J. FRITSCHE.

APPARATUS FOR DISPENSING LIQUIDS.

APPLICATION FILED NOV. 30, 1914.

1,199,065.

Patented Sept. 26, 1916.

7 SHEETS—SHEET 1.

Fig. 2.

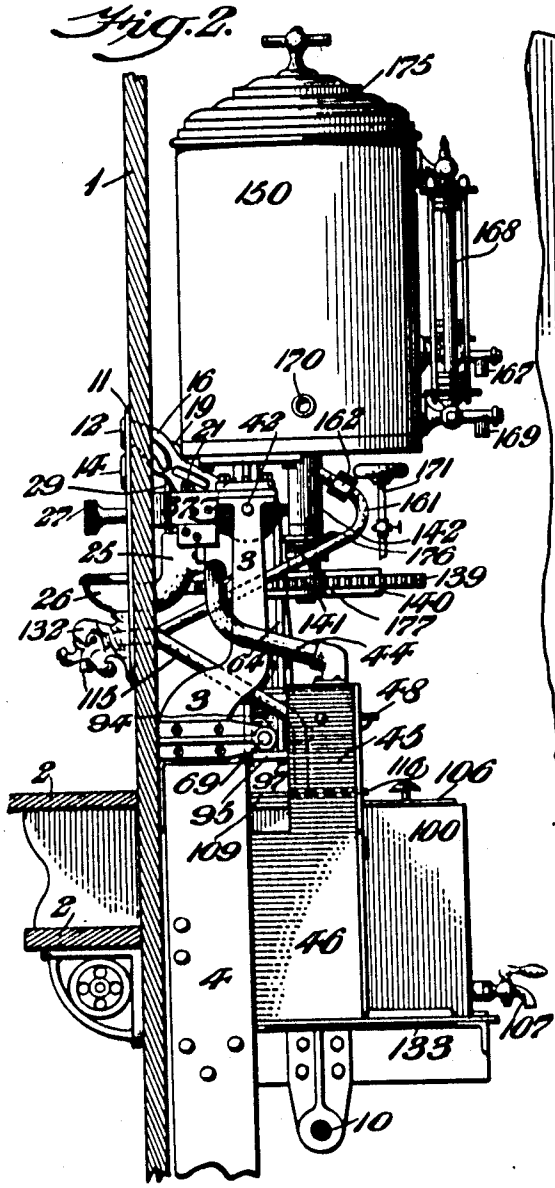
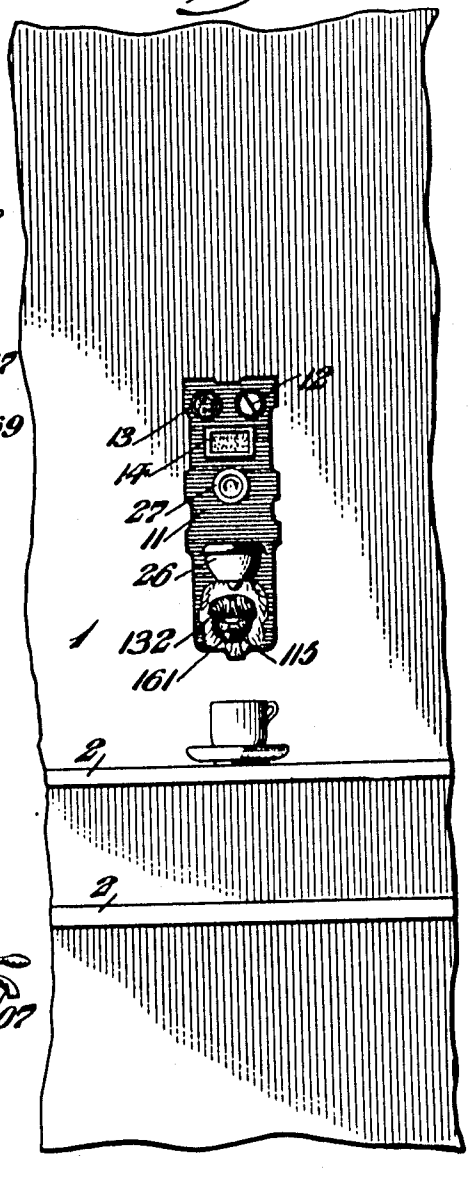


Fig. 1.



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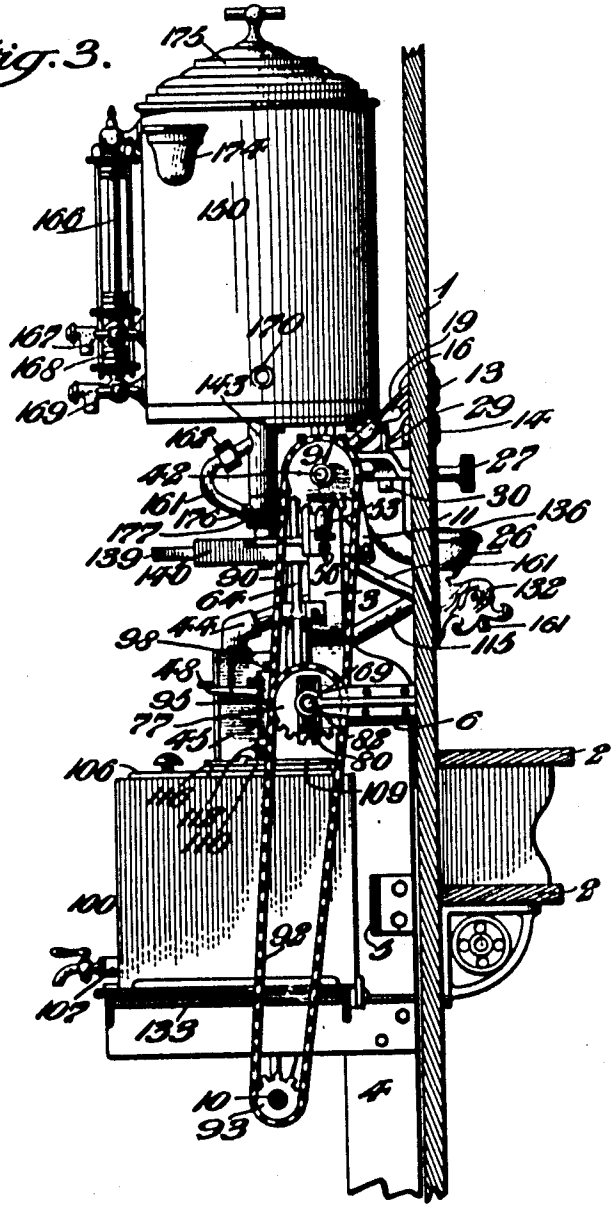
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7 SHEETS—SHEET 2.

