Aug. 31, 1948. L. GOTTLIEB 2,448,306

DISCHARGE MANIFOLD FOR BEVERAGE DISPENSING APPARATUS

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Fig. 1.

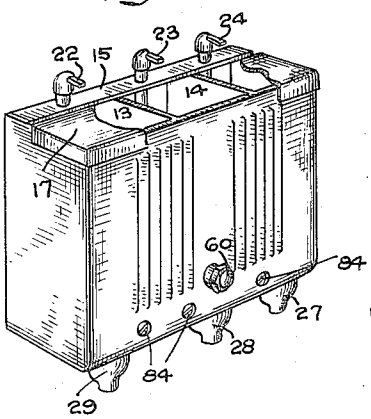


Fig. 2.

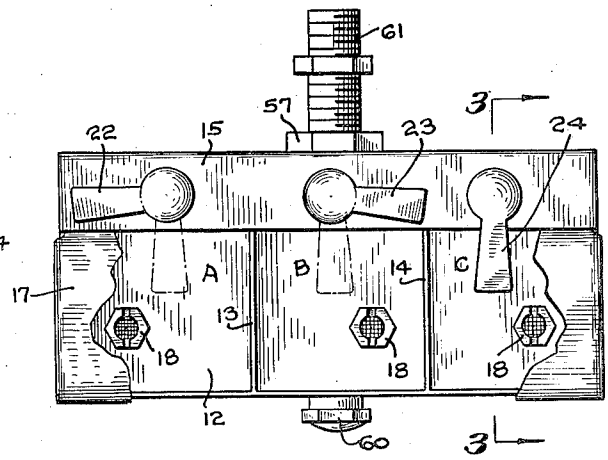


Fig. 3.

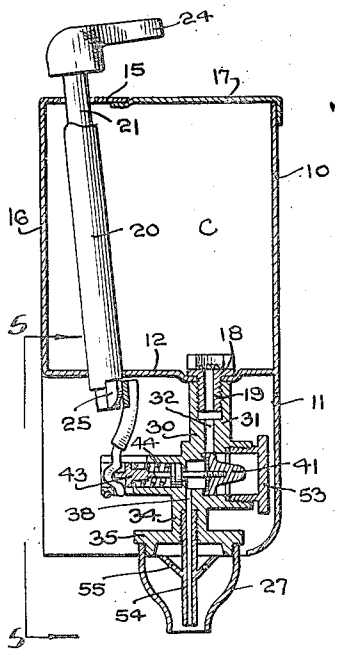
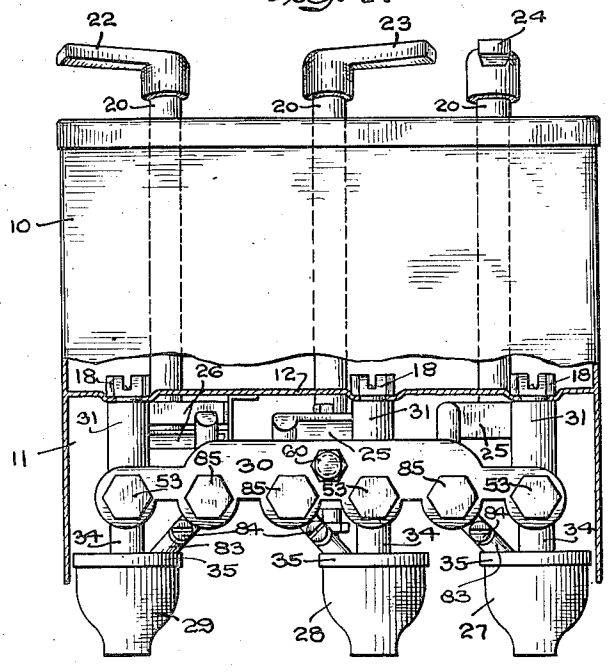


Fig. 4.



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Fig. 5.

