July 21, 1953 J. SCHOR 2,646,073

FAUCET FOR GAS-CHARGED LIQUIDS

Filed Jan. 28, 1950

Fig. 1

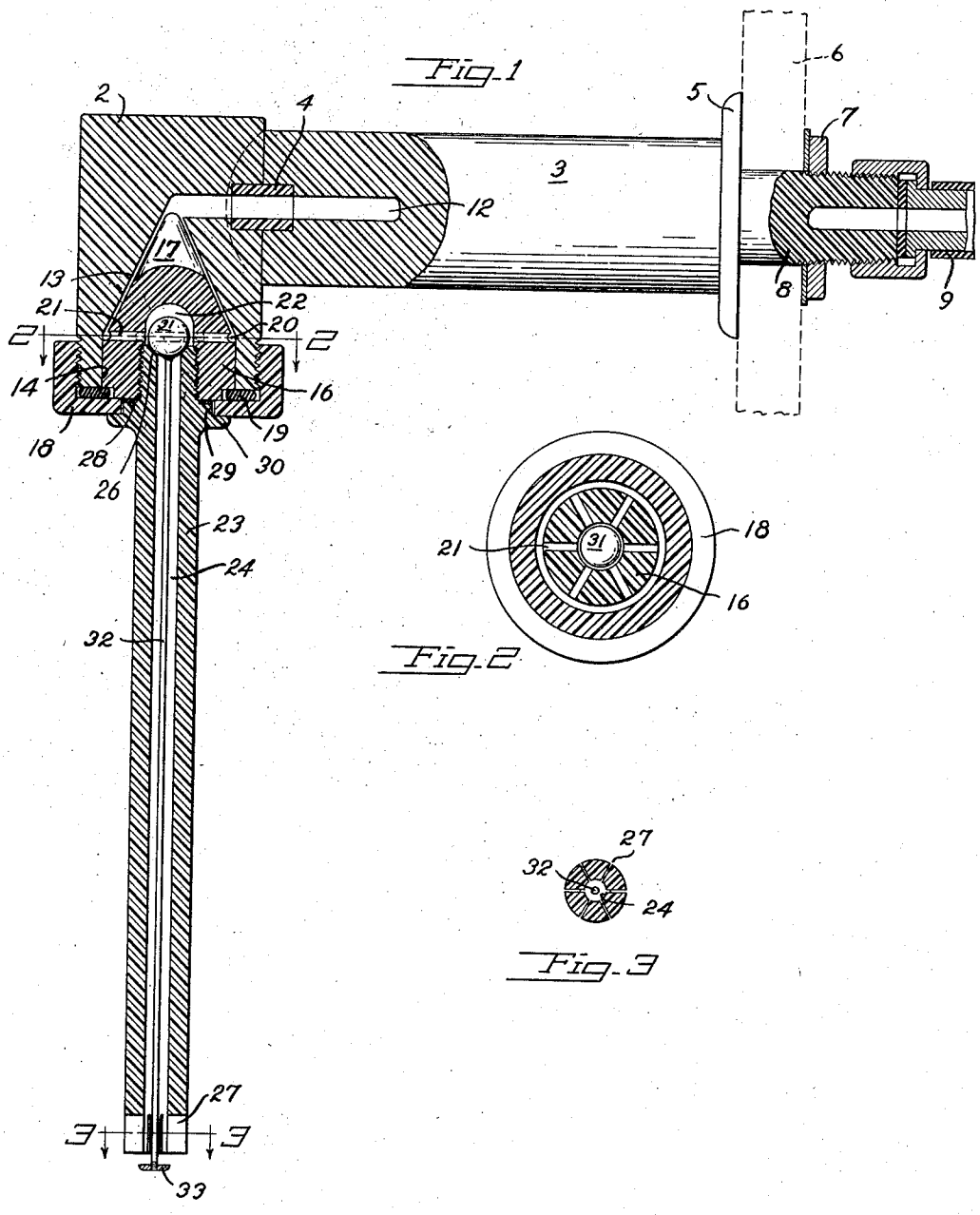


Fig. 2

Fig. 3

INVENTOR
JOSEPH SCHOR
BY Charles S. Evans
his ATTORNEY

Patented July 21, 1953

2,646,073

UNITED STATES PATENT OFFICE

2,646,073

FAUCET FOR GAS-CHARGED LIQUIDS

Joseph Schor, San Francisco, Calif.

