not more than one finger 36 may be tripped by rocking of the shaft 41 in any given longitudinally adjusted position of said shaft.

Slidably mounted in suitable bearings 43 carried by the bracket 14 is a horizontally disposed, transversely extending rack bar 44, and connecting this rack bar with the shaft 41 is an arm 45, whereby longitudinal shifting of said rack bar longitudinally shifts or adjusts said shaft 41.

In mesh with the teeth of the rack bar 44 is a pinion 46 which is carried by the lower end of a vertical shaft 47 and which is rotatable by rotation of said shaft to adjust said rack bar longitudinally. The shaft 47 is journaled for rotation in suitable bearings and extends through a cover element 48 permanently closing a part of the top of the container A, and at its upper end is equipped with a suitable handle 49 for effecting its rotation.

The handle 49 overlies a retaining plate 50 for a plurality of crimp caps 51, such as are employed for closing the mouths of the bottles C, and said retaining plate has openings through which the tops of the crimp caps are visible. The crimp caps correspond in number to the number of guideways *b* and are angularly spaced around the shaft 47, their spacing, in consideration to the diameter of the pinion 46, being such that when the handle 49 is swung into alinement with any one of the same, the resultant longitudinal adjustment imparted to the shaft 41 is such that a certain one of the fingers 42 is brought into operative, overlying relationship to its related clutch tripping finger 36. More particularly, the arrangement in this respect is such in the present instance that when the handle 49 is alined with what may be said to be the first cap 51 in the circumferential row of such caps, as shown in Fig. 4, the first or left-hand-most finger 42, as viewed in Fig. 2, is alined with the first or left-hand-most tripping finger 36 that is related to the first or left-hand-most clutch D that, in turn, is related to the first or left-hand-most guideway *b*, and all of the remaining fingers 42 are disalined from their related tripping fingers 36. Thus, if the shaft 41 is rocked to depress its fingers 42 while the handle 49 is in the position shown in Fig. 4, only the first or left-hand-most clutch D, as viewed in Fig. 2 will be engaged and all of the remaining clutches D will remain disengaged. This means, of course, assuming rotation of the shaft 21, that when the shaft 41 is rocked to depress its fingers 42 while the handle 49 is in the position shown in Fig. 4, only the first or left-hand-most conveyor 17 will be driven and all of the other conveyors 17 will remain idle. Similarly, if the handle 49 is moved into alinement with the second crimp cap 51, the second finger 42 will be alined with its related finger 36 and all of the other fingers 42 and 36 will be disalined from each other, so that upon rocking of the shaft 41 while the handle 49 is alined with the second crimp cap 51, only the second clutch D will be engaged and only the second conveyor 17 will be driven. In like manner, if the handle 49 is moved into alinement with the third crimp cap, only the third clutch D will be engaged as a result of rocking of the shaft 41 and only the third conveyor 17 will be driven, and so on with respect to alinement of the handle 49 with the remaining crimp caps.

The crimp caps 51 are duplicates of the crimp caps which close the mouths of the bottles C, and since the first crimp cap 51 is related to the first conveyor 17 and the second crimp cap 51 is related to the second conveyor 17, and so on, and since crimp caps usually carry an indication of the kind of beverage that is contained in bottles which they close, it is apparent that by having the crimp caps 51 correspond, respectively, to the

crimp caps on the bottles in the related guideways *b*, said crimp caps 51 afford a practical means of indicating the proper position to which to move the handle 49 to select any given conveyor 17 for actuation.

The crimp cap retaining plate 50 is fastened to the cover element 48 by screws or in any other suitable manner whereby it may readily be removed to permit changing of the crimp caps 51 whenever a change is made in the kind or flavor of the beverage contained in the bottles C in any or all of the guideways *b*.

A coin controlled mechanism, designated generally as F, controls rocking of the shaft 41 and application of power to the shaft 21.

In the present instance, the coin controlled mechanism F and an electric motor 52, suitably connected to the shaft 24 for driving the same and thereby driving the shaft 21, are housed within a casing 53 mounted upon the cover element 48.

The mechanism F includes, in the present instance, a slide bar 54 which extends exteriorly of the casing 53 and which is provided with a slot 55 into which a coin or check, indicated by dot and dash lines and designated as *c* in Fig. 2, must be inserted in order to permit a certain amount of inward movement of said slide bar, which movement is prevented unless a coin or check is inserted into said slot. Coin or check released slide bar devices of this kind are well known and no novelty is claimed in respect to the present slide bar device per se. Accordingly, said device is not illustrated in detail. Suffice it to say that when a coin or check is inserted into the slot 55 the slide bar 54 may be slid inwardly a sufficient amount to actuate means presently to be described for rocking the shaft 41 to effect depression of the fingers 42, and that unless a coin or check is inserted into said slot such an amount of inward sliding movement of the slide bar is prevented. Of course, it is understood that the slide bar is constantly spring-urged outwardly and that when a coin or check is inserted into the slot 55 and said bar is slid to its limit of inward movement, the coin drops into the casing 53 and upon release of the slide bar the same is spring-returned to its normal, outermost position.

