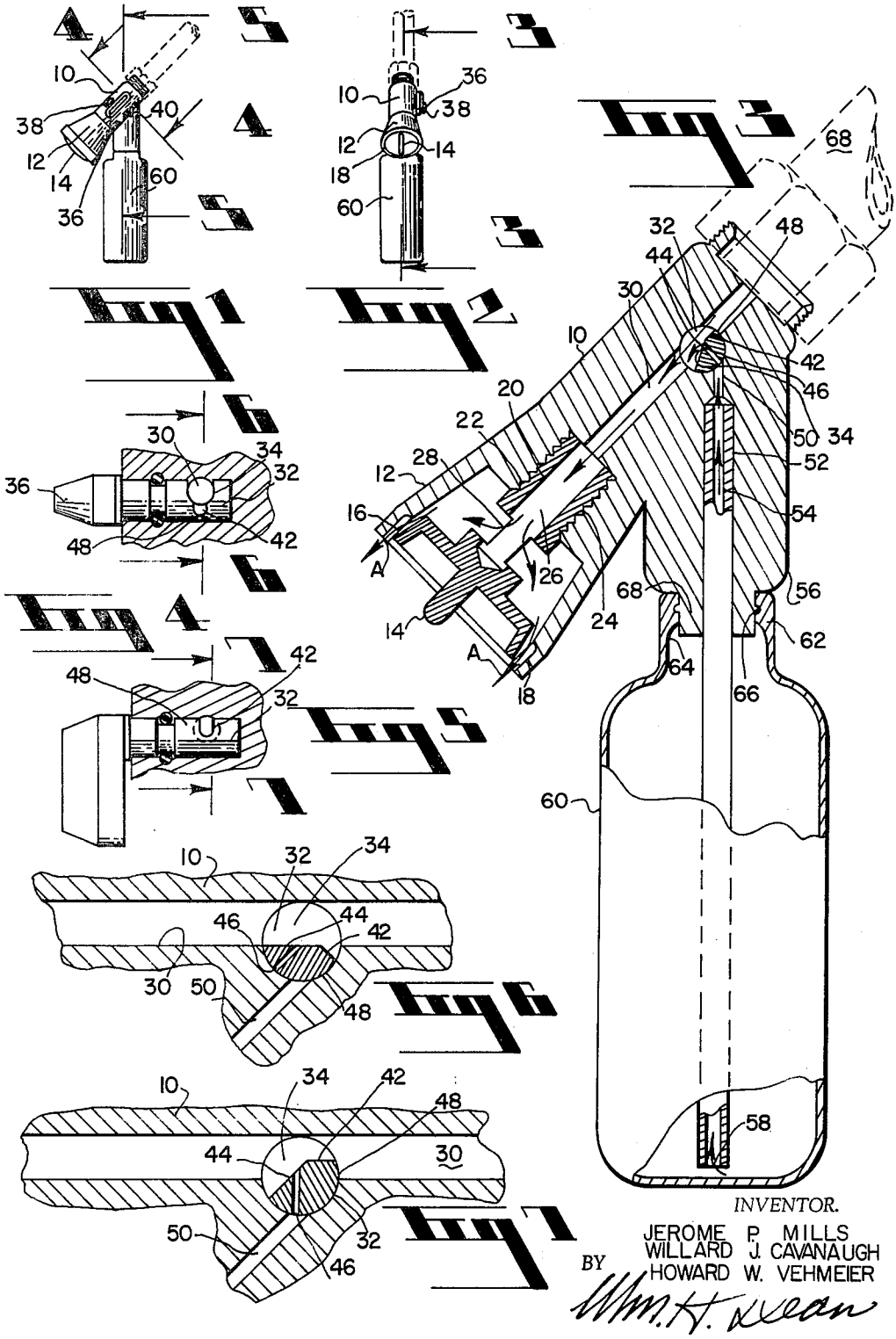
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MATERIALS DISPENSING SHOWER HEAD DEVICE

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MATERIALS DISPENSING SHOWER HEAD DEVICE

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This invention relates to a materials dispensing shower head device and more particularly for a materials dispensing shower head device for use in shower bath installations and such a device which is very simple and economical to manufacture and very reliable in use.

