ABSTRACT

A remote dispensing head for use in a system operating at atmospheric pressure for dispensing heated fluid has a housing formed by a base having means thereon for connecting the dispensing head to a counter or like point of use, and an annular plastic body member connected to the base to form an expansion chamber in the housing, the housing may include valve means for controlling the flow of fluid from a given source to the dispensing system and a discharge means such as the spout operatively associated with a discharge passage in the base connected to the system to pass fluid from the system to the spout for discharge to use, and a cross passage means in the base provides communication between the lower portion of the expansion chamber and the discharge passage to permit expansion fluid to expand into the expansion chamber, and means operable responsive to the level of the expansion fluid in the expansion chamber will act to close off the cross passage means when the expansion fluid reaches a predetermined minimum level.

22 Claims, 24 Drawing Figures
REMOTE PLASTIC DISPENSING HEAD WITH FLUID LEVEL ACTUATED EXPANSION CHAMBER SHUT OFF

BACKGROUND OF THE INVENTION

The invention relates generally to hot water heating and dispensing apparatus and systems operating at atmospheric pressure in which the dispensing means is disposed remotely from the storage and heating means for the water to be dispensed and more particularly to an improved remote plastic dispensing head.

In U.S. Pat. No. 3,202,321 a hot water heating and dispensing apparatus operating at atmospheric pressure is shown having a remote dispensing head. The remote dispensing head is so characterized because it is disposed remotely with respect to the storage and heating means for the water to be dispensed from the system. In particular, the remote dispensing head as disclosed in this patent is so arranged and connected that the dispensing head functions in the capacity of an over flow control device and also as a means to control the discharge of heated water as needed. Thus, this remote dispensing head of U.S. Pat. No. 3,202,321 is provided with a vented expansion chamber calibrated for a predetermined volume capacity depending largely on the temperature of the cold water to be introduced into the system. The expansion chamber will compensate for excessive fluid expansion within the storage and heating chamber of the system and further includes a discharge opening or spout so positioned that it permits discharge of excessive expansion water when the volumetric capacity of the system is exceeded.

A remote dispensing head as above described accumulates expansion water in the expansion chamber and this expansion water is aspirated when heated water is discharged through the discharge spout during normal operation of the hot water heating and dispensing apparatus.

While this construction operates effectively, it has been found that after the expansion water is emptied from the expansion chamber that the aspirating means continues to function. This acts to draw air from the vented expansion chamber into the heated water being discharged from the system. This induced or aspirated air acts adversely in the discharging heated water because it disrupts the uniformity of the stream and creates turbulence therein due to the induced air and second it acts to reduce the temperature of the heated water which is delivered for use.

These problems have been overcome heretofore by the use of a flow straightener in the discharge spout of the dispensing head and by raising the temperature of the heated water delivered to the discharge spout to compensate for the heat loss occurring due to aspiration of air during operation.

The present invention overcomes these same problems by preventing aspiration of air through the expansion chamber after the expansion water has been aspirated from the expansion chamber.

This is accomplished by a float means responsive to the level of the expansion fluid in the expansion chamber of the remote dispensing head which float means seals the cross passage means so as to shut off the aspiration or flow of expansion water into the heated water being discharged after the expansion water reaches a predetermined minimum level in the expansion chamber.

Further, however, because the remote dispensing head as shown in U.S. Pat. No. 3,202,321 was the only visible portion of the system it was important that it have a pleasing appearance from the eye of the consumer. Since the remote dispensing head included, an expansion chamber sized to meet the volumetric requirements of the dispensing system, the remote dispensing head was large and costly because of the materials required to withstand the corrosive and erosive effects of the heater water being dispensed therefrom or collected therein. For example, such dispensing heads were made of brass alloy or similar materials and were generally chrome plated to provide the desired appearance characteristics of fixtures of this type.

It is therefore another object of the present invention to provide an improved dispensing head which is made of less costly materials and which will accomplish the same end results as the prior art remote type dispensing head shown in U.S. Pat. No. 3,202,321.