Fig. 3.



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7 SHEETS—SHEET 3.

Fig. 4.

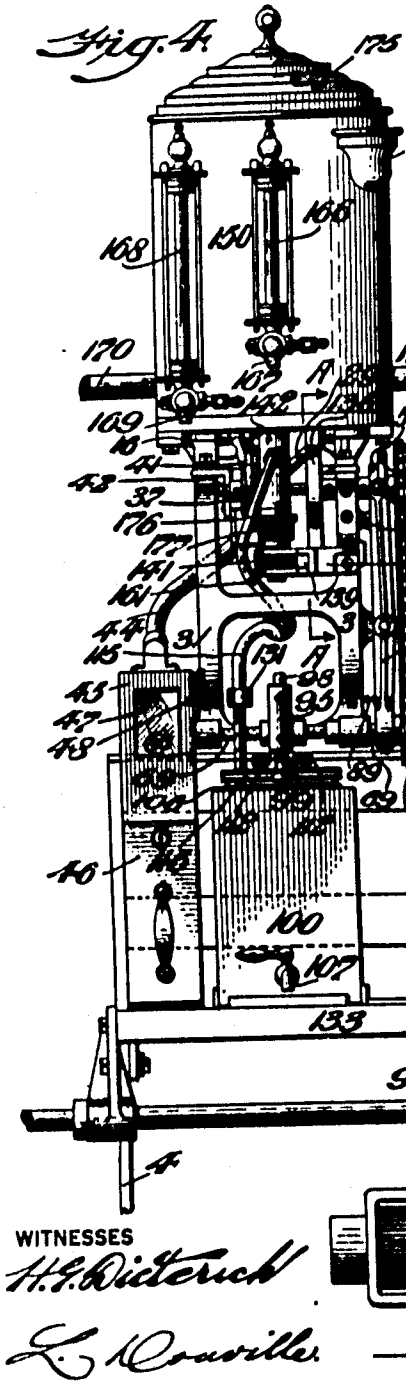
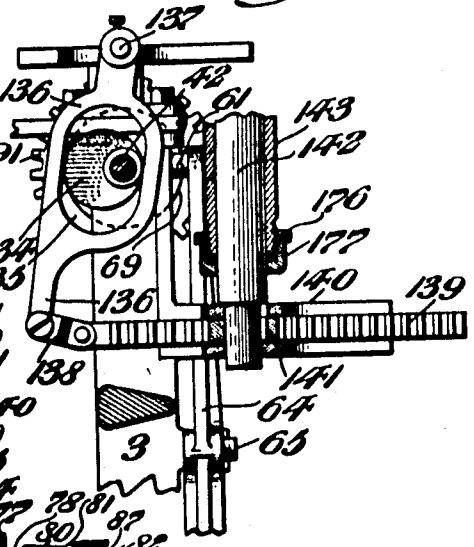


Fig. 5.



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7 SHEETS—SHEET 4.

Fig. 6.

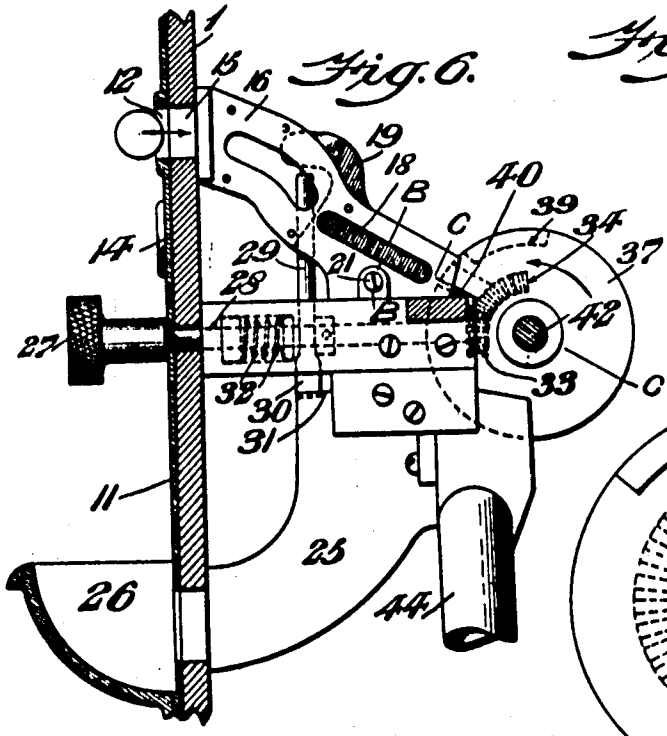


Fig. 7.

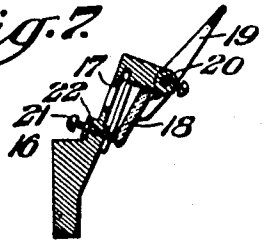


Fig. 8.

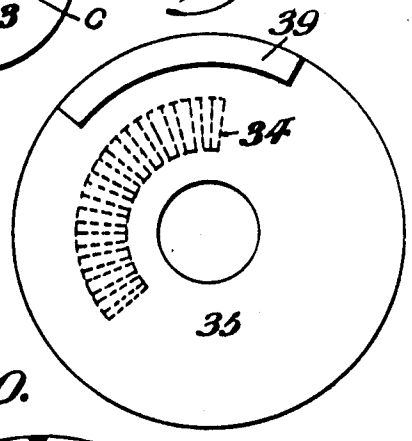


Fig. 9.

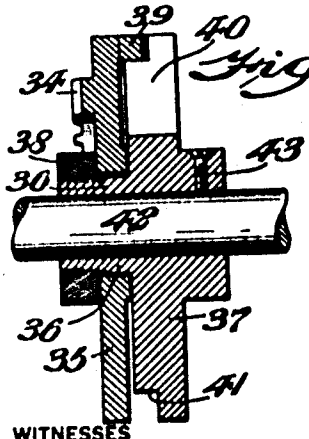
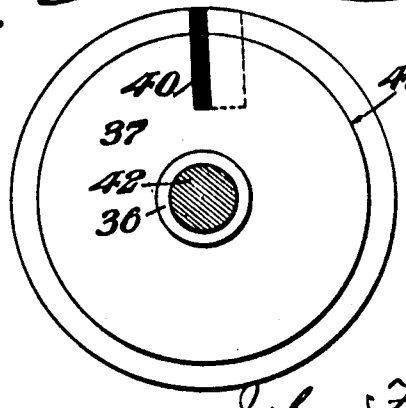


Fig. 10.



