July 17, 1956 J. GLUCK ET AL 2,754,820

SANITARY SPRAY APPARATUS

Filed Dec. 14, 1953 3 Sheets-Sheet 1

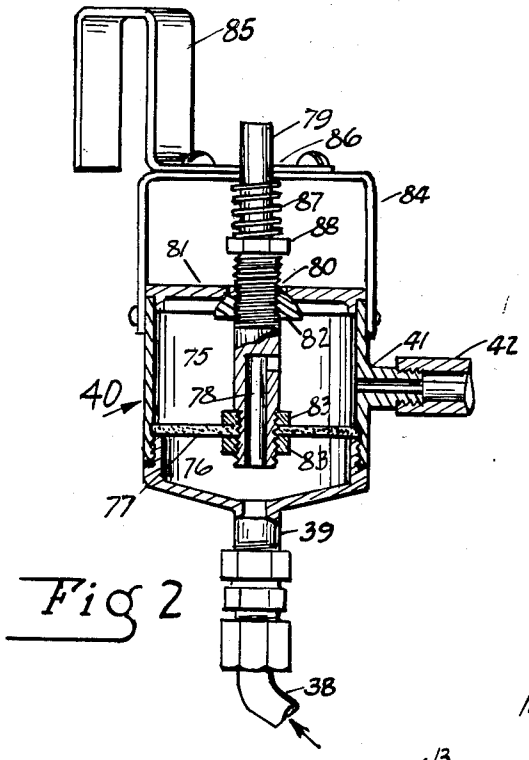


Fig 2

Fig 1

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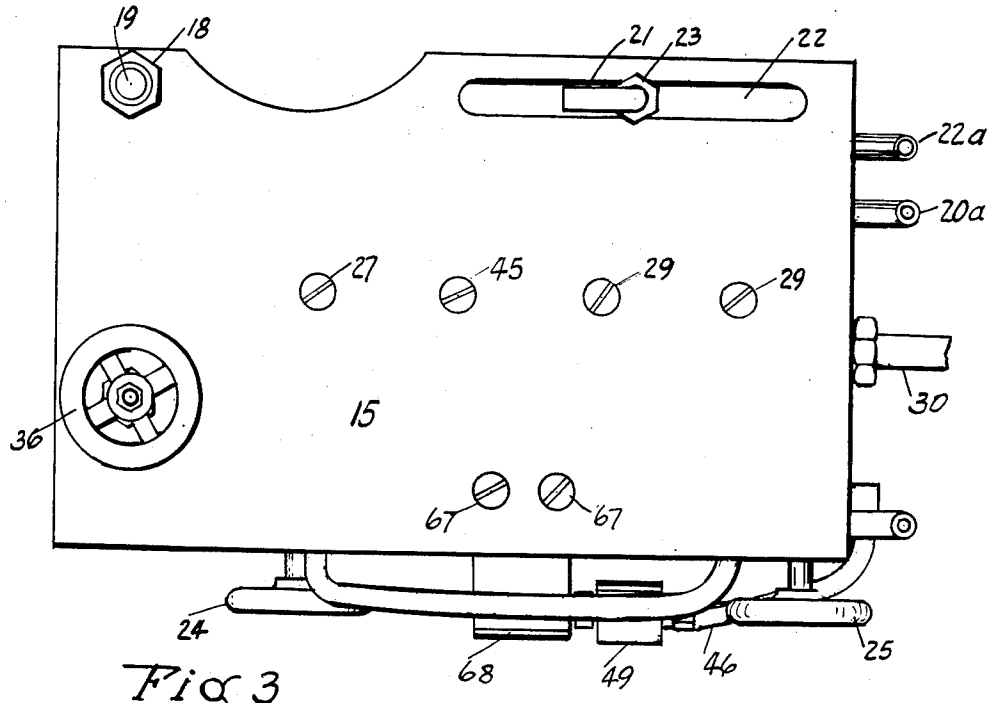