Application January 28, 1950, Serial No. 140,987

3 Claims. (Cl. 137—614.17)

1

My invention relates to faucets and particularly to faucets for dispensing gas-charged liquids from a container, such for example as beer from a keg.

The principal object of my invention is to control the premature escape of gas from the liquid which causes excessive foaming.

The invention has other objects which will be explained in the following description of that form of the invention which is illustrated in the drawings. It is to be understood that the invention is not limited to this single embodiment, but may be included in a plurality of forms as set forth in the claims.

Referring to the drawings:

Figure 1 is a side elevation, partly in vertical section, of one of my faucets. The faucet is shown mounted on a panel, and with a part of the coupling and hose through which the liquid flows to the faucet. Figure 2 is a cross section taken in the plane indicated by the line 2—2 of Figure 1. Figure 3 is also a cross section taken in the plane indicated by the line 3—3 of Figure 1.

My invention is adaptable to the serving of any carbonated or gas-charged beverage liquid, but for purposes of this specification, it will be explained as it is applied to the dispensing of beer from a keg.

In dispensing draft beer, it is customary in the United States to keep the keg from which the beer is to be drawn in a cold chamber close to the panel upon which the faucet is mounted. The kegs are usually delivered from the brewery with an internal pressure of 8 to 12 pounds per square inch, and as the beer is drawn off, this pressure is conveniently maintained by suitable connection with a source of gas under pressure, such as an oxygen tank.

Pressure in the keg is of course necessary to prevent the escape of the CO_2 gas with which the beer is charged as a result of fermentation. As with all such carbonated liquids, the discharge of cold beer from the relatively high pressure in the keg into the relatively low pressure of the warmer atmosphere, allows the dissolved carbonating gas to escape within a few moments; and since beer is rich in film or bubble forming substances, a great deal of foaming can occur. Beer without foam is flat and unpalatable. With too much foam considerable waste occurs, and it is difficult to drink without swallowing undesirable quantities of the charging gas and inspiring complaints of short measure by the customer. At the same time it must be recognized that a certain quantity of foam is not only an attractive

2

feature but because of the effect of the CO_2 gas in the bubbles contributes definite values to taste and enjoyment of the beverage. It is therefore of great importance in the dispensing of beer to be able to draw into the glass a still heavily charged quantity of the liquid, topped with a low but sufficient "collar" of foam.

My faucet is designed to do this, with provision for the adjustment required by varying characteristics of the beer and varying pressure in the keg. Referring now to the drawings, my faucet comprises a head 2, and extension 3, which may be molded integral with the head or made in two pieces joined by cement and a hollow dowel pin 4 as shown. Preferably clear Lucite is employed because of the attractiveness of transparency, and easy workability.

The extension is provided with a flange 5 which fits against the panel 6 on which the faucet is mounted, a nut 7 threaded on the shank 8 holding all in place. A flexible plastic hose connection 9, detachably secured to the shank in a conventional manner connects the faucet to the bottom of the keg of beer.

A passage 12 extends through the extension and into the central portion of the head, at which point it opens into a conical chamber 13, at its base joining a cylindrical chamber 14. Snugly fitting in the cylindrical chamber and adjustable axially therein is a plug 16 having a conical end 17 of the same engular values as the chamber so that the plug may be pushed into the chamber to completely close it. Such axial adjustment is secured by the gland-like adjustment ring 18, threaded on the lower end of the head and engaging the lower end of the plug. A deformable rubber gasket ring 19 seals the joint between head and plug.

