# United States Patent

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[54] **AEROSOL DUAL DISPENSING SHUTOFF VALVE ADAPTED TO DISPENSE A PLURALITY OF FLUIDS FROM SEPARATE SOURCES AND TO SHUT OFF AUTOMATICALLY UPON THE DEPLETION OF ONE OF THE SOURCES**
**8 Claims, 8 Drawing Figs.**


[52] **U.S. Cl.** ..... **222/66,** 222/135, 222/335, 222/402.24, 239/304, 137/111
[51] **Int. Cl.** ..... **B65d 83/00**
[50] **Field of Search** ..... 222/66, 135, 145, 335, 402.24; 239/304, 413, 414, 415, 417.5; 137/111, 114, (Inquired)



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**ABSTRACT:** An aerosol dual-dispensing shutoff valve adapted to dispense a plurality of separate fluids from separate sources through a common outlet; said valve having automatic shutoff valves sensitive to the respective separate fluid sources, whereby said valves may respond automatically to shutoff all of said sources from said outlet when any one of said sources is substantially depleted.

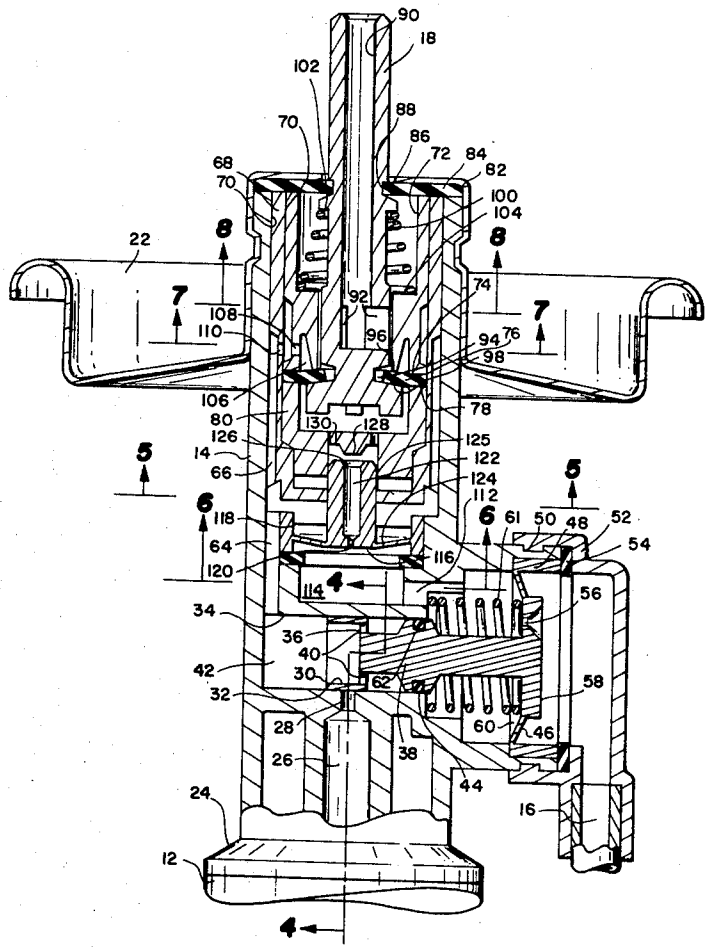



FIG. 1.

