March 24, 1931. J. R. MANLEY 1,798,095

SELF SERVING BEVERAGE FOUNTAIN

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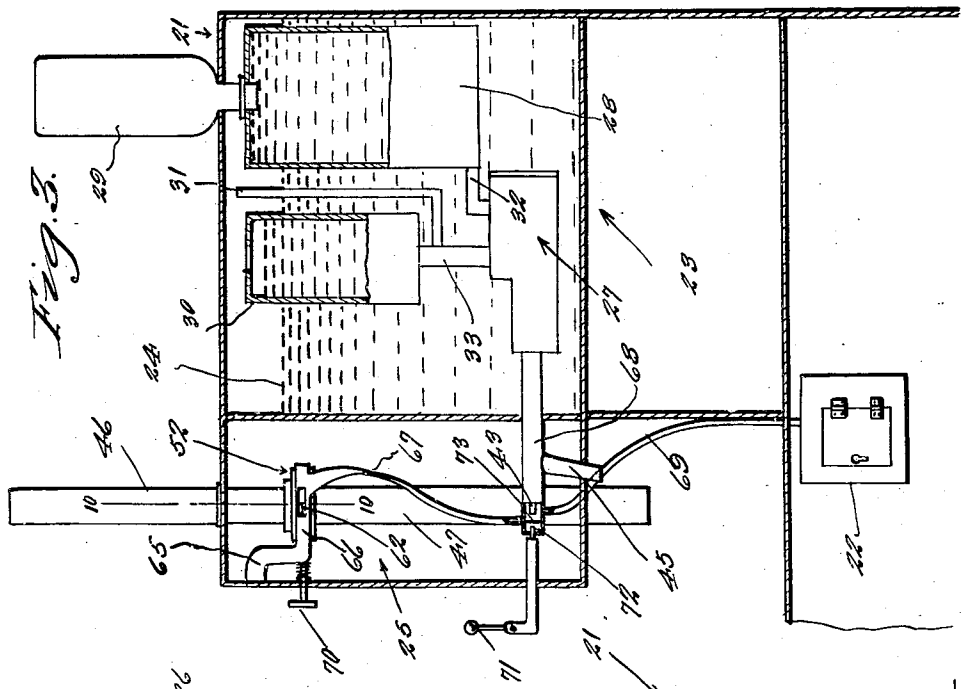


Fig. 2.

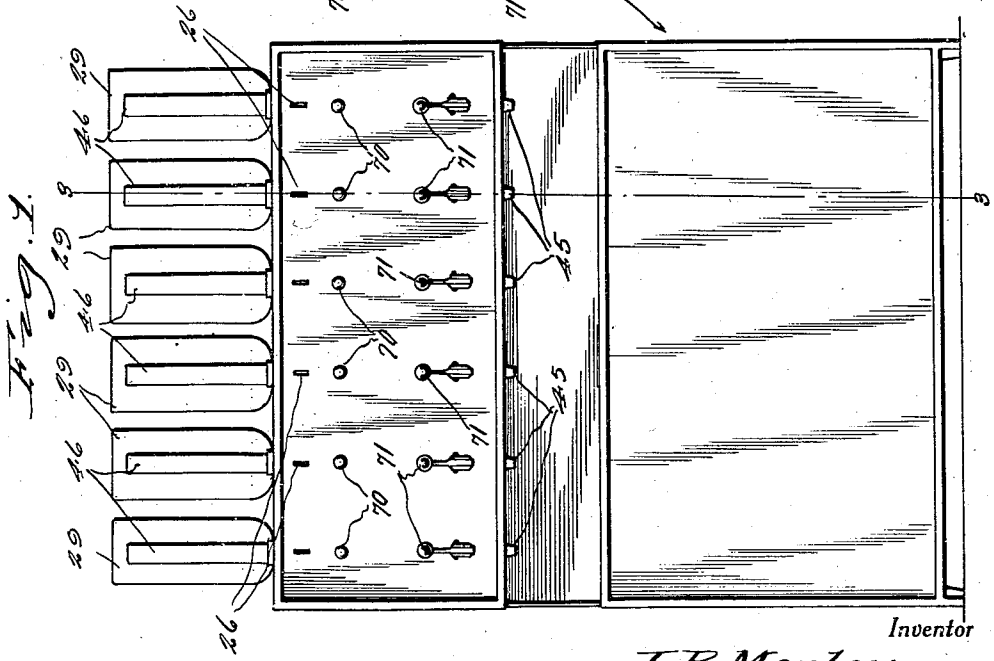


Fig. 1.