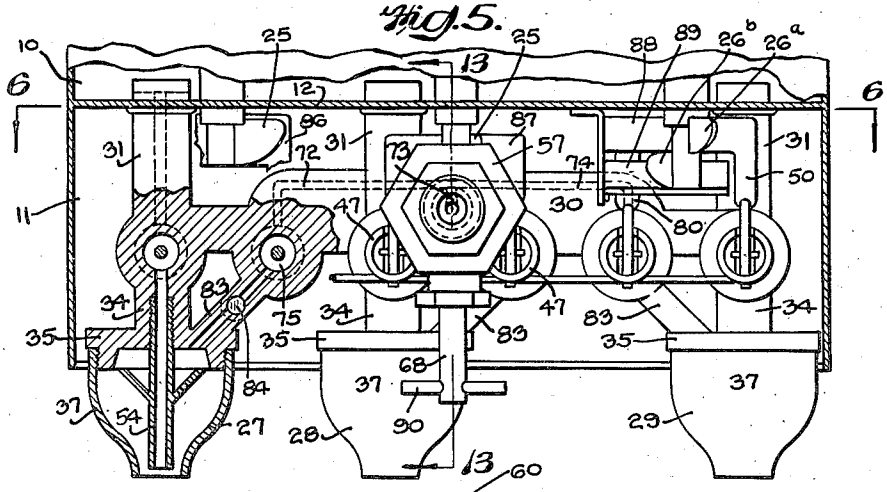


Fig. 6

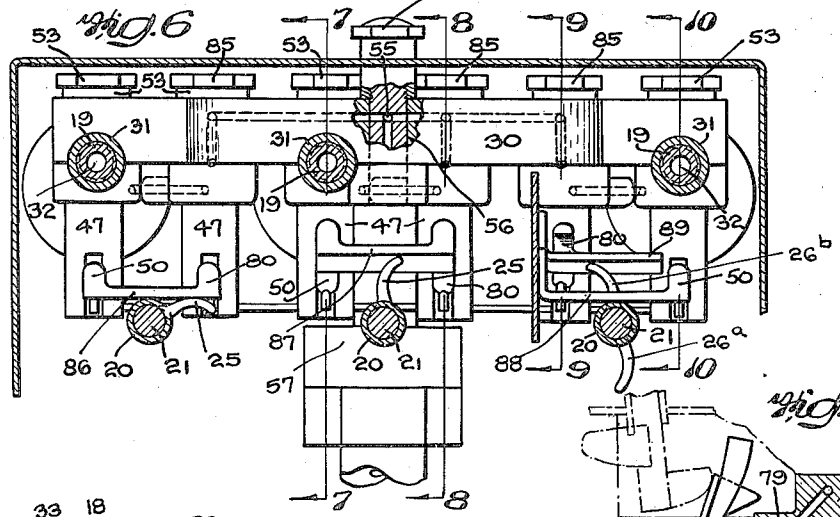


Fig. 9.

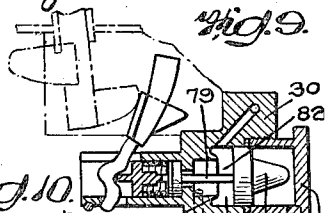


Fig. 10.

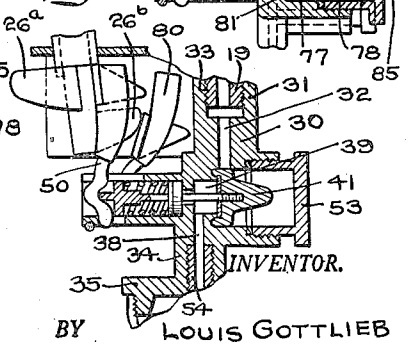


Fig. 7

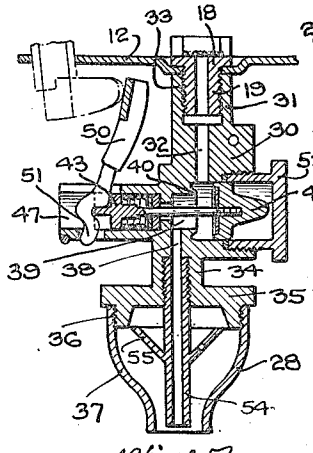
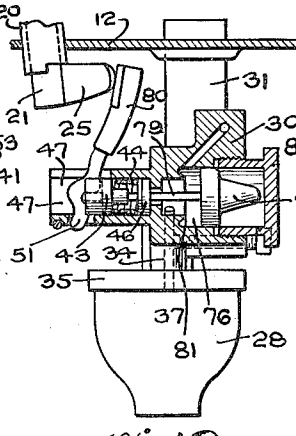


Fig. 8.



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DISCHARGE MANIFOLD FOR BEVERAGE DISPENSING APPARATUS

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Fig. 11.