The means whereby inward sliding movement of the slide bar 54 effects rocking of the shaft 41, comprises (see Figs. 2 and 4) suitable bearings 57 carried for example by a side wall of the casing 53; a bar 58 mounted in said bearings for longitudinal sliding movement parallel to the slide bar 54; an arm 59 extending laterally from the inner end of the slide bar 54 toward the slide bar 58 and carrying a saddle 60 which embraces the slide bar 58 and which, at its outer end or end nearer the front end of the casing 53, is pivotally mounted on the arm 59 whereby its other or inner end tends constantly, under the influence of gravity or under the influence of a suitable spring, to swing downwardly; a cross pin 61 carried by said saddle near the inner end thereof and resting upon the upper edge of the slide bar 58 whereby downward swinging movement of the inner end of said saddle is controlled by the upper edge of said slide bar 58; a notch 62 in the upper edge of the slide bar 58 to permit downward swinging movement of the inner end of the saddle 60 when the latter is moved a short distance inwardly relative to the slide bar 58 and providing a shoulder 63 against which the pin 61 is adapted to abut so that continued inward movement of the saddle 60 effects inward sliding movement of said slide bar 58; an upwardly and inwardly inclined plate 64 fixedly mounted below the slide bar 58 to be engaged by the lower, inner corner of the saddle 60 to lift the inner end of said saddle and thereby disengage the pin 61 from in front of the shoulder 63 at the termination of a predetermined amount of inward movement of the slide bar 58; a spring 65 tending constantly to retract or move the slide bar 58 outwardly and operable to do so the instant the pin 61 is disengaged from in front of the shoulder 63; a bell-crank lever 66 having one arm thereof connected to the slide bar 58 whereby said lever is rocked responsive to sliding movement of said slide bar 58; a shaft 67 carrying a lever arm 68 to which the other arm of said bell-crank lever is connected whereby said shaft is rocked responsive to sliding movement of the slide bar 58; a second arm 69 extending from the shaft 67; a rod 70 connected at its upper end with the arm 69 and extending downwardly through an opening in the cover element 48; and a lever arm 71 on the shaft 41 with which the lower end of the rod 70 is connected and which is in the form of a bail, as best shown in Fig. 1, whereby the shaft 41 may be slid longitudinally without disturbing its operative connection with the rod 70.

When a coin or check is deposited in the slot 55 and the slide bar 54 is slid inwardly the saddle 60 is slid inwardly therewith relative to the slide bar 58 until the saddle pin 61 rides downwardly into the notch 62 in the slide bar 58 and abuts the shoulder 63. Thereupon, further inward sliding movement of the slide bar 54 operates through the saddle 60 to slide the slide bar 58 inwardly. As the slide bar 58 slides inwardly it operates through the bell-crank 66 and the lever arms 68, 69 to effect downward rocking movement of the latter lever arm and downward movement of the rod 70, which, in turn, operates through the lever or bail 71 to rock the shaft 41 to effect depression of the fingers 42. By the time a sufficient amount of inward movement of the slide bar 58 has occurred to cause depression of the fingers 42, the cam plate 64 will have acted to lift the inner end of the saddle 60 and to have effected disengagement of the pin 61 from in front of the shoulder 63. The slide bar 58 thus will be released and will be returned by the spring 65 to its outer or normal position, regardless of whether the slide bar 54 is held in its inwardly slid position or immediately is released. Upon return of the slide bar 58 to its outer or normal position the rod 70 is, of course, returned to its normal, uppermost position and the shaft 41 is rocked to elevate the fingers 42. Accordingly, whenever a coin or check *c* is inserted in the slot 55 and the slide bar 54 is slid inwardly, there occurs a momentary depression of the fingers 42 sufficient to trip any clutch releasing finger 36 with which any given finger 42 may be alined. Obviously, however, due to the fact that the slide bar 58 is released and is returned to its outer or normal position when the slide bar 54 is slid inwardly, and due to the fact that the slide bar 54 must be returned to its normal or outer position and another coin or check must be inserted into the slot 55 before said slide bar 54 may be slid inwardly to effect depression of the fingers 42, it is not possible to effect more than a single depression of said fingers 42 as a consequence of the insertion of a single coin or check into the slot 55. In other words, the mechanism described requires the insertion of a coin

or check for each depression of the fingers 42, which means that for each coin inserted only one conveyor 17 will be operated and only one bottle will be dispensed or vended, in a manner presently to be described.

The electric motor 52 is controlled by a snap switch, designated generally as 72, which may be of any suitable or well known type and which may be mounted within the casing 53 in any suitable manner. This switch has a normally open status maintaining the power circuit of the motor 52 open, and is operable to a closed status, to close said motor circuit, by swinging of a pivoted lever 73 from the full line to the dotted line position shown in Fig. 4. A member 74 on the slide bar 54 serves to swing the lever 73 from its full to its dotted line position when said slide bar is slid inwardly to rock the shaft 41. Accordingly, the motor 52 is started to drive the shaft 21 simultaneously with engagement of a selected clutch D.

While the switch 72 has a normally open status, it does not immediately return to that status following closing of the same by inward sliding movement of the slide bar 54 and subsequent return of said slide bar to its outer position. On the contrary, there is connected with the lever 73, through a link 75, a spring device 76 which is energized by swinging movement of the lever 73 to its dotted line position and which includes a suitable escapement means whereby return of said lever 73 to its full line position is delayed for a suitable period of time sufficient to maintain the motor 52 operating for the required period of time to perform its functions. The spring device 76 may be of any suitable type and no novelty is claimed in respect to the same per se. Accordingly, it has been deemed unnecessary to illustrate said device in detail.