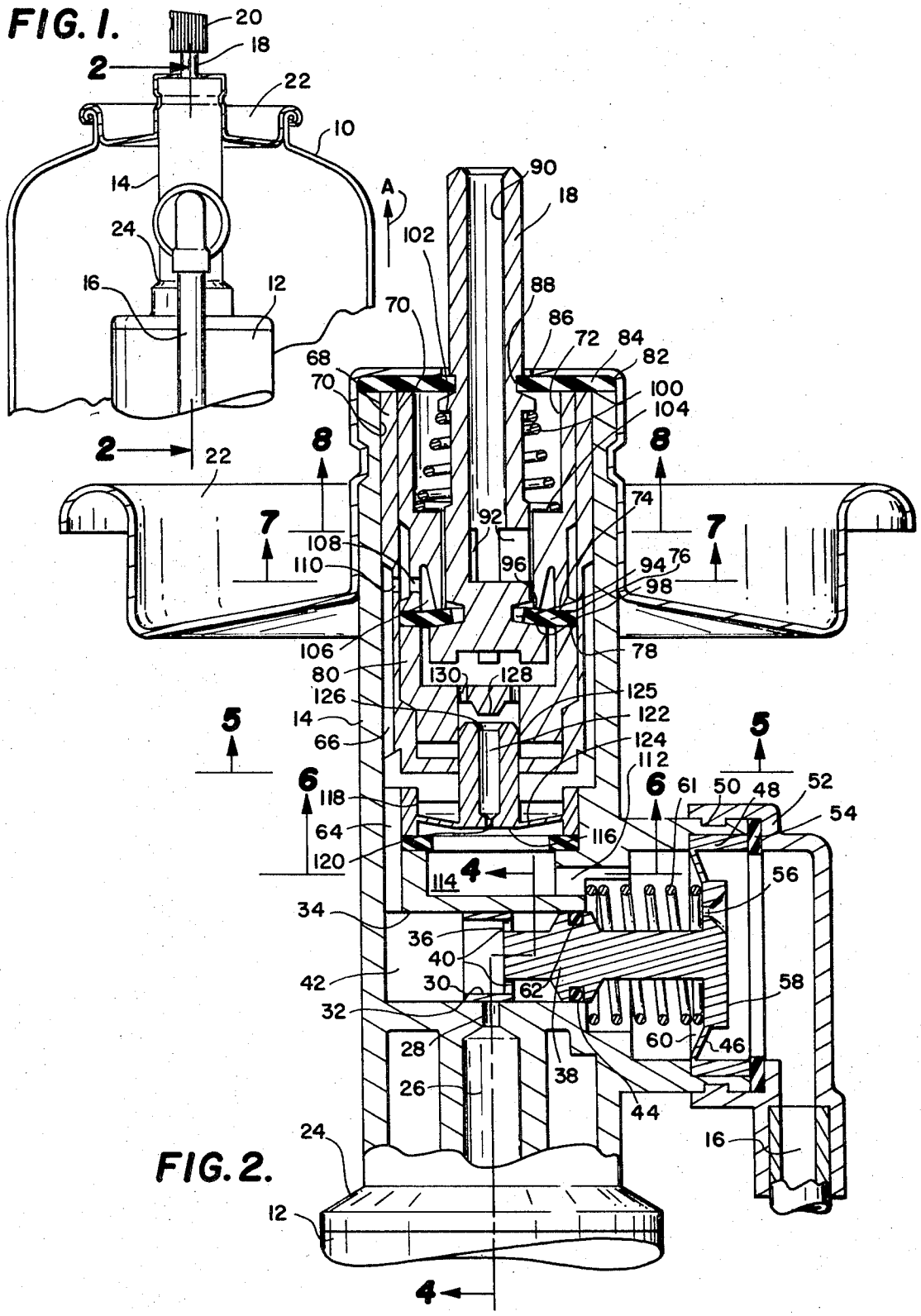

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FIG. 2.

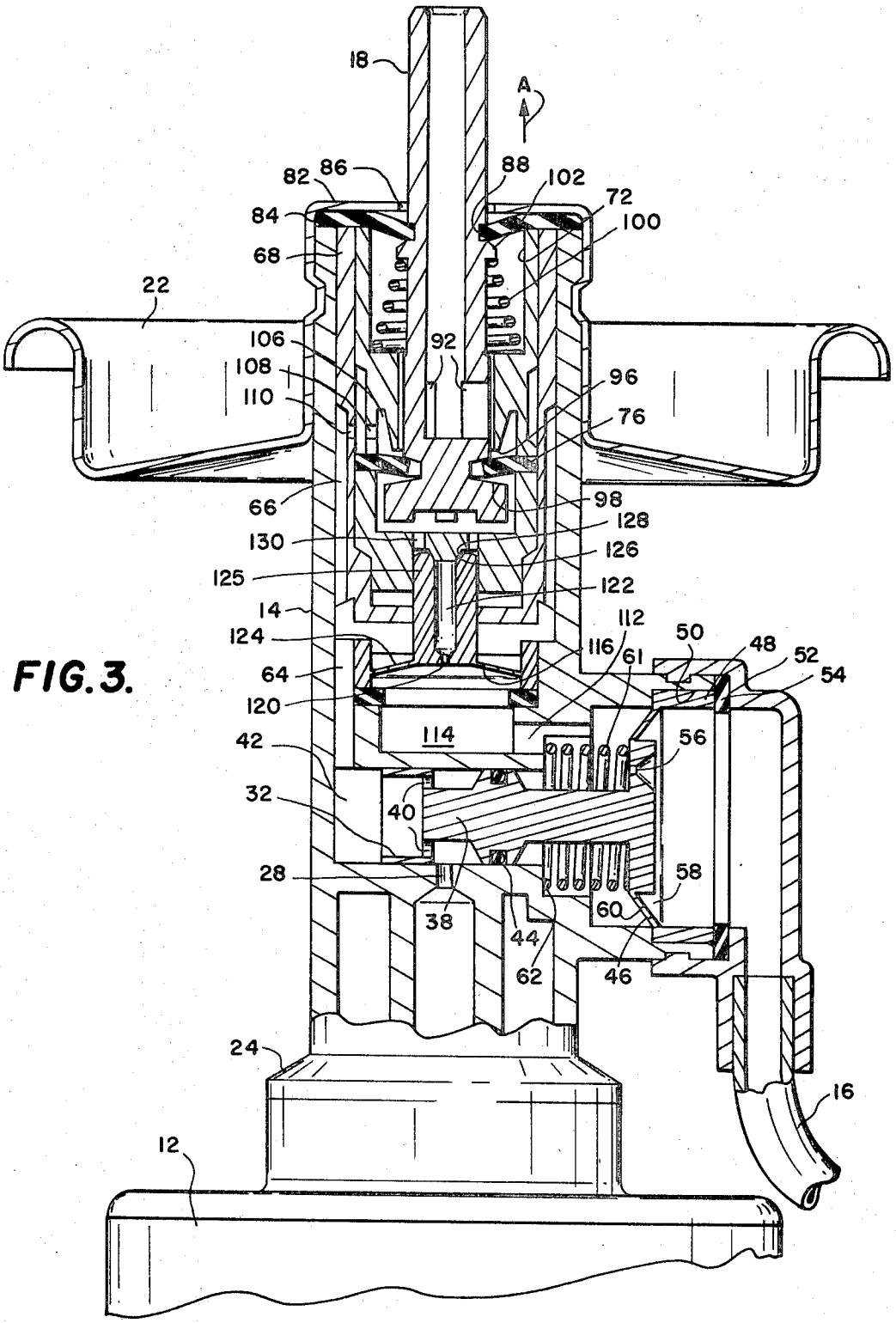

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FIG. 3.

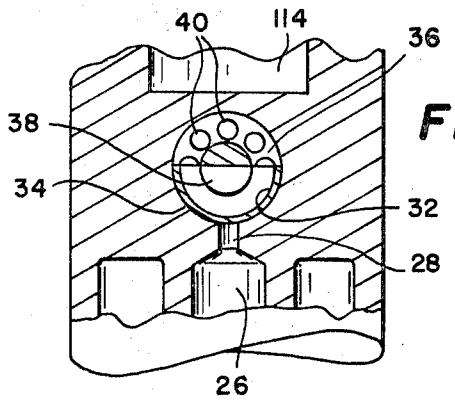



FIG. 4.

