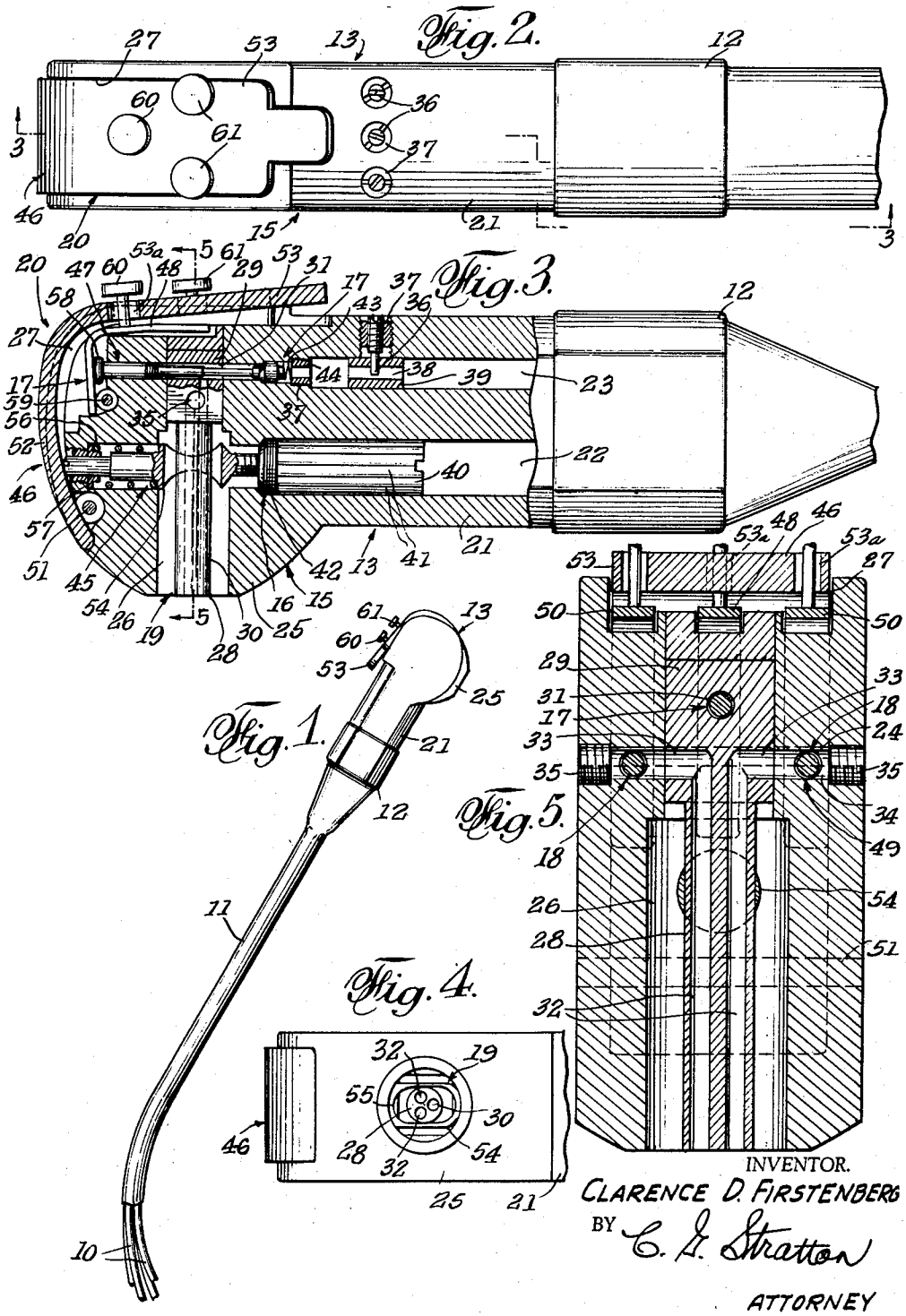
May 24, 1960 C. D. FIRSTENBERG 2,937,792

SODA DISPENSING DEVICE

Filed March 10, 1958




INVENTOR.
CLARENCE D. FIRSTENBERG
BY C. A. Stratton
ATTORNEY

United States Patent Office 2,937,792 Patented May 24, 1960



2,937,792

# SODA DISPENSING DEVICE

Clarence D. Firstenberg, 2796 Sunset Blvd., Los Angeles 26, Calif.

