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R. T. CORNELIUS ET AL

2,619,387

BEVERAGE MIXING AND DISPENSING DEVICE

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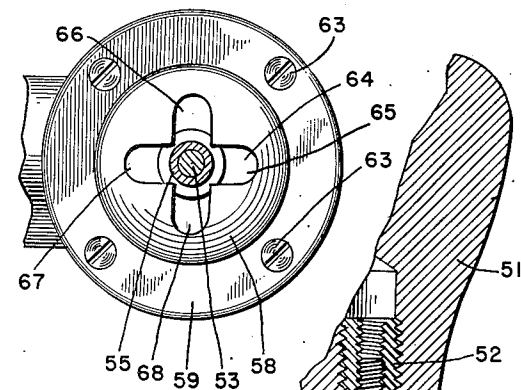


FIG. 2

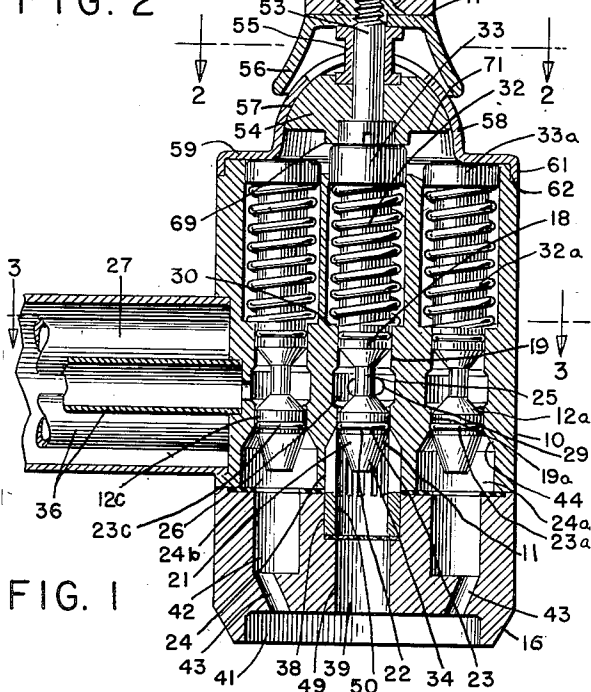


FIG. 1

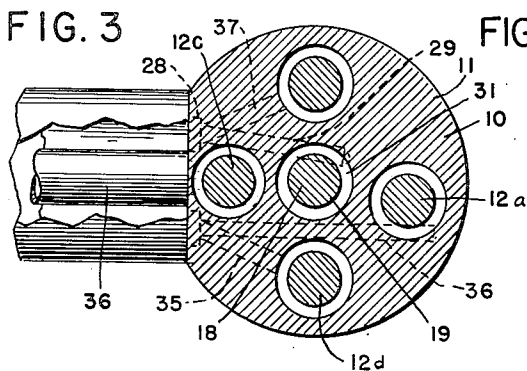
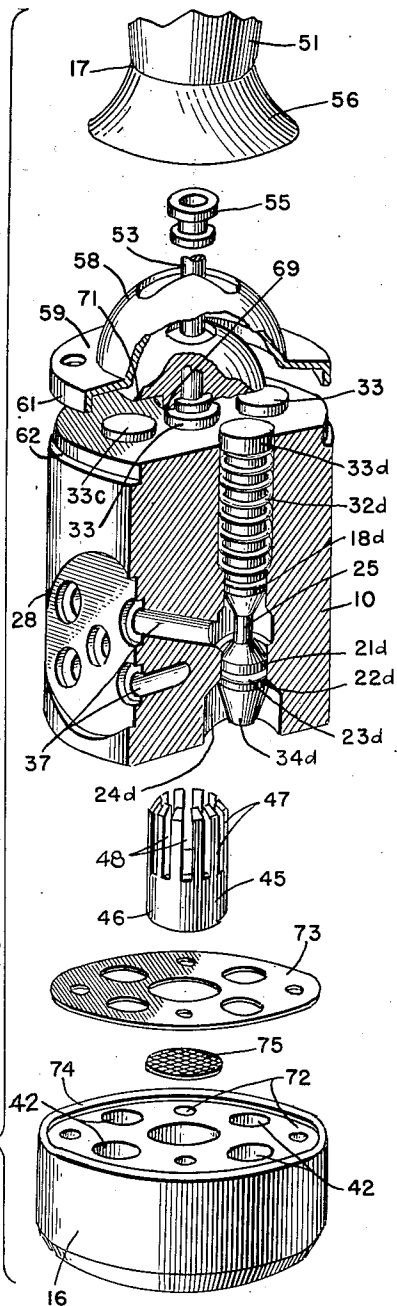