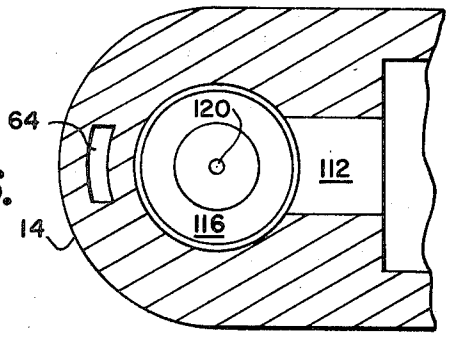



FIG. 6.

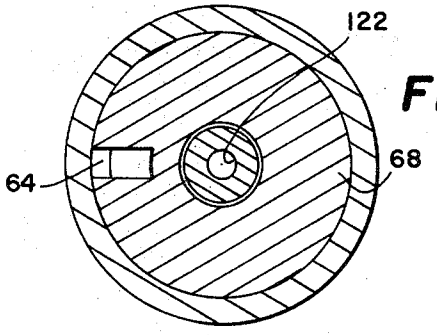



FIG. 5.

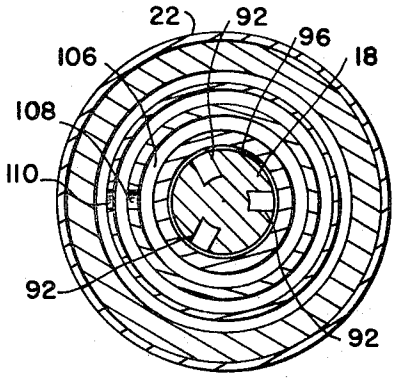



FIG. 7.

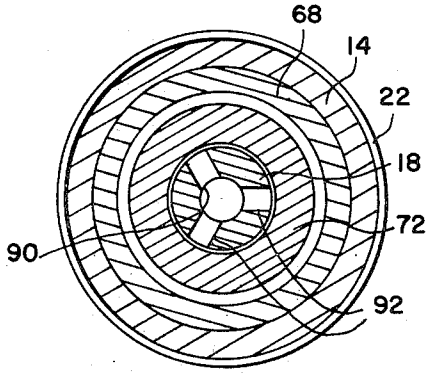



FIG. 8.

# AEROSOL DUAL DISPENSING SHUTOFF VALVE ADAPTED TO DISPENSE A PLURALITY OF FLUIDS FROM SEPARATE SOURCES AND TO SHUT OFF AUTOMATICALLY UPON THE DEPLETION OF ONE OF THE SOURCES

## BACKGROUND OF THE INVENTION

Aerosol dual-dispensing shutoff valves have been utilized in connection with the dispensation of a plurality of fluids from container means, and through a common outlet. Such dispensation has included various reactive materials, such as those used to produce hot-foam shave lather or oxidation hair dye, or the like.

Various products which concurrently dispense a plurality of fluids and mix them to attain a chemical reaction, and an end product at the outlet of the valve, may function dangerously in the event any one of the reactive fluids is dispensed singly, and therefore the operation of prior art valves has posed a problem with relation to the dual dispensing and mixing of reactive chemicals to attain an end product at the outlet of the respective aerosol valve.

Aerosol containers for such purposes may include a plurality of compartments or a collapsible bag inside a substantially rigid container, and the substantially rigid container may hold one fluid while the collapsible bag holds another, and a vaporizing propellent fluid, in the rigid container and surrounding the collapsible container, may result in the pressurization of both fluids in the substantially rigid container and the collapsible container.

Accordingly, since both fluids are pressurized, and in the event any one of the fluids might be harmful if dispensed singly, it is imperative that the substantial depletion or exhaustion of either of the fluids from the respective sources in the container means dictates that the mechanism of the respective dispensing valve be capable of shutting off both fluids from the valve-dispensing outlet in the event of substantial depletion or exhaustion of either of such fluids. In the case of oxidation hair dye, for example, the materials, used in the separate fluid sources to react chemically preliminary to the passage of such fluids from the outlet of the valve, may be harmful if either of the fluids is dispensed individually onto a person's hair or skin.

It will be obvious, to those skilled in the art, that many other products may be produced by chemical reaction of a plurality of fluids as they are dispensed from a valve in connection with a dual-compartmented aerosol container.

It will also be recognized that valve mechanisms for use in aerosol containers must be quite compact, as well as being economical to produce and assemble.

## SUMMARY OF THE INVENTION

The present invention relates to an aerosol dual-dispensing shutoff valve adapted concurrently to dispense a plurality of relatively reactive products of materials therethrough to produce such end products, from the outlet of the valve, as hot-foam shave lather, oxidation hair dyes, or other products in which reactive materials must be brought together preliminary to dispensing such materials from the outlet of the valve to produce an end product.

Specifically, the invention comprises a novel combination of fluid-actuated shutoff valves which communicate with a plurality of sources of fluid, under pressure; said shutoff valves cooperatively arranged in order that each shutoff valve communicating with each source of fluid will automatically shutoff in response to the depletion or exhaustion of any one of said fluid sources, whereby the dispensing valve of the invention will not dispense any individual fluid from any individual source within an aerosol container in connection therewith.

The dual-dispensing shutoff valve of the invention employs a novel shutoff valve actuating means which is responsive to both the flow of liquid and gasifying aerosol-propellent material, such that a pressure differential exists across a movable



actuating member of the said shutoff valve when liquid flows through an orifice associated therewith, and said pressure differential automatically changes when the liquid is exhausted and when a gas of the gasifying propellent fluid flows through said orifice, whereby said change in pressure differential causes said shutoff valve of the invention to be actuated.