Filed Mar. 10, 1958, Ser. No. 720,450

5 Claims. (Cl. 222—144.5)

This invention relates to a device for dispensing soda (carbonated water), either flavored or unflavored, as desired.

An object of the present invention is to provide a soda dispenser adapted for use at soda fountains and at bars that constitutes a single valve-controlled device to dispense soda alone, or with one of a plurality of syrups, or with more than one such syrup.

Another object of the invention is to provide a dispensing device in the form of a hand-graspable head and connected to sources of soda and syrup, whereby dispensing therefrom into a plurality of containers is greatly facilitated.

A further object of the invention is to dispense soda and syrup from a single and unitary head and to join such soda and syrup only after the same is dispensed rather than within the head. In this manner, intermixing of flavors within the head is obviated.

A still further object of the invention is to provide a dispensing head. The inlet for soda and syrup is on one side of a dispensing axis and the controls instituting flow of such soda and syrup are on the opposite side or end of the head with respect to the dispensing axis, thereby providing an arrangement enabling easy facility of operation.

A yet further object of the invention is to provide a soda dispenser that embodies a novel pressure-compensating valve for the soda to smoothen the operation of the soda valve of the dispenser.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceablity.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawing merely shows and the following description merely describes, one embodiment of the present invention, which is given by way of illustration or example only.

In the drawing, like reference characters designate similar parts in the several views.

Fig. 1 is a small scale and broken side elevational view of the present soda dispensing head and a portion of the flow tubes that supply the same.

Fig. 2 is an enlarged top plan view of said head.

Fig. 3 is a longitudinal sectional view as taken on the line 3—3 of Fig. 2.

Fig. 4 is a broken plan view as seen from the bottom of Fig. 3.

Fig. 5 is an enlarged cross-sectional view as taken on the line 5—5 of Fig. 3.

With particular reference to Fig. 1, a set of liquid-passing tubes 10 is shown enclosed in a sheath 11 to constitute an elongated flexible member that terminates in an enlarged hood part 12. A dispensing head 13 is



connected to said tubes 10 and the hood part 12 of the sheath constitutes a socket into which the head is fitted.

In this case, four tubes 10 are shown—one to conduct soda (carbonated water) to the head, and the other three to each conduct a different syrup to said head. It will be realized that said tubes are separately connected to their sources of liquid and that pressure is used on said sources to force the liquid into the head.

The head 13 that is illustrated comprises, generally, a housing body 15, a soda dispensing valve 16 within said body, a centrally arranged syrup dispensing valve 17 within said head, two similar syrup dispensing valves 18 also generally similar to the valve 17, a dispensing means 19 for the soda and/or the syrup flowing past said valves, and a controller 20 for said valves and adapted to be actuated by the fingers of the hand that grasps the body 15.

The body may be molded or machined as desired of a metal or one of the rigid plastics. Regardless how made, the same is formed to have a handle 21 over which the hood part 12 of the sheath 11 is slipped and to which the tubes 10 are connected. Said handle is provided with an enlarged soda passage 22 midway between the sides of the handle, a smaller syrup passage 23 above the passage 22, and two smaller laterally arranged passages 24. As can be seen in Fig. 5, the passage arrangement is symmetrical and is generally cruciform.

At its end opposite to the handle 21, the body 15 is provided with a preferably spherical extension 25 in which is formed a flow passage 26 that intersects the passage 22 and is somewhat larger diametrally than said passage 22. The edge of the head opposite extension 25 and the end thereof is suitably provided with grooves 27 to house the controller 20.