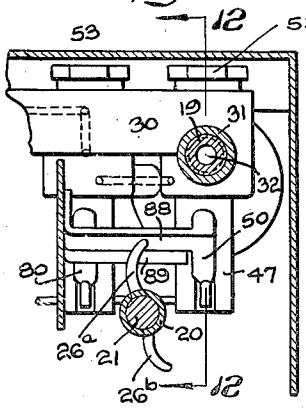


Fig. 12.

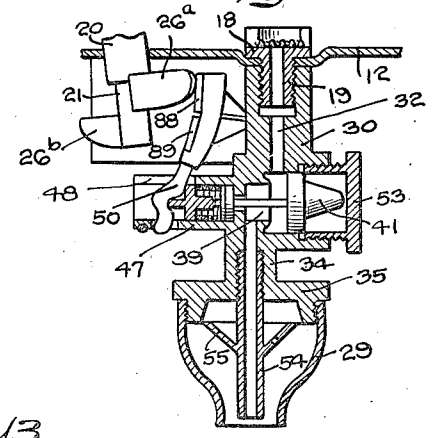


Fig. 13.

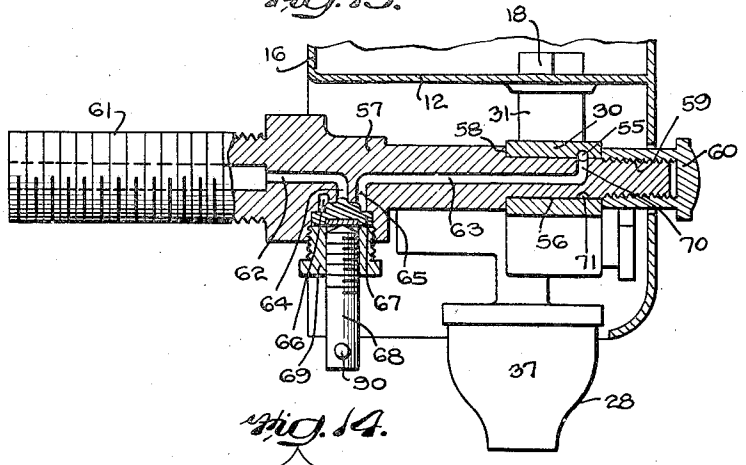
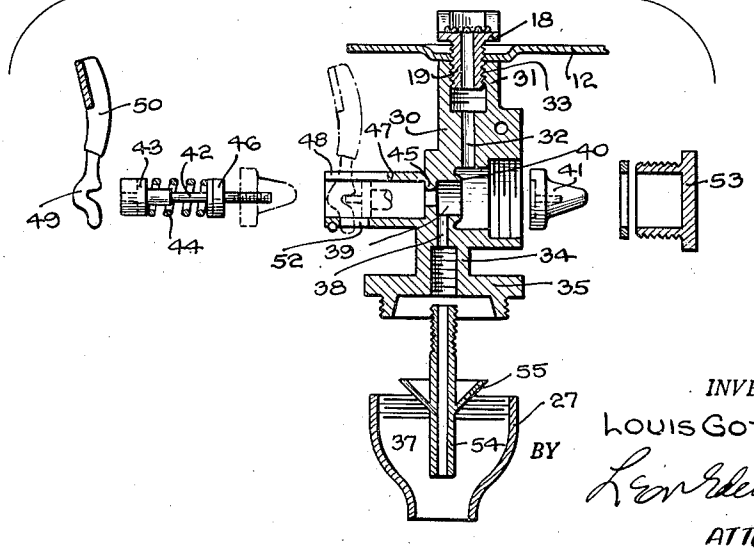


Fig. 14.



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Patented Aug. 31, 1948

2,448,306

UNITED STATES PATENT OFFICE

2,448,306

DISCHARGE MANIFOLD FOR BEVERAGE DISPENSING APPARATUS

Louis Gottlieb, Philadelphia, Pa.

Application April 3, 1947, Serial No. 739,095

10 Claims. (Cl. 225—26)

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This invention relates to soda fountains in general and more particularly to an improved apparatus for selectively dispensing any one of several different kinds of carbonated beverages or the carbonated water itself, the present apparatus being a modification of that shown and described in my copending application Serial No. 569,144, filed December 21, 1944.