SUMMARY OF THE INVENTION

Thus, the present invention covers an improved remote substantially all plastic dispensing head for use in a system for dispensing water at atmospheric conditions which includes, a housing having a base with means thereon to connect the dispensing head to a counter or like point of use, an annular plastic member connected to the base for forming an expansion chamber in said housing, spout means on the dispensing head communicates with a discharge passage wherein to pass heated water from the system to the spout means, and a transverse passage means therein connects the expansion chamber to the discharge passage which includes an aspirating means to enable expansion fluid to pass into the expansion chamber during static conditions of the system and to be aspirated from the expansion chamber when heated water is discharged from the system through the dispensing spout, and means operatively associated with said transverse passage means is operable to close the passage when the level of the expansion fluid in the expansion chamber reaches a predetermined minimum.

These and other objects of the invention will become clear to those skilled in the art when the description herein is considered in connection with the following drawings.

FIG. 1 shows a sink enclosure in vertical section having a hot water heating and dispensing apparatus mounted therein in side elevation with a portion in vertical section.

FIG. 2 is a side elevation on an enlarged scale of the jacketed storage and heating assembly of the system of FIG. 1 with a fragmentary cross-section of the insulated casing to show the location of the storage and heating unit therein.

FIG. 3 is a diagrammatic illustration of the thermostatically operated heating circuit for the storage and heating units.

FIG. 4 is a top plan view of a remote dispensing head in accordance with the present invention with a portion thereof shown in dotted form.

FIG. 5 is a vertical section taken on line 5—5 of FIG. 4 with an enlarged view of the inlet valve and associated valve head arrangements.
The jacketed heater assembly consists of a storage tank 13 having a heater element 14 therein which is automatically operated to maintain water stored in the storage tank at a predetermined temperature. Heating of water in storage tank 13 is controlled by means of the thermostat assembly 15 having an element 16 operably connected to a switch 17. The terminals of switch 17 are connected to a source of electric circuit for feeding the electric heating means or heating element 14. The switch 17 includes a calibrating mechanism as at 18 for adjusting the switch setting to maintain a predetermined water temperature within the storage tank 13. The electrical connections to the heating element 14 and thermostat assembly 15 are shown in Fig. 3 of the drawings and the entire heating system will not be more fully described because it is well known in the art as indicated in U.S. Pat. Nos. 3,202,321; 2,903,551 and 3,651,491.

The storage and heating sink 13 in the jacketed water heater assembly 12 communicates with the remote dispensing head 10 and to the source of water to be heated through a plurality of lines and conduits as now will be described.

Thus, referring to Figs. 1 and 2 an inlet conduit is shown at 20 which communicates at one end with a source of water to be heated and dispensed and at the other end communicates with and is connected to an inlet port 21 formed in the base 22 of the dispensing head 10.

Suitable valve assembly means generally designated 23 has a valve head 24 which normally maintains the inlet port 21 closed by means of valve spring 25 and the valve head 24 is connected through a valve stem 26 to a manually rotatable cap 27 operatively associated with a cam assembly generally designated 28 so that on manual rotation of the cap 27 the valve stem 26 will raise valve head 24 off inlet port 21 to open the inlet port.

A valve chamber 29 in the base 22 about inlet port 21 communicates with an outlet passage 30 to communication with a transfer conduit 31 which is connected at one end to the base 22 and is connected at the end remote therefrom to the bottom of storage and heating tank 13 so that water can pass from the inlet port 21 through the valve chamber 29 and outlet port 30 to the transfer conduit 31 whenever the inlet port 21 is open. Heated fluid will be displaced from the storage and heating tank 13 whenever inlet port 21 is opened because the water from the conventional water system is delivered at pressures higher than the atmospheric pressure at which this system operates.

Thus, heated water will be displaced from the upper end of the storage and heating tank 13 through discharge conduits 32 connected at one end to the upper end of tank 13 and at the end remote therefrom to a discharge passage 33 in the base member 22 of the remote dispensing head 10.

A curved spout 34 connected to the discharge passage 33 provides means for discharging the heated fluid from the system.

The system above described is known in the prior art as is shown and described in U.S. Pat. No. 3,202,321 and therefore is not more fully described herein.

REMOTE DISPENSING HEAD

The hot water heating and dispensing system of the present invention differs from that shown in U.S. Pat. 3,836,050.
In FIGS. 5 to 14 of the drawings the remote dispensing head 10 is shown to be generally cylindrical in shape.

