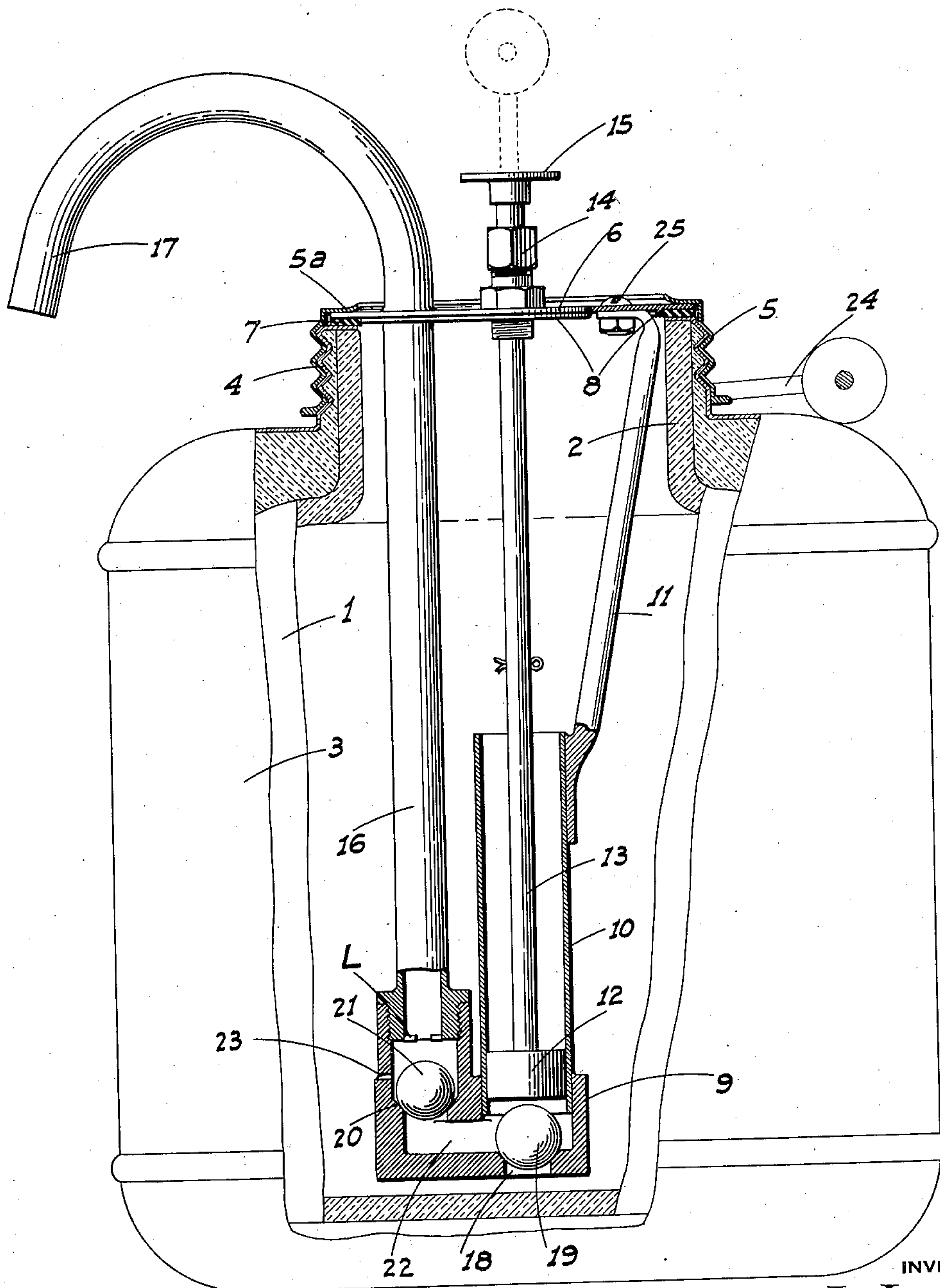


Nov. 26, 1935.

J. L. LACKE
PUMP FOR THERMAL JUGS
Filed Aug. 17, 1934

2,022,208



INVENTOR

J. L. Lacke

BY

Paul J. Walcott
ATTORNEY

UNITED STATES PATENT OFFICE

2,022,208

PUMP FOR THERMAL JUGS

Joseph L. Lacke, Stockton, Calif.