At the end of the container A opposite the end thereof where are located the shafts 21 and 41 and their related parts, is a bottle ejecting mechanism, designated generally as G, which comprises means for moving a bottle, delivered by any one of the conveyors 17, into a position in alinement with a bottle discharge opening 77 in a fixed cover element 78 of the container A, and for elevating the bottle through said opening sufficiently so that it may readily be grasped and removed.

Common to the conveyors 17 and guideways *b* to either side of the middle conveyor and guideway, is a fixed, horizontal platform 79, the top of which is disposed substantially in the plane of the top edges of the flanges 16 so that when any except the middle conveyor is operated to advance its related row of bottles one step, or, in other words, an amount corresponding to the spaced apart relationship of the bottles along the conveyor, the end bottle of the row is delivered onto said platform.

In the platform 79 is a recess 80 which is alined with the middle guideway *b*, and which is of substantially the same width as said middle guideway, and in which normally is disposed an elevatable platform section 81 onto which a bottle advanced by the middle conveyor 17 is delivered.

The opening 77 is disposed directly over the elevatable platform section 81. Consequently, when a bottle is delivered onto said platform section and the latter then is elevated, the bottle will be projected upwardly through the opening 77. The middle conveyor 17 delivers its bottles directly onto the platform section 81. On the other hand, the remaining conveyors deliver their bottles onto the platform 79 to one side or the other of the elevatable platform section 81. Accordingly, means is provided for laterally moving a bottle, delivered by any conveyor 17 onto the platform 79 to either side of the platform section 81, onto said platform section 81 for elevation by the latter through the opening 77.

On a pair of transverse, horizontally disposed guide rods 82, which may be mounted at their ends in the side flanges 13, 13 of the bracket 15, or upon any other suitable and equivalent guide means, are slidably mounted two bottle shifting elements 83, 83, one related to the guideways *b* and the portion of the platform 79 to one side of the middle guideway *b* and the other related to the guideways *b* and the portion of the platform 79 to the other side of the middle guideway *b*, and each suitably constructed so that when it is moved from its outermost position, shown in Fig. 5, to its innermost position, shown in Fig. 6, it serves to shift across its related portion of the platform 79, onto the elevatable platform section 81, any bottle which may have been delivered onto its related portion of the platform 79.

In the present instance, each of the bottle shifting elements 83 is of substantially L-shape as viewed in plan and includes a flange 84 which, in the outermost position of the element, is disposed at the outer side of the outermost of the related guideways *b* and which extends inwardly almost to the ends of the partition elements 12. Accordingly, when a bottle is delivered by any conveyor 17 onto the platform 79 to either side of the platform section 81, and when the bottle shifting elements 83 subsequently are moved inwardly, the bottle is shifted across the platform 79 onto the elevatable platform section 81.

Connected at their lower ends to the elements 83, 83 for shifting them inwardly and outwardly are substantially vertically disposed levers 85 and 86, respectively, which are disposed in out-of-the-way positions against or closely adjacent to the end wall of the bracket 15. The lever 85 is pivoted at its upper end to the rear wall of the bracket 15, as indicated at 87; the lever 86 is pivoted intermediate its ends to the rear wall of said bracket, as indicated at 88, and a link 89 connects a medial portion of the lever 85 with the upper end of the lever 86. Accordingly, the elements 83, 83, are shiftable inwardly and outwardly simultaneously.

For actuating the levers 85, 86 to shift the elements 83, 83 inwardly and outwardly there is provided at one side of the guideways *b* a longitudinally extending horizontal shaft 90 having a crank arm 91 which is connected with the lever 85 or, alternatively, with the link 89, by a connecting rod 92. The length of the crank arm 91 and the point of connection of the connecting rod 92 with the lever 85, or with the link 89, as the case may be, is such that when the members 83, 83 are in their outermost positions their flanges 84 are disposed, as aforesaid, at the outer sides of the outermost guideways *b*, and when said members are in their innermost positions the flanges 84 are disposed at the outer sides of the middle guideway *b*. Accordingly, a bottle positioned at any point on the platform 79 is shifted onto the elevatable platform section 81 when the members 83, 83 are moved inwardly.

The shaft 90 extends substantially from end to end of the container A and at its end opposite the bottle discharge end of said casing, has rotatably mounted thereon a bevel gear 93 includ-

ing a hub 94 which is journaled in a suitable fixed bracket 95. The gear 93 thus serves as a support and journal for the said end of said shaft.

Fixed on the shaft 21 is a bevel gear 96 which meshes with the bevel gear 93. Accordingly, whenever the shaft 21 is rotated the bevel gear 93 is rotated, but whether rotation of the bevel gear 93 effects rotation of the shaft 90 is dependent upon the engagement or disengagement of a clutch, designated generally as H, which is provided to connect and disconnect the gear 93 with and from the shaft 90.