It includes a base member 22 and an annular plastic member 41 which fits snugly into engagement with the base member 22, the curved spout 34 and the cap or cover member 27 which is mounted for rotation on the annular body member 41 for actuating the valve assembly 23 as has been above described and which valve assembly, cam assembly 28 and rotatable cap is also more fully shown and described in the said U.S. Pat. No. 3,202,321.

The base member 22 may be molded, forged or fabricated in any suitable manner and will generally be made of any suitable alloy or material which will withstand the corrosive and erosive effect of the heated water being dispensed. Further, base member must have adequate strength to securely connect and support the dispensing head 10 on the counter C of the sink enclosure as shown in FIGS. 1 and 5 of the drawings. Brass alloys and chrome nickel alloys illustrate some of the materials adapted to meet these requirements of the base member.

The base member 22 has a main body portion forming a cylindrical section 42 and extending therefrom parallel to the longitudinal line of the dispensing head 10 is a projection 43 of a lesser diameter than that of the cylindrical section so that it forms a stop shoulder 44 on the lower or under side of the cylindrical section. Projection 43 is threaded as at 45 and will be sized so that it fits through an opening 47 in the counter C against which the shoulder 44 abuts when the base member and the dispensing head 10 is mounted in its operating or functional position so that a lock washer 47a is adapted to engage the under side of the counter and a threaded member such as nut 48 when threaded onto the projection 43 will lock or firmly attach the base member and the dispensing head of which it forms a part into its operating or functional position.

A gasket means 49 is provided between the shoulder 44 and the upper surface of counter C as is shown in FIG. 5.

The inlet port 21, outlet port 30 and discharge passage 33 extend through the projection 43 and the cylindrical section 42 of the base member so that the associated conduits 20, 31 and 32 can be connected to the projection 43 to provide the necessary communication of the dispensing head 10 with the heated water storage assembly 12 as is shown in FIGS. 1 and 5 of the drawings.

The cylindrical section 42 is further provided with bores therethrough as at 50, 51 and 52 to permit threaded members 53 to extend therethrough for engagement with threaded bores as at 54, 55 and 56 formed on bosses 57, 58 and 59 on a cored central section 60 of the annular plastic member 41.

Annular plastic member or element 41 is molded or fabricated from a plastic material such as acrylic butadiene styrene (ABS) or any other suitable easily adaptable plastic material which is chemically inert and hence can withstand the corrosive and erosive effect of the heated water being dispensed.

The annular plastic member or element 41 will be coated or decorated in any suitable manner such as with a chrome finish, a gold finish or a brass finish and plastic material which are capable of being molded or coated in the manner above indicated are a known expedient in the plumbing fixture art so that variations thereof will be understood by those skilled in the art.

In order to bring the annular plastic member 41 into fluid tight engagement with the cylindrical section of the base member 22, the cored section 60 of the annular member 41 is counter-sunk as at 61 and between the inner face 62 of the counter-sunk opening 61 and the upper face of the cylindrical section 42 a gasket 63 is provided so that when the threaded attaching members 54, 55 and 56 are drawn up snugly the annular plastic member 41 and the cylindrical section 42 of base member 22 will form an expansion chamber generally designated 65 in the dispensing head 10.

An upwardly extending projection 66 disposed substantially in the longitudinal line of the expansion chamber 65 has a longitudinal bore 67 along the length thereof which is in alignment with inlet port 21 and is sized to receive the valve assembly means 23 therein as is shown in FIG. 5 of the drawings.

The valve assembly means includes a spring back up 68 which is threaded as at 69 to permit a cap 70 to be connected and to hold the valve assembly 23 in assembled position. The cap 70 is provided with a valve stem guide 71 through which the portion of the valve stem 66 remote from the valve head 10 thereof extends for engagement with and to hold the manually rotatable cap or cover member 27 so that in assembled position the cover member will hold the cam assembly 28 between the mouth or open end 72 of the annular plastic member 41 and the under side of the cap or cover 27 all of which is clearly shown in FIGS. 1, 5, 6 and 8 of the drawings.

The mouth or open end 72 of the plastic member 41 is cut away about the open end as at 73 and the cap or cover member extends down and fits about this portion of the annular plastic member 41 to both conceal the cam assembly and the open end 72 thereof and to provide a more pleasant appearance to the dispensing head 10.