Application August 17, 1934, Serial No. 740,265

5 Claims. (Cl. 221—85)

This invention relates to pumps and is directed particularly to a liquid pump for use in combination with a thermal jug.

The principal object of my invention is to provide a pump unit which may readily be used in combination with any thermal jug of the usual open mouth type. With jugs of this type it is very inconvenient to pour the liquid from the relatively wide mouth, and spilling and loss of the liquid often results.

A further object of my invention is to provide a pump for thermal jugs which may be sealed in combination with the jug in order that the relatively wide mouth of the jug need not be open to the atmosphere each time it is desired to draw liquid from said jug. Whether used for cold or hot drinks the coldness or heat respectively within the jug is greatly diminished each time the mouth of the jug is opened for pouring. I therefore provide a pump which may be easily operated by hand and which draws the liquid from the jug without opening the large mouth thereof.

A further object of my invention is to provide means whereby the air which draws back into the jug through the faucet to take the place of the liquid withdrawn will be admitted at a point within the jug which is below the normal level of the liquid in said jug. The air drawing back through the faucet not only prevents dripping of any remaining liquid from the faucet but said air being admitted within the jug at a point below the level of the liquid within the jug does not tend to vary the temperature of the liquid to such a great degree as when admitted through the wide mouth of the jug.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views.

The figure on the drawing is an elevation of my improved pump partly in section as mounted in a jug.

Referring now more particularly to the characters of reference on the drawing, the thermal jug for which this pump is intended comprises a container 1 of glass or the like having a wide neck or mouth 2 and enclosed within a metal casing 3 in heat insulating relation thereto as is customary. This casing has a threaded portion 4 surround-

ing the mouth 2 for engagement with the screw cap ordinarily used, but which for my purpose is replaced by a tapped coupling sleeve 5.

The pump structure which is arranged as a single unit for removable placement within the jug, comprises a rigid top disc 6 adapted to extend over the mouth of the jug and having a sealing gasket ring 7 between the disc and jug about the mouth. The disc is preferably provided with a depending annular flange 8 just inwardly of the ring to centrally locate the latter in place. The sleeve has a top inwardly projecting flange 5a which extends over the disc adjacent the rim and engages the same so as to compress the ring and make a tight fit when the sleeve is screwed down, besides then preventing any movement of the disc.

The pump itself which mainly depends and is supported from the disc comprises a valve housing 9 disposed adjacent the bottom of the jug when the disc is in place. A pump barrel 10 is secured to and projects upwardly from the housing in axial alinement with the disc. The barrel on one side and adjacent the top is supported from the disc by a brace member 11 of suitable character extending therebetween.

A plunger 12 in the barrel is connected to an operating rod 13 which projects upwardly through a packing gland 14 of conventional character mounted in the disc. On its upper end the rod carries an operating knob 15. Secured in and projecting upwardly from the valve housing to one side of the barrel is an outlet pipe 16. This extends through the disc with a rigid airtight fit and terminates in a downwardly curved dispensing faucet 17 disposed so that its lower end is outwardly of the adjacent side of the jug.

The housing 9 has an intake port 18 in the bottom in alinement with the barrel, which is normally closed by a glass ball valve 19 in the housing. Below the pipe 16 the housing 9 is provided with an upwardly facing seat 20 for another glass ball valve 21, there being a communicating passage 22 in the housing from under the ball 21 to the barrel 10 below the plunger but above the port 18. The lower end of the pipe 16 is provided with inturned lugs L which limit the upward movement of ball 21, and prevent the same closing the pipe. The side wall of the housing 9 above the ball 21 is provided with a bleed opening 23.

The jug is provided with the usual hinged bail 24 adapted to be raised when transporting the jug as indicated in dotted lines. The projecting portion of the plunger above the rod and the knob,

when the plunger is in its lowest position, is of such height that it does not interfere with this raising of the bail and the grasping of the same by the handle.

5 The connection between the pipe 16 and the valve chamber 9 is preferably made by means of a screw connection as shown in the drawing. To enable such connection to be made, while main-
10 11 is connected to the disc by a removable bolt 25 so as to allow the disc and pipe to turn as a unit. Also in order to enable the unit to be thus turned, the plunger 12 is withdrawn from the upper end of the barrel, and is replaced therein after the
15 pipe has been firmly screwed down to place.