Another novel combination of the invention includes a plurality of automatic shutoff valves responsive to a plurality of individual pressurized fluid sources, and whereby the actuation of either of said valves influences the actuation of the other of said valves so that in the event either source of fluid becomes substantially depleted or exhausted, one of the valves responds thereto and causes closing or actuation of both of said valves, so that in a dual-dispensing system, according to the invention, both fluid sources are shutoff in the event either source becomes substantially depleted or exhausted.

Another novel combination of the invention relates to an aerosol dual-dispensing automatic shutoff valve, wherein a plurality of automatic shutoff valves are responsive to a plurality of fluids issuing from a plurality of fluid sources to a manually operable dispensing valve having two valve passages associated respectively with the sources communication with said shutoff valves, and wherein novel pressure-differential controlling orifices, related to the respective sources and respective shutoff valves, provide for pressure-differential operation of the shutoff valves in response to operation of the manually operable dispensing valve of the invention.

Another object of the invention is to provide an aerosol dual-dispensing shutoff valve which is particularly safe for use in dispensing a plurality of relatively dangerous chemicals from a plurality of sources and for mixing the chemicals and dispensing them through a common outlet to render a useful product which is not dangerous.

A further object of the invention is to provide an aerosol dual-dispensing shutoff valve having a pair of cooperatively operable shutoff valves in series with a pair of manually operable valve means, and wherein one of the shutoff valves is operable in response to liquid flowing from one source, and wherein the other shutoff valve is responsive to liquid from another source, and subsequently, responsive to gas from a gasifying propellent in said other source automatically to create a pressure-differential change when liquid of said other source is substantially exhausted, and when gas from said gasifying propellent flows relative to the valve mechanism of the invention.

Further objects and advantages of the invention may be apparent from the following specification, appended claims, and accompanying drawings:

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary sectional view of a multiple fluid compartment aerosol container and showing an aerosol dual-dispensing shutoff valve installed in connection therewith, and in accordance with the present invention;

FIG. 2 is an enlarged fragmentary sectional view taken from the line 2–2 of FIG. 1;

FIG. 3 is a view similar to FIG. 2, but showing mechanism of the aerosol dual-dispensing shutoff valve of the invention in different operative position;

FIG. 4 is a fragmentary sectional view taken from the line 4–4 of FIG. 2;

FIG. 5 is a sectional view taken from the line 5–5 of FIG. 2;

FIG. 6 is a fragmentary sectional view taken from the line 6–6 of FIG. 2;

FIG. 7 is a sectional view taken from the line 7–7 of FIG. 2; and

FIG. 8 is a sectional view taken from the line 8–8 of FIG. 2.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

As shown in FIG. 1 of the drawings, the invention is utilized in connection with an aerosol container 10 which is a substantially rigid container preferably made of metal, or the like. This container 10 is adapted to contain a liquid and a gasifying aerosol-propellent fluid of conventional material, the propellent fluid being capable of causing pressure inside the container 10 and the pressure acts externally on an inner collapsible container 12. This container 12 may be made of flexible plastic, or the like, and is adapted to contain a liquid therein. The flexible and collapsible container 12 is carried by a valve housing 14 of the invention and the valve housing 14 carries a dip tube 16 which is adapted to reach to the normally lower extremity at the interior of the container 10, as will be hereinafter described.

The container 10 thus carries one source of pressurized fluid therein, and this source is disposed externally of the container 12, and the interior of the container 12 carries another source of fluid, and both sources thus communicate with valve mechanism internally of the housing 14, as will be hereinafter described in detail.

The source of fluid in the container 10 is adapted to be conducted through the dip tube 16 into the valve housing 14, all as will be hereinafter described in detail.

Disposed in the valve housing 14 is a hollow fluid-conducting outlet conduit or stem 18 having a dispenser head 20 mounted thereon. The dispenser head 20 is adapted to move the conduit or stem 18 axially to actuate the manually operable dispensing valve mechanism of the invention which is contained in the housing 14, all as will be hereinafter described in detail.

As shown in FIG. 2 of the drawings, the valve housing 14 of the invention is carried in a conventional manner by a cap 22 of the container 10, and a lower end portion 24 of the housing 14 is enlarged and carries the collapsible container 12.

It will be understood by those skilled in the art that the dispensation and production of aerosol hot-foam shave lathers or oxidation hair dyes may pose several problems and dangers due to the fact that these products, when dispensed, are sued directly upon a person's face or hair, and that the materials individually contained in the container 10 and the container 12 are reactive with each other to produce the product, but when dispensed individually, may be very harmful or dangerous. Accordingly, the valve mechanism of the invention is adapted automatically to shut off flow of both the sources of material in the container 10 and the container 12 when either source is in a condition of substantial depletion or exhaustion. Thus, the mechanism of the valve of the invention effectively prevents dangerous individual dispensation of fluids from either source in the container 10 or the container 12.

As shown in FIG. 2 of the drawings, the valve housing is provided with a passage 26 which communicates with the interior of the collapsible container 12 and a source of fluid therein. This passage 26 terminates in an orifice 28 controlled by an automatic shutoff valve 30. This shutoff valve 30, as shown in FIG. 4, is provided with a circular sleeve 32 operable in a circular bore 34 of the housing 14, and thus the sleeve 32 is adapted to shut off flow of fluid from the passage 26 through the orifice 28.

The sleeve 32 is a hollow cylindrical sleeve having an integral disc-shaped end portion 36 which is integral with a stem 38. Surrounding the stem 38 are passage openings 40 in the end 36. These passage openings 40 are adapted to allow flow from the orifice 28 into a chamber area 42 when the sleeve 32 is in the open position, as shown in FIG. 3 of the drawings.