It is thought clear that the open end 72 of the annular plastic member 41 is also the upper end of the expansion chamber 65 and therefore acts to vent the expansion chamber 65 to the ambient conditions of temperature and pressure of the atmosphere in which the sink enclosure is disposed and as will be clear from the description which follows with respect to the function of the expansion chamber will also serve to vent the entire hot water heating and dispensing system to atmosphere of which the remote dispensing head 10 is a part.

Towards the upper end of the annular plastic member 41 in the side thereof a spout boss 80 is formed with extends into and joins or is formed integrally with the upstanding longitudinally disposed member 66. This arrangement adds strength to the annular plastic member and supports the upstanding projection 66.

The spout boss 80 is provided with a spout bore 81 into which one end of the curved spout 34 extends as is shown in FIG. 5. The end of the spout 34 in the spout bore 81 is provided with an annular groove 82 in which an O-ring 83 is mounted to provide a fluid tight seal between the spout 34 and the spout bore 81 as is clearly shown at FIG. 5 of the drawings.
By reference to FIGS. 5, 6 and 10 it can be seen that the inner end of spout bore 81 communicates through a passage 84 with the discharge passage 33. Thus, when heated water is displaced from the storage and heating tank 13 it is passed through discharge conduit 32, discharge passage 33 connected thereto and connecting passage 84 into the spout bore 81 for discharge through the spout 34 to use.

In order to allow for expansion of heated water in the storage and heating tank 13 particularly when the system is at static conditions for a lengthy period of time a balancing port 85 disposed at the lowermost point of the expansion chamber 65 communicates with a balancing passage 86. At static conditions when heated water expands into the discharge conduit 32 and discharge passage 33 it will pass through the balancing passage 86 and balancing port 85 into the expansion chamber 65.

By reference to FIGS. 1 and 5, it can be seen that the spout means 34 connecting passage 84, discharge passage 33, balancing passage 86, balancing port 85 and the expansion chamber 65 will act like a U-tube with respect to the expansion water which collects in the expansion chamber 65 during static conditions. The spout means 34 is so designed that if the expansion water exceeds the volumetric capacity of the spout, the passages and the expansion chamber then further expansion fluid will be discharged from the system through the spout by reason of the difference in the level of the upper surface of the expansion chamber 65 and that of the spout opening.

When heated water is displaced from the storage and heating tank 13 the velocity of the discharging water passing through the discharge passage 33 will aspirate the expansion water collected in the expansion chamber 65 through the balancing port 85 and balancing passage 86 connected thereto.

In the absence of any means to prevent aspiration this will continue even after the expansion water is emptied from expansion chamber 65 and air would normally be induced into the heated water being discharged from the system similar to the manner of the operation of the hot water heating and dispensing system shown in U.S. Pat. No. 3,202,321 and the same disadvantages of that system would be encountered.

However, in the present construction, a shut off arrangement is provided to prevent this from occurring.

**SHUT OFF ASSEMBLY**

The shut off assembly is shown in FIGS. 6, 7, 9 and 11 to 14 of the drawings as including a float guide 90 and a float means 91 in the form of a cork or plastic ball having a specific gravity less than that of the fluid or hot water which will expand into the expansion chamber 65.

The float guide is an elongated tube like member which is fixedly connected at one end into the cored section 60 about the balancing port 85 for the expansion chamber 65. The elongated float guide extends upwards in the expansion chamber 65 parallel to the longitudinal line thereof and has a length of approximately equal to that of the expansion chamber so that the upper end terminates in the line of the rim of the open or mouth end 72 of the annular plastic member 41.

The float guide has an elongated slit 92 in the side thereof which is in continuous communication with the expansion chamber 65.

Thus, when fluid expands into the expansion chamber 65 it will enter through the continuous slit 92 and fill the inside of the tube 90 so that the float member disposed therein will rise and fall as the level of the fluid in the expansion chamber varies. All of which is shown in FIGS. 6, 9 and 10 of the drawings.

By reference to FIG. 9 the balancing port is shown to have a special balancing port seat as at 94 which will be shaped so that the float means will snugly engage the said seat 94 and close off the balancing port when the level of the expansion fluid reaches the predetermined minimum point established by the balancing port seat 94 in the expansion chamber.