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7 SHEETS—SHEET 5.

Fig. 11.

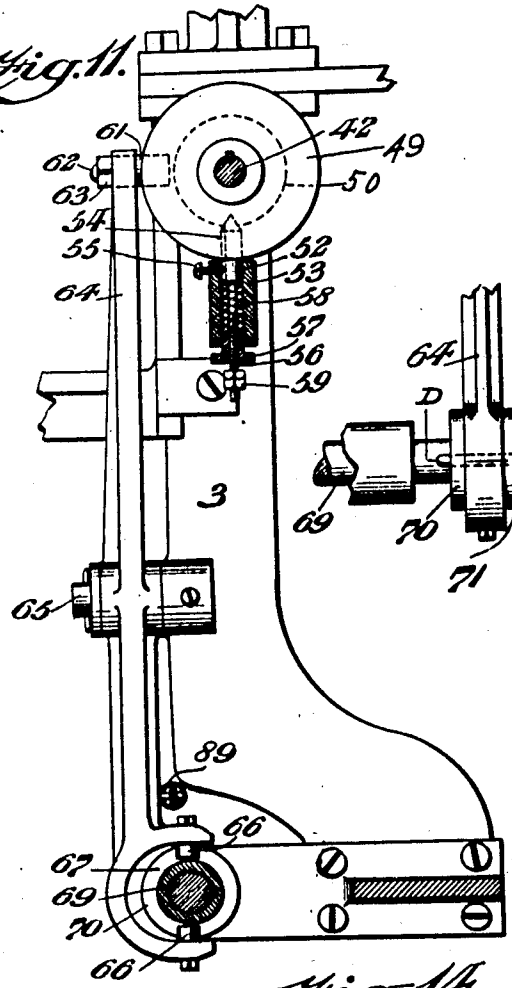


Fig. 12.

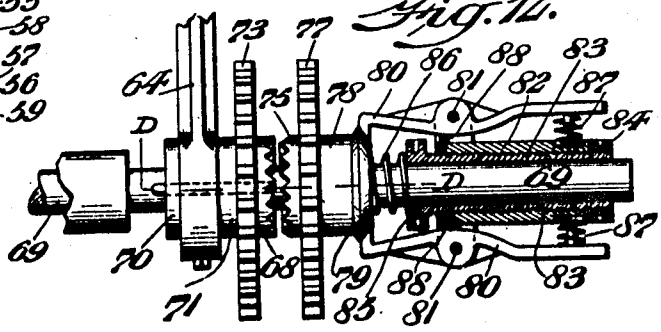


Fig. 13.

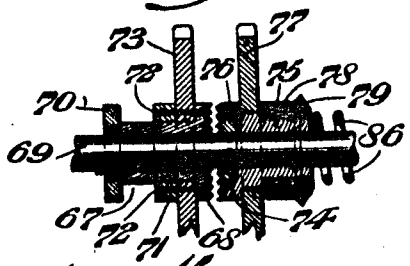


Fig. 14.

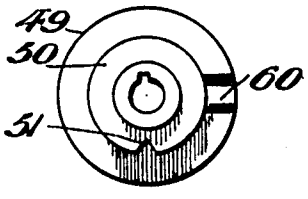
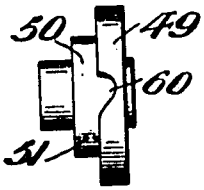


Fig. 15.



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7 SHEETS—SHEET 6.

Fig. 16.

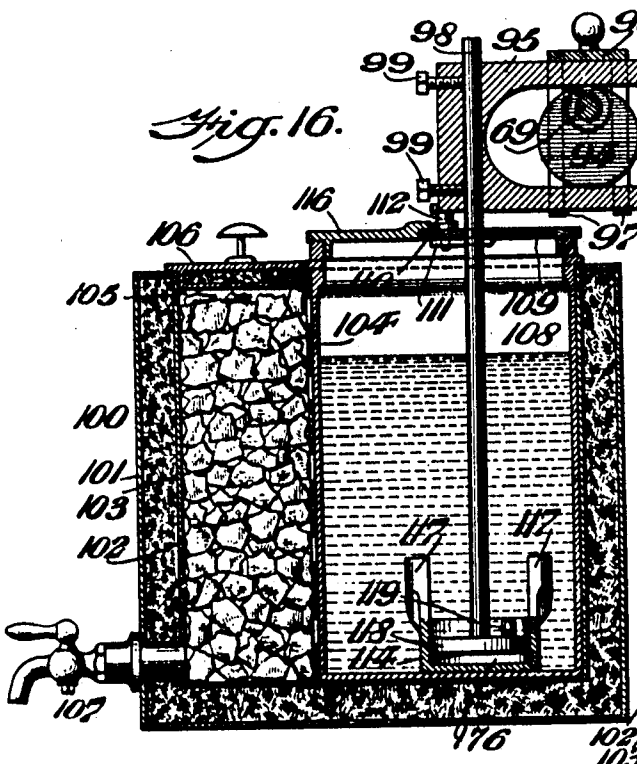


Fig. 17.

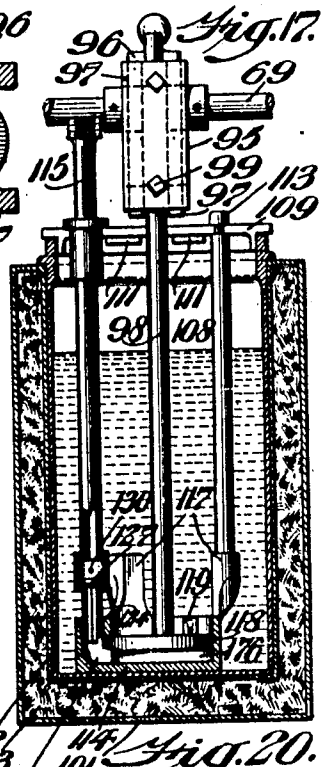


Fig. 18.