The stem 38 is provided with an enlarged portion having an external groove carrying an O-ring 44 which sealingly and slidingly engages the bore 34 in the housing 14.

Integral with the stem 38 is a flexible diaphragm structure 46 having a cylindrical sleevelike peripheral mounting portion 48 which is held in a bore portion 50 of the housing 14 by means of a cap 52 and a resilient seal gasket 54, all as shown best in FIG. 2 of the drawings.

The diaphragm structure 46 is provided with a flow orifice 56 extending from one side 58 to the opposite side 60 thereof. This orifice 56 is adapted to conduct either liquid or gaseous fluid, as will be hereinafter described.

A compression spring 61 is engaged with the side 60 of the diaphragm structure 46, and the opposite end of the spring abuts a shoulder 62 in the housing 14 thereby tending to move the diaphragm structure 46 into the position, as shown in FIG. 2 of the drawings, wherein the sleeve 32 of the shutoff valve maintains the orifice 28 is closed condition.

The chamber 42 communicates with a passage 64 in the housing 14.

This passage 64 also communicates with a passage 66 in a dispensing valve housing member 68. This housing member 68 is fitted into an internal bore 70 of the housing 14, and the dispensing valve housing member 68 is provided with an internal bore 70 in which a hollow cylindrical valve seat member 72 is disposed. This member 72 is provided with an inner end portion 74 engaged compressively against the perimeter of a flexible valve element 76 which is oppositely engaged by an end 78 of a generally cup-shaped member 80 so that the flexible valve element 76 is held in fixed position in the housing 14 by means of a portion 82 of the cap 22. This portion 82 being engaged with a gasket 84 internally thereof which abuts outer adjacent ends of the valve housing 14, the dispensing valve housing member 68 and the corresponding outer end of the member 72.

The end portion 82 of the cap 22 is provided with an opening 86 through which the hollow dispensing and actuating stem member 18 extends.

The gasket 84 is provided with a central opening 88 sealingly engaged with the periphery of the member 18, and this member 18 is provided with a bore 90 which communicates with radially disposed slots 92 in the sidewall of the bore 90 near the normally lower end of the stem 18.

The resilient valve member 76 is provided with a central opening 94 which normally communicates with the slots 92, and the valve seat member 72 is provided with an annular seat portion 96 surrounding said opening 94 and said slots 92, and one side of the resilient valve member 76 is is engaged with the annular seat portion 96 which is opposed by a seat portion 98 of the stem 18.

A spring 100 engages a shoulder 102 on the stem 18 and a shoulder 104 in the valve member 72. This spring 100 being a compression spring and tending to force the stem 18 in a direction of an arrow A to cause the valve seat portion 98 compressively to engage the resilient valve member 76 and force it sealingly against the annular seat portion 96.

The valve seat member 72 is provided with an annulus 106 which surrounds the annular seat portion 96 and communicating with this annulus is an orifice 108 which communicates with another orifice 110 extending through the sidewall of the valve housing 68 and communicating with the passage 66 which communicates with the passage 64 and the chamber 42, hereinbefore described. Thus, one source of fluid in the collapsible container 12 communicates through the passage 26, orifice 28, openings 40, chamber 42, passage 64, passage 66, orifice 110, orifice 108, the annulus 106, and with the flexible valve element 76. Thus, this source of fluid communicates with a manually operable dispensing valve mechanism of the invention at one side of the flexible valve element 76.

A source of liquid and gasifying aerosol propellent is contained in the container 10, as hereinbefore described, and said liquid, under pressure, may travel up the dip tube 16 and into the cap 52 and to one side 58 of the diaphragm 46. Initially liquid passes up through the dip tube 16 and through the orifice 56 and through a passage 112 and into a chamber 114 at one side 116 of the flexible diaphragm structure 118. This flexible diaphragm structure 118 is provided with a central orifice 120 which communicates with an enlarged bore

portion 122 in a hollow cylindrical shutoff valve stem which is integral with the diaphragm structure 116.

The orifice 120 is sized relative to the orifice 56 to maintain a pressure differential across the diaphragm 46.

The passage 64, as hereinbefore described, communicates with one side of the diaphragm 118, opposite to that facing the chamber 114, and a normally upper end of the bore 122 terminates in a conical shutoff valve seat 126 which is engageable with a conical valve element 128 fixed to the cup-shaped member 80. Surrounding this conical valve element 128 are passages 130 which communicate with the seat portion 98 engaging one side of the flexible valve element 76, so that when the plunger or the stem 18 is pressed in a direction opposite to the arrow A, as shown in FIG. 2 of the drawings, the flexible valve element 76 is unseated from the annular seat portion 96 and the opposing valve seat portion 98 to allow fluid to pass upwardly through the openings 130 and around the flexible valve element and through its central opening 94, and through the slots 92, and upwardly through the slots 92, and upwardly through the bore 90 to the dispensing head 20, all as shown best in FIGS. 1 and 22 of the drawings.

Thus, the fluid source in the container 10 communicates through the dip tube 16, cap 52, orifice 56, passage 112, chamber 114, orifice 120, bore 122, openings 130, and the manually operable dispensing valve central opening 94, and with the bore 90 of the stem 18.

It will be obvious to those skilled in the art that when fluids concurrently pass from both sources, contained in the containers 10 and 12 around opposite sides of the flexible valve element 76, that these materials mix and may react with each other in the valve and in the bore 90 of the stem 18 before being dispensed from the dispensing head 20, and thus chemically reactive materials may form a product during dispensation and before being issued from the dispensing head 20.