The clutch H is comprised in part by the hub 94 of the gear 93 and in part by a sleeve 97 longitudinally slidable but non-rotatably mounted on the shaft 90. Suitable means, such as a pin 98 carried by the hub 94 of the gear 93 and operating in an annular channel in the shaft 90, holds said gear against longitudinal movement relative to said shaft, and on the adjacent ends of said hub 94 and the sleeve 97 are suitable teeth 99 which are engageable and disengageable to connect and disconnect the gear 93 with and from the shaft 90 by longitudinal movement of said sleeve toward and away from said gear.

In the present instance a cross pin 100 extending through the shaft 90 and operating in elongated, longitudinally extending slots 100' in the sleeve 97, serves to interconnect said sleeve and shaft for unitary rotation, and an expansion coil spring 101, surrounding the shaft 90 and interposed between the outer end of the sleeve 97 and a collar or other suitable abutment 102 on the shaft 90, tends constantly to urge said sleeve 97 toward the hub 94.

Pivoted intermediate its ends upon a pin 103 carried by the bracket 95 or by any other suitable support, is a finger 104, one end portion 105 of which overlies the sleeve 97 and is curved corresponding to the curvature of said sleeve so as to closely engage the latter, and the other end portion 106 of which is provided with an upstanding flange 107 the top edge of which is inclined to the horizontal.

A suitable spring 108 tends constantly to rock the finger 104 in a direction to cause its end portion 105 to rest upon the sleeve 97. Moreover, the edge of the portion 105 of said finger which faces toward the outer end of the sleeve 97 is inclined outwardly, as regards the direction of rotation of said sleeve 97 and as indicated at 109, for cooperation with a pin 110 extending radially outward from said sleeve 97. The relationship of the pin 110 to the teeth 99 of the sleeve 97 and to the inclined edge 109 of the finger 104 is such that, when the sleeve 97 is in its innermost position with its teeth engaged with the teeth of the hub 94 and said sleeve is rotated with the shaft 90, the pin 110 rides against the said inclined edge 109 of the finger 104 and effects outward movement of the sleeve 97, thereby effecting disengagement of its teeth from the teeth of the hub 94.

Obviously, upon disengagement of the sleeve 97 from the hub 94, rotation of the shaft 90 will cease even though the gear 93 continues to rotate, and the sleeve 97 will be held in its outer, disengaged position by the finger 104 until the end portion 105 of the latter is elevated above the pin 110. Thereupon, the spring 101 instantly will act to slide the sleeve 97 inwardly and effect engagement of its teeth with the teeth of the hub 94.

Engagement and disengagement of the clutch H is effected in timed relationship to actuation of any given conveyor 17 so that the elements 33, 33 first are caused to be moved inwardly immediately following delivery of a bottle by any given conveyor, thereby to shift the bottle onto the elevatable platform section 31, and then are caused to return to their outermost positions in readiness to again be moved inwardly when another bottle is delivered by any given conveyor. In this connection it will be observed that above and parallel and inwardly with respect to the shaft 21 is a shaft 111 which is mounted for oscillation in the flanges 13, 13 of the bracket 14 and which carries a plurality of depending arms 112, one related to each clutch D.

Also carried by the shaft 111 is an additional depending arm 113 which is related to the finger 104 of the clutch H. A suitable spring 114 tends constantly to rotate the shaft 111 in a direction to swing the arm 113 toward the lower end of the inclined top edge of the flange 107 of the finger 104, and any suitable stop means, such as a pin 115 on the shaft 111 engageable with a fixed pin 116, limits rotation of said shaft by said spring. Normally the pin 115 is engaged with the pin 116, and in the position of the shaft 111 as determined by engagement of said pin 115 with said pin 116, the arm 113 is disposed so that a pin 117 which extends laterally therefrom across the inclined top edge of the flange 107 of the finger 104, is disposed across the lowermost end portion of said flange in, or substantially in, contact therewith when the end portion 105 of the finger 104 is resting upon the sleeve 97 of the clutch H. Accordingly, if the shaft 111 is rotated in a direction counter to the direction in which it is urged by the spring 114 while the end portion 105 of the finger 104 is resting upon the clutch sleeve 97 and while the edge 109 of said finger 104 is operating through the pin 110 to hold the clutch sleeve 97 in its outer, disengaged position, consequent movement of the pin 117 along the inclined upper edge of the flange 107 toward the higher end thereof will result in depression of the end portion 106 of the finger 104 and in elevation of the end portion 105 of said finger, thereby releasing the sleeve 97 for inward projection by the spring 101.

Each arm 112 on the shaft 111 is alined with the pin 29 of the related clutch D, and in the normal position of said shaft 111, as determined by engagement of its pin 115 with the stop pin 116, the arms 112 are disposed so that when any given pin 29 is rotated with the clutch sleeve 26 carrying the same, said pin engages the free or lower end portion of its related arm 112 and swings the same, thereby rocking the shaft 111 in a direction to cause the pin 117 on the arm to coact with the upper, inclined edge of the flange 107 of the finger 104 to rock said finger to release the sleeve 97 of the clutch H for inward projection.