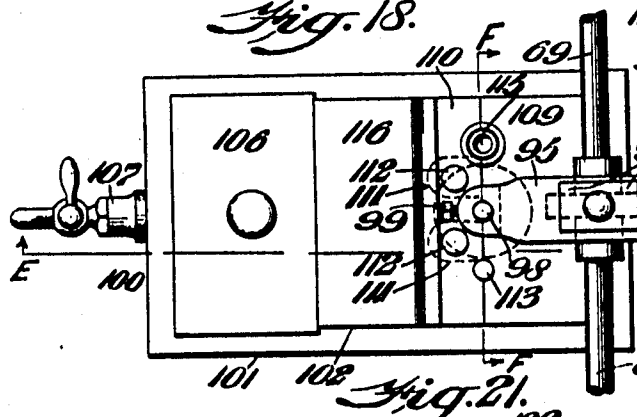


Fig. 19.

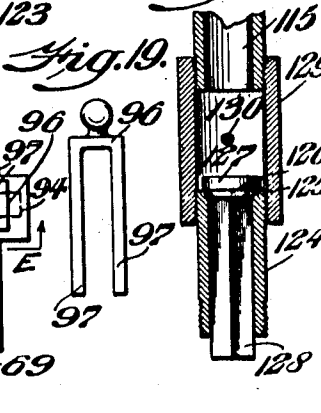
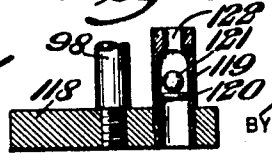


Fig. 20.

Fig. 21.



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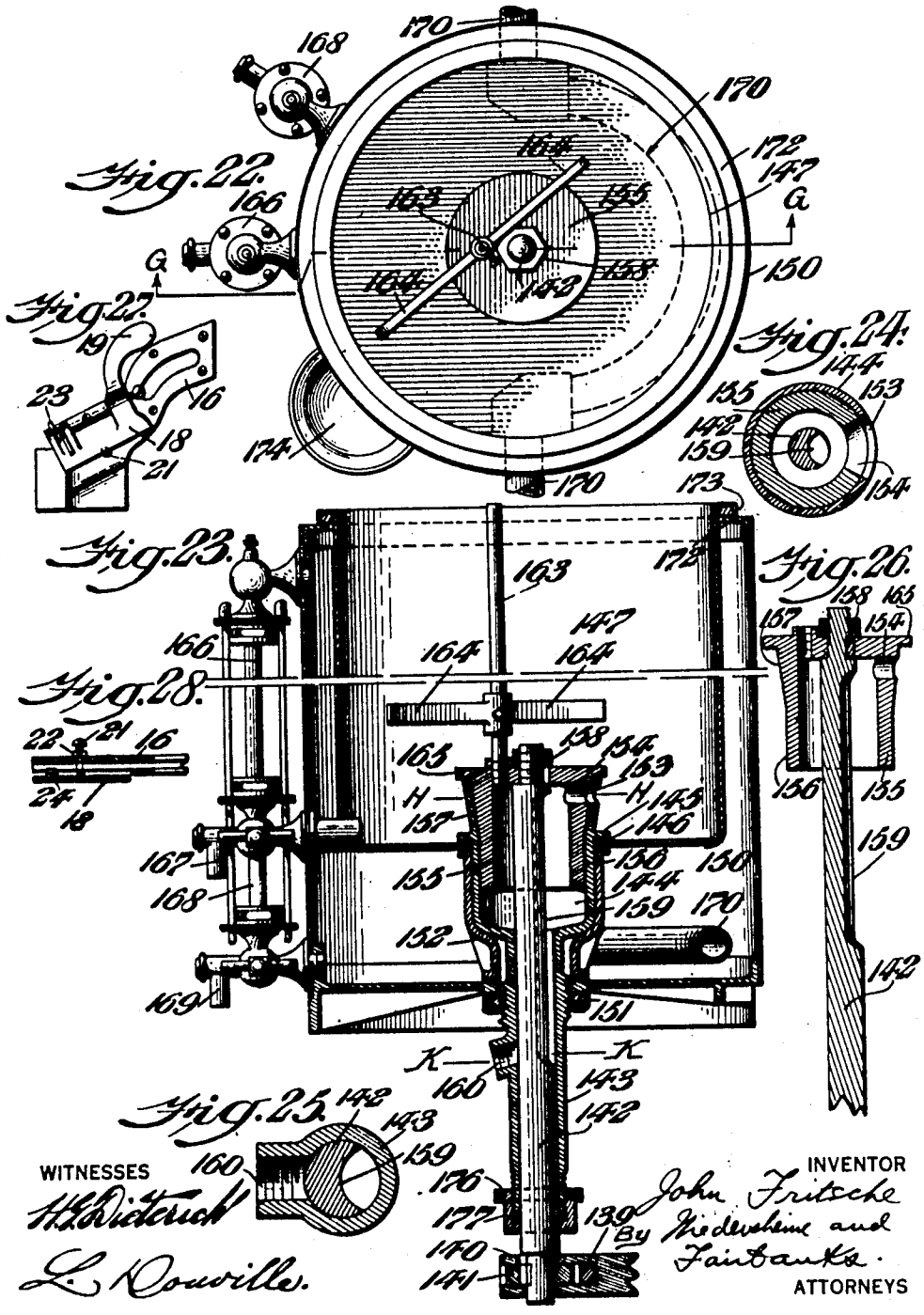
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7 SHEETS—SHEET 7.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DISPENSING LIQUIDS.

1,199,065. Specification of Letters Patent. Patented Sept. 26, 1916.

Application filed November 30, 1914. Serial No. 874,646.

To all whom it may concern:

Be it known that I, JOHN FRITSCHE, a citizen of the United States, residing at Philadelphia, county of Philadelphia, State of Pennsylvania, have invented a new and useful Apparatus for Dispensing Liquids, of which the following is a specification.

My present invention relates to a novel apparatus for dispensing liquids, wherein a plurality of liquids are discharged from the apparatus upon the insertion of a proper check or coin.

It is well known that when cream is used with coffee the flavor of the coffee is greatly improved if the cream is placed in the cup prior to the insertion of the coffee, and my present invention is designed to vend cream and coffee in the above manner although as is apparent the machine is not limited to such use but may be employed to vend other beverages.

With the above and other objects in view which will hereinafter appear in the detailed description, my invention consists of a novel apparatus for dispensing liquids which are automatically delivered upon the insertion of a check or coin of a predetermined denomination.

My invention further consists of novel means for measuring the liquids so that a predetermined amount is discharged at each operation of the machine.