At the base of the conical end of the plug, a circular groove 20 is formed around the plug; and radial passages 21 connect the groove with the chamber 22 in the center of the plug. The chamber is the upper end of a recess, the lower end of which is threaded to receive the threaded end of the tube 23, in which the passage 24 extends from a valve seat forming the bottom of chamber 22, to the lower end of the tube where the passage opens into radial slots 27. A gasket ring 28, between the end of the plug 16 and the tube flange 29, insures a tight joint between plug and tube; and flange 30 overlying the edge of the ring 18, forms with the end of the plug a groove in which the edge of the ring lies, so that adjustment ring and the tube-plug unit are connected for relative rotation but not for relative

axial movement. Thus the position of the conical end 17 in the chamber 13 is subject to fine adjustment by rotation of the adjustment ring.

Seated on the valve seat 26 is a stainless steel ball 31 to which is attached a stem 32, extending down through the tube and ending in the button 33 threaded on the end of the stem, so that upward pressure on the button, such as would be exerted by the inside bottom of a beer glass held up against the tube, raises the ball valve, seats the button 33 across the end of the passage 24, and permits beer to flow through the head and out radially at the bottom of the tube.

Upon release of pressure on the button, the ball valve closes being held on its seat both by gravity and by gas pressure in the line back to the keg. The manner of use in drawing a glass of beer is thus clear; and since only one hand for the handling of the glass is required, the location of two faucets twelve or fourteen inches apart permits two glasses, one in each hand, to be filled at once, the eyes being easily capable of watching both rising "collars" and lowering the glasses to stop the flow just as the foam starts to overflow. It is also entirely feasible where handled glasses are used to locate two faucets with the tubes about three inches apart so that two glasses are grasped in but one hand and both filled simultaneously. Because of the substantially instantaneous control of the flow, a great deal of waste may be avoided by lowering the glass from contact with the button at the proper instant. This is easily learned after a few tries.

Before putting the faucet into operation the ring 18 is adjusted to leave a very thin gap or space between the conical faces of plug and head chamber. This is measured in thousandths of an inch and each faucet must be adjusted for the beer which is to be served through it, temperature, gas content, composition and keg pressure all being factors. Adjustment actually is simple; and turning the ring one way or the other to vary the vertical or axial position of the plug in the coned chamber gives the desired result after one or two experimental glasses have been drawn.

I am not entirely sure just why the structure described gives the sought result. It seems clear from experiment that the spacing between plug cone and coned chamber is controlling in the over-all result of discharging beer into the bottom of the glass with no prior release or at most a very small release of absorbed gas.

I claim:

1. A faucet for gas-charged liquids, comprising a head having a passage therethrough including a conical chamber, a conical plug disposed in the chamber, means for varying the spacing of the plug from the wall of the chamber to vary the flow of liquid therearound in the head passage, a tube extending from the head and having a passage therethrough in continuation of the head passage, a valve controlling the tube passage and normally closed by pressure of liquid in the head passage, and means for lifting the valve.

2. A faucet for gas-charged liquids, comprising a head having a passage therethrough including a conical chamber, a conical plug disposed in the chamber, a gland threaded on the head to adjust the spacing of the plug from the wall of the chamber to vary the flow of liquid through the space between the adjacent surfaces of plug and chamber wall, a deformable gasket ring between the head and the gland, a tube extending from the head and having a passage therethrough in continuation of the head passage, a valve controlling the tube passage and normally closed by pressure of liquid in the head passage, and means for lifting the valve.

3. A faucet for gas-charged liquids, comprising a head having a passage therethrough including a conical chamber, a hollow conical plug disposed in the chamber, the surface of the plug being spaced from the chamber wall to provide a passage therebetween, said plug having a passage from the hollow to the surface of the plug in continuation of the passage between the plug and chamber wall, a tube fixed in the plug and extending from the head and having a passage therethrough in continuation of the plug passage, a valve controlling the tube passage and normally closed by pressure of liquid in the plug passage, and means for lifting the valve.

JOSEPH SCHOR.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
854,108	Reynolds	May 21, 1907
977,723	Field	Dec. 6, 1910
2,217,876	Richardson	Oct. 15, 1940