Thus, when the system is in operation at static conditions, expansion fluid can enter through the balancing port and fill the expansion chamber as above described. However, when the heated water is displaced and passes through the discharge conduit and discharge passage to the spout member 34 as has been above described and the expansion fluid is aspirated from the expansion chamber this will continue only until the expansion fluid reaches a predetermined minimum level where the float means 91 will seat on the balancing port seat 94 as is illustrated at FIGS. 7 and 9 of the drawings.

The operation will prevent the aspiration of any further expansion fluid or more particularly air that might cause turbulence or cool the discharging heated water from the storage and heating tank of the system.

In order to prevent leakage between the various ports and passages in the system the annular plastic member is provided with a sealing ridge 98 as is shown at FIGS. 13 and 14 of the drawings. This sealing ridge may be molded on the plastic member and will provide the necessary delineation between the various ports, passages and chambers which permit the improved operation of the dispensing head as above described and the operative association between the annular plastic member and the base member to provide the one form of improved remote dispensing head in accordance with the present invention.

**ALTERNATE FORM OF REMOTE DISPENSING HEAD**

In FIGS. 15 to 21 an alternate form of remote dispensing head is disclosed which in appearance is substantially identical to the form of the present invention as above described. It differs in that expansion fluid collected in the expansion chamber of the remote dispensing head will be aspirated with the incoming fluid or water which is being delivered to the storage and heating tank 13 of the hot water heating and dispensing system.

This arrangement has advantages over the first described form of the invention in that aspirated fluid from the expansion chamber will transfer some portion of its heat content to the incoming raw fluid or raw water instead of cooling heated water which the system is dispensing.

Thus, in this alternate form of remote dispensing head, as shown in FIGS. 15 to 22, the incoming raw fluid or raw water; always at an ambient temperature cooler than the heated water in the system; will while mixing with the expansion fluid being aspirated recover
some of the heat in the expansion fluid until the temperature of the aspirated fluid and the incoming fluid are equalized.

While this heat content is relatively small, it has an economic or cost advantage as compared with the effect that is produced when the discharging heated water is cooled by the aspirated expansion water as described for the form of the invention shown in FIGS. 1 to 14 of the drawings. The cooling of the heated water being discharged requires that the discharging heated water be raised to a higher temperature to offset the cooling effect of the expansion water. This increases the cost of operating a unit which aspirates expansion fluid or water with the heated fluid being discharged or dispensed by the system.

Thus, referring to FIG. 15 only a portion of a hot water heating and dispensing system is shown including the alternate form of remote dispensing head generally designated 100. Only a portion of the system is shown because the remote dispensing head 100 is used in the same hot water heating and dispensing system as has been above described and as is shown in U.S. Pat. No. 3,202,321. Accordingly, it is not deemed necessary to redescribe this system to show the application thereto of the remote dispensing head 100 and the like parts have been given the same character numeral to show this identity.

Further, remote dispensing head 100 is identical in exterior appearance to that of the form of the invention shown in FIGS. 1 to 14 and except for those changes in the construction of the annular plastic member that are required to permit the system to aspirate collected expansion fluid from the expansion chamber in the remote dispensing head 100 by incoming fluid passing to the storage and heating unit 13. Remote dispensing head 100 is otherwise identical to the construction of the remote dispensing head 10 and like parts will accordingly be given the same character numerals with a character letter added also for the purpose of showing this identity. The difference in the manner in which these parts are connected to produce the difference in operation for this alternate form of remote dispensing head will now be described.

Thus, FIGS. 17 and 18 show that the remote dispensing head 100 includes, an annular plastic member 41a and a base member 22a.

The base member 22a is similar in construction and form to base member 22 of the remote dispensing head 10 and accordingly will not be further described.

However, dispensing head 100 and its associated annular plastic member 41a differ from the dispensing head 10 in that the expansion chamber 65a formed in the dispensing head 100 when the annular plastic member 41a is connected to the base member 22a receives expansion fluid from the inlet side assembly for delivering raw incoming water or other fluid to the storage and heating tank 13. Thus, when the system is actuated to discharge heated water, the collected expansion water or other fluid in the expansion chamber 65a will be aspirated with incoming raw water or other fluid being delivered to the storage and heating tank 13 through line 31a.