It further consists of novel clutch mechanism and novel means of operating the same.

It further consists of novel features of construction whereby the cycle of the operation is respectively carried out and whereby the various parts of the mechanism may be maintained at all times in a sanitary condition, and whereby the parts can be readily assembled and taken apart by unskilled labor.

It further consists of other novel features of construction all as will be hereinafter fully set forth.

For the purpose of illustrating my invention, I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same will give in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a front elevation of a vending apparatus embodying my invention and by the employment of which my novel method may be carried out. Fig. 2 represents a side elevation of the apparatus, the front wall of the casing being shown in section. Fig. 3 represents a side elevation showing the side opposite to that seen in Fig. 2. Fig. 4 represents a rear elevation of the apparatus. Fig. 5 represents a sectional elevation on line A—A of Fig. 4. Fig. 6 represents a sectional elevation of the coin mechanism and certain of its adjuncts. Fig. 7 represents a section on line B—B of Fig. 6. Fig. 8 represents a side elevation of a portion of Fig. 6, in detached position. Fig. 9 represents a section on line C—C of Fig. 6. Fig. 10 represents an end elevation of the coin wheel, the shaft thereof being shown in section. Fig. 11 represents a sectional elevation, on an enlarged scale, of portions of the clutch operating mechanism. Fig. 12 represents, in side elevation and partly in section, portions of the clutch mechanism. Fig. 13 represents a section on line D—D of Fig. 12. Fig. 14 represents an end elevation of the lever controlling member seen in Fig. 11. Fig. 15 represents a side elevation of the construction seen in Fig. 14. Fig. 16 represents a section on line E—E of Fig. 18. Fig. 17 represents a section on line F—F of Fig. 18. Fig. 18 represents a top plan view of the cream container and portions of the pump operating mechanism. Fig. 19 represents an end elevation of a retaining device seen in Fig. 18. Fig. 20 represents a sectional elevation and on an enlarged scale the discharge conduit seen in Fig. 17. Fig. 21 represents on an enlarged scale a sectional view of the pumping element and valve mechanism therefor. Fig. 22 represents a top plan view of the coffee container, the cover having been removed for sake of clearness of illustration. Fig. 23 represents a section on line G—G of Fig. 22. Fig. 24 represents a section on line H—H of Fig. 23. Fig. 25 represents a section on line K—K of Fig. 23. Fig. 26 represents a sectional elevation of parts seen in

Fig. 23. Fig. 27 represents a side elevation of the coin chute. Fig. 28 represents a sectional view of the coin chute.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, my present invention in its broad aspects comprises several distinct sets of mechanism which cooperate and are dependent upon each other to produce the ultimate objects or results sought for, and I will therefore describe each of the sets in detail in the natural or logical sequence in which they are actuated during the cycle of the vending operation. In these broad aspects my novel apparatus embodies a frame-work which carries, respectively, the coin controlling mechanism, the clutch mechanism controlled by the insertion of a coin, the cream delivery mechanism and the coffee delivery mechanism.

The frame of the machine.—While I prefer to use the form of frame shown, I do not desire to be limited to the same in every instance as many forms or contours may be designed which will answer the purpose. In the present instance, the frame includes a front wall 1 having a series of shelves 2 to support the articles which are to receive the liquid which is vended and also the silver ware. 3 designates a bracket which is carried by supporting standards 4, and cross bars 5 and 6 are employed, see Fig. 4, which serve to brace the frame-work or carry certain parts of the operating mechanism. In the drawings I have shown but one unit of my construction but in practice a number of units are assembled at desired distances from each other so that a single operating means may be employed for all of the units such as for example the electric or other motor 7, see Fig. 4, said motor being provided with a pinion 8 which meshes with a gear 9 mounted on the main driving shaft 10, which is journaled in the frame-work in any desired manner.

The coin mechanism.—Referring now more particularly to Figs. 1, 2, 4 and Figs. 6 to 10 inclusive, it will be seen that the front wall 1 of the casing is provided with a plate 11 in which is formed the coin slot 12 of the proper dimensions to receive the check or coin which is to operate the machine. The plate 11 is also provided with means 13, indicating the character of the coin which is to be inserted, and with a card holder 14 which indicates the character of liquid which is to be vended by the machine. The coin slot 12 communicates with an opening 15 in the front wall 1, and said opening communicates with a fraud preventive device which is within the broad and generic scope of my prior Patent, No. 852,111, granted to me on April 30th, 1907. 16 designates a coin chute communicating with the opening 15 and if the check or coin is of proper denomination and has the proper dimensions, it will travel directly through the coin passage 17. One side of the coin slot 16 is formed by a movable member 18 having an upwardly projecting arm 19, said member 18 being pivoted at 20, to the stationary portion of the coin chute. 21 designates a set screw carried by the stationary portion of the coin chute and having its free end engaging the pivoted side 18 of such chute, and a lock nut 22 is preferably provided for the set screw 21. The movable side 18 of the coin chute is maintained in closed position by means of the spring 23, see Fig. 27. The movable side 18 is provided on its inner face with a lug 24, see Fig. 28, the purpose of which is to arrest any coins of improper dimension and the distance of this lug from the wall of the stationary portion of the coin slot is adjusted by means of a set screw 21, thereby adjusting the coin chute to operate with coins of different thickness. If a coin is arrested in the coin chute it will, when the machine is operated, drop into the return chute 25 which delivers the coin to the receptacle 26 carried by the front plate 11. 27 designates a grasping handle which passes through the front plate 11 on the front wall 1 of the casing and is connected to or forms a part of a shaft 28, which latter has mounted thereon a rod 29 the upper end of which, when the shaft 28 is partially rotated, contacts with the arm 19 and causes the movable side 18 of the coin chute to be opened and permit any coins retained therein to fall into the discharge chute in the manner hereinbefore described. The rod 29 is provided with a foot-piece 30 which normally rests on a shoulder 31 of a stationary portion of the frame, such as for example the discharge or return chute 25, see Fig. 6, and a spring 32 is provided, one end of which is fixed to the shaft 28, and the other end thereof is fixed to a stationary portion, whereby the shaft 28 normally remains in the position seen in Fig. 6. The end of the shaft 28 is provided with a pinion 33 which meshes with a segmental rack 34 carried by a disk 35 which is loosely mounted on the hub 36 of a coin wheel 37 and retained in proper position thereon by means of a nut 38 in threaded engagement with said hub. The disk 35 is provided with a lug 39. The coin wheel 37 is provided in its periphery with an inclined slot 40 and is recessed as at 41 to form a bearing on which the lug 39 rotates and whereby said lug 39 will interlock with a coin in the coin slot 40. The coin wheel 37 is fixed to a shaft 42, in the present instance, by means of a set screw 43. The coin which has served to interlock the disk 35 and coin wheel 37 passes into the conduit 44 which discharges into the upper part 45 of the money box 46. Said part 45 is provided

with a transparent plate 47 and has a movable bottom controlled by the spring pressed arm 48 so that the coin may be temporarily retained in rear of the transparent plate 47 and the attendant can see at a glance whether or not the machine has been operated by a proper coin. The money box 46 is removably carried by the frame-work and designed to be locked in position.