Fig 3

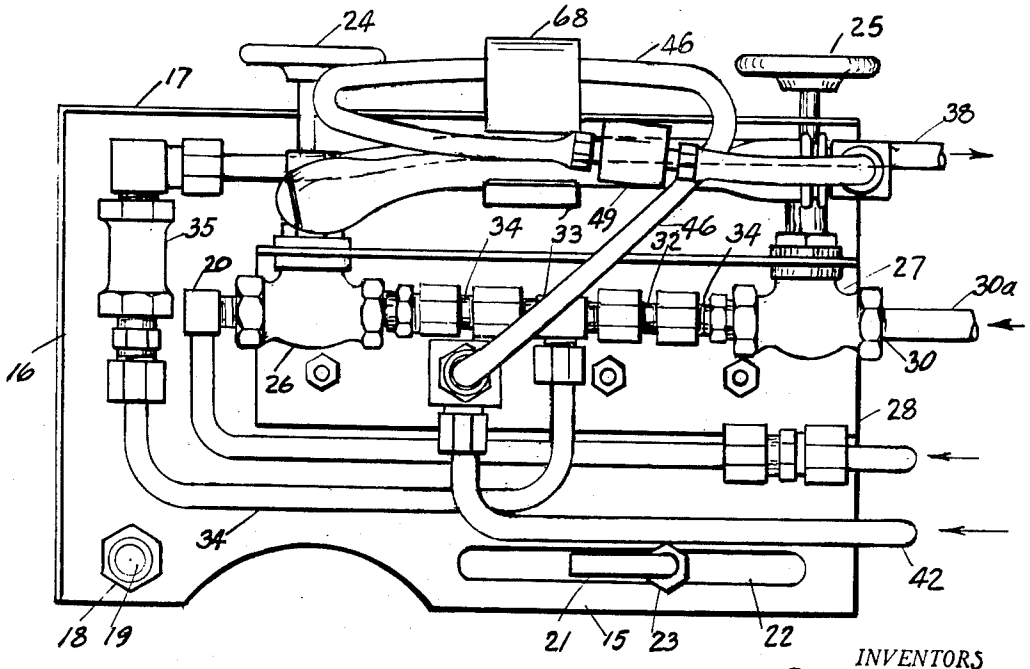


Fig 4

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SANITARY SPRAY APPARATUS

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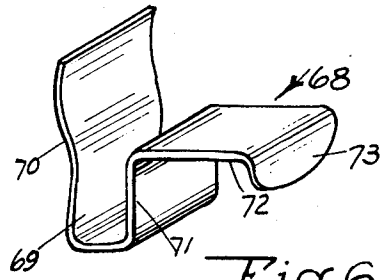