FIG. 3

FIG. 4



INVENTORS
RICHARD T. CORNELIUS AND
NELSON F. CORNELIUS
BY *Caswell Lagaard*
ATTORNEYS

UNITED STATES PATENT OFFICE

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BEVERAGE MIXING AND DISPENSING
DEVICERichard T. Cornelius, Minneapolis, and Nelson F.
Cornelius, Robbinsdale, Minn.

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11 Claims. (Cl. 299-143)

1

Our invention relates to beverage mixing and dispensing devices and has for an object to provide a device whereby any of several different drinks may be mixed and dispensed from a single device.

Another object of our invention resides in providing a construction having a lever provided with a handle adapted to be moved in different directions and by means of which a different drink may be dispensed when the handle is moved in each of said directions.

An object of our invention resides in constructing the device with a body having an inner valve substantially centrally in the body for controlling the flow of carbonated water and with outer valves encircling the inner valve and controlling the flow of syrups.

A still further object of our invention resides in providing a construction in which the operating handle always operates the central valve regardless of the direction of movement of the handle and in which movement of the handle in any of a number of directions will cause operation of one only of the outer valves.

Another object of our invention resides in providing guide means for guiding the handle for movement to operate one only of the outer valves at a time.

An object of our invention resides in utilizing for the inner valve a valve member having a ring movable in a bore of the body and in further providing a cage having a bore forming a continuation of the bore of the body, said cage being provided with space bars forming passageways therebetween and through which the liquid entering the valve may pass in being discharged from the device.

A further object of our invention resides in constructing the device with a cap having a conical socket and the operating lever with a head mounted for swinging movement in said socket and formed with means for operating the valves.

Another object of our invention resides in providing a nozzle on the body detachable therefrom and containing discharge passageways therein communicating with passageways in the valves and in further arranging said passageways so that the passageways in said nozzle for the outer valves are directed toward the axis of the passageway for the inner valve.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

2

In the drawing:

Fig. 1 is a side elevational sectional view taken through the center of a mixing and dispensing device illustrating an embodiment of my invention.

Fig. 2 is a plan sectional view taken on line 2-2 of Fig. 1.

Fig. 3 is a plan sectional view taken on line 3-3 of Fig. 1.

Fig. 4 is a perspective view of the parts of the invention detached from one another and illustrating certain of the parts in section.

In the dispensing of soft drinks, it has been found highly economical to mix the drinks at the soda fountain by running streams of suitable syrups and carbonated water directly into the drinking glass. The usual practice has been to provide separate dispensing devices for each drink to be served. This greatly limits the number of different drinks possible of being served at a fountain. The instant invention provides a construction whereby four different drinks may be independently mixed and served at the fountain with a single device and by merely moving the operating handle in one of four different directions.

Our invention comprises a valve body 10, in which is mounted an inner valve 11 and four outer valves 12a, 12b, 12c and 12d. The body 10 has attached to it a discharge nozzle 16 from which streams of syrup and carbonated water are discharged and mixed as the same enter the glass. For operating the device, a lever 17 is employed which is mounted on the body 10, and which when moved in different directions, operates the required valves and causes a stream of any desired syrup and a stream of carbonated water to flow from the nozzle.

The body 10 is preferably cylindrical in form and is constructed so that the valves 11, 12a, 12b, 12c and 12d are arranged in directions parallel with the axis of the body, the valve 11 being arranged in the center of the said body and the valves 12a, 12b etc., encircling the valve 11.

The valve 11 comprises a valve stem 18 which is slidably mounted in a bore 19 formed in the body 10. Said valve stem is constructed at its lower end with a valve member 21 formed with a groove 22 and in which is disposed a resilient ring 23 of any suitable flexible material. This ring engages the wall of the bore 19 and forms a fluid tight connection for the said valve member. The bore 19 at the lower end of the same is provided with an enlargement 24 and into which the valve member 21 is projected when the valve is opened.