Among the general objects of the present invention is to provide a simple, inexpensive and exceedingly compact beverage dispensing apparatus having a novel arrangement of control valves and discharge tubes for the carbonated water and the several flavoring syrups whereby the carbonated water from a single source of supply may be delivered independently of the flavoring syrups or selectively combined with any one of several syrups as desired, the beverage being dispensed in each case by the single manipulation of a selected control valve handle.

More specifically, it is an object of the present invention to provide a single body manifold for the carbonated water, the said manifold body constituting in itself the support for the several valves employed for controlling the delivery of the carbonated water and the several flavoring syrups and being provided with improved means for quick-detachably connecting the apparatus to a conduit leading to a suitable supply of the carbonated water. Thus, the apparatus of the present invention is adapted to be readily connected and disconnected from the supply of carbonated water without the use of any special installation tools and equipment and without necessitating any major structural changes in existing bars and soda fountain counters in which it may be desired to install the apparatus of the present invention.

Other objects and advantages of the present invention will appear more fully hereinafter, it being understood that it consists substantially in the combination, construction, location and general arrangement of parts, all as described in detail hereinafter, as shown in the accompanying drawings and as finally pointed out in the appended claims.

In the said accompanying drawings:

Figure 1 is a perspective view of the beverage dispensing apparatus as constructed in accordance with and embodying the principles of the present invention;

Figure 2 is a top plan view thereof;

Figure 3 is a vertical sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a rear elevational view of the apparatus, showing the outer casing partly broken away to reveal the interior of the apparatus;

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Figure 5 is a view, partly in section, taken along the line 5—5 of Figure 4;

Figure 6 is a view, also partly in section, taken along the line 6—6 of Figure 5;

Figures 7, 8, 9 and 10 are sectional views taken respectively along the lines 7—7, 8—8, 9—9 and 10—10 of Figure 6;

Figure 11 is a view corresponding to the right hand portion of Figure 6 showing the valve actuating mechanism in position to simultaneously open the valves controlling the delivery of carbonated water and a flavoring syrup;

Figure 12 is a vertical sectional view taken along the line 12—12 of Figure 11;

Figure 13 is a vertical sectional view taken along the line 13—13 of Figure 5; and

Figure 14 is an exploded view of the several parts of the assembly shown in Figure 12.

Referring now to the drawings, it will be observed that the beverage dispensing apparatus of the present invention is generally of box-like form, including an upper section 10 in which is contained the several different flavoring syrups for mixture with the carbonated water to produce the desired carbonated beverage, and a lower section 11 in which is contained the several valves and supply tubes for controlling the flow of the carbonated water either alone or in conjunction with a selected syrup with which it is to be mixed. The upper section 10 of the apparatus is in the form of a container having front, rear and side walls and a bottom 12, all formed of sheet metal and joined together to provide a liquid-tight chamber which is interiorly divided, by the partition members 13 and 14, into a plurality of individual syrup compartments A, B and C. The tops of these compartments are partially covered by a top plate 15 which is non-removably secured to the section 10, preferably in the form of a horizontal continuation of the back wall 16 of said section. If desired, the openings in the tops of the compartments A, B and C may be closed by a removable cover plate 17 (see Figures 1, 2 and 3).

The several compartments A, B and C are adapted respectively to receive different flavoring syrups for mixture with carbonated water, each of said compartments being provided with a suitably screened discharge fitting 18 in the base wall 12 thereof for discharge of the syrup from the compartment, this fitting being provided with a threaded shank 19 extending below the base wall 12. Fitted within each of the compartments A, B and C is a vertically extending tubular guide 20

within which is fitted a valve control stem 21, the upper ends of the several stems 21 being respectively provided with the operating handles 22, 23 and 24. It will be noted that the tubular guides 20 for the several valve operating stems extend vertically above and below the fixed top member 15 and the bottom 12 of the upper compartmented section 10 of the unit, the joints between each tubular guide and the said top and bottom members 15 and 12 being rendered liquid-tight, as by soldering or otherwise.

The valve stems 21 within each of the two compartments B and C are respectively fitted at their lower ends with a valve operating element 25 of the general form best shown in Figure 6, while the stem 21 within the compartment A is fitted at its lower end with a double-acting valve operating element 26 of the general form best shown in Figure 11. These valve operating elements 25, 25 and 26 are respectively operated to actuate the valve mechanisms which control the flow of the syrups from the compartments A, B and C as well as those which control the flow of the carbonated water into the liquid mixing heads, designated generally by the reference numerals 27, 28 and 29.