The coin controlled clutch mechanism.—The shaft 42, see more particularly Fig. 11, has keyed thereon, or otherwise fixed thereto, a cam member 49 which is provided with a boss or bearing member 50 having a V-shaped slot 51 in its periphery with which is adapted to interlock a plunger 52 which is guided in a sleeve 53. The plunger 52 has a recess 54 in its side wall in which is adapted to extend a set screw 55 to prevent rotation of said plunger, and said plunger is provided with a stem 56 which passes freely through a nut 57 and a spring 58 is provided interposed between the plunger 52 and the nut 57. 59 designates nuts on the stem 56 and in threaded engagement therewith one of which serves as a lock nut. The cam member 49 is provided with a cam-shaped recess 60 which normally receives a roller 61, carried by a pin 62 which latter is secured by means of a nut 63 to a lever 64, fulcrumed at 65 to the framework of the machine. The lower end of the lever 64 is bifurcated and provided with the oppositely disposed rollers 66 secured thereto in a similar manner to that already described with reference to the roller 61. These rollers travel in a groove 67 of a clutch member 68, which latter is keyed on a shaft 69, journaled in the frame-work of the machine. The grooves 67, see Fig. 13, is formed by means of a nut 70, in threaded engagement with the sleeve of said clutch member, and by a collar 71 secured to said member by means of pins 72, which latter also secure in position a sprocket wheel 73. 74 designates a collar fixed to the shaft 69 and forming an abutment for the other clutch member 75 which is recessed as at 76 for such purpose. 77 designates a sprocket wheel in threaded engagement with the clutch member 75. 78 designates a sleeve in threaded engagement with the hub of the clutch member 75 and provided near its outer end with the reversely inclined faces 79, with which are adapted to contact the wedge-shaped ends of the levers 80, which are pivoted at 81 to a stationary portion of the frame-work which forms a bearing sleeve 82 in which is threaded a sleeve 83, and a nut 84 is provided in threaded engagement with said sleeve 83 and abutting against the sleeve 82 to maintain the parts in adjusted position. The adjustable sleeve 83 is provided at its inner end with openings 85 adapted to receive a spanner wrench or other implement when it is desired to adjust the tension of the spring 86, interposed between said sleeve 83 and the collar 78. 87 designates springs between the stationary bearing sleeve 82 and the outer ends of the lever 80 whereby the inner ends of such levers are yieldingly maintained in engagement with one of the faces 79 and under normal conditions the inner ends of such levers engage the outer of said faces 79. In order to limit the friction between such parts, I provide the pins 88 which are fixed in the bearing sleeve 82 and engage and form an abutment for the levers 80, so that, by varying the length of these pins or adjusting the same, the frictional engagement between the inner ends of the levers 80 and the faces 79 may be varied as desired.

The lever 64 is maintained in normal position by means of a spring 89, see Fig. 4, which is connected to the lower portion of the lever 64 and to the frame-work of the machine. The sprocket wheel 73 is provided with a sprocket chain 90 which also passes around a sprocket wheel 91 mounted on the shaft 42. The sprocket wheel 77 is provided with a sprocket chain 92 which also passes around a sprocket wheel 93 mounted on the main driving shaft 10.

The cream delivering mechanism.—Referring now more particularly to Figs. 2, 4 and 16 to 21 inclusive, it will be seen that the shaft 69 has mounted thereon an eccentric 94 which is retained in position with respect to the cross head 95 by means of the retainer 96 which is provided with the four depending arms 97 which pass through said cross head and two of said arms are on opposite sides of the eccentric. The cross head 95 is adjustably mounted on a piston rod 98 by means of set screws 99. 100 designates the cream container which has an outer casing 101 and an inner casing 102 between which is located heat insulating material 103. The inner container 102 is provided with an apertured partition 104 which forms a chamber 105 to receive ice or other cooling medium and an insulating cover 106 is provided which gives access to such chamber. 107 designates a controllable drain conduit leading from the ice chamber 106. 108 designates the cream container which may be bodily removed when desired, and is provided with a cover of novel construction whereby the parts can be readily assembled or taken apart. 109 and 110 designate cover sections the part 109 having on its bottom face the flanges 111, and screws 112 are provided which pass through the section 110 and are in threaded engagement with said flanges 111. The sections 109 and 110 are provided with hemispherical recesses so that the piston rod 98 is guided in its movement and the standard 113 of the pump casing 114

is properly positioned as well as the discharge conduit 115 of the pump. 116 designates a cover portion which is removable in order that the cream container may be refilled when necessary. The pump casing 114 is provided with a chamber 176 and the guide wings 117 which guide the piston 118 in its travel. The piston 118 has a conduit 119 extending rearwardly therethrough which is provided with a cross pin 120 above which is located a valve 121 which controls the port 122. 123 designates the discharge conduit from the chamber 176 and with said discharge conduit a conduit 124 is in communication and, in the present instance, the lower end of this conduit is in threaded engagement with the pump casing. The upper end of the conduit 124 is provided with a valve seat 125 with which engages the valve seat 126 of the valve head 127 and the valve head 127 is provided with a grooved stem 128. 129 designates a coupling connecting the conduit 124 with the conduit 115, and 130 designates a stop pin to limit the upward movement of the valve head 127. The discharge conduit 115 is made in sections and provided with a coupling 131 whereby it may be readily disconnected when it is desired to remove the cream container, and said conduit 115 discharges through the spout 132. The cream container is supported on a shelf 133 carried by the frame-work of the machine.