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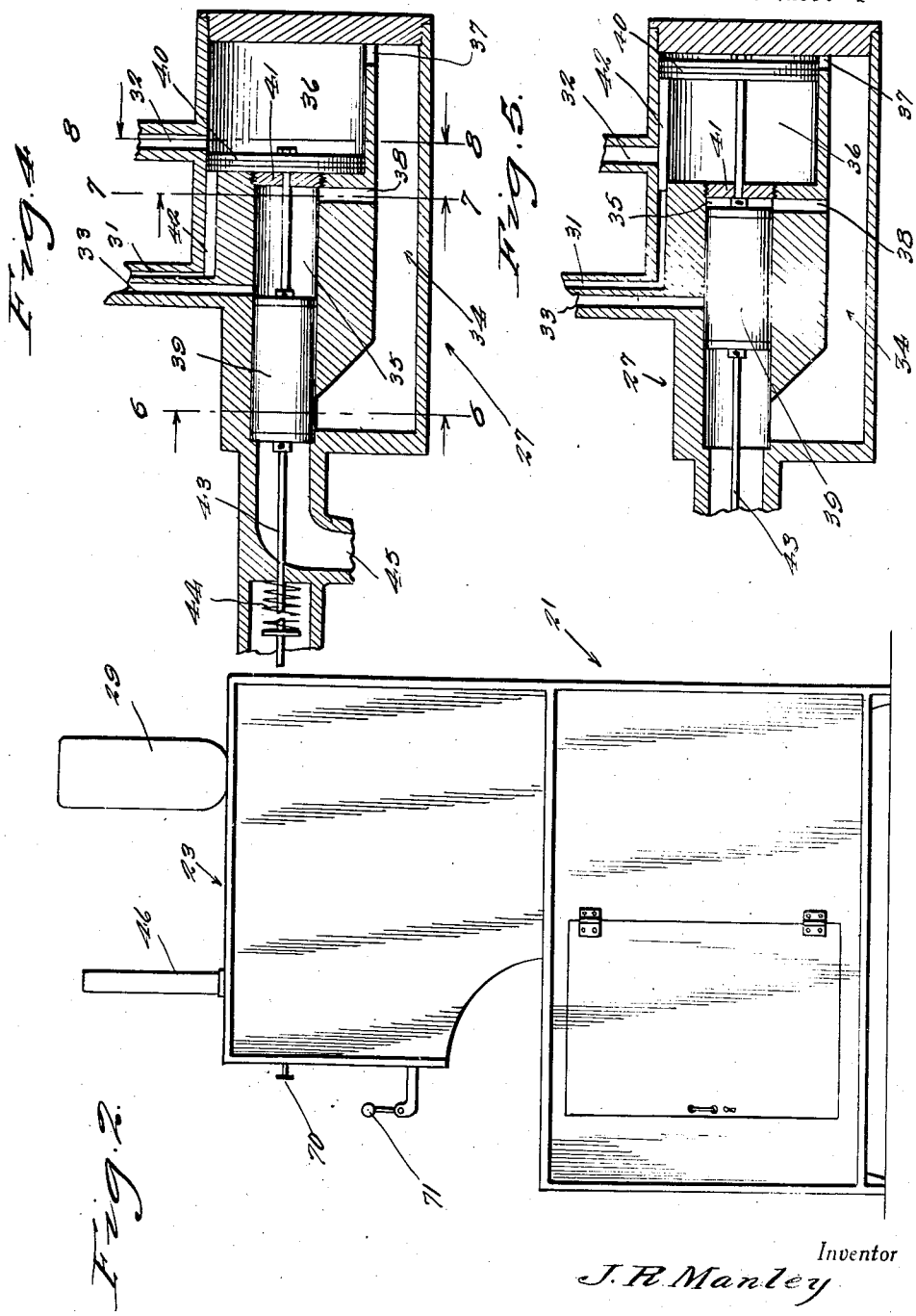


Fig. 4.