Fig 6

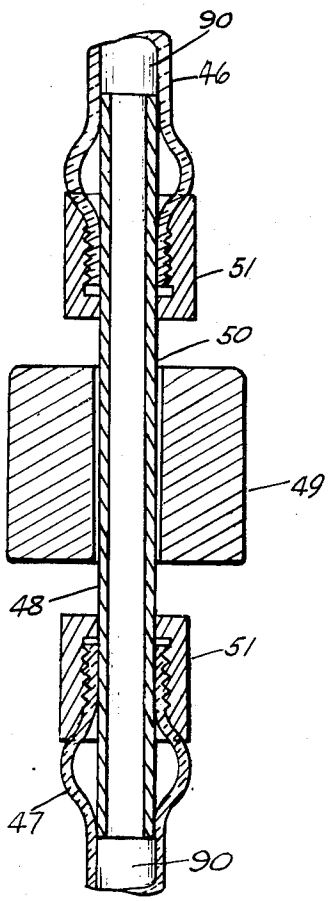


Fig 5

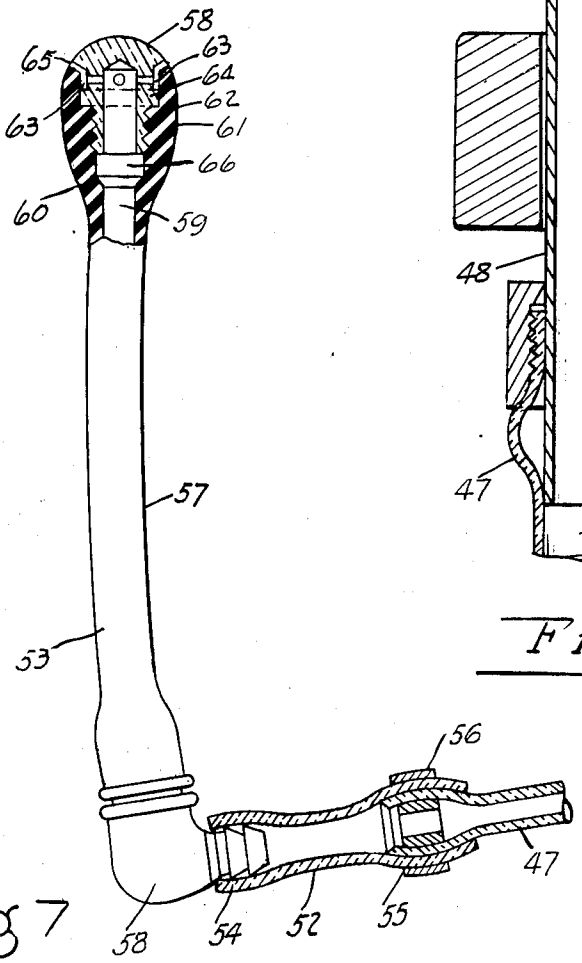


Fig 7

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SANITARY SPRAY APPARATUS

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7 Claims. (Cl. 128—227)

This invention relates to a sanitary spray device and is more particularly directed to such a spray device permanently installed as an accessory for use with toilet bowls for vaginal and rectal douches and other personal cleansing functions.

Therefore, a principal object of the present invention is to provide a sanitary spray apparatus which is adapted to be permanently installed as an accessory for use with a toilet bowl thereby effecting a convenient and efficient manner of cleansing or medicating one's person.

A further object of the present invention is to provide a spray apparatus characterized as above whereby a spray under high pressure is produced thereby permitting a more complete and thorough cleansing and medication than could be effected by a spray produced by water under low pressure or gravity flow.

A still further object of the present invention is to provide a sanitary spray apparatus with a vacuum breaker on the pressure side of the cutoff valve so as to prevent any possibility of contaminating the water supply by siphonic action.

A still further object of the present invention is the provision of a sanitary spray apparatus described as above having a weighted member on the discharge tubing to prevent the possibility of the nozzle being inadvertently left in the toilet bowl.

A still further object of the present invention is to provide a sanitary spray apparatus with a flexible hose connection which is simple in construction yet effects an extremely strong, tight and leak-proof connection.

To the attainment of the aforesaid objects and ends, the invention further resides in those novel details of construction which will be first described in detail and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which:

Figure 1 is a side elevational view of the sanitary spray apparatus embodying our invention shown installed on a toilet bowl.

Figure 2 is an enlarged sectional view of the vacuum breaker shown in Figure 1.

Figure 3 is a sectional view taken along the line 3—3 of Figure 1.

Figure 4 is a bottom plan view of the structure shown in Figure 3.

Figure 5 is a fragmentary sectional view of hose connections at the position of a weighted member.

Figure 6 is an enlarged perspective view of the nozzle retaining clip.

Figure 7 is an elevational view partially in section of the nozzle and flexible hose connection.

Referring now to the drawings wherein like numerals are used to refer to similar parts throughout the several views, the numeral **10** designates generally our improved spray apparatus shown mounted on a conventional toilet bowl **11** on which a water tank **12** is supported and a toilet seat **13** is pivotally mounted as at **14**.

In order to provide a compact and neat appearing apparatus suitable for a modern bathroom, the various fittings, connections and valves (explained in detail hereinafter) are mounted on the under side of a horizontally disposed support plate **15** having depending flanges **16** and **17** for concealing the aforementioned pipe connections, etc. from view. The support plate **15** is secured to the toilet bowl **11** by a means of a nut **18** threaded on a bolt **19** passing through a bore in the plate **15**, which bolt **19** is a part of the pivot support **14**. At the rear portion of the support plate **15** there is a hanger bolt **21** extending through an elongated slot **22** and secured thereto by a pair of nuts **23**, the upper portion of the hanger bolt **21** engaging the rear ledge of the toilet bowl **11**.