Thus, as shown in FIG. 19 the dispensing head 100 is also provided with a balancing passage 85a which is formed when the annular plastic member 41a is assembled in position on the base member 22a. This balancing passage 85a is formed by a partition 101a and a rib means as at 102a which also maintain a fluid tight seal between the discharge passage 33a and the balancing passage 85a. The balancing passage 85a has a balancing port 86a disposed at the lower most point of the expansion chamber 65a.

As indicated at 98c a sealing means similar to 98 as shown in FIG. 14 is provided.

The balancing passage 85a so formed by the annular plastic member 41a of the remote dispensing head 100 will thus communicate at one end with the balancing port 86a and at the opposite end with the inlet line 31a at a point beyond where the inlet line receives raw water or other fluid from the aspirating valve assembly 23 for delivery to the storage and heating tank 13 when the valve assembly 23 is actuated to open position as has been above described for the form of the invention shown in FIGS. 1 to 14 of the drawings.

As in the form of the invention shown in FIGS. 1 to 14, the spout will be so designed that when expansion fluid or water exceeds the volumetric capacity of the expansion chamber and the associated lines and passages of the simulated U-tube further expansion fluid will be discharged from the system through the spout by reason of the difference in the elevation between the upper surface of the expansion chamber 65a and the highest point of the lower side of the inner wall of the spout.

Conversely, when the system is actuated to discharge heated fluid from the storage and heating tank 13 by displacement in the same manner as has been described above, the velocity of the incoming water or raw fluid passing to the inlet line 31a will act to aspirate collected expansion water or other fluid from the expansion chamber 65a through the balancing port 86a and balancing passage 85a connected thereto.

In the absence of any means to stop aspiration, after the expansion water is emptied from the expansion chamber 65a as in the prior art devices air would normally be added to the incoming water or fluid passing through the inlet line 31a to the storage and heating tank 13.

The addition of such air into the storage and heating tank is a definite disadvantage to the system because it will cause partial filling of the tank after the inlet valve is closed and this tank condition on the next opening of the inlet valve results not only in delayed flow of heated fluid but delivery of an indeterminant volume of fluid from the tank.

The present construction therefore also provides a shut off arrangement identical to that shown in FIGS. 6, 7, 9 and 11 to 14 of the drawings to prevent this from occurring.

Since the shut off arrangement or assembly is identical it requires no further description.

In operation when the incoming raw water or other fluid has aspirated all of the collected expansion water or other fluid from the expansion chamber to the pre-
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determined minimum level where the float means 91a
will seat on the balancing port 86a as is illustrated at
FIG. 19 of the drawings, the balancing port will be
closed and further aspiration of expansion fluid or air
will be prevented.

From the foregoing, it is readily seen that the present
invention constitutes a relatively inexpensive and yet
convenient system for safely maintaining an instant
supply of hot water for either a commercial or domestic
installation which operates at atmospheric pressure so
that any danger or malfunction of the system will not
produce damage or inconvenience to the user.

Further, the remote dispensing heads for such system
as above illustrated overcome the problems of the prior
art devices formerly used with such systems.

While the foregoing description discloses a preferred
embodiment, it will be understood that certain changes
and modifications may be made in these forms of the
invention as disclosed without departing from the spirit
and scope thereof as defined in the appended claims.

What is claimed is:

1. A dispensing head for a heated fluid dispensing
system operating at atmospheric pressure having a stor-
age and heating tank, and a fluid flow means for deliv-
ering the raw fluid to be heated to the storage and heat-
ing tank and for passing heated fluid displaced from the
storage and heating tank to the remote dispensing head
to be dispensed comprising:
a. a housing including, a base portion having means
for connecting the dispensing head to any suitable
point of use remote from the storage and heating
tank, an annular plastic portion connectable to the
base portion to form an expansion chamber in the
dispensing head vented to atmosphere, and spout
means on the annular plastic portion connected to the
fluid flow means for dispensing fluid from said
system,
b. the housing having passage means at substantially
the lowest part thereof connecting the expansion
chamber to the fluid flow means,
c. aspirating means in said fluid flow means opera-
tively associated with said passage means for aspir-
ating fluid from said expansion chamber through
said passage means when heated fluid is displaced
from the fluid dispensing system,
d. and means operable by the level of expansion fluid
in said expansion chamber to close said passage
means when expansion fluid has been substantially
discharged from the expansion chamber.