The coffee delivering mechanism.—Referring now more particularly to Figs. 4, 5 and 22 to 26 inclusive, the shaft 42 has secured thereto in any desired manner an eccentric or cam 134 which is located in the recess 135 of a lever 136 which is pivoted at 137 to a fixed portion of the machine. The opposite end of the lever is connected with a link 138 which in turn is connected to a rack bar 139 mounted to reciprocate in the guide 140. 141 designates a pinion keyed to the reduced end of a valve stem 142, which is journaled in a sleeve 143 of a measuring cup 144, and provided with a flange 145 and a gasket 146, resting on the bottom of the coffee container 147. 148 designates a valve casing the upper flanged end of which engages the gasket 149 which contacts with the bottom of the container 147. The lower flanged end of the casing 148 engages the gasket 149 which contacts with the bottom of the outer container 150 which is adapted to receive a temperature changing medium, such as for example hot water, in case coffee is to be vended. 151 designates a nut in threaded engagement with the sleeve 143 whereby the bottom of the measuring cup 144 will be seated against the wall formed by a portion of the valve casing which is of lesser diameter, as seen at 152. The measuring cup has an inlet port 153 with which registers at certain times a port 154 of a cup shaped valve 155, the lower portion of which has an outer cylindrical wall, as at 156, while the upper portion has a conical wall, as at 157, said walls coöperating with seats of corresponding contour in the measuring cup. The valve stem 142 has a reduced end keyed to the top of the valve, and a nut 158 is in threaded engagement with the valve stem. The valve stem 142 is longitudinally grooved, as at 159, so that upon a partial rotation of the valve stem, the discharge port 160 will be placed in communication with the chamber of the measuring cup and the coffee or other liquid will flow by gravity through the discharge conduit 161 which leads to the discharge mouth 132. The conduit 161 is made of sections and a coupling 162 is provided to couple ends of adjacent sections together. With some liquids such as for example chocolate or milk, it is desirable to frequently agitate the liquid and I therefore provide a rod 163 carried by the valve and having a desired number of agitator bars 164, of any desired contour, adjustably mounted on said rod. The top of the valve 155 has a flange 165 extending over the upper edge of the measuring cup 144. 166 designates a coffee gage communicating with the coffee container 147 and provided with a drain cock 167. 168 designates a water gage communicating with the outer container 150 and provided with a drain cock 169. The water within the container 150 is maintained at a desired temperature by passing hot water, steam or other temperature changing medium through the conduit 170, or by means of a burner 171 seen in Fig. 2 but omitted from the other figures for the sake of clearness of illustration. Either the conduit or burner, or both said conduit and burner may be employed. The top of the outer container 150 has an inwardly extending flange 172 upon which rests the downwardly deflected portion 173 of the coffee container. 174 designates a spout through which the outer container 150 may be filled without removing the cover 175. The lower end of the sleeve 143 is threaded to receive a nut 176 and a stuffing box 177.

The operation will now be readily apparent and is as follows:—

Operation of the coin mechanism.—The intending purchaser inserts a coin of the proper denomination in the coin slot 12 and the coin passes through the chute 16 into the slot 40 in the coin wheel 37. The intending purchaser then turns the handle 27 in a counter clockwise direction and the pinion 33 meshing with the rack 34 will cause the disk 35 to rotate in the direction of the arrow seen in Fig. 6 and the lug 39 pressing against the coin in the coin wheel 37 will cause the disk 35 and the coin wheel 37 to be interlocked and rotate in unison. If, however, a

coin of improper dimensions or a bogus coin has been inserted in the coin inlet 12 it will be retained in the coin chute by engagement with the lug 24. When the handle 27 is turned to partially rotate the shaft 28, the rod 29 will contact with the arm 19 and cause the pivoted side 18 to open and thus permit a coin therein to fall into the return chute 25 and be delivered to a receptacle 26 accessible to the intending purchaser. The coin in the coin wheel on the rotation of the latter passes through the conduit 44 to the inspection portion 45 of the coin box 46, and then into the coin box 46 when the attendant presses on the arm 48.

Operation of the clutch mechanism.—As soon as the shaft 42 begins to rotate due to the interlocking of the disk 35 and coin wheel 37, and the partial rotation of the handle 27 the spring pressed plunger 52 will move out of the groove 51 and the roller 61 will move out of the cam recess 60 and will travel on the side of the cam. This action causes the lever 64 to be rocked on its fulcrum and the clutch member 68 keyed on the shaft 69 will be moved into engagement with the continuously rotating clutch member 75 and the shaft 69 will be rotated. Owing to the provision of the sprocket wheels 73 and 91 and sprocket chain 90, the shaft 42 will be rotated one revolution and the roller 61 will again enter the recess 60 thereby rocking the lever 64 and separating the clutch members 68 and 75. The spring pressed plunger will engage the recess 51 and the shaft 42 will be retained in its normal position. If for any reason the parts should jam, the machine is rendered fool proof and any damage to the machine prevented by the provision of the resilient mounting of the clutch member 75. The clutch member 75 will be moved outwardly and the ends of the levers 80 will engage the inner of the inclined walls 79 and hold such member 75 out of its clutch engaging position. The member 75 may be returned to its normal position by actuating the levers 80. The tension of the spring 86 may be adjusted by actuating the nut 84 and the sleeve 83.

Cream delivering operation.—The shaft 69 rotates the eccentric 94 and thereby the crosshead 95 connected with the piston rod 98. The piston 118 is thus reciprocated and cream is forced from the chamber 116 through conduit 124 around the check valve 127 and through the discharge conduit 115 into the cup or other receptacle. In the downward movement of the piston the valve 121 closes the port 122 but in the upward movement of the piston the valve moves downwardly forming a vent and thus assisting the upward movement of the piston. The check valve prevents the cream flowing back from the delivery pipe so that a predetermined amount of cream is always discharged therefrom.

Coffee delivering operation.—The rotation of the shaft 42 reciprocates the rack 139, thereby rotating the pinion 141 and the valve stem 142. This causes the port 154 to move into and out of register with the port 153 and the groove 159 is brought into communication with the discharge port 160 so that the coffee or other liquid measured will pass by gravity through the delivery conduit 161. The valve is returned to its initial position and the ports 154 and 153 being brought into register the measuring cup 144 and the groove 159 is again filled with liquid during the next delivery operation.

It will now be apparent that I have devised a novel method of mechanically vending a plurality of liquids, such as for example coffee and cream, although it will be understood that it is within the broad and generic scope of my invention to vend any desired liquids so that upon the deposition of a coin or check of a proper denomination a measured amount of each liquid will be delivered from the apparatus and in case coffee and cream are to be delivered, the parts are so timed that the cream is first delivered into the cup or other receptacle and thereafter the coffee is delivered into the same cup or receptacle. It has been found that by this method the best flavor and bouquet of the coffee is retained.