Extending through the flange **17** are the handles **24** and **25** of valves **26** and **27** for hot and cold water respectively which valves **26** and **27** are mounted on a flanged support member **28** secured to the support plate **15** by a plurality of bolts **29**. The inlets **20** and **30** of the valves **26** and **27** respectively are connected to a source of hot and cold water (not shown) by means of the tubing **20***a* and **30***a*, respectively while the outlets **31** and **32** of the valves **26** and **27** respectively are connected together by means of a plurality of fittings **34** joining the leg portions of an L-connector **33** which, in turn has its outlet connected by a pipe **34** to a valve **35**. A valve handle **36** of the valve **35** extends upwardly through the support plate **15** so as to be readily accessible to a person desiring to use the device **10**. The outlet of the valve **35** is connected to a pipe **38** which extends upwardly and is connected to an inlet **39** of a vacuum breaker **40** whose function and details of construction are explained hereinafter. An outlet **41** of the vacuum breaker **40** is connected to a tubing **42** which extends downwardly to a leg of an L-fitting or connector **43** secured to the support plate **15** by means of a bolt **45**; the other leg of the fitting **43** is connected to a relatively short length of plastic hose **46**. A second and longer section of plastic hose **47** is connected to the hose **46** by a pipe **48** on whose end portions there is a ferrule **90**. The end portions on each of which there is a threaded coupling **51** are received by the hoses **46** and **47** as is best shown in Figure 5. The couplings **51** are threaded directly onto the ends of the plastic hoses **46** and **47** to a position whereby the forward ends of the couplings **51** engage the hoses at the ferrules **90** thereby effecting a strong and leakproof connection. A weighted member **49** provided with a bore **50** slightly larger in diameter than that of the pipe **48** is slidably mounted on the pipe **48** between the couplings **51**. The length of the hose **46** is less than the distance from the L-fitting **43** to the toilet seat **13**. Therefore, the weighted member **49** cannot reach the position of the toilet seat **13** and will slip therefrom if placed on the toilet seat **13** or in the toilet bowl **11**, so that under no circumstances can the hose **47** remain inadvertently in the toilet bowl **11**.

The free end of the plastic hose **47** is provided with a readily releasable, but leakproof connector for joining hoses of different diameters such as the hose **47** being connected to a hose **52** of larger diameter whose other end is connected to a douche **53** as at **54**. A sleeve **55** of slightly larger diameter than the inside diameter of the tubing **47** is fitted at the end of the tubing **47**. The end of the plastic tubing **52** is then slid over the end of the tubing **47** and a further sleeve **56** of larger diameter than the outside diameter of the tubing **52** but less than the sum total of the outside diameter of the sleeve **55** and the wall thicknesses of the combined hoses **47** and **52**.

The douche **53** consists of an elongated body portion **57** on one end of which an elbow **58** is threaded and on whose other end a nozzle tip **58** is likewise threaded. A bore **59** extends through the elbow **58** and body **57** and communicates with a threaded chamber **60** at the free end of the douche **53**. The nozzle tip **58** is provided with a threaded portion **61**, a chamber **62**, a plurality of bores **63** communicating with the chamber **62** and a shoulder

64 adjacent the threads 61. The shoulder 64 permits the nozzle tip 58 to be threaded into the nozzle 53 to a position whereby a circumferential opening 65 is formed between the nozzle tip 58 and the nozzle 53, which opening 65 communicates with bores 63 to eject a cone-shaped spray fluid. A medicament 66 such as potassium permanganate in a tablet form is placed in the chambers 60 and 62 so that as the water flows through the nozzle 53 the medicament 66 is dissolved and discharged by the water. When the douche nozzle 53 is not in use, it is supported by a spring clip 68 secured to the underside of the plate support 15 by the bolts 67 and having a slot 69 formed by the resilient arms 70 and 71 by which the douche nozzle 53 is releasably retained. A flanged member 72 extends horizontally from the arm 71 and with a raised edge portion 73 is adapted to support a coil of the plastic tubing 47 thereon.