The valve mechanisms just referred to, together with their operating elements 25, 25 and 26, the mixing heads 27, 28 and 29 and other associated parts are compactly disposed within the lower section 11 of the dispensing apparatus. While these last-mentioned parts are generally similar in function to their corresponding parts shown in my copending application above referred to, their operative assembly, as hereinafter described, constitutes an important feature of the present invention.

As appears most clearly in Figures 3 and 4, in the apparatus of the present invention the several control valves for the carbonated water and the different syrups to be dispensed are operatively arranged within a unitary body member 30 which serves the function of a manifold for distributing the carbonated water to one or the other of the mixing heads 27, 28 and 29. This manifold member 30 is preferably in the form of an integral casting having a plurality of laterally spaced upwardly projecting elements 31 each of which is axially bored, as at 32, and interiorly tapped, as at 33, to receive the threaded shanks 19 of the syrup discharge fittings 18 mounted in the base walls of the compartments A, B and C. Thus, the fittings 18 serve to securely mount the manifold member 30 within the lower section 11 of the dispensing unit.

Also formed as integral element of the member 30, as appears most clearly in Figure 14, are a plurality of laterally spaced depending elements 34 each of which latter terminates in a disk-like part 35 to which is threadedly secured, as at 36, a nozzle cap 37. The elements 34 are respectively axially bored, as at 38, for communication, by way of valve passages 39, with the bores 32 in communication with the compartments A, B and C. The valve passages 39 are formed in the body of the manifold member 30 by transversely boring the same to provide for each valve passage a valve seat 40 which is normally maintained closed by a spring-pressed valve 41. Each valve 41 is provided with a rearwardly projecting stem 42, the rear end of which is formed with a flanged enlargement 43 which serves as the rear abutment for a coiled compression spring 44. The forward end of this spring abuts against a gasketed internal flange 45 formed within the body

30, the gasket being designated by the numeral 46. The spring-embraced portion of each valve stem 42 is encased within a tubular element 47 formed as an integral rearwardly extending part of the manifold body 30, the rear end of this element being slotted, as at 48, to receive the notched end 49 of a valve operating lever 50, the toe of which is fulcrumed, as at 51, within an opening 52 provided in the tubular element 47 immediately below the slot 48 thereof. The outer end of the transverse bore housing the spring-pressed valve 41 is closed by a removable plug-like closure member 53 adapted to be threadedly secured in position, it being observed that upon removal of this closure member access may be had to the valve 41 for such repair and replacement thereof as may be necessary.

Operatively associated with each of the depending elements 34 is a syrup discharge tube 54 which is fitted intermediate its length with an upwardly presenting annular flange 55 into which is adapted to be projected the carbonated water for mixing with the flavoring syrup discharged from said tube, the several discharge tubes 54 being each in communication with the compartments A, B and C by way of the bores 32 and 38 and their intercommunicating valve controlled 39. Thus, upon opening one or the other of the valves 41, as shown, for example in Figure 12, syrup contained in the compartments aforesaid may be freely discharged therefrom by way of a discharge tube 54.

In order to project carbonated water upon the flange 55 for mixing with the flavoring syrup discharged from a compartment as above described, the manifold body 30 is internally provided with a series of intercommunicating passages which respectively diverge from a common point 55 (see Figure 13) toward each of the several syrup discharging tubes 54. As appears most clearly in Figures 5, 6 and 13, the manifold body 30 is centrally provided with a transversely extending bore 56 through which is adapted to be removably projected a plug-like member 57 for supplying carbonated water to the dispensing apparatus, this member being formed intermediate of its length with an annular shoulder 58 for abutment against one face of the manifold body and with a threaded extremity 59 adapted to receive a cap nut 60 for securing the member 57 in inoperative association with the manifold body, as best shown in Figure 13.