It has been recognized that shower bath installations may utilize the shower head assembly wherein means is provided initially to dispense liquid soap or other materials into the water stream projected upon a person taking a shower bath until sufficient soap or equivalent material has been dispensed to the person taking the bath, whereupon the person may readily and quickly switch the operation of the device so that it dispenses only rinsing water for final bathing purposes.

Prior art shower head assemblies capable of performing such functions have been complicated and relatively expensive.

Accordingly, it is an object of the present invention to provide a soap dispensing shower head device which provides for dispensation of liquid soap into a water stream and upon a person taking a shower so that the person may initially dispense soap upon himself through the regular shower nozzle whereupon the switching of a simple valve mechanism may be accomplished at the desired time to shut off the soap and dispense only rinsing water through the shower head nozzle assembly.

Another object of the invention is to provide a very simple and economical soap dispensing shower head device which may be produced in large volume at a very low price and which employs very simple and reliable mechanical features which are very simple and easy to operate.

Another object of the invention is to provide a novel valve mechanism for soap dispensing shower head devices which may in one position provide communication between a soap container and may also provide a flow restriction in a water flow passage through the device, thereby creating a low pressure area by means of said restriction to aspirate liquid soap out of the soap container and into the shower water flow stream.

Another object of the invention is to provide a novel self-dispensing shower head device having a very simple rotatable valve assembly having novel flow restricting features which may concurrently be caused to crease a flow restriction in a water flow passage to the shower nozzle and may concurrently cause communication of a port of the valve means down stream of the flow restriction to create a partial vacuum in a soap or materials container to aspirate liquid soap therefrom, through an aspirator tube which extends from a position near the lower interior of the container to the valve port communicating down stream of said flow restriction.

Another object of the invention is to provide a very simple soap dispensing shower head device wherein a rotating valve member is rotatable on an axis transversally disposed relative to a water flow passage and wherein the rotatable valve member, when in one position, has a notch extending transversally therethrough which coincides with the water flow passage cross-section; said valve when in another position of rotation having a notch transversally thereof, which is rotated to provide a restriction in the cross-section of the flow passage, and to cause a port extending through the rotatable valve member and into the large cross-sectional notch to communicate with the restricted passage down stream thereof, and also, to communicate with a second communicating passage for the purpose of creating a partial vacuum in a liquid soap container.

Another object of the invention is to provide a novel valve mechanism for soap dispensing shower head devices wherein a rotary valve is provided with first and second notches disposed transversally of the rotating axis of the valve and substantially in alignment with a water flow passage bore; the first notch being substantially conforming to the cross-sectional dimension of the bore and the second notch being relatively restricted; the rotary valve member also having a port extending from the periphery thereof into communication with one of the notches, whereby rotation of the second notch into flow restricting position in the bore disposes an inner end of the port for soap conducting passage down stream of the restriction to impose a partial vacuum therein.

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

FIG. 1 is a side elevational view of a soap dispensing shower head device in accordance with the present invention;

FIG. 2 is a front elevational view thereof;

FIG. 3 is an enlarged sectional view taken from the line 3—3 of FIG. 2 showing parts and portions in elevation to facilitate the illustration and showing by broken lines the conventional shower water conduit to which the shower head device is connected;

FIG. 4 is an enlarged fragmentary sectional view taken from the line 4—4 of FIG. 1;

FIG. 5 is an enlarged fragmentary sectional view taken from the line 5—5 of FIG. 1;

FIG. 6 is an enlarged fragmentary sectional view taken from the line 6—6 of FIG. 4; and

FIG. 7 is an enlarged fragmentary sectional view taken from the line 7—7 of FIG. 5.