In operation, liquid in the collapsible container 12 is pressurized by the aerosol-propellent fluid contained in the container 10, and which also propels liquid into the dip tube 16. However, when the last-mentioned liquid in the container 10 is exhausted and the pressurized fluid tends to gasify, the dip tube conducts gas which acts in relation to the orifice 56 to change a pressure differential across the diaphragm 46 to close the shutoff valve 30.

The conical seat 126 and valve element 128 constitute another automatic shutoff valve mechanism of the invention which is operable by the diaphragm 118.

It will be seen that these two shutoff valves 30 and 126 are responsive to the separate fluid sources in the containers 10 and 12, and as will be hereinafter described, the diaphragm structures 46 and 118 are operable in relation to the separate fluid sources and cooperatively with relation to both sources and in accordance with pressure differentials calculated to close the valves automatically in the event fluid from either of the sources is substantially depleted or exhausted. Thus, the basic operation of the valve of the invention is to prevent dispensation of either fluid singly from either of the sources in the containers 10 or 12. This is extremely important in connection with the dispensation of materials to produce oxidation hair dye or hot-foam shave lather, or other similar materials where harmful chemicals individually may be used to react with each other to produce a useful and safe product.

## OPERATION OF THE INVENTION

When the manually operable dispensing valve of the invention is actuated by pressure inwardly on the head 20, the stem 18 moves inwardly in a direction opposite to the arrow A in FIG. 2 of the drawings, and the flexible valve element 76 is unseated from the annular seat 96 and the seat 98 which is generally a poppet-shaped seat and integral with the stem 18. Thus, fluids may flow around opposite sides of the flexible valve element and mix in the slots 92 and through the opening 94 and in the bore 90 of the stem 88.

The shutoff valve 30 is normally held open when liquid is passing through the orifices 56 and 120. It will be appreciated that liquid, due to its viscous nature, will create a substantially high-pressure differential across the diaphragm structure 46 in relation to the orifices 46 and 120, thereby causing compression of the spring 61, and moving the sleeve 32 to expose the orifice 28 so that fluid may flow from the source in the collapsible container 12 and into the passage 26. This fluid may then flow through the openings 40 and into a chamber 42 communicating with the passage 64 so as to deliver fluid to the annulus 106 and one side of the manually operable resilient dispensing valve member 76. Concurrently fluid pressure in the passage 64 is imposed upon a partial area of the diaphragm structure 118 at the side 124 which surrounds a central stem 125 of the diaphragm structure 118. This pressure tends to hold the conical valve portion 126 away from the valve element 128, and to allow fluid to flow through the orifice 56, the passage 112, the orifice 120, the passage 122, and through the openings 130 into communication with the then open manually operable dispensing valve which is constituted by the flexible valve element 76, annular seat 96 and the annular seat 98.

It will be appreciated by those skilled in the art that the orifice 110 in relation to the orifice 28 maintains sufficient pressure in the passage 64 and on the side 124 of the flexible diaphragm so as to maintain the valve element 128 uncovered by the corresponding conical seat portion 126. The pressure differential being maintained across the diaphragm structure 118 so as to hold the shutoff valve 126 in open position, it being appreciated that the passage of liquid through the orifice 56 creates a substantial pressure drop, and therefore a substantially lower pressure in the chamber 114 than in the chamber 42 as maintained by the relative sizes of the orifices 28 and 110.

When liquid is substantially depleted or exhausted from the inner portion of the container 10, and when aerosol-propellent fluid gasifies and conducts gas through the orifice 56, the pressure differential across the diaphragm structure 46 changes so as to increase the pressure at the side 60 of the diaphragm relative to the side 58 thereby changing the differential across the diaphragm structure 46 tending to move the sleeve valve 32 from the position, shown in FIG. 3, to the closed position, as shown in FIG. 2. This action automatically shuts off the orifice 28 and drops the pressure at the side 124 of the diaphragm structure 118 thus allowing pressure in the chamber 114 to cause the conical seat portion 126 to seat on the conical seat portion 128 and to close the shutoff valve structure at the conical seat portion 126, and to prevent flow through the orifice 120 and the openings 130 in communication with the flexible valve element 76. Thus, when liquid fails to flow through the orifice 56, both fluid sources in the containers 10 and 12 are automatically shut off.

In the event liquid becomes exhausted from the collapsible container 12 and fails to flow through the orifice 28 so as to create a substantial pressure in the chamber 42, the reduction in pressure on the side 124 of the diaphragm structure 118 then allows the conical valve seat 126 to be seated on the conical valve element 128 and shut off flow through the orifice 120 and the openings 130 communicating with the manually operable dispensing valve element 76. When fluid fails to flow through the orifice 120, pressure builds up in the chamber 114 and the passage 128 so as to equalize pressure across the diaphragm structure 46, whereupon the spring 61 moves the sleeve valve 32 into a position from that, as shown in FIG. 3, to the closed position, as shown in FIG. 2, and thereby automatically shutting off flow through the orifice 28 from the source of fluid in the container 12.

It will be understood that the shutoff valve structure 30, as shown in FIG. 2, is in a closed automatic shutoff position with respect to one of the sources, namely, the one in the container 12 and in FIG. 3, the automatic shutoff valve 126, communicating with the source of fluid in the container 10, is shown in closed position.

Also the disclosure in FIG. 3 illustrates the manually operable dispensing valve in open position, wherein the stem 18 is moved inward in a direction opposite to the arrow A, so as to dispense a product from a dispenser head 20.

The positions of the automatic shutoff valves in FIG. 3, are disposed and shown as they would be at the instant where fluids may be substantially depleted or exhausted from the container 12, such as to cause the conical seat 126 to engage the conical shutoff valve element 128, whereupon subsequently and immediately the pressure would equalize across the diaphragm 46 and cause the spring 61 to move the sleeve valve 32 over the orifice 28, as hereinbefore described. From the foregoing, it will be appreciated that the depletion or exhaustion of fluid from either of the sources in the containers 10 or 12 will automatically shut off both shutoff valves even though the manually operable dispensing valve 76 of the invention is in open position. Thus, the automatic action of the automatic shutoff valves of the invention insure that neither of the fluids from the sources in the containers 10 or 12 may be dispensed individually.