Fig. 5.

Fig. 6.

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Fig. 7.

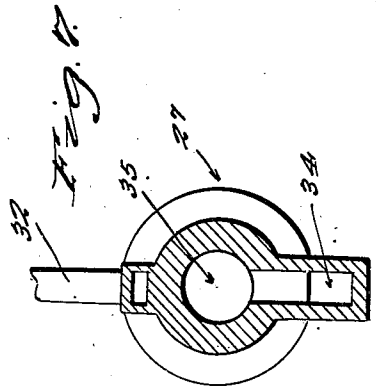


Fig. 9.

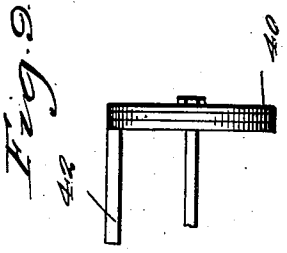
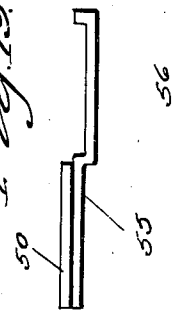


Fig. 19.



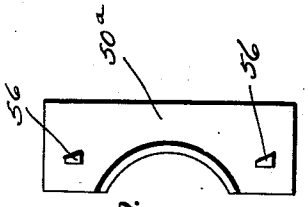


Fig. 18.

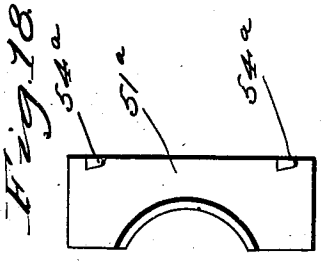


Fig. 10.

Fig. 8.

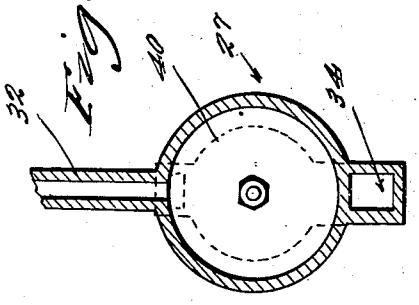
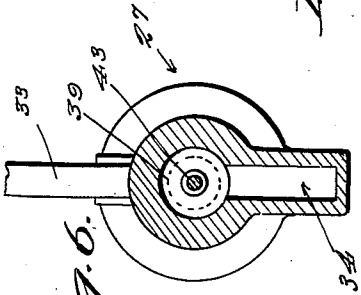


Fig. 6.



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Fig. 11.

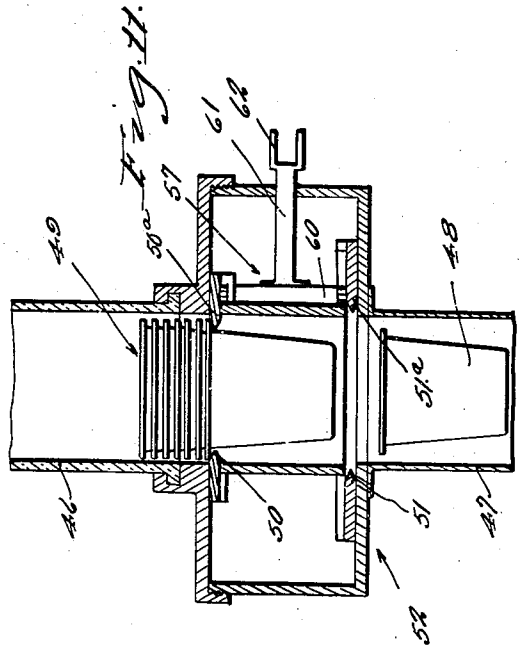


Fig. 12.