The lengths of the pins 29 and of the arms 112 are such that the amount of rocking movement imparted to the shaft 111 by the coaction of any given pin 29 with its related arm 112 is just sufficient to produce the required amount of swinging movement of the arm 113 to rock the finger 104 to release the clutch sleeve 97. Upon the completion of such an amount of rocking movement of the shaft 111, the free end of the pin 29 moves across the free end of the arm 112 and the latter is released, whereupon the spring 114 acts to return the shaft 111 to its normal position with its pin 115 engaged with the stop

pin 116 and with the pin 117 of the arm 113 disposed across the lowermost portion of the inclined upper edge of the flange 107 of the finger 104. Of course, upon return of the pin 117 to the lower end of the flange 107, the spring 108 acts to return the finger 104 to its normal position so that upon subsequent rotation of the clutch sleeve 97 said sleeve is disengaged by the coaction of its pin 110 with the inclined edge 109 of said finger 104.

The normal relationship between the pin 29 of each clutch D and its related arm 112 is such that travel of any given pin 29 through substantially a complete rotation occurs before the related arm 112 is swung sufficiently to effect release of the sleeve 97 of the clutch H. Accordingly, upon actuation of any given tripping finger 36 and engagement of the related clutch D, the related conveyor 17 is driven an amount to deliver a bottle onto the platform 79 before the elements 83, 83 begin to move inwardly to shift the delivered bottle onto the elevatable platform section 81.

The elevatable platform section 81 is mounted for vertical movement in any suitable manner, as, for example, upon a pair of suitably mounted vertical guide rods 118, and it may be either spring urged or gravity operated to its normal, lowermost position. For elevating said platform section there is provided a suitable flexible element 119 which is attached at one end to a back wall 120 of said platform section and which, at its other end, is anchored, as indicated at 121, and which extends upwardly from the back wall 120, thence over a guide sheave 122, thence laterally toward the shaft 90 and thence over a guide sheave 123 carried at the upper end of an offset portion 124 of an arm 125 which is pivoted at its lower end, as at 126, for lateral swinging movement. Accordingly, upon outward swinging movement of the arm 125, a pull is exerted upon the flexible element 119 and the platform section 81 is elevated.

Since the platform section 81 normally is spring urged or gravity actuated to its lowermost position, the arm 125 normally is disposed in an innermost position, and in this connection it will be noted that the upper end of said arm 125, when in its normal position, is disposed to be engaged and swung outwardly by a projecting portion of the pin 127 which connects the link 92 with the lever arm 91, after there has occurred an amount of rotation of said lever arm 91 sufficient to move the bottle shifting elements 83 to their innermost positions. In other words, the arrangement of the parts described is such that the platform section 81 remains in its lowermost position until a bottle has been shifted onto the same, and elevation of said platform section is initiated simultaneously with return of the elements 83 from their inner to their outer positions.

At about the same time the elements 83 reach their normal, outermost positions the pin 127 rides across the upper end of the arm 125 and thereby releases said arm so that it may return to its normal, innermost position responsive to descent of the platform section 81. However, in order to insure that the platform section 81 will remain elevated until the bottle contained thereon and in part projected through the discharge opening 77, has been removed, there is provided on the back wall 120 of the platform section 81 a rearwardly extending lip 128 and, for engagement beneath said lip when said platform section is elevated, a projection 129 on a spring arm 130 which is fastened at its lower end to the end wall of the bracket 15 and which, at its upper end is free. When the platform section 81 is elevated its lip 128 wipes against the projection 129 and flexes the spring arm 130 rearwardly, but the instant the lip moves above said projection the arm 130 springs forwardly until the projection 129 underlies the lip 128 and thereby prevents descent of the platform section.

At the upper, free end of the spring arm 130 is a lip 131 which extends toward a bottle supported on the platform section 81 and which, in the elevated position of the bottle, is accommodated above the main body portion of the bottle in the space afforded by the reduced neck portion thereof. Accordingly, when the bottle is removed through the opening 77 its main body portion engages the lip 131 and presses the spring arm 130 rearwardly thereby disengaging the projection 129 from beneath the lip 128 and releasing the platform section 81 for descent.

In order to guard against removal of a bottle through the opening 77 without effecting release of the projection 129 from beneath the lip 128, as might be possible if the bottle, during its removal, could be tilted to permit its body portion to pass the lip 131 without acting therethrough to depress the spring arm 130, there may be provided upon the top of the cover element 78 an upstanding guide member 132 to prevent such tilting of the bottle.

The operation of the machine, assuming that the various parts are in their shown and described normal positions, is as follows: First, by reference to the crimp caps 51, the kind of beverage desired is selected and then the handle 49 is swung to a position in alinement with the crimp cap 51 indicative of the kind of beverage selected. This results in the finger 42 that is related to the tripping finger 36 that is related to the clutch D that, in turn, is related to the conveyor 17 that is associated with the guideway containing bottles of the kind of beverage selected, being brought into alinement with said tripping finger 36 and in disalinement of all other of the fingers 42 from their related tripping fingers 36. A coin or check *c* then is deposited in the slot 55 of the slide bar 54 and said slide bar pushed inwardly. Upon inward pushing of the slide bar 54, the slide bar 58 is pushed inwardly and the rod 70 is depressed, thereby rocking the shaft 41 and effecting depression of its fingers 42, with the result that the finger 42 that is alined with its related tripping finger 36 effects rocking of said tripping finger and thereby releases the element 28 of the related clutch D for projection by the spring 31 into clutching engagement with the element 25 of said clutch. A driving connection thus is established between the shaft 21 and the conveyor 17 related to the guideway *b* in which are the bottles containing the kind of beverage selected.