The vacuum breaker 40 consists of a pair of chambers 75 and 76 which are separated by a flexible diaphragm 77 though the two chambers 75 and 76 communicate with each other by means of a duct 78 in a rod 79. The vacuum breaker 40 is provided with a vent 80 through which the rod 79 extends; the inner portion of the vent 80 is provided with a valve seat 81 which is engaged by a valve 82 mounted on the rod 79. The lower end of the rod 79 is secured to the flexible diaphragm 77 by the nuts 83, 83 threaded on the rod 79 on either side of the flexible diaphragm 77. A yoke 84 which extends about the upper portion of the vacuum breaker 40 has a support clip 85 secured thereto for supporting the vacuum breaker 40 on the upper portion of the water tank 12. The rod 79 extends through a bore 86 in the yoke which acts as a stop for a coil spring 87. The spring 87 encircles the rod 79 and abuts at its lower end against a nut 88 which can be adjusted thereon to vary the spring pressure 87.

The function of a vacuum breaker 40 is to prevent a back or reverse flow of fluid therethrough that would normally be effected by a siphonic action. The source of water (not shown) is the potable water supply furnished by high pressure mains. As long as the pressure of the water is maintained at a high level there is no danger of having that water become contaminated. However, in the event, the water pressure should drop, the outlets, such as the douche nozzle 53 if immersed in contaminated water become inlets and permit the contaminated water to be siphoned back into the main water lines. In the vacuum breaker 40, if there is a drop in pressure in the inlet water line 38 and 39, the spring pressure 87 will cause the flexible diaphragm to flex downwardly since there will be a suction effect created in the chamber 76, and the rod 79 will slide downwardly carrying the valve 82 to its opened position thereby permitting air to be drawn in the vacuum breaker 40 through the vent 80. The air thus drawn into the vacuum breaker 40 will pass into the chamber 75, through the duct 78 and into the chamber 76 where it passes through the piping system to the main water line. In the normal operation of the vacuum breaker 40, water enters into the chamber 76 through the pipe 38 exerting a pressure against the flexible diaphragm 77 and the spring pressure 87 and effecting a seating of the valve 82 on the valve seat 81, so that the water may flow from the chamber 76 through the duct 78 into the chamber 75 and through the outlet 41 into the tubing 42.

In preparing the device 10 for normal use, the valve handles 24 and 25 are adjusted to permit the proper proportioning of the hot and cold water. Then the nozzle 53 is removed from the retaining clip 63 and the coiled hose taken from the ledge support 72. The nozzle tip 58 is now unthreaded from the douche 53 and a medicinal tablet is placed in the chamber 60, after which the nozzle tip 58 is threaded into place. The valve handle 36 is now opened to the desired position thereby permitting the flow of water through the system as described hereinbefore and discharged from the douche nozzle 53 as a medicated spray under the desired water pressure.

What we claim as new is:

1. A sanitary spray apparatus adapted to be secured to a toilet bowl comprising a support member, means securing said support to said toilet bowl, a pair of valves mounted on said support member, said valves each having an inlet and an outlet, pipe means connected at one end to said inlets of said valves, said pipe means being adapted to be connected to a source of hot and cold water at their other end, second pipe means connecting said outlets of said valves together, a vacuum breaker having an inlet and an outlet, third pipe means connecting said second pipe means and said inlet of said vacuum breaker, an L-fitting mounted on said support, said L-fitting having an inlet and an outlet, fourth pipe means connecting said outlet of said vacuum breaker and said inlet of said L-fitting, a flexible hose connected at one end to said outlet of said L-fitting, said flexible hose being of shorter length than the distance from said L-fitting to a seat of said toilet bowl, a second flexible hose, weighted connection means joining the other end of said first named flexible hose and one end of said second flexible hose, and spray nozzle means connected to the other end of said second flexible hose.