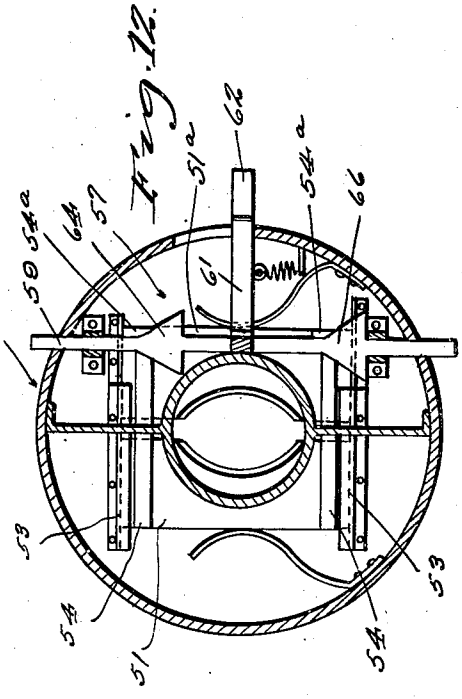


Fig. 10.

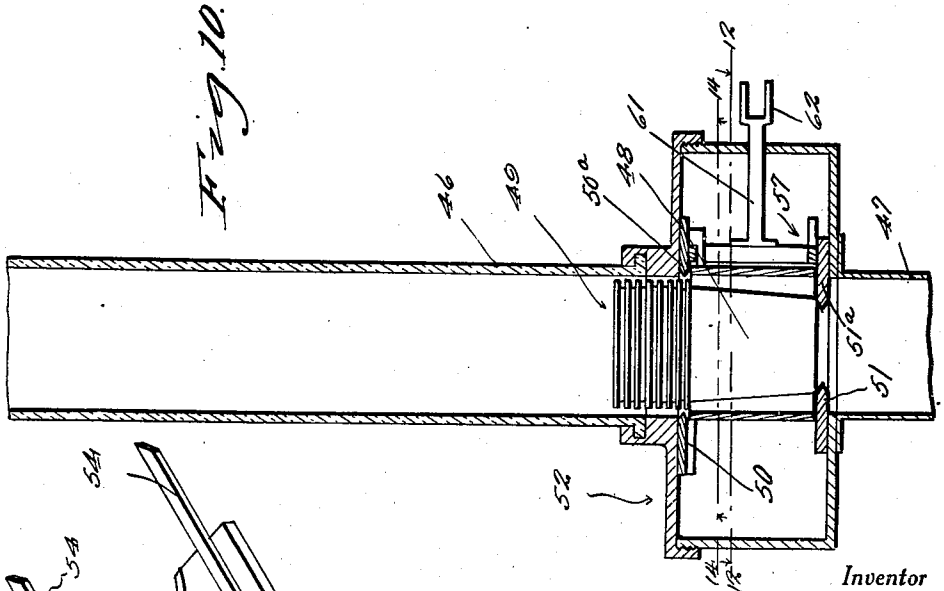
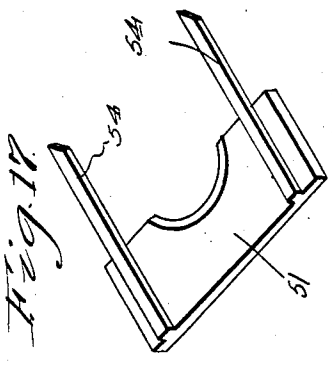


Fig. 13.



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Fig. 14.

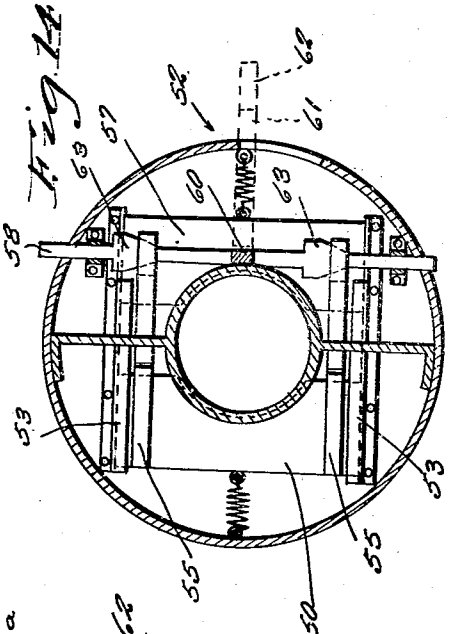


Fig. 16.