While made as a separate part, a tube 28 constitutes a fixed concentric extension within the passage 26 and is affixed to the body by a tight fit of its squared end 29 in a squared seat provided in the body. The tube 28 reduces the passage 26 to an annulus. A longitudinal bore 30 in tube 28 intersects a transverse bore 31 and the latter is aligned with the passage 23 so that flow from the latter may exit from the end of the bore 30. By making the tube 28 to be at least flush with the end of body extension 25, or somewhat over-flush, such flow passes outwardly from the head beyond the annular passage 26. In somewhat the same manner two other bores 32 in tube 28 each terminate at intersecting bores 33. The latter, in turn, connect with aligned bores 34 in the body (see Fig. 5), the passages 24 each intersecting one of the latter bores 34. Plugs 35 cap the bores 34 which, necessarily, must be drilled from the outside.

It will be clear from the above that each of the three syrup passages 23 and 24 has a separate means of exit to the end of tube 28 wholly independent of the flow passage 26. The flow in each said passage may be controlled as to amount by a restriction member 36 carried by a bushing 37 in the handle and extending adjustably in the flow port 38 of a nipple 39 in each passage 23 and 24.

The soda dispensing valve 16 is shown as a flow restrictor 40 disposed in passage 22 and formed with outer longitudinal grooves 41 that reduce the effective size of the flow in passage 22. A valve 42 normally closes the flow in said passage and the same, together with the restrictor 40, is located in the handle on one side of the head.

The syrup dispensing valve 17 is also located on the handle side of the head between the nipple 39 and the end 29 of the syrup-passing tube 28. As seen in Fig. 3, the valve 17 is located in a restriction of passage 23, is backed by a spring 43 held abutted by a spring retainer 44. The syrup dispensing valves 18 are similar to the valves 17 and their independent illustration has been omitted for this reason. The same normally stop flow

in passages 24 in the same way that valve 17 stops flow in passage 23.

The syrup dispensing means 19 has already been described in connection with the body 15, the same comprising the tube 28, its squared end 29 and the passages therein.

The controller 20 for said valves 16, 17 and 18 comprises, generally, a balanced valve operator 45 for the valve 16, a trigger arm 46 to actuate said operator, an operator 47 for the valve 17, a trigger arm 48 to actuate the operator 47, an operator 49 for each of the valves 18, and a trigger arm 50 to actuate the operator 49.

As can be seen in Figs. 3 and 5, the trigger arm 46 encloses the trigger arms 48 and 50 and, therefore, overstands the same. The arm 46 is mounted on a pivot 51, has a part 52 that curves over the end of the head, and a forwardly extending part 53 that constitutes the actuation portion of the arm. As can be seen, also, said arm is housed in groove 27 formed therefor in the body of the head. The actuation or handle part 53 of said arm 46 is provided with three slots 53*a* (see Fig. 5).

Said arm 46 is arranged to engage the valve operator 45 which is connected to valve 16, to operate the same, by a spider 54 through which the tube 28 extends and which spans across the passage 26. The elongated slot 55 in said spider allows shifting operation and also passage of soda therethrough. A spring 56 is devised for biasing the valve 16 to open position but the same is ordinarily ineffective to open said valve against the pressure of the carbonic gas in passage 22. However, this spring may be so adjusted by a follower 57 that but a small pressure on the trigger arm 46 is needed to be added to the force of the spring 56 to effect an effortless and smooth opening of the valve 16. It will be noted that the arm 46 is formed to have a power advantage so that finger pressure on the handle end 53 will produce successful operation.

The operator 47 extends through the bore 31 of the tube end 29 and through aligned bores that are extensions of passage 23. An operating head 58 is provided on the protruding end of said operator 47. The arm 48 is engaged with said head 58 in much the same way that the arm 46 is engaged with the operator 45. Thus, by moving said arm 48 on its pivot 59, the valve 17 may be opened from the end of the head body that is opposite to the inlet passage 23. An actuator button 60 is provided on said arm 48, the same having a stem extending through one of the slots 53*a* provided in the arm 46.