It will be obvious to those skilled in the art that various modifications of the invention may be resorted to without departing from the spirit of the invention.

We claim:

1. In a dual-dispensing automatic shutoff valve, the combination of: a manually operable fluid-dispensing valve means; first and second pressurized fluid sources communicating with said dispensing valve means; first and second fluid-pressure-responsive automatic shutoff valve means communicating with said dispensing valve means and with said first and second fluid sources, said first and second shutoff valve means being disposed to control the flow of fluids from said first and second sources to said fluid-dispensing valve means, said first and second shutoff valve means being responsive to fluid of said sources, whereby a substantial depletion of either of said sources shuts off flow therefrom to said dispensing valve means; said first source having a liquid material and a gasifying aerosol-propellent fluid; said first shutoff valve means having a pressure-responsive movable wall provided with opposed surfaces, one of said surfaces communicating with said first source; first orifice means intercommunicating with opposed surfaces of said movable wall means and with said dispensing valve means, whereby a pressure differential is created with respect to said opposed surfaces when said dispensing valve means is open, and when said liquid is flowing through said first orifices, and whereby the magnitude of said pressure differential changes when said liquid is exhausted, and when only said gasifying aerosol propellent flows through said first orifices; said movable wall being responsive to said pressure-differential change and thereby operable to move said first shutoff valve means toward closed position to shut off communication of one of said sources with said dispensing valve means; said second shutoff valve means disposed and responsive to a change in fluid pressure of said last-mentioned source downstream from said first shut off valve means, said second shut off valve means communicating with fluid from the other of said sources and said second shutoff valve means being disposed to shutoff flow of fluid from said other of said sources to said dispensing valve means.

2. In a dual-dispensing automatic shutoff valve, the combination of: a manually operable fluid-dispensing valve means; first and second pressurized fluid sources communicating with said dispensing valve means; first and second fluid-pressure-responsive automatic shutoff valve means communicating with said dispensing valve means and with said first and second fluid sources, said first and second shutoff valve means being disposed to control the flow of fluids from said first and second sources to said fluid-dispensing valve means, said first and second shutoff valve means being responsive to fluid of said sources, whereby a substantial depletion of either of said sources shuts off flow therefrom to said dispensing valve means; said first source having a liquid material and a gasifying aerosol-propellent fluid; said first shutoff valve means having a pressure-responsive movable wall provided with opposed surfaces, one of said surfaces communicating with said first source; first orifice means intercommunicating with opposed surfaces of said movable wall means and with said dispensing valve means; second orifice means communicating with said dispensing valve means downstream from said first orifice means and disposed to be shutoff from communication with said dispensing valve means by operation of said second shutoff valve means; whereby a pressure differential is created with respect to said opposed surfaces when said dispensing valve means is open, and when said liquid is flowing through said first and second orifice means, and whereby the magnitude of said pressure differential changes when said liquid is exhausted, and when only said gasifying aerosol propellent flows through said first and second orifice means; said movable wall being responsive to said pressure-differential change and thereby operable to move said first shutoff valve means toward closed position to shutoff communication of one of said sources with said dispensing valve means; said second shutoff valve means disposed and responsive to a change in fluid pressure of said last-mentioned source downstream from said first shutoff valve means, said second shutoff valve means communicating with fluid from the other of said sources and said second shutoff valve means being disposed to shutoff flow of fluid from said other of said sources to said dispensing valve means.

3. In a dual-dispensing automatic shutoff valve, the combination of: a manually operable fluid-dispensing valve means; first and second pressurized fluid sources communicating with said dispensing valve means; first and second fluid-pressure-responsive automatic shutoff valve means communicating with said dispensing valve means and with said first and second fluid sources, said first and second shutoff valve means being disposed to control the flow of fluids from said first and second sources to said fluid-dispensing valve means, said first and second shutoff valve means being responsive to fluid of said sources, whereby a substantial depletion of either of said sources shuts off flow therefrom to said dispensing valve means; said first source having a liquid material and a gasifying aerosol-propellent fluid; said first shutoff valve means having a pressure-responsive movable wall provided with opposed surfaces, one of said surfaces communicating with said first source; first orifice means intercommunicating with opposed surfaces of said movable wall means and with said dispensing valve means, whereby a pressure differential is created with respect to said opposed surfaces when said dispensing valve means is open, and when said liquid is flowing through said first orifice, and whereby the magnitude of said pressure differential changes when said liquid is exhausted, and when only said gasifying aerosol propellent flows through said first orifice; said movable wall being responsive to said pressure differential changes and thereby operable to move said first shutoff communication of one of said sources with said dispensing valve means; said second shutoff valve means disposed and responsive to a change in fluid pressure of said last-mentioned source downstream from said first shutoff valve means, said second shutoff valve means communicating with fluid from the other of said sources and said second shutoff valve means being disposed to shutoff flow of fluid from said other of said sources to said dispensing valve means; said second shutoff valve means having a movable pressure-responsive wall means provided with opposed surfaces; one of said last-mentioned opposed surfaces responsive to pressure of fluid downstream from said first orifice means and the other of said last mentioned surfaces being responsive to fluid pressure downstream from said first shutoff valve means, whereby a reduction in pressure of said fluid downstream from said first valve means causes said second valve means to move toward closed position and to shutoff fluid flow from said first orifice to said dispensing valve means.