As shown in FIGS. 1 and 2 of the drawings, the soap dispensing shower head device of the present invention is provided with a body **10** which may be made of various materials and which is preferably a casting. This body **10** is provided with a flared annular portion **12** in which an annular shower head nozzle valve member **14** is positioned. This member **14** may be substantially conventional and is provided with a peripheral portion **16** spaced from an internal bore **18** of the flared portion **12**. This bore **18** may be notched or otherwise provided with flow areas for the dispensation of water as desired. Thus, water may flow around the periphery **16** of the valve member **14** and through the notches **18** in an annular pattern.

The valve member **14** is provided with an integral hollow shank **20** having external threads **22** screw threaded in an internally screw threaded bore **24** of the body **10**. The portion **20** of the valve **14** is provided with a bore **26** having lateral slots **28** through which water may travel to the periphery **16** of the valve **14**. The hollow bore **26** communicates with a flow passage bore **30** in the body **10**.

Rotatably mounted on axis transversally of the bore **30** is a valve member **32**. This valve member **32** is a rotary valve shown best in FIGS. 4 to 7, inclusive, of the drawings. This valve **32** is provided with a first transversally disposed notch portion **34**. This notch portion **34** substantially conforms with the circular cross-section of the bore **30** and when in a position as shown in FIG. 6 of the drawings, does not restrict the bore **30**.

It will be seen from FIG. 4 of the drawings that when the notch portion **34** is in the position as shown in FIG. 6

the bore **30** is unrestricted and will permit the flow of water therethrough to the shower head valve member **14**.

The rotary valve member **32** is provided with a handle **36** which projects outwardly of the body **10** and may be manually operable to pivotally rotate the valve member **32** into and out of either of two positions in accordance with stops **38** and **40** on the side of the body **10** as shown in FIG. 1 of the drawings. The valve member **32** when rotated into a position wherein the handle **36** engages the stop **38**, it is disposed in the position as shown in FIG. 4 and when the handle **36** is rotated to a position in engagement with the stop **40**, the valve member **32** is in a position as shown in FIG. 5.

It will be seen from the drawings that FIGS. 4 and 6 correspond with each other and that FIGS. 5 and 7 correspond with each other as to the relative position of the valve member **32** and the stop positions **38** and **40**, repectively.

The valve member **32** is provided with a second notch portion **42** which is narrower than the notch portion **34** and relatively restricted. This notch portion **42** communicates with the notch portion **34** and when the valve member is pivoted so that the handle **36** engages the stop **40**, the notch portion **42** will be projected into the bore **30** into a position as shown in FIG. 7 thereby creating a flow restriction of the passage **30** and creating a low pressure area in the notch portion **34**.

An inner end of a soap delivery port **44** communicates with the notch portion **34** and an outer end **46** of the soap delivery port communicates with the periphery **48** of the valve member **32**, all as shown best in FIG. 7. The valve member **32** when in the position as shown in FIG. 7 disposes the outer end of the port **46** in communication with a liquid soap flow passage **50** in the body **10**. This passage **50** extends to an enlarged bore portion **52** wherein an end **54** of an aspirator tube is secured. This aspirator tube is a hollow tube having a bore **56** which terminates at **58** near the lower interior of a liquid soap container **60** which is provided with neck portion **62** connected to the body **10**.

The container **60** may be made of plastic or any other suitable material and the neck portion **62** may have an internal thread **64** engageable with an external thread **66** on a nipple portion **68** of the body **10**.

The thread structures **64** and **66** may be equivalent to a bayonet type lock or any other suitable fixture for removably connecting the container onto the nipple portion **68** so that liquid soap may be put in the container **60** at any time desired for replacing the supply therein.

In the operation of the present invention the soap dispensing shower head device is connected to a conventional conduit structure **68** and this structure may be positioned in any suitable area such as a shower stall so that a person may stand or be disposed below the nozzle valve **14** for receiving water therefrom as indicated by arrows A in FIG. 3 of the drawings.