In use the thermal jug is filled with liquid and the pump unit then inserted through the relatively wide mouth into the jug. The closure disc 6 and gasket 7 resting over the mouth of the jug
20 are then clamped in airtight connection with the mouth by means of the tapped coupling sleeve 5. The liquid is thus sealed from the outside air and therefore the temperature of said liquid will remain relatively constant for a long period of time.

25 When it is desired to use the liquid in the jug it is only necessary to actuate the operating knob 15 with an up and down motion. The upward stroke causes the liquid to be drawn into the pump chamber past the glass ball valve 19 and
30 the downward stroke seats the ball valve 19 and closes the intake port 13. At the same moment the glass ball valve 21 moves from the seat 20 but does not close the outlet pipe 6 due to the depending lugs L, and the liquid then flows up
35 through the outlet pipe 16 and out of the faucet 17.

When a quantity of the liquid has been pumped out of the sealed thermal jug a substantial vacuum is created within the jug which then draws
40 the outer air back through the faucet and outlet pipe and out of the bleed opening 23 to the interior of the jug. This suction created at the faucet and in the outlet pipe 16 draws back into the jug any excess liquid that would normally
45 drip from the downwardly extending faucet. The air also being drawn back into the jug at a point relatively close to the bottom of the jug and at a point which is normally below the level of the liquid within the jug makes it possible for all the
50 air being admitted to the interior of the jug to be subjected to the temperature of the liquid therein. The air thus being first subjected to the liquid more rapidly assumes the temperature of the liquid. This makes it possible for the liquid
55 within the jug to be kept at a relatively cold or hot temperature for a period of time much longer than when the jug is used without the pump and the lid removed each time the liquid is drawn therefrom.

60 By providing means whereby the return air is admitted below the level of the liquid the returning air must first overcome the weight of the water at the bleed opening 23 and this results in a very light vacuum remaining within the jug
65 above the surface of the liquid at all times, which tends to further prevent temperature variation within the jug.

In the construction of my pump I preferably use ball valves which are of glass in order that
70 there may be no chipping and resultant rust or the like which would occur if steel balls were used.

I may also use bayonet slots in the coupling sleeve 5 rather than having it tapped as shown.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as
5 set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail
10 may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by
15 Letters Patent is:

1. In combination with a jug having a mouth, a disc to freely and turnably rest on the rim of the mouth to close the same, a hand dispensing pump supported by and depending from the disc
20 into the jug and including an outlet pipe projecting above the disc and overhanging one side of the same outwardly thereof, and a coupling sleeve removably engaging the jug about the mouth and having a flange overlapping the rim
25 of the disc.

2. A hand dispensing pump for insertion into a liquid comprising a valve housing, a pump barrel upstanding from the housing, a hand operated plunger in the barrel, an outlet pipe upstanding
30 from the housing and terminating at its upper end in a depending faucet, a passage in the housing between the lower end of the barrel and pipe, there being an intake port in the bottom of the housing communicating with said passage, an upwardly opening valve in the housing normally
35 closing said port, and another upwardly opening valve normally closing the passage below the outlet pipe; the housing having a bleed hole in its side wall immediately above the last named valve.

3. A dispensing pump for insertion into a jug
40 through the mouth thereof comprising a disc to be removably secured over the mouth of the jug to close the same, an outlet pipe projecting downwardly through the disc from above the same and non-removably secured thereto with an airtight
45 fit, a valve housing into which the lower end of the pipe is removably screwed, a pump barrel secured in and upstanding from the housing to one side of the pipe and terminating openly at its upper end below the disc, a plunger in the barrel
50 removable from the upper end thereof and a rod on the plunger slidably projecting through the disc for operation; the length of the barrel relative to the distance from the top of the barrel to the disc being such that the plunger may be
55 withdrawn upwardly from the barrel whereby to then enable the housing to be rotated to unscrew the same from the outlet pipe.

4. A structure as in claim 3, with a supporting member connected to the top of the barrel on
60 the side opposite the outlet pipe and extending upwardly to the disc and being removably secured to the same.

5. A structure as in claim 3, with a valve in the housing removable from the upper end of the
65 same when the outlet pipe is removed, and another valve in the housing removable from the upper end of the barrel when the plunger is withdrawn therefrom.

JOSEPH L. LACKE. 70