2. In a dispensing head as claimed in claim 1 wherein
the base portion of the housing is made of a corrosion-
resistant material, and the annular plastic portion is
coated with a desired finish.

3. In a dispensing head as claimed in claim 1 wherein
the means operable by the level of the fluid in the ex-
pansion chamber includes, seat means formed in said
passage means, and means disposed to seat on said seat
means for closing the passage means when the expa-
nision fluid reaches a predetermined minimum level in
said expansion chamber.

4. In a dispensing head as claimed in claim 1 wherein
the means operable by the level of expansion fluid in
the expansion chamber includes,
a. seat means in the end of the passage in communi-
cation with the expansion chamber,
b. a guide means about said seat means in communi-
cation with expansion fluid therein,
c. and float means disposed in said guide means dis-
posed to rise and fall with the change in level of the
expansion fluid in the expansion chamber and op-
erable to engage the seat means when the expa-
nision fluid reaches a predetermined minimum level.

5. In a remote dispensing head for a heated fluid dis-
ensing system as claimed in claim 1, including,
a. spout means in said dispensing head for discharg-
ing heated fluid from the system,
b. and the passage means in the housing is connected
at the end remote from the expansion chamber to
the spout means whereby expansion fluid collected
in said expansion chamber will be aspirated there-
from by the flow of heated fluid being dispensed
from the spout means.

6. In a remote dispensing head for a heated fluid dis-
ensing system as claimed in claim 1 including,
a. an inlet line in the fluid flow means for delivering
raw fluid to be heated to the storage and heating
tank,
b. and the passage means in the housing is connected
at the end remote from the expansion chamber to
the inlet line whereby expansion fluid collected in
the expansion chamber will be aspirated therefrom
by the flow of raw inlet water being delivered to the
storage and heating tank.

7. A dispensing head for a heated fluid dispensing
system operating at atmospheric pressure disposed re-
 mote from the storage and heating tank for the system
comprising,
a. a housing including, a base having means for con-
necting the dispensing head to any suitable point of
use remote from the storage and heating tank, an
annular plastic member connected to said base to
form an expansion chamber therewith vented to
atmosphere, and a fluid flow means for delivering
raw fluid to be heated to said storage and heating
tank and for passing fluid displaced from the stor-
age and heating tank to the housing,
b. spout means connected to said housing and dis-
pensed in communication with the fluid flow means
in said dispensing head for discharging heated fluid
therefrom,
c. the housing has transverse passage means at sub-
stantially the lowest part thereof in communication
at one end with the fluid flow means and at the
other end with the vented expansion chamber,
d. aspirating means in said fluid flow means opera-
tively associated with said transverse passage
means for aspirating collected expansion fluid from
said expansion chamber through said passage
means when heated fluid is discharged through said
spout means,
e. and means operably by the level of collected ex-
pansion fluid in said expansion chamber to close
said transverse passage means when expansion
fluid has been substantially emptied from the ex-
pansion chamber.

8. In a dispensing head as claimed in claim 7 wherein
the annular plastic member includes, a central section
having ports and passages, and seal means on said cen-
tral section about the ports and passages for forming a
fluid tight seal with the base.
9. In a dispensing head as claimed in claim 7 wherein the base portion of the housing is made of a corrosion-resistant metal, and the annular plastic portion is coated with a metallic finish.

10. In a dispensing head as claimed in claim 7 wherein the means operable by the level of the fluid in the expansion chamber includes, seat means formed in said passage means, and means disposed to seat in said seat means for closing the passage means when the expansion fluid reaches a predetermined minimum level in said expansion chamber.

11. In a dispensing head as claimed in claim 7 wherein the means operable by the level of expansion fluid in the expansion chamber includes,
   a. seat means in the end of the passage means in communication with the expansion chamber,
   b. a guide means about said seat means in communication with expansion fluid therein,
   c. and float means disposed in said guide means disposed to rise and fall with the change in level of the expansion fluid in the expansion chamber and operable to engage the seat means when the expansion fluid reaches a predetermined minimum level.