The rear end of the carbonated water supply fitting member is externally threaded, as at 61, for connection with a supply conduit (not shown) for the carbonated water, the general arrangement being such that the dispensing apparatus may be supported in position by the member 57 when the latter is connected to a relatively fixed supply conduit. The member 57 is provided with a pair of axially extending bores 62 and 63 the proximate ends of which are laterally turned, as at 64 and 65, for common communication with a lateral recess 66 normally occupied by a rubber plug 67 or the like. This plug is normally pressed against the open ends of the lateral passages 64 and 65 to seal the same from one another, as shown in Figure 13, by means of a threaded stem 68 pressing against the plug 67, the stem 68 being carried in a fitting 69 threaded into the body of the member 57. The forward end of the bore 63 is laterally turned, as at 70, to provide a discharge opening for the carbonated water, this opening being in registry with an annular groove 71 formed in the portion of the

member 57 which is embraced by the manifold body 30 (see Figure 13). Thus, it will be apparent that when the stem 68 is backed out of its supporting fitting 69 sufficiently to release the sealing pressure imposed upon the rubber plug 67, the carbonated water supplied to the member 57 under pressure passes freely through the bores 62 and 63 and the lateral port 70 for delivery to the diverging internal passages aforesaid of the manifold body 30.

These diverging passages in the manifold body are most clearly indicated in Figures 5 and 6, wherein they are respectively designated by the reference numerals 72, 73 and 74, these passages being respectively in communication with laterally extending bores 75, 76 and 77 formed in the manifold body, one of these latter bores being disposed adjacent each of the corresponding bores respectively accommodating the valves for controlling the discharge of syrup from the compartments A, B and C. Fitted in each of these bores 75, 76 and 77 is a spring-pressed valve for controlling the supply of carbonated water to the mixing nozzle, this valve being similar in all material respects to that for controlling the supply of syrup as hereinbefore described. Thus, each carbonated water control valve includes, as shown in Figures 8 and 9, a valve body 78 having a spring-pressed stem 79 which is actuated by a fulcrumed valve operating lever 80, the valve body 78 being normally under such bias as to maintain it closed against its seat 81. Figures 8 and 9 show the valve body 78 in open position so as to permit the free passage of carbonated water through the valve passage 82 for discharge upon the upwardly presenting annular flange 55 of the syrup discharge tube, the discharged carbonated water being thus mixed with the syrup within the mixing nozzle for discharge therefrom as a flavored carbonated beverage.

In this connection it will be observed that the carbonated water passing through the valve passage 82 is delivered to the mixing nozzle by way of a suitably bored member 83 formed as an integral extension between the main body portion of the manifold 30 and the disk-like part 35 upon which is threadedly secured the nozzle cap 37, these extensions 83 being each provided with a laterally extending needle valve 84 or the like operative to close off or meter the supply of carbonated water to the mixing nozzle. As in the case of the valves for controlling the supply of syrup, each of the spring-pressed valves for controlling the supplying of carbonated water to the mixing nozzle is enclosed at its outer end by a removable plug-like closure member 85.

As most clearly appears in Figures 5 and 6, the several spring-pressed valve mechanisms hereinbefore described are arranged in closely associated pairs, each pair of such valves including one for controlling the supply of syrup and another for controlling the supply of carbonated water to the mixing nozzle. The means for selectively actuating these spring-pressed valve mechanisms is substantially similar to that described in my copending application aforesaid, Serial No. 569,144. Thus, one pair of operating levers, designed to be commonly actuated by the operating handle 22 disposed above syrup compartment A, are joined together by a plate 86, while the next pair of operating levers, designed to be commonly actuated by the operating handle 23 disposed above syrup compartment B, are similarly joined together by a plate 87. The remaining pair of operating levers, designed to

be selectively actuated by the third operating handle 24 disposed above syrup compartment C, are individually provided with plates 88 and 89, as best shown in Figures 6, 9, 10 and 12, the plate 89 carried by the operating lever 80 (for control of the carbonated water) being of a length terminating short of the lever 50 (for control of the syrup to be discharged from compartment C), while the plate 88 carried by the lever 50 is of a length sufficient to engage the lever 80.

The plates 86 and 87 are respectively adapted for engagement by the actuators 25—25 fixed to the lower ends of the handle-operated stems 21 extending upwardly through compartments A and B, the actuators 25—25 being each in the form of an arcuated wing element extending laterally from the lower end of its supporting stem 21.

The actuator 26, for selectively actuating the separated plates 88 and 89 respectively associated with the third pair of the spring-pressed valves 50 and 80, is of the duplex form best shown in Figures 11 and 12, said actuator having a pair of oppositely extending vertically offset arcuated wing elements 26^a and 26^b respectively adapted to engage the cam plates 88 and 89 carried by the operating levers 50 and 80.