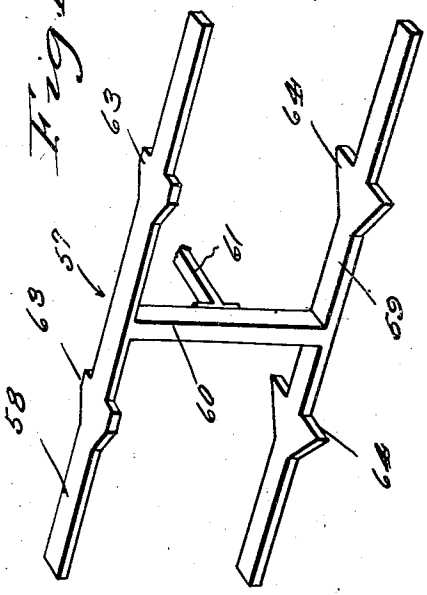


Fig. 13.

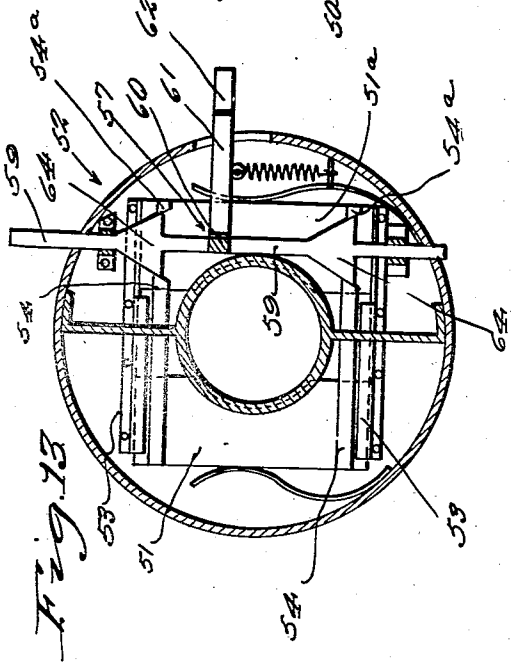
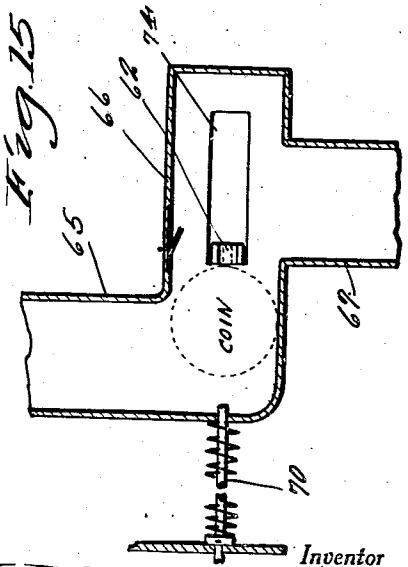


Fig. 15.



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1,798,095

UNITED STATES PATENT OFFICE

JOB R. MANLEY, OF EAST LIVERPOOL, OHIO

SELF-SERVING BEVERAGE FOUNTAIN

Application filed January 31, 1929. Serial No. 336,439.

This invention relates to an improved dispensing machine which may be conveniently and briefly entitled a self-service beverage dispensing fountain and it has more particular reference to a compact and convenient arrangement of devices constructed and coacting in a manner so that when a patron places a coin of a predetermined denomination in a selected coin slot, and operates a push button and then operates the lever therebeneath he will be provided with a sanitary cup to be placed beneath a faucet for reception of a predetermined drink, properly measured and mixed for consumption.

Briefly stated, I accomplish these co-ordinated results by providing a single cabinet embodying a multiplicity of cup vending devices, drink mixing and proportioning devices and selectively operable individual coin controlled mechanisms for operating the devices according to the discretion of the purchaser or patron.

The particular structural features and advantages of the invention will become more readily apparent from the following description and drawings.

In the drawings:

Figure 1 is a front elevational view of a beverage fountain constructed in accordance with the invention.

Figure 2 is an end elevational view of the same.