3

This enlargement allows the fluid to pass around the valve member 21 and to be discharged from the valve. The valve member 21 is constructed with a tip 34 preferably conical in shape for facilitating the passage of the liquid about said valve member and for the discharge of the same from the device. The valve stem 18 has a reduced section 25 and the bore 19 is enlarged at the locality of this section to provide a valve chamber 26. A tube 27 is brazed in a socket 28 formed in the body 10 and a hole 29 is drilled in said body which communicates with the bore of the tube 27 and the chamber 26. The upper end of the bore 19 is enlarged to provide a section 31 of greater dimensions than the bore proper indicated at 19. This section of the bore receives a compression coil spring 32 which is seated at its lower end against a shoulder 30 formed at the juncture between the bore 19 and the bore section 31 and is further seated at its other end against a button 33 formed on the upper end of the valve stem 18. This button is cylindrical in form and is guided for movement within the bore section 31. By means of this construction, the valve stem 18 is guided for vertical movement to permit of the valve member 21 being moved into the enlargement 24 of bore 19.

The valves 12a, 12b, 12c and 12d are similar to the valve 11 and the description of the same will not be repeated. The corresponding parts thereof will, however, be designated by the same reference numerals as used to designate the corresponding parts of the valve 11 and to which the subscripts a, b, c, e, d will be added. The valve chambers 26a, 26b etc., of the valves 12a, 12b etc., communicate with passageway 35 similar to the passageway 29 which further communicate with the tubes 36 brazed to the body 10. The tubes 36 are connected to receptacles for the syrups to be used with the invention and which may be fed to the device by gravity or by pressure if found desirable. Similarly, the tube 27 is connected to a source of carbonated water.

The nozzle 16 is cylindrical in form and conforms to the shape of the body 10 being disposed at the lower end of the same. The nozzle 16 is attached to the body 10 by means of screws, not shown, and which pass through openings 72 in the said nozzle and are screwed into the body 10. To prevent leakage between the body and the said nozzle, a gasket is employed which is seated in a recess 74 in the nozzle 16 and which engages the upper surface of said nozzle and the under surface of the body 10. This nozzle has a number of cavities 42 adapted to register with the enlargement 34a, 34b etc., of the bores of the valves 12a, 12b etc. The said nozzle also has a bore 38 which forms a continuation of the enlargement 24 of the bore of the valve 11. The bore 38 has a discharge passageway 39 in alignment with the bore 19 of valve 11 and which discharges into a cylindrical chamber 41 at the lower end of said nozzle open at its lower end. The cavities 42 are connected by means of passageways 43 with the chamber 41. These passageways are arranged in converging relationship and are directed toward the axis of the passageway 39 so that any of the streams of syrup flowing from the same intersect the stream of carbonated water flowing through the passageways 39 thereby causing mixing of the syrup and carbonated water as the same are discharged into the drinking glass.

For directing the rings 23a into the bores 19a etc., the walls of the enlargements 24a, 24b etc., are formed conical as indicated at 44. Where

4

syrups are being dispensed through the valves, the rings 23a etc., are readily brought back into the bores by means of such surfaces. However, with the carbonated water, the valves occasionally stick, and to prevent this, I employed a cylindrical cage 45 best shown in Fig. 4, which has a base portion 46 formed with spaced bars 47 extending upwardly therefrom. These bars form passageways 48 therebetween. The cage 45 is inserted into the enlargement 24 of bore 19 and is also received in the bore 38 of nozzle 16. The inner surface 50 of this cage lies in continuation of the surface of bore 19. Between the end of the cage 45 and the end of the bore 38 is disposed a circular piece of wire screen 75 which serves as a strainer for straining the carbonated water leaving the device.