Upon inward movement of the slide bar 54, the deposited coin *c* falls into the casing 53 and the slide bar 58, after having been moved inwardly, is released and is returned to its normal, outermost position by the spring 65, even though the slide bar 54 may be held in its inwardly pushed position. Thus, there can result only a single tripping of only one of the fingers 36 as a result of any single inward movement of the slide bar 54. Moreover, since the slide bar 54, after having been pushed inwardly and released, cannot again be pushed inwardly until another coin is deposited in the slot 55, it follows that the ma-

chine is effective to vend only one bottle for each coin deposited.

When the slide bar 54 is pushed inwardly it operates through the member 74 carried thereby to swing the arm 73 of the switch 72 to close said switch and thereby close the circuit of the motor 52. Closing of the switch 72 occurs immediately following depression of the rod 70. Accordingly, immediately following engagement of the clutch D related to the guideway b in which are the bottles containing the beverage of the selected kind, the motor 52 begins to drive the shaft 21.

Driving of the shaft 21 imparts, through the engaged clutch D, rotation to the related sprocket wheel 32 and this, in turn, effects driving of the related sprocket chain 34 and the related conveyor 17, with the result that a bottle is delivered from the related guideway b onto the platform 79.

Upon the completion of a single rotation of the clutch D the tripping finger 36 acts to disengage said clutch, and since a single, complete rotation of any given clutch D is effective to move its related conveyor 17 an amount to deliver only a single bottle, only a single bottle is delivered onto the platform 79, the active conveyor 17 thereupon coming to rest.

At about the time the engaged clutch D completes its single rotation, its pin 29 acts through its related arm 112 on the shaft 111 to rock said shaft to effect tripping of the finger 104 related to the clutch H. The clutch H thereupon becomes engaged with the result that the shaft 90 is driven from the shaft 21 through the gears 96 and 93.

Initial rotation of the shaft 90 through an angle of approximately 180° produces, through the crank arm 91 and its connection with the bottle shifting elements 83, 83, inward movement of said elements 83, 83, with the result that the bottle delivered onto the platform 79 is shifted onto the elevatable platform section 81. As rotation of the shaft 90 continues, the elements 83, 83 are returned to their normal, outermost positions and the arm 125 is swung outwardly due to engagement of the pin 127 with the upper end portion of said arm. This results in elevation of the platform section 81 and in projection through the opening 77 of the neck portion of the bottle supported on said platform section.

Near the end of a single, complete rotation of the shaft 90 the pin 127 moves across the upper end of the arm 125 and the latter thereby is released to be returned to its normal position following removal of the bottle through the opening 77 and consequent release and descent of the platform section 81, while at the end of the single, complete rotation of said shaft 90 the finger 104 acts to disengage the clutch H. Soon thereafter the motor 52, which has been maintained in operation due to the delayed closing of the switch 72 by the mechanism 76, ceases to operate due to closing of said switch. All parts thus again are in their normal positions in readiness to effect dispensing of another bottle in the same manner just described upon shifting of the lever 49 to select the kind of beverage desired and upon deposit of a coin or check in the slot 55 and inward pushing of the slide bar 54.

The container A may be cooled either by ice or by mechanical refrigeration, assuming that the articles to be vended are bottled or otherwise packaged beverages and that it is desired to maintain them cold. However, the mechanisms comprising the invention may be used, either as shown and described, or by slight modifications thereof, for the vending of various articles other than bottled beverages, and in that event the container A may be of any suitable construction and may even be provided with means to heat the articles, in case that should be desired.

Obviously, the mechanisms comprising the invention may be modified in many respects within the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A vending machine comprising a plurality of article advancing conveyors, a power means for driving said conveyors individually, means including a manually adjustable element and a coin controlled mechanism for selectively connecting said conveyors with said power means, means operable responsive to an amount of operation of said power means sufficient to operate a conveyor connected therewith an amount to effect delivery of an article therefrom, to disconnect the conveyor therefrom, and means thereafter operable by the power means to move the article delivered by the selected conveyor to a position for removal from the machine.

2. A vending machine comprising a plurality of article advancing conveyors, a normally inactive power means for driving said conveyors individually, means including a manually adjustable element and a coin controlled mechanism for selectively connecting said conveyors to said power means and for initiating operation of said power means, means operable responsive to an amount of operation of said power means sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, to disconnect the conveyor therefrom, means thereafter operable by the power means to move the article delivered by the selected conveyor to a position for removal from the machine, and means then operating to stop operation of the power means.

3. A vending machine comprising a plurality of article advancing conveyors, a rotatable power shaft common to all of said conveyors, a separate clutch between each conveyor and said power shaft, means whereby each clutch assumes a normally disengaged status, disconnecting its related conveyor from said power shaft, responsive to an amount of rotation of said shaft sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, and means including a manually adjustable element and a coin controlled mechanism preventing engagement of more than a single clutch at any given time and operable to select and engage any given clutch thereby to connect any given conveyor with said power shaft for actuation by the latter.