Figure 3 is a vertical transverse sectional view taken upon the plane of the line 3—3 of Figure 1.

Figure 4 is a fragmentary sectional view of one of the mixing and dispensing devices.

Figure 5 is a view like Figure 4, showing the operation of the force feed pistons or plungers embodied in these devices.

Figures 6, 7 and 8 are transverse vertical sections taken approximately upon the planes of the lines 6—6, 7—7 and 8—8 respectively of Figure 4.

Figure 9 is a detail view of a valve equipped piston constituting a part of the structure seen in Figures 4 and 5.

Figure 10 is an enlarged vertical sectional view through the cup vending device taken on the line 10—10 of Figure 3.

Figure 11 is a sectional view of the cup releasing and retaining means constituting a part of the structure seen in Figure 10.

Figure 12 is a horizontal sectional view taken approximately upon the plane of the line 12—12 of Figure 10.

Figure 13 is a view based on Figure 12, showing the opposed cup releasing plates in expanded cup-releasing position.

Figure 14 is a horizontal sectional view, taken on the plane of the line 14—14 of Figure 10.

Figure 15 is a fragmentary sectional view of a portion of the coin chute associated with the cup vending device.

Figure 16 is a perspective view of a double acting sliding cam device, for acting on the cup retaining and releasing plates.

Figure 17 is a perspective view of one of the bottom plates.

Figure 18 is a top plan view of a complemental plate.

Figure 19 is an edge view of one of the top plates.

Figure 20 is a top view of the complemental top plate.

Referring now to the drawings by reference numerals, it will be seen that the fountain comprises a suitably designed cabinet including a base portion 21, to serve as a housing for miscellaneous appliances, surplus stock, etc. Incidentally as shown in Figure 3, there are a number of locked coin receiving boxes 22, in this space. These will be described later on. Supported in vertically spaced relation above the base is a casing 23, which comprises an enclosure for a plurality of liquid dispensing and measuring devices, and which operates as a container for a refrigerating liquid 24 as seen in Figure 3. The forward portion of the casing is formed into a separate compartment 25 for accommodating details of the coin controlled mechanisms. This compartment also accommodates the various sanitary cup vending devices. In accordance with the invention, I provide a series of individual coin slots 26, in the front panel, and I also provide individual dispensing and mixing devices, as well as cup vending devices for each coin

slot in order that the person may select the desired flavor or type of beverage before depositing coins.

In carrying out the invention, however, the various united devices cooperating with each coin slot are identical in construction and a description of one set of devices will suffice for all.

It is believed logical to first describe the very prominent part of the invention, and that is the means utilized for mixing and proportioning as well as dispensing the beverage.

Broadly this means will be defined as a liquid dispenser. The general arrangement is seen in Figure 3, wherein it will be observed that the reference character 27 designates broadly the mixing and proportioning device, 28 a water reservoir, 29 a water supply bottle or container. 30 a sirup reservoir, and 31, a vent pipe. The reference character 32 designates the water intake and 33 the sirup intake.

The mixing device 27 is detailed in Figures 4 and 5. As here shown I provide a suitably shaped container which is formed internally to provide a liquid mixing base or compartment 34, a sirup measuring cylinder 35 and a water measuring cylinder 36. The water is discharged from the cylinder 36 into the compartment 34, through a discharge opening or port 37 and the sirup is discharged from the cylinder 35 into this space 34 through a discharge port 38. These cylinders are in longitudinal alignment and are of appropriate relative proportion. A double acting piston and plunger structure is associated therewith and comprises a slidable piston 39 for the cylinder 35, and a complemental piston 40 for the water cylinder 36. The reference character 41 merely designates a closing disc and guide for the stem of the piston 40.

It is to be observed that the piston 40 is relatively thin and carries a right angularly extending valve 42. The operating stem for the piston is designated by the reference character 43 and is associated with an appropriate return spring 44. In this connection I may mention the liquid discharging faucet or spigot 45 as seen in Figure 3, and I may further mention that the plunger stem 43 is intended to be operated by a coin controlled means to be hereinafter described. Hence the stem 43 extends beyond the faucet as represented in Figure 3.