4. In a dual-dispensing automatic shutoff valve, the combination of: a manually operable fluid-dispensing valve means; first and second pressurized fluid sources communicating with said dispensing valve means; first and second fluid-pressure-responsive automatic shutoff valve means communicating with said dispensing valve means and with said first and second fluid-pressure-responsive automatic shutoff valve means communicating with said dispensing valve means and with said first and second fluid sources, said first and second shutoff valve means being disposed to control the flow of fluids from said first and second sources to said fluid-dispensing valve means, said first and second shutoff valve means being responsive to fluid of said sources, whereby a substantial depletion of either of said sources shuts off flow therefrom to said dispensing valve means; said first source having a liquid material and a gasifying aerosol-propellent fluid; said first shutoff valve means having a pressure-responsive movable wall provided with opposed surfaces, one of said surfaces communicating with said first source; first orifice means intercommunicating with opposed surfaces of said movable wall means and with said dispensing valve means; second orifice means communicating with said dispensing valve means downstream from said first orifice means and disposed to be shutoff from communication with said dispensing valve means by operation of said second shutoff valve means; whereby a pressure differential is created with respect to said opposed surfaces when said dispensing valve means is open, and when said liquid is flowing through said first and second orifice means, and whereby the magnitude of said pressure differential changes when said liquid is exhausted, and when only said gasifying aerosol propellent flows through said first and second orifice means; said movable wall being responsive to said pressure-differential change and thereby operable to move said first shutoff valve means toward closed position to shutoff communication of one of said sources with said dispensing valve means; said second shutoff valve means disposed and responsive to a change in fluid pressure of said last mentioned source downstream from said first shutoff valve means, said second shutoff valve means communicating with fluid from the other of said sources and said second shutoff valve means being disposed to shut off flow of fluid from said other of said sources to said dispensing valve means; said second shutoff valve means having a movable pressure-responsive wall means provided with opposed surfaces; one of said last-mentioned opposed surfaces responsive to pressure of fluid downstream from said first orifice means and the other of said last-mentioned surfaces being responsive to fluid pressure downstream from said first shutoff valve means, whereby a reduction in pressure of said fluid downstream from said first valve means causes said fluid downstream from said first valve means causes said second valve means to move toward closed position, and to shutoff fluid flow from said first orifice to said second orifice means and said dispensing valve means; and third orifice means disposed between said first shutoff valve means and said dispensing valve means for maintaining a desired fluid pressure in communication with said other of said surfaces of said movable wall of said second shutoff valve means.

5. In a dual-dispensing automatic shutoff valve, the combination of: a first and second manually operable fluid-dispensing valve means; first and second pressurized fluid sources communicating respectively with said first and second dispensing valve means; first and second fluid-pressure-responsive automatic shutoff valve means communicating with said first and second dispensing valve means and with said first and second fluid sources, said first and second shutoff valve means being disposed to control the flow of fluids from said first and second sources to said first and second fluid-dispensing valve means, said first and second shutoff valve means being responsive to fluid of said sources, whereby a substantial depletion of either of said sources shuts off flow therefrom to said dispensing valve means; said first source having a liquid material and a gasifying aerosol-propellent; said first shutoff valve means having a pressure-responsive movable wall provided with opposed surfaces, one of said surfaces communicating with said first source; first orifice means intercommunicating with opposed surfaces of said movable wall means and with said dispensing valve means; second orifice means communicating with said second dispensing valve means downstream from said first orifice means and disposed to be shutoff from communication with said second dispensing valve means by operation of said second shutoff valve means; whereby a pressure differential is created with respect to said opposed surfaces when said dispensing valve means is open, and when said liquid is flowing through said first and second orifice means, and whereby the magnitude of said pressure differential changes when said liquid is exhausted, and when only said gasifying aerosol propellent flows through said first and second orifice means; said movable wall being responsive to said pressure differential change and thereby operable to move said first shutoff valve means toward closed position to shutoff communication of said second source with said second dispensing valve means; said second shutoff valve means disposed and responsive to a change in fluid pressure of said last-mentioned source downstream from said first shutoff valve means, said second shutoff valve means communicating with fluid from said first source and said first source and said second shutoff valve means being disposed to shutoff flow of fluid from said first source to said first dispensing valve means; said second shutoff valve means having a movable pressure-responsive wall means provided with opposed surfaces; one of said last-mentioned opposed surfaces responsive to pressure of fluid downstream from said first orifice means and the other of said last-mentioned opposed surfaces responsive to pressure of fluid downstream from said first orifice means and the other of said last-mentioned surfaces being responsive to fluid pressure downstream from said first shutoff valve means, whereby a reduction in pressure of said fluid downstream from said first valve means causes said second valve means to move toward closed position and to shutoff fluid flow from said first orifice to said first dispensing valve means; and third orifice means disposed between said first shutoff valve mean and said second dispensing valve means for maintaining a desired fluid pressure in communication with said other of said surfaces of said movable wall of said second shutoff valve means.

6. The invention, as defined in claim 1, wherein: said first and second sources comprise an external container for said first source; and a collapsible container disposed in said external container for containing said second source; said first and second sources including liquid material; said first source containing a gasifying fluid-propellent element adapted to pressurize both liquids in said external container and in said collapsible container.

7. The invention, as defined in claim 4, wherein: said first and second sources comprise an external container for said first source; and a collapsible container disposed in said external container for containing said second source; said first and second sources including liquid material; said first source containing a gasifying fluid-propellent element adapted to pressurize both liquids in said external container and in said collapsible container.

8. The invention, as defined in claim 5, wherein: said first and second sources comprise an external container for said first source; and a collapsible container disposed in said external container for containing said second source; said first and second sources including liquid material; said first source containing a gasifying fluid-propellent element adapted to pressurize both liquids in said external container and in said collapsible container.