The lever 17 consists of a handle 51 which has a threaded insert 52 adapted to receive the threaded end of a screw 53. The lever 17 further includes a spherical head 54 through which the screw 53 extends. The said screw passes through a spacer 55 which is seated against the head 54 and which is also seated against the inner surface of a skirt 56 projecting downwardly from the lower end of the handle 51. By means of this construction, the head 54, spacer 55 and skirt 56 are all clamped to the handle 51. The head 54 is received in a spherical socket 57 formed in a cap 58 mounted on the upper end of the body 10. This cap has a plate-like portion 59 which rests upon the upper end of the body 10 and which has a depending flange 61 received in an annular rabbet 62 formed in the upper end of the body 10. The cap 58 is attached to the body 10 by means of screws 63 which extend through the plate-like portion 59 and are screwed into the body 10. The cap 58 has an opening 64 in the same and in which the spacer 55 is disposed. This opening has four branches 65, 66, 67 and 68 which all intersect one another and which form guides for the handle 51 for movement in predetermined directions. The head 54 is formed with a cam member 69 which rests upon the button 33. This cam member is annular in form and when the lever 17 is moved by swinging the handle 51 along any of the branches 65, 66, 67 or 68 of the opening 64, the said cam member shifts said button 33 downwardly and opens the valve 11. The head 54 also has an annular cam member 71 at the outermost edge of the same which when handle 51 moves along any of the branches of the opening 64 engages one of the buttons 33a etc., and opens the valve of which said button forms a part. The spring 32 of valve 31 holds the head 54 in engagement with the socket 57 while the springs 32a etc., hold the buttons 23a in engagement with the undersurface of the plate-like portion 59 of cap 58. When the parts are disposed in normal position, as shown in Fig. 1, all of the valves are closed.

In the use of the invention, receptacles for syrups of different flavors are connected to the various tubes 36 and carbonated water under pressure is connected to the tube 27. When it is desired to dispense a beverage of a certain flavor, handle 51 is moved in a manner causing the spacer 55 to travel along the branch of the opening 64 directed toward the valve controlling the flow of syrup of the desired flavor. As the lever 17 is so moved by handle 51, both the valve 11 and the proper valve of the valves 12a etc., are operated, causing streams of carbonated water and syrup to be simultaneously discharged from the nozzle 16. The stream of syrup being directed

toward the stream of carbonated water is mixed prior to entry into the drinking glass and when received in the glass, is further mixed by agitation therein. Upon release of the handle 51, spring 32 forces the handle back into normal position as shown in Fig. 1.

The advantages of the invention are manifest. The device is extremely simple in construction and can be manufactured at a nominal cost. By the use of the particular valves employed, the valves will remain tight for a long time. When looseness occurs, new rings are inserted and the device will continue to function. With our invention, a single dispensing device can be used to dispense a number of different drinks thereby requiring less counter space for the number of drinks served and at the same time reducing the complication of the apparatus.

Changes in the specific form of our invention, as herein described, may be made within the scope of what is claimed without departing from the spirit of our invention.

Having described our invention, what we claim as new and desire to protect by letters patent is:

1. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, an operating lever movably supported on said body and having operating means for operating said inner valve and other operating means for concurrently operating any of said outer valves upon operation of said inner valve.

2. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, a cap secured to said body and having a spherical socket, a lever having a head mounted in said socket and guided for swinging movement with respect thereto, cam means on said head for operating said inner valve and other cam means on said head for operating said outer valves.

3. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways, communicating with the passageways of said outer valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, said inner valve comprising a valve stem having a valve member provided with an annular flexible ring, said body having a bore in which said ring is movable, said bore at its end having an enlargement, a cage mounted in said enlargement and having a bore forming a con-

tinuation of said bore of the body and into which said ring is projected when the valve is open, said cage comprising a plurality of spaced bars forming passageways therebetween and through which the liquid entering the passageway of the valve may flow when leaving the valve and entering inner passageway of the nozzle.

4. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, said inner valve comprising a valve stem having a valve member provided with an annular flexible ring, said body having a bore in which said ring is movable, said bore at its end having an enlargement, a cage mounted in said enlargement and having a bore forming a continuation of said bore of the body and into which said ring is projected when the valve is open, said cage comprising a plurality of spaced bars forming passageways therebetween and through which the liquid entering the passageway of the valve may flow when leaving the valve and entering the inner passageway of the nozzle, said nozzle having an enlargement of said inner passageway and said cage being adapted to extend beyond said body and entering said enlargement for centering the nozzle relative to the body.

5. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer valve, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, said inner valve comprising a valve stem having a valve member provided with an annular flexible ring, said body having a bore in which said ring is movable, said bore at its end having an enlargement, a cage mounted in said enlargement and having a bore forming a continuation of said bore of the body and into which said ring is projected when the valve is open, said cage comprising a plurality of spaced bars forming passageways therebetween and through which the liquid entering the passageway of the valve may flow when leaving the valve and entering the inner passageway of the nozzle, said nozzle having an enlargement of said inner passageway and said cage being adapted to extend beyond said body and entering said enlargement for centering the nozzle relative to the body, and a strainer in said nozzle seated against the end of said cage.

6. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway

7

of said nozzle, said valves including valve stems with valve members adapted to close said passageways, a button on the end of each of said valve stems, a cap attached to said body and disposed about said buttons, said cap having a spherical surface whose center lies along the axis of the inner valve stem, a lever having a head mounted for oscillation in said socket, cam means on said head for engagement with the button of the inner valve and other cam means on said head for engagement with the other buttons.

7. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, said valves including valve stems with valve members adapted to close said passageways, a button on the end of each of said valve stems, a cap attached to said body and disposed about said buttons, said cap having a spherical surface whose center lies along the axis of the inner valve stem, a lever having a head mounted for oscillation in said socket, cam means on said head for engagement with the button of the inner valve and other cam means on said head for engagement with the other buttons, said second cam means being spaced from the buttons of the outer valves to procure coordinated opening of said inner valve and any of the outer valves upon movement of the handle to its extreme position.

8. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, said valves including valve stems with valve members adapted to close said passageways, a button on the end of each of said valve stem, a cap attached to said body and disposed about said buttons, said cap having a spherical surface whose center lies along the axis of the inner valve stem, a lever having a head mounted for oscillation in said socket, an annular shoulder on said head adapted to engage the button of the inner valve and to reciprocate the valve stem thereof to open said valve upon movement of the lever in any direction and a second annular shoulder on said head adapted to engage the buttons of the valve stems of any of the outer valves and to reciprocate the valve stem of any of said outer valves when the lever is moved in the proper direction.

9. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer

8

valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, said valves including valve stems with valve members adapted to close said passageways, a button on the end of each of said valve stems, a cap attached to said body and disposed about said buttons, said cap having a spherical surface whose center lies along the axis of the inner valve stem, a lever having a head mounted for oscillation in said socket, an annular shoulder on said head concentrically disposed with reference to the button on the inner valve stem and adapted to engage the marginal portion of said button to depress the valve stem and open the valve upon movement of said lever in any of a number of directions, a second annular shoulder on said head adapted to engage the buttons of the valve stems of any of the outer valves and to simultaneously reciprocate the inner valve stem and the valve stem of any of the outer valves when the lever is moved in the proper direction.

10. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, said valves including valve stems with valve members adapted to close said passageways, a button on the end of each of said valve stems, a cap attached to said body and disposed about said buttons, said cap having a spherical surface whose center lies along the axis of the inner valve stem, a lever having a head mounted for oscillation in said socket, said head and the inner button having juxtaposed concentric annular portions normally in engagement throughout their circular extent, said portions causing reciprocation of the inner valve stem upon movement of said lever in any direction to open the inner valve, a second annular portion on said head adapted to engage the buttons of the valve stems of any of the outer valves and to simultaneously reciprocate the inner valve stem and the valve stem of any of the outer valves when the lever is moved in the proper direction.

11. In a beverage mixing and dispensing device, a body, an inner valve mounted in said body and having a passageway therethrough, a plurality of outer valves encircling said inner valve, and having passageways therethrough, a nozzle on said body, said nozzle having an inner discharge passageway communicating with the passageway of said inner valve and outer passageways communicating with the passageways of said outer valves, the outer passageways of said nozzle being directed toward the axis of the inner passageway of said nozzle, said valve including valve stems with valve members adapted to close said passageways, a button on the end of each of said valve stems, a cap attached to said body and disposed about said buttons, said cap having a concave spherical surface facing said buttons and whose center lies along the axis of the inner valve stem, a lever having a ball-shaped head mounted for oscillation in said socket, said head and the inner button having juxtaposed concentric annular portions normally

in engagement throughout their circular extent, said portions causing reciprocation of the inner valve stem upon movement of said lever in any direction, to open the inner valve, a second annular portion on said head adapted to engage the buttons of the valve stems of any of the outer valves and to simultaneously reciprocate the inner valve stem and the valve stem of any of the outer valves when the lever is moved in the proper direction, a spring acting against said inner valve button and urging said button outwardly to bring said inner valve member into closing position and to urge said head toward said socket.

RICHARD T. CORNELIUS. 15
NELSON F. CORNELIUS.

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