12. A dispensing head for a heated fluid dispensing system operating at atmospheric pressure and having a storage and heating tank comprising:
   a. a housing including, a base having means for connecting the dispensing head to any suitable point of use remote from the storage and heating tank, and an annular plastic member connected to said base to form an expansion chamber therewith vented to atmosphere,
   b. an inlet line connected between the housing and the storage and heating tank for delivering raw fluid to said storage and heating tank,
   c. the housing having passage means at substantially the lowest part thereof in communication at one end with the inlet line and at the other end with the vented expansion chamber,
   d. aspirating means in said inlet line operatively associated with said passage means for aspirating collected expansion fluid from said expansion chamber through said passage means when raw fluid is delivered to the storage and heating tank,
   e. and means operable by the level of collected expansion fluid in said expansion chamber to close said passage means when expansion fluid has been substantially emptied from the expansion chamber.

13. In a dispensing head as claimed in claim 12 wherein the base portion of the housing is made of a corrosion-resistant material, and the annular plastic portion is coated with a desired finish.

14. In a dispensing head as claimed in claim 12 wherein the means operable by the level of the fluid in the expansion chamber includes, seat means formed in said passage means, and means disposed to seat in said seat means for closing the passage means when the expansion fluid reaches a predetermined minimum level in said expansion chamber.

15. In a dispensing head as claimed in claim 12 wherein the means operable by the level of expansion fluid in the expansion chamber includes,
   a. seat means in the end of the passage means in communication with the expansion chamber,
   b. a guide means about said seat means in communication with expansion fluid therein,
   c. and float means disposed in said guide means disposed to rise and fall with the change in level of the expansion fluid in the expansion chamber and operable to engage the seat means when the expansion fluid reaches a predetermined minimum level.

16. In the annular plastic member as claimed in claim 15 wherein,
   a. spout means is formed in the cylindrical body having a discharge port in the cylindrical body in communication with the spout means,
   b. a discharge passage in the cylindrical body in communication with the discharge port,
   c. and said passage means has the end remote from the end in communication with the expansion space connected to the discharge passage.

17. In the annular plastic member as claimed in claim 15 wherein the annular plastic member has means forming a decorative finish on the outer surface thereof.

18. In an annular plastic member as claimed in claim 15 wherein the central core is provided with a seal means for effecting a fluid tight seal when the annular plastic member is in assembled position on the remote dispensing head.

19. In hot water system having a heating tank at substantially atmospheric pressure to provide a hot water supply, and a remote dispensing head,
   a. a discharge passageway formed in said remote dispensing head,
   b. first conduit means to connect the discharge passageway to the heating tank,
   c. second conduit means in the remote dispensing head connected to a source of water at pressure above atmospheric pressure,
   d. third conduit means communicating between said second conduit means and the heating tank,
   e. valve means interposed in said second conduit means operable to regulate the flow of water from the source to the third conduit means,
   f. means on the remote dispensing head for operating the valve means to terminate flow of the pressurized fluid to displace hot water from the heating tank to the discharge passage,
   g. means forming a vented expansion chamber in said remote dispensing head,
   h. passage means in said remote dispensing head communicating at one end with said vented expansion chamber and at the other end with at least one conduit means,
   i. aspirating means in said at least one conduit means operatively associated with the passage means to permit collected expansion water in said expansion chamber to be aspirated therefrom through said passage means when hot water is discharged from the hot water system,
   j. and means operable by the level of expansion fluid in said expansion chamber to close said passage means when expansion fluid has been substantially discharged from the expansion chamber.

20. In a dispensing head as claimed in claim 19 wherein the means operable by the level of expansion fluid in the expansion chamber includes,
   a. seat means in the end of the passage in communication with the expansion chamber,
b. a guide means about said seat means in communication with expansion fluid therein,
c. and float means disposed in said guide means disposed to rise and fall with the change in level of the expansion fluid in the expansion chamber and operable to engage the seat means when the expansion fluid reaches a predetermined minimum level.

21. In a hot water system as claimed in claim 19 wherein the passage means is connected to the first conduit means.

22. In a hot water system as claimed in claim 19 wherein the passage means is connected to the third conduit means.

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