During the initial shower bath operation, the valve member **32** may be disposed in a position wherein the handle **36** is against the stop **40** corresponding to positions shown in FIGS. 5 and 7 wherein the restricted passage **42** causes a restriction of the water flow passage **30** thereby creating a low pressure area at the inner end **44** of the dispensing port whereby the opposite end **46** of the dispensing port communicates with the passage **50** and the interior of the aspirator tube **54**. Thus, the water flowing through the passage **30** creates a partial vacuum at the inner end of the dispensing port, thereby creating sufficient partial vacuum or suction to move the liquid soap or other materials, such as oils, perfume or the like from the inlet end **58** thereof, upwardly therethrough, through the soap dispensing port to its inner end **44** at which point it mixes with water at the low pressure area in the notch **34** down stream of the restricted notch **42**.

When the operator or bather has received sufficient soap in the water dispensed as indicated by arrows A in FIG. 3 of the drawings, the handle **36** may be pivoted to a position adjacent the stop **38** whereupon the notch **34** in the valve member **32** is disposed as shown in FIGS. 4 and 6, providing unrestricted flow through the passage **30** of the body **10** and placing the end **46** of the soap dispensing port out of communication with the passage **50** so that the flow of soap through said port is shut off and water flow through the passage **30** is unrestricted. Thus, rinse water may be dispensed through the passage **30** and the nozzle passages **18** around the nozzle valve **14** so that the shower operation may be finished.

It will be obvious to those skilled in the art that various modifications of the present invention may be resorted to in a manner limited only by a just interpretation of the following claims.

We claim:

1. In a materials dispensing shower head device the combination of: a water dispensing nozzle assembly; a first means communicating therewith and disposed to deliver water thereto; a liquid materials container communicating with said first means; and third means in said first means and communicating with said materials container, said third means adjustable to create a low pressure area in liquid flowing through said first means and disposed to, thus, impose a negative pressure tending to aspirate liquid from said materials container into liquid flowing to said nozzle assembly, whereby materials may be dispensed in shower water through said nozzle assembly; a valve body and water conducting bore structure of said first means; a rotary valve member of said third means having a rotary axis disposed transversally relative to said bore structure; a first transverse notched portion in a peripherial portion of said rotary valve member, said first transverse notched portion communicating with said bore conforming with the cross sectional area of said bore and normally forming an unrestricted part of the flow passage therethrough; a liquid materials delivery port forming a passage in said rotary valve member, said port extending from a peripherial portion of said valve member to said first notched portion, whereby rotation of said notched portion relative to said bore causes restriction of said bore and disposes an end of said port down stream of said restriction, thereby causing a partial vacuum to be imposed in said port; said port communicating with said materials container.

2. In a materials dispensing shower head device the combination of: a water dispensing nozzle assembly; a first means communicating therewith and disposed to deliver water thereto; a liquid materials container communicating with said first means; and third means in said first means and communicating with said materials container, said third means adjustable to create a low pressure area in liquid flowing through said first means and disposed to, thus, impose a negative pressure tending to aspirate liquid from said materials container into liquid flowing to said nozzle assembly, whereby materials may be dispensed in shower water through said nozzle assembly; a valve body and water conducting bore structure of said first means; a rotary valve member having a rotary axis disposed transversally relative to said bore structure; a first transverse notched portion in a peripherial portion of said rotary valve member and communicating with said bore and conforming with the cross sectional area of said bore and forming an unrestricted port of the flow passage therethrough; a second transverse notched portion in said valve member; said second notched portion being restricted relative to said first notched portion; a liquid materials delivery port forming a passage in said rotary valve member; said port extending from a peripherial portion of said valve member to said first notched portion, whereby rotation of said second notched portion into said bore portion causes restriction thereof and disposes an end of said port down stream of said restriction and

causes a partial vacuum to be imposed in said port; said port communicating with said materials container.

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