With this arrangement, it will be seen that the pistons are normally in the left hand ends of the cylinders 35 and 36, thus uncovering the water and sirup intakes 32 and 33 respectively. Hence these fluids gravitate down into the cylinders and fill the cylinders as well as the mixing chamber 34. In this connection, it will be observed that the piston 39 operates as a valve to close the discharge end of this chamber 34. It is also to be noted that the connection 33 has a vent passage extending therethrough and in communication with the vent pipe 31 to facilitate operation. Moreover, the casting is so made as to provide a socket at this point for slidable reception of the valve 42 on the piston 40.

Hence when the plunger 43 is forced in, and the pistons are reciprocated in the cylinder, the sirup and water will be proportionately mixed and forcibly ejected through the spigot or faucet. As the pistons are thus operated, the valve plate 42 covers the water intake 32, and the piston 39 covers the sirup intake 33. The relative positions of these parts are thus represented in Figure 5.

It will be seen that this dispenser properly proportions the water and sirup, properly mixes it. and forcibly ejects it through the spigot for reception in the cup. In accordance with the invention, I provide sanitary cups and novel vending means therefor as will be hereinafter described.

It is also to be observed that the water and sirup reservoirs being embedded in the refrigerant 24 always insures a cold drink.

As before indicated, a cup vending device is associated with each dispenser, in order to conveniently release the cup, so that it may be placed beneath the faucet. As shown diagrammatically in Figure 3, the reference character 46 designates the cup holder and 47 designates a depending cup delivery tube, whose lower end is disposed adjacent the faucet for convenient discharge and use of the cup.

Interposed between the tubes 46 and 47 and confined within the compartment 25, as seen in Figure 3 and as detailed in Figure 10 is the structural organization of parts for releasing the cups 48 in a step by step manner. In Figure 10 the reference character 49 merely designates the stack of cups and 48 represents the cup about to be released, and it has been released in Figure 11. The means for doing this comprises a pair of upper opposed plates 50 and 50*a* respectively, and a pair of lower vertically spaced plates 51 and 51*a* respectively. These are confined in an appropriately shaped housing 52 and slidably mounted for movement toward and from each other in guides. The upper and lower guides are the same in construction and are designated by the reference characters 53. It will also be observed that springs 54 are provided for bearing against the respective sets of plates to hold them normally toward each other. The lower plate 51, as seen in Figure 17 is provided with arms 54, having bevelled extremities providing cam surfaces. These arms bridge the space between the adjacent edges of the two plates and in fact overlap the plate 51*a* where the bevelled extremities cooperate with appropriate cam

abutments 54*a*. Likewise the upper plate 50 (see Figure 19) has arms 55 underlying the complemental plate 50*a* seen in Figure 10 and the plate 50*a* has complemental abutments 56 operating as cam elements. This makes it necessary to use a cam operating device 11 of the type seen in Figure 16. This comprises an upper arm 58 for cooperating with the upper plates 50 and 50*a* and the lower arm 59 for cooperation with the plates 51 and 51*a*. These arms are joined together by a vertical strut 60 carrying an outstanding actuating element 61, terminating in a fork 62. The arm 58 has longitudinally spaced wedge shaped cams 63, cooperable with the abutments or cams on the plates 50 and 50*a* respectively and the lower arm 59 has similar cams 64 for cooperation with the complemental cam abutments 54 and 54*a* on the plates 51 and 51*a* respectively. Thus it will be seen that when these cams 63 and 64 are forced between the complemental abutments on the respective plates, the plates will be spread apart against the tension of the retaining spring. The relationship of the cams and plates is such that when the plates 50 and 50*a* are spread apart as seen in Figure 10, the plates 51 and 51*a* are in contracted shape. Also, in other words, the plates are simultaneously operable but they are alternately operable insofar as their relationship to the cups is concerned. Hence, when the device 57 is slid under the action of appropriate means, the respective plates will take the positions seen in Figures 10 and 11 respectively to move the stack of cups up and release a single cup to drop down through the delivery tube 47.