4. A vending machine comprising a plurality of article advancing conveyors disposed in side to side relationship, means at one end of said plurality of conveyors to receive an article delivered by any given conveyor, means including a coin controlled mechanism for the article delivery actuation of any selected conveyor to the exclusion of the other conveyors, an elevatable element at the article delivery end of the conveyors, means for shifting laterally with respect to the conveyors, across said article receiving means and onto said elevatable element, an article delivered by any conveyor to either side of said element, and means for elevating said elevatable element to elevate an article contained

thereon to a position for removal from the machine.

5. A vending machine comprising a plurality of article advancing conveyors disposed in side to side relationship, means at one end of said plurality of conveyors to receive an article delivered by any given conveyor, means for the article delivery actuation of any selected conveyor to the exclusion of the other conveyors, a pair of elements having normal positions at the ends of said article receiving means and movable toward each other over said article receiving means to shift an article delivered onto said receiving means onto the middle portion thereof, the said middle portion of said receiving means being elevatable to elevate an article thereon to a position for removal from the machine, means for moving said elements toward each other and for returning them to their normal positions, and means operating, following movement of said elements toward each other, to elevate the middle portion of said article receiving means.

6. A vending machine comprising a plurality of article advancing conveyors, a rotatable power shaft common to all of said conveyors, a separate clutch between each conveyor and said power shaft, means whereby each clutch assumes a normally disengaged status, disconnecting its related conveyor from said power shaft, responsive to an amount of rotation of said shaft sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, a plurality of trip elements, one individual to each clutch, means whereby any given clutch is engaged and connects its related conveyor with said shaft when the related trip element is tripped, manually operable means for selecting any given trip element, to the exclusion of the other trip elements, for tripping, coin controlled means for tripping the selected trip element, and means operable in tuned relationship to any given conveyor to move an article, delivered by any given conveyor, to a position for removal from the machine.

7. A vending machine comprising a plurality of article advancing conveyors disposed in side to side relationship, a rotatable power shaft common to all of said conveyors, a separate clutch between each conveyor and said power shaft, means whereby each clutch assumes a normally disengaged status, disconnecting its related conveyor from said power shaft, responsive to an amount of rotation of said shaft sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, a plurality of trip elements, one individual to each clutch, means whereby any given clutch is engaged and connects its related conveyor with said shaft when the related trip element is tripped, a longitudinally shiftable and rockable shaft, a plurality of arms on said shiftable and rockable shaft, one related to each tripping element and effective, when in an operative position relative thereto, to trip the same responsive to rocking of said shiftable and rockable shaft, said arms being adjustable to operative positions relative to their related trip elements by longitudinal adjustment of said shiftable and rockable shaft and being spaced along said shaft so that at any given time only one arm may be operatively positioned relative to its related trip element, means for longitudinally adjusting said shiftable and rockable shaft to operatively position any given arm relative to its related trip element, coin controlled means for rocking said shiftable and rockable shaft, and means operable following delivery of an article by any given conveyor to move the delivered article to a position for removal from the machine.

8. A vending machine comprising a plurality of article advancing conveyors disposed in side to side relationship, a rotatable power shaft common to all of said conveyors, a separate clutch between each conveyor and said power shaft, means whereby each clutch assumes a normally disengaged status, disconnecting its related conveyor from said power shaft, responsive to an amount of rotation of said shaft sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, a plurality of trip elements, one individual to each clutch, means whereby any given clutch is engaged and connects its related conveyor with said shaft when the related trip element is tripped, means manually adjustable to different positions in each of which it is effective when subsequently actuated to trip a different one of said trip elements to the exclusion of the other trip elements, coin controlled means for effecting trip element tripping actuation of said tripping means, and means operable following delivery of an article from any given conveyor to move the delivered article to a position for removal from the machine.

9. A vending machine comprising a plurality of article advancing conveyors disposed in side to side relationship, a rotatable power shaft common to all of said conveyors, a separate clutch between each conveyor and said power shaft, means whereby each clutch assumes a normally disengaged status, disconnecting its related conveyor from said power shaft, responsive to an amount of rotation of said shaft sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, a plurality of trip elements, one individual to each clutch, means whereby any given clutch is engaged and connects its related conveyor with said shaft when the related trip element is tripped, means manually adjustable to different positions in each of which it is effective when subsequently actuated to trip a different one of said trip elements to the exclusion of the other trip elements, coin controlled means for effecting trip element tripping actuation of said tripping means, means at the delivery ends of said conveyors to receive an article delivered by any given conveyor, a pair of members movable across said article receiving means to move a delivered article toward the middle of said receiving means, article elevating means at the middle of said article receiving means onto which an article moved across said article receiving means is deposited by said members, a rotatable shaft operatively connected to said members and to said article elevating means and operable, when rotated, to move said members across said article receiving means and then to effect elevation of said article elevating means, a clutch between said power shaft and said last mentioned shaft, means whereby said last mentioned clutch is disengaged and disconnects said last mentioned shaft from said power shaft responsive to a single complete rotation of said last mentioned shaft, the article elevating means having a normal lowermost position and said members having normal outermost positions when said last mentioned shaft is disconnected from said power shaft, and means operable by any engaged first mentioned clutch just prior to disengagement thereof to effect engagement of said

last mentioned clutch, whereby operation of said members to move a delivered article across said article receiving means is initiated following delivery of an article from any given conveyor upon said article receiving means.