2. The structure as recited by claim 1 wherein said vacuum breaker comprises a body member, a flexible diaphragm mounted in said body member thereby forming a pair of chambers each communicating with said outlet and said inlet of said vacuum breaker, a vent in said body member in communication with one of said chambers, a valve seat contained on said vent, a rod extending through said vent and having one end secured to said flexible diaphragm, a valve mounted on said rod in contact engagement with said valve seat, spring means mounted on said rod urging said valve to an open position, and a duct contained in said rod connecting said chambers.

3. A sanitary spray apparatus comprising a plate support member, means securing said plate support member in a horizontal position to a toilet bowl, a plurality of depending flanges mounted along the edge portion of said plate support member, a pair of valves having an outlet and an inlet mounted on the lower wall surface of said plate support member, said valves each having a valve handle extending through one of said depending flanges, a hot and cold water pipe connected at one end to each of said inlets, a T fitting secured to said plate support adjacent said valves, said T fitting having a pair of inlets and an outlet, a second pipe connecting each of said outlets of said valves and said inlets of said T fitting, a vacuum breaker having an inlet and an outlet, means suspending said vacuum breaker above said plate support member, a third pipe connecting said outlet of said T fitting and said inlet of said vacuum breaker, an L-fitting having an inlet and an outlet secured to said plate support member adjacent said T fitting, a fourth pipe connecting said outlet of said vacuum breaker and said inlet of said L-fitting, a first flexible hose connected at one end to said outlet of said L-fitting, said first flexible hose being of shorter length than the distance from said L-fitting to the seat portion said toilet bowl, a second flexible hose, weighted connection means joining the other end of said first flexible hose and one end of said second flexible hose, douche nozzle means connected to the other end of said second flexible hose, and supporting clip means mounted on the lower wall surface of said plate support member adapted to removably support said nozzle means.

4. The structure as recited by claim 3 wherein said douche nozzle means comprises an elongated body portion, a duct extending through said body portion, a chamber contained at one end of said body portion communicating with said duct, a nozzle tip threadedly mounted in said chamber, a further chamber contained in said nozzle tip adapted to receive a medicament, said further

chamber being in communication with said duct, and a plurality of outlet bores contained by said nozzle tip, said bores communicating with said further chamber.

5. The structure as recited by claim 3 wherein said weighted connection means comprises an inflexible tubing, a ferrule mounted adjacent each end of said inflexible tubing, said end of said first flexible hose and said one end of said second flexible hose extending over said ferrule on said inflexible tubing, a cap slidably mounted on each end of said inflexible tubing, the inside diameter of said cap being less than the outside diameter of said first and second flexible hoses, threaded means contained on the inside wall of said cap adapted to form threads on said first and second flexible tubings as said caps are threaded in a direction of said ferrules, and a weighted member slidably mounted on said inflexible tubing between said caps.

6. A douche nozzle comprising an elongated body, a fluid passageway extending substantially the full length of said body, said body having a chamber at one end in communication with said fluid passageway, said chamber having a throat portion adjacent said fluid passageway of greater diameter than said fluid passageway adapted to retain a medicament, threaded means contained in said chamber adjacent said throat portion, said chamber being of increased diameter and forming a shoulder adjacent said threaded means, a nozzle tip threadedly mounted in said chamber and engaging said shoulder in said chamber, a discharge duct in said nozzle tip, said nozzle tip having a plurality of bores communicating with said discharge duct and a peripheral slot formed between said nozzle

tip and said end of said elongated body in communication with said bores whereby fluid flowing through said fluid passageway dissolves said medicament in said throat portion and is discharged through said peripheral slot.

7. A vacuum breaker comprising a body member, a flexible diaphragm mounted in said body member forming an upper and a lower chamber, an inlet communicating with said lower chamber, an outlet communicating with said upper chamber, a vent in said body member communicating with said upper chamber, a valve seat contained on said vent, a rod extending through said vent and having one end secured to said flexible diaphragm, a valve mounted on said rod in contact engagement with said valve seat, spring means mounted on rod yieldingly urging said valve out of engagement with said valve seat, and a duct contained in said rod connecting said upper and lower chambers.

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