In accordance with the invention, the cup-vending means as well as the drink dispensing devices are under the control of coin control devices. The devices are each the same in construction and a description of one will suffice for all. Referring to Figure 3 it will be observed that 65 designates the intake end of a chute which is in registry with the adjacent coin slot and 66 designates a horizontal portion and 67 a depending branch for delivering the coin into a cylindrical casing for the aforesaid plunger 43. In addition, there is a branch 69 leading down to the deposit box 22. Associated with this chute is a spring returned cup releasing plunger 70, and below this is a manually operated lever 71 for operating a push rod 72 which in turn operates the plunger stem and the coin 73 is between these parts.

In connection with this coin controlled mechanism, I invite attention to Figure 15, wherein it will be observed that the fork on the end of the actuating element 62 extends through a slot 74 in the horizontal portion 66 of the chute, where it is in alignment with the inner end of the plunger rod 70.

Hence the coin is utilized as a medium for actuating this part 21 as well as for actuating the plunger stem 43. We insert a coin through the slot 26 and it runs down through the chute 65, into the horizontal portion 66, where it assumes the dotted line position shown in Figure 3. Here it is forced into engagement with the fork 62. Of course, if there is no coin in place, the rod 70 will merely reciprocate between the forked arms and will effect no operation. When, however, the coin is in place and the plunger 70 is forced in, the coin will exert a pressure against the fork 62 and this will impart a sliding motion to the cam device 67. The operation of this cam device is already explained and will release one cup and allow it to drop down through the delivery tube 47. Then the coin passes into the branch 67 of the chute and gravitates downwardly where it becomes lodged in the casing 68. Here it is interposed between the push rod 72 which is operated by the lever 71 and the piston stem 43. Consequently the push button 70 is forced into place to release the cup and then the same coin passes down through the chute where it is in position to operate the piston for controlling the complemental dispensing device. Hence, in accordance with the directions, the operator will grasp the lever 71 and pull it downwardly which will operate the push rod 72 and will force the coin against the stem 43 to actuate the piston and to forcibly eject the drinks into the cup which is placed beneath the faucet 25.

It is to be seen that the operator selects the desired flavor or character of drink, places the coin into the appropriate slot, first pushes the plunger 70 and ejects a cup which is delivered for use. He then grasps the lever 71 and pulls it down, whereby the dispensing device comes into play and forcibly ejects a drink into the cup. Then the coin passes on down through the branch 69 into the clutch and box 22. It is thought that a careful consideration of the description in connection with the drawings will enable the reader to obtain a clear understanding of the continuity of operation of the several devices, the feature of selectivity and the distinguishable features of the individual and separably operable control means, for the dispensers and cup vending devices.

Therefore a more lengthy description is regarded as unnecessary. Minor changes in the shape, size and rearrangement of details coming within the field of the invention claimed may be resorted to, in actual practice if desired.

I claim:

1. In a structure of the class described, a mixing device comprising a mixing chamber having a discharge opening therein, a water cylinder communicating with the chamber, a syrup cylinder communicating with the chamber, means for supplying water and

syrup to the respective cylinder, a piston mounted for reciprocation in the syrup cylinder and adapted to eject the contents thereof into the mixing chamber, means for returning and maintaining the piston in retracted inoperative position in the syrup cylinder, said piston extending over the discharge opening in the mixing chamber when in its retracted position and functioning as a closure therefor and a piston mounted for reciprocation in the water cylinder and operatively connected to the first named piston for actuation thereby in a manner to eject the contents of said water cylinder into the mixing chamber.

2. In a structure of the class described, a mixing device comprising a mixing chamber having a discharge opening therein, a water cylinder communicating with the chamber, a syrup cylinder communicating with the chamber, intake ports for supplying water and syrup to the respective cylinders, an elongated piston mounted for reciprocation in the syrup cylinder and adapted to eject the contents thereof into the mixing chamber, an operating rod connected to said piston, a compressible coil spring associated with the rod for yieldingly retaining the piston in retracted inoperative position in the syrup cylinder, said piston extending over the discharge opening in the mixing chamber when in its retracted position and functioning as a closure therefor, and a piston mounted for reciprocation in the water cylinder and operatively connected to the first named piston for actuation thereby in a manner to eject the contents of said water cylinder into the mixing chamber.

In testimony whereof I affix my signature.

JOB R. MANLEY.