10. A vending machine comprising a plurality of article advancing conveyors, a normally inactive power means for driving said conveyors individually, means including a manually adjustable element and a coin controlled mechanism for selectively connecting said conveyors to said power means and for initiating operation of said power means, means operable responsive to an amount of operation of said power means sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, to disconnect the conveyor therefrom, means normally disconnected from said power means and operable thereby when connected therewith to move an article delivered by any given conveyor to a position for removal from the machine, and means operable after article delivery operation of any given conveyor to connect said normally disconnected means to the power means for operation by the latter.

11. A vending machine comprising a plurality of article advancing conveyors, a normally inactive power means for driving said conveyors individually, means including a manually adjustable element and a coin controlled mechanism for selectively connecting said conveyors to said power means and for initiating operation of said power means, means operable responsive to an amount of operation of said power means sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, to disconnect the conveyor therefrom, means normally disconnected from said power means and operable thereby when connected therewith to move an article delivered by any given conveyor to a position for removal from the machine, means operable after article delivery operation of any given conveyor to connect said normally disconnected means to the power means for operation by the latter, and means maintaining the power means operating until completion of operation of the means for moving a delivered article to a position for removal from the machine and thereafter operating to stop the power means.

12. A vending machine comprising a plurality of article advancing conveyors disposed in side to side relationship, a rotatable power shaft common to all of said conveyors, a separate clutch between each conveyor and said power shaft, means whereby each clutch assumes a normally disengaged status, disconnecting its related conveyor from said power shaft, responsive to an amount of rotation of said shaft sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, a plurality of trip elements, one individual to each clutch, means whereby any given clutch is engaged and connects its related conveyor with said shaft when the related trip element is tripped, a longitudinally shiftable and rockable shaft, a plurality of arms on said shiftable and rockable shaft, one related to each tripping element and effective, when in an operative position relative thereto, to trip the same responsive to rocking of said shiftable and rockable shaft, said arms being adjustable to operative positions relative to their related trip elements by longitudinal adjustment of said shiftable and rockable shaft and being spaced along said shaft so that at any given time only one arm may be operatively positioned relative to its related trip element, means including a swingable handle for longitudinally adjusting said shiftable and rockable shaft, and coin controlled means for rocking said shaft.

13. A vending machine comprising a plurality of article advancing conveyors disposed in side to side relationship, a normally idle rotatable power shaft common to all of said conveyors, a separate clutch between each conveyor and said power shaft, means whereby each clutch assumes a normally disengaged status, disconnecting its related conveyor from said power shaft, responsive to an amount of rotation of said shaft sufficient to operate a conveyor connected therewith an amount to effect delivery of a single article therefrom, a plurality of trip elements, one individual to each clutch, means whereby any given clutch is engaged and connects its related conveyor with said shaft when the related trip element is tripped, a longitudinaly shiftable and rockable shaft, a plurality of arms on said shiftable and rockable shaft, one related to each tripping element and effective, when in an operative position relative thereto, to trip the same responsive to rocking of said shiftable and rockable shaft, said arms being adjustable to operative positions relative to their related trip elements by longitudinal adjustment of said shiftable and rockable shaft and being spaced along said shaft so that at any given time only one arm may be operatively positioned relative to its related trip element, means for longitudinaly adjusting said shiftable and rockable shaft to operatively position any given arm relative to its related trip element, coin controlled means for rocking said shiftable and rockable shaft and for applying power to said power shaft, means operable by said power shaft, following delivery of an article from any given conveyor, to move the delivered article to a position for removal from the machine, and means maintaining application of power to said power shaft until completion of operation of said last named means and then operating to cut off power to said power shaft.

14. A vending machine comprising a plurality of article advancing conveyors disposed in side to side relationship, means for the operation of any selected conveyor, to the exclusion of the others, to deliver an article from one end thereof, a pair of article shifting members having normal positions beyond the delivery ends of said conveyors and at the outer side of the two outermost conveyors, respectively, and movable from said positions laterally with respect to said conveyors and toward one another to shift an article delivered by any given conveyor to a position inwardly with respect to the two outermost conveyors for removal from the machine, and means for selectively operating said conveyors and for moving said members toward one another and for returning them to their normal positions in timed sequence.

15. A vending machine comprising a plurality of article advancing conveyors disposed in side to side relationship, means for the operation of any selected conveyor, to the exclusion of the others, to deliver an article from one end thereof, an elevator element beyond the delivery ends of said conveyors for elevating and delivering to a position for removal from the machine an article deposited thereon, a pair of article shifting members having normal positions beyond the

delivery ends of said conveyors and at the outer sides of the two outermost conveyors, respectively, and movable from said positions laterally with respect to said conveyors and toward one another and also toward said elevator element to shift an article delivered by any given conveyor onto said elevator element, and means for selectively operating said conveyors and for moving said members toward one another and for returning them to their normal positions and for elevating said elevator element in timed sequence.

16. A vending machine as set forth in claim 15 including power means and means whereby said power means first operates any selected conveyor to deliver an article therefrom, then moves the article shifting members toward one another to shift the delivered article onto the elevator element, and then elevates said elevator element.

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