Inasmuch as the function and operation of these actuators 25, 25 and 26 are described in detail in my copending application aforesaid, further detailed description herein is not believed to be necessary beyond pointing out that they all provide for selective discharge of syrup from one or another of the syrup compartments A, B and C simultaneous with delivery of carbonated water to the mixing nozzle from which the desired carbonated beverage is to be dispensed, while the duplex actuator 26 additionally provides for delivery of carbonated water to a mixing nozzle for discharge therefrom in plain state, that is, unmixed with any syrup.

When it is desired to remove the dispensing unit from its mounting, as for purposes of repair, maintenance or servicing of any kind, it is merely necessary to remove the cap nut 60 from the end of the member 57 whereby the entire dispensing unit may be slipped off of said member, the delivery of carbonated water through the latter member from its source of supply (not shown) being, of course, first closed by tightly sealing the rubber plug 67 in position (as shown in Figure 13) to seal the passages 64 and 65 from one another, thereby interrupting the supply of carbonated water to the manifold body 30. The rubber plug 67, in normal operation of the dispenser, is urged away from its sealing seat by the pressure of the carbonated water supplied to the bore 62 of the member 57 and to this end the stem 68 is normally backed out of its supporting fitting 69 by means of an operating handle 90.

By virtue of the fact that the manifold body 30 serves as the support for the several pairs of spring-pressed valves and is itself in the form of a self-contained unit embodying therewithin the several passages for distributing the carbonated water to the several mixing nozzles, it becomes an exceedingly simple matter to operatively assemble the compartmented casing with the manifold. To effect such assembly, it is merely necessary to connect the threaded discharge nipples 18 in the base wall 12 of the main casing to the vertically extending members 31 formed as integral elements of the manifold body, the assembled unit being then readily mounted upon the carbonated water supply member 57 as hereinbefore described.

It will be understood, of course, that the apparatus of the present invention is susceptible of various changes and modifications in the construction and arrangement of its several parts all without departing from the general principles or real spirit of the present invention, and it is accordingly intended to claim the same broadly, as well as specifically, as indicated by the appended claims.

What is claimed as new and useful is:

1. A dispensing apparatus for carbonated beverages comprising, in combination, a container having a plurality of compartments for different syrups, each of said compartments being provided with an indvidual syrup discharge fitting in the base wall thereof, and means for combining carbonated water with the syrup discharged from any one of said compartments to form a carbonated beverage, said means including a manifold body having separate valve controlled passages in respective communication with said syrup discharge fittings and a plurality of valve controlled intercommunicating passages for supply of carbonated water for mixing with a selected discharged syrup, said intercommunicating passages having a common inlet opening into a bore extending transversely of said manifold body, and a supply conduit for the carbonated water removably fitted in said bore, said conduit having a valve controlled passage therethrough terminating in an outlet in registry with said common inlet in the manifold body.

2. In a dispensing apparatus for carbonated beverages, in combination, a container having a plurality of compartments for different syrups, means for controlling the discharge of syrup from any selected one or said compartments and for mixing carbonated water with the discharged syrup, said means including a manifold body having separate valve controlled passages respectively in communication with said compartments and a plurality of internal passages through which carbonated water is delivered for mixing with a selected discharged syrup, said internal passages being interconnected to provide a common inlet opening into a bore extending transversely of said manifold body, and a supply conduit for the carbonated water removably fitted in said bore, said conduit having a valve controlled passage therethrough terminating in an outlet in registry with said common inlet in the manifold body.

3. In a dispensing apparatus for carbonated beverages, in combination, a container having a plurality of compartments for different syrups, a carbonated water mainfold body disposed immediately below said compartments, said manifold body being provided with a plurality of laterally spaced pairs of oppositely projecting tubular bosses and internal recesses interconnecting the bores of each pair of said bosses, tubular means interconnecting the bosses projecting from one side of said manifold body to the base walls of said compartments, said tubular means and each pair of oppositely projecting bosses providing a continuous passage for discharge of syrup from a compartment, externally controlled valve means disposed in each of said recesses for controlling the discharge of syrup through said continuous passage, and means for delivering carbonated water through said manifold body from a common source of supply for selective mixing with one or the other of the syrups discharged from said compartments.