The operators 49 for the valves 18 are controlled by the arms 50 in much the same way as described for operator 47 and arm 48. Actuator buttons 61 are provided on each arm 50 and the arrangement of buttons is substantially as shown in Fig. 2, the buttons being larger than the slots in arm 46 so as to interengage the arm 46 when any button is depressed.

By providing clearance between arm 46 and each arm 48 and 50, the soda valve 16 may be opened to dispense soda without causing actuation of the valves 17 and 18. Hence, syrupless soda may be dispensed by depressing only the arm 46. If one of the syrups is desired to be dispensed together with the soda, that button 60 or 61 controlling the flow of the desired syrup is pressed, causing the handle 53 to be depressed without depressing the other buttons. Now, a flow of syrup from one of the bores 30 or 32 will join the annular stream of soda at or slightly beyond the extension 25 of the head. Two or even three syrups may be dispensed simultaneously. Adjustment of the control means 20 will provide the type of operation desired.

While the foregoing specification illustrates and describes what I now contemplate to be the best mode of carrying out my invention, the construction is, of course, subject to modification without departing from the spirit and scope of my invention. Therefore, I do not desire to restrict the invention to the particular form of construction illustrated and described, but desire to cover all modifications that may fall within the scope of the appended claims.

Having thus described my invention, what is claimed and desired to be secured by Letters Patent is:

1. A soda dispensing device comprising a plurality of liquid-passing tubes each adapted to be connected at one end to a separate supply source, said tubes being flexible and arranged coextensively, a dispensing head connected to the other ends of the tubes, said head having a passage therein in communication with each tube, a valve controlling flow in each passage, an outlet in said head for liquid moving past the valves, said outlet comprising a member provided with bores and having said bores connected to some of said passages beyond the valves controlling the same, said head having a bore in which said member is disposed and which is in communication with one of the passages, a separate actuator for each valve, and means interengaging one actuator with the others whereby operation of one of said others operates said one actuator.

2. A soda dispensing head having a main inlet passage and a plurality of smaller inlet passages all in parallelism, an outlet passage intersecting the main passage, a member concentrically disposed in said outlet passage and cross-sectionally smaller than said outlet passage to define an annular space into which the inlet passage discharges flow, a plurality of outlet bores in said member each in communication with the smaller inlet passages, a valve controlling flow in each inlet passage and on the inlet side of the outlet passage and bores, respectively, a controller for each valve and extending beyond the outlet passage and bores, a main actuator for the controller of the valve for the main passage, separate actuators for the other valves, and means inter-engaging each of the separate actuators with the main actuator, whereby operation of any one of the actuators causes operation of the main actuator.

3. A soda dispensing head according to claim 2 in which each actuator comprises an arm pivotally carried by the head, the arms of the separate actuators overstanding the main arm.

4. A soda dispensing head according to claim 2 in which each actuator comprises an arm pivotally carried by the head, the arms of the separate actuator overstanding the main arm, the latter having slots therein, and a button extending from each separate actuator through said slots and in position to be pressed from the outside of the main arm to effect individual actuation of the separate arms.

5. A soda dispensing device comprising four liquid-passing tubes each adapted to be connected at one end to a separate supply source, said tubes being flexible and arranged coextensively, a dispensing head connected to the other ends of the tubes, said head having a passage therein in communication with each tube, a valve controlling flow in each passage, an outlet in said head for liquid moving past the valves, said outlet comprising a member provided with bores and having said bores connected to some of said passages beyond the valve controlling the same, said head having a bore in which said member is disposed and which is in communication with one of the passages, a first actuator for one of said valves, a separate actuator for each of the other valves, and means interconnecting each of the other valve actuators with the first actuator whereby operation of any one of the other actuators causes operation of the first actuator.

**References Cited in the file of this patent**

UNITED STATES PATENTS

2,675,018 Hudson et al. ---------- Apr. 13, 1954