In accordance with my present invention, I have devised an organized machine in which the different delivering devices are designed for cojoint use but which are capable of being used independently if desired.

Special attention is directed to the novel manner in which the various parts of the mechanism are constructed and assembled so that the mechanism can be taken apart by the use of unskilled labor and the various parts of the mechanism with which the liquid comes into contact may be readily cleansed and sterilized. Attention is also directed to the novel manner in which the parts are thrown into operation and the novel construction of such parts, whereby the mechanism is rendered fool proof and whereby injury to the working parts is prevented in case any parts of the mechanism stick or become clogged.

It will be understood that while in the present instance I have illustrated but a single unit as adapted to be actuated from a main driving shaft that in practice any desired number of such units are employed which are controlled by the main driving shaft and independently operate upon the insertion of a coin of the proper denomination. It will also be apparent that the quantity of fluid delivered may be varied as

desired by employing measuring devices of different capacities so that predetermined amounts of different liquids may be mixed together during the delivering operation.

Attention is also directed to the fact that in my present invention I provide a temperature changing medium for each of the liquids whereby they may be maintained at any desired temperature. Attention is also directed to the novel and simplified construction of the pumping mechanism and the valve mechanism employed.

The valve of the measuring device for the coffee container is preferably timed in such a manner that the measuring cup is empty at the beginning of the operation but is filled after the predetermined movement of the valve stem 142 which causes the port 154 to be brought into register with the port 153 so that the coffee is not discharged until after the cream has been delivered.

It will of course be apparent that the timing of the delivery mechanisms may be varied so that either mechanism may discharge prior to the discharge of the other mechanism or they may be timed so that the liquids are simultaneously delivered from different mechanisms.

It will now be apparent that I have devised a novel and useful method of and apparatus for dispensing liquids which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described a preferred embodiment thereof which will give in practice satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A vending apparatus, comprising a plurality of liquid delivering mechanisms, and means controlling the discharge of measured quantities of liquid from said mechanisms, and means including a cam, a lever actuated thereby, a clutch member controlled by said lever, a second clutch member cooperating with the first clutch member, and a prime mover connected with said second clutch member.

2. A vending apparatus, comprising a plurality of liquid delivering mechanisms, a prime mover and a clutch mechanism forming the connection between said mechanisms and said prime mover, said clutch mechanism including a normally stationary shaft, a clutch member keyed thereon, a second clutch member loosely mounted thereon and connected with said prime mover, an abutment on said shaft for said second clutch member, and a tension device for moving said second clutch member toward said abutment.

3. A vending apparatus, comprising a plurality of liquid delivering mechanisms, a prime mover, and a clutch mechanism forming a connection between said mechanisms and said prime mover, said clutch mechanism including a normally stationary shaft, a clutch member keyed thereon to have relative longitudinal movement therewith, an abutment on said shaft, a second clutch member loosely mounted on said shaft and connected with said prime mover, a tension device to move said second clutch member toward said abutment, and means to maintain said second clutch member away from said abutment when moved therefrom during the operation of the machine.

4. A vending machine, comprising a plurality of liquid containers, means to pump the liquid from one of said containers, means to discharge liquid from the other of said containers by gravity, and a controlling device common to both of said means.

5. A vending machine, comprising a plurality of liquid containers, means to discharge a measured quantity of liquid from one of said containers by placing a pressure on the liquid in such container, means to discharge a measured quantity of liquid from the other of said containers by gravity, and means to automatically control the operation of said means.

6. A vending machine, comprising a liquid container having a discharge port, a rotatable valve controlling said port, a rack intergeared with said valve, a driving shaft, a driven shaft operatively connected with said rack to reciprocate it, a manually actuated handle, a second driven shaft, a second liquid container controlled thereby, and means controlled by said handle to operatively connect said driving shaft with the driven shafts.

7. A vending machine, comprising a liquid container having a discharge port, a rotatable valve controlling said port, a rack intergeared with said valve, a driving shaft, a driven shaft operatively connected with said rack to reciprocate it, a manually actuated handle, a second driven shaft, a second liquid container controlled thereby, and a lever controlled by said handle to operatively connect said driving and driven shafts.

8. A vending machine, comprising a liquid container, a valve controlling discharge of liquid from the container, a driven shaft operatively connected with said valve, a second shaft, clutch members thereon, one member of which is continuously rotated and the other of which is operatively connected with said driven shaft, a lever controlling the engaging and disen-

gaging of said clutch members, means on said driven shaft to actuate said lever, and means to initially rotate said driven shaft.

9. A vending machine, comprising a liquid container, a valve controlling discharge of liquid from the container, a driven shaft operatively connected with said valve, a second shaft, clutch members thereon, one member of which is continuously rotated and the other of which is operatively connected with said driven shaft, a lever controlling the engaging and disengaging of said clutch member, a spring actuated member to lock the continuously rotated clutch member in its adjusted position, means on said driven shaft to actuate said lever, and means to initially rotate said driven shaft.

10. A vending machine, comprising a liquid container, a valve controlling discharge of liquid from the container, a driven shaft operatively connected with said valve, a second shaft, clutch members thereon, one member of which is continuously rotated and the other of which is operatively connected with said driven shaft, a lever controlling the engaging and disengaging of said clutch member, said continuously rotating clutch member having a sleeve with reversely inclined faces, a spring actuated lock member engaging one or the other of said faces to lock the continuously rotated clutch member in its adjusted position, means on said driven shaft to actuate said lever, and means to initially rotate said driven shaft.

11. A vending apparatus, comprising a plurality of liquid delivering mechanisms, a normally stationary shaft for each mechanism and operatively connected with it to control its discharge, a continuously rotating member, a clutch to interlock one of said shafts with said continuously rotating member, one member of said clutch being connected with the other of said shafts, and means controlled by the operator to actuate said clutch to effect the actuation of said normally stationary shafts.

12. A vending machine, comprising a plurality of liquid containers, and means to control discharge of liquid from said containers, and comprising driven shafts which are normally stationary, connecting devices for said driven shafts, a continuously rotating shaft, a clutch, manually controlled means to effect the initial rotation of one of said driven shafts, and devices actuated by said manually controlled means to cause said clutch to interlock the other of said driven shafts with said continuously rotating shaft.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."