4. In a dispensing apparatus for carbonated beverages, in combination, a container having a plurality of compartments for different syrups, a carbonated water manifold body disposed immediately below said compartments, said manifold body being provided with a plurality of laterally spaced upwardly presenting tubular bosses, means interconnecting the bosses to the base walls of said compartments with the bores of said bosses in communication with the interiors of said compartments, a plurality of syrup discharge members respectively in communication with the bores of said tubular bosses, a plurality of internal passages in said manifold body respectively extending from a common inlet to carbonated water discharge members closely associated with said syrup discharge members, said inlet being in communication with a bore extending transversely of said manifold body, and an adaptor removably disposed in said transversely extending bore having a passage therethrough for delivering carbonated water to said common inlet.

5. In a dispensing apparatus for carbonated beverages, in combination, a container having a plurality of compartments for different syrups, a carbonated water manifold body disposed immediately below said compartments, said manifold body being provided with a plurality of laterally spaced upwardly presenting tubular bosses, means interconnecting the bosses to the base walls of said compartments with the bores of said bosses in communication with the interiors of said compartments, a plurality of syrup discharge members respectively in communication with the bores of said tubular bosses, a plurality of carbonated water discharge members respectively closely associated with said syrup discharge members, said discharge members for the carbonated water being formed integrally with said manifold body, and means for delivering carbonated water selectively to said carbonated water discharge members.

6. In a dispensing apparatus for carbonated beverages, in combination, a container having a plurality of compartments for different syrups, a carbonated water manifold body disposed immediately below said compartments, said manifold body being provided with a plurality of laterally spaced upwardly presenting tubular bosses, means interconnecting the bosses to the base walls of said compartments with the bores of said bosses in communication with the interiors of said compartments, a plurality of syrup discharge members respectively in communication with the bores of said tubular bosses, a plurality of carbonated water discharge members respectively closely associated with said syrup discharge members, said discharge members for the carbonated water being formed integrally with said manifold body, and means for delivering carbonated water selectively to said carbonated water discharge members, said last-mentioned means including a plurality of internal passages within said manifold body respectively communicating with said carbonated water discharge members and merging at a common inlet connected to a carbonated water supply.

7. In a dispensing apparatus for carbonated beverages, a manifold body for distributing carbonated water for mixing with a selected syrup, said body including a plurality of laterally spaced syrup delivery passages each terminating in a depending discharge tube and a plurality of interconnected internal carbonated water delivery passages each terminating in a discharge tube

closely associated with one of said syrup discharge tubes, and means for delivering carbonated water commonly to said interconnected passages from an external source of supply, all of said discharge tubes being formed as integral parts of said manifold body.

8. In a dispensing apparatus for carbonated beverages, a manifold body for distributing carbonated water for mixing with a selected syrup, said body including a plurality of laterally spaced syrup delivery passages each terminating in a depending discharge tube and a plurality of interconnected internal carbonated water delivery passages each terminating in a discharge tube closely associated with one of said syrup discharge tubes, and means for delivering carbonated water commonly to said interconnected passages from an external source of supply, all of said discharge tubes being formed as integral parts of said manifold body, said last-mentioned means including a removable adaptor extending transversely through the manifold body and having a passage therethrough terminating in an outlet adapted for registry with said internal passages at their point of interconnection.

9. In a dispensing apparatus for carbonated beverages, a manifold body for distributing carbonated water for mixing with a selected syrup, said body including a plurality of laterally spaced syrup delivery passages each terminating in a depending discharge tube and a plurality of interconnected internal carbonated water delivery

passages each terminating in a discharge tube closely associated with one of said syrup discharge tubes, means for delivering carbonated water commonly to said interconnected passages from an external source of supply, all of said discharge tubes being formed as integral parts of said manifold body, said last-mentioned means including a removable adaptor extending transversely through the manifold body and having a passage therethrough terminating in an outlet adapted for registry with said internal passages at their point of interconnection, and externally operable valve means in said adaptor for interrupting the delivery of carbonated water through the adaptor passage.

10. In a dispensing apparatus for carbonated beverages, a manifold body for distributing carbonated water for mixing with a selected syrup, said body including a plurality of laterally spaced syrup delivery passages each terminating in a depending discharge tube and a plurality of interconnected internal carbonated water delivery passages each terminating in a discharge tube closely associated with one of said syrup discharge tubes, means for delivering carbonated water commonly to said interconnected passages from an external source of supply, all of said discharge tubes being formed as integral parts of said manifold body, and means in each of said carbonated water discharge tubes for metering the delivery of carbonated water therethrough.

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