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S. E. RICHESON
BEER DISPENSING FAUCET
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Fig. 1

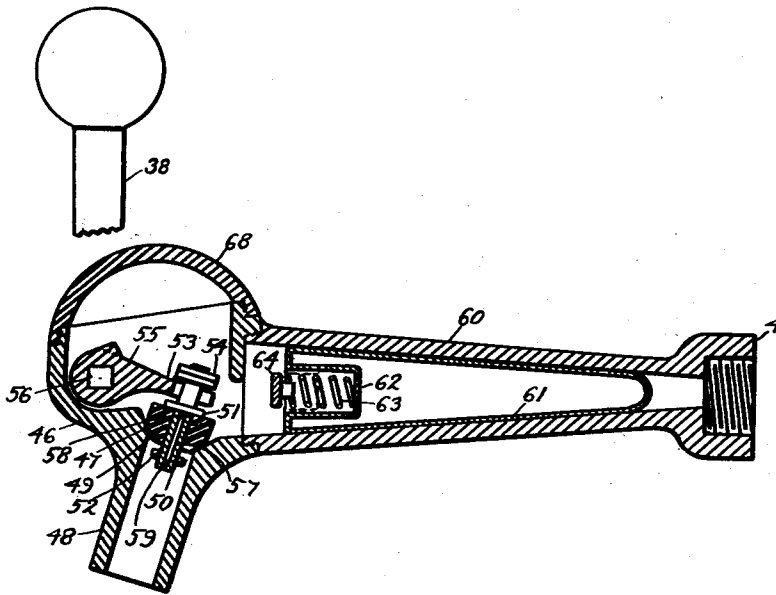


Fig. 2

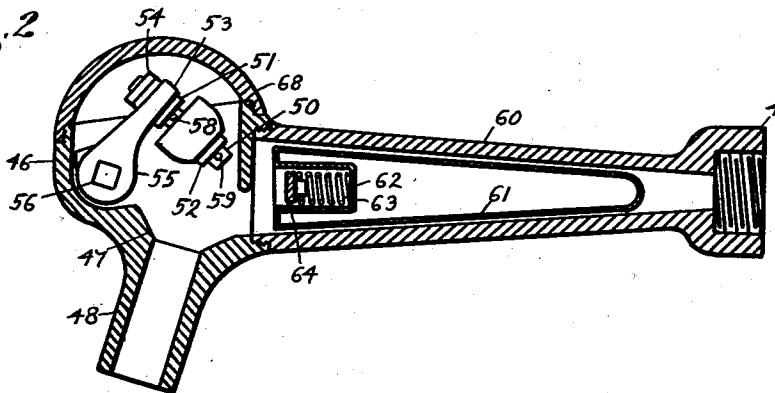
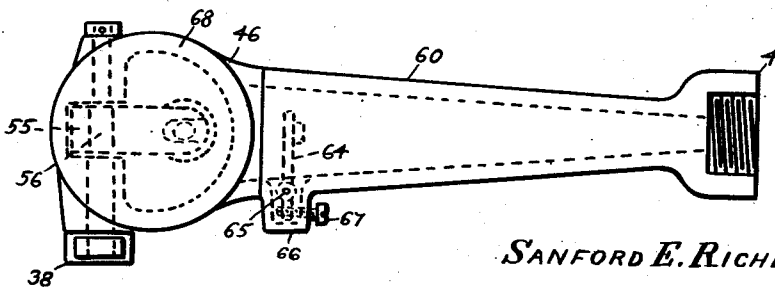


Fig. 3



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BEER DISPENSING FAUCET

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13 Claims. (Cl. 225-6)

My invention relates to faucets and has particular reference to faucets for dispensing beer and similar beverages.

In dispensing beer it is important that a requisite amount of foam be formed on top of the liquid in a glass. Beer, however, not always has the proper content of carbon dioxide for forming the right amount of fine foam. Often beer is charged too heavily and has tendency to form large bubbles which rapidly break up causing beer to become stale or flat. This effect is often accentuated by the construction of beer faucets, which have restricted passages, so that beer experiences rapid changes in the rate of flow, expands or contracts, the effect of such rapid changes being energetic liberation of gas in the form of large and short lived bubbles. On the other hand, beer is sometimes cooled to such an extent that the normal formation of foam is considerably impeded, especially with the modern systems of refrigeration.

The object of my invention is therefore to provide a faucet which, when opened, affords an unrestricted flow for a liquid so as to prevent any sudden changes in its rate of flow and pressure. For this purpose I provide a valve in the faucet pivotally supported in such manner that it can be turned completely out of the way of the flowing liquid.

Another object of my invention is to provide means for gradually reducing the rate of flow of beer before it reaches the valve proper, thereby gradually reducing its pressure, the cross-sectional area of the receiving portion of the faucet being for this purpose gradually increased toward the valve.

Another object of my invention is to provide means for automatically controlling the expansion of the liquid in accordance with the degree of opening the valve, in order to control the foam formation. For this purpose I provide a floating cone in the expansion portion of the faucet, the cone being adapted to be moved by the liquid against the tension of an adjustable spring.

Another object of my invention is to provide a small supplementary valve in the main valve of the faucet for admitting beer into the glass in the form of a fine straight spray, the supplementary valve being rendered operative by a small movement of the faucet handle, before it is turned into the open position for delivering beer.

My invention is more fully described in the accompanying specification and drawing in which—

Fig. 1 is a sectional elevation of a modified faucet, showing it in the fully closed position.

Fig. 2 is a sectional view of the same in a fully open position.

Fig. 3 is a top view of the same.

My faucet consists of a valve housing 46 with

a valve seat 47 and a discharge tube 48 at the bottom. The seat 47 is closed by a valve plug 49, preferably made of some elastic material like rubber. A rod 50 is slidably fitted in the plug 49 and is retained by a collar 51 on top and a ring 52 at the bottom. A fork 53 is located on the rod between the collar 51 and nuts 54. The fork is on the end of an arm 55 mounted on a shaft 56 journaled in the walls of the housing 46 and having a handle 38 at one end. The plug 49 is shorter than the distance between the collar 51 and ring 52, so that the collar 51 is raised above the plug when the valve is opened, as shown in Fig. 2. The rod 50 has a small hole 57 inside in communication with radial holes 58 and 59. As may be seen in Fig. 1, the hole 58 is closed by the collar 51 resting on the plug when the valve is closed. By slightly turning the handle into the open position, the fork raises the rod 51 until the ring 52 rests against the lower end of the plug. In this position the hole 58 is uncovered, permitting beer to flow through the hole 57 and radial hole 59 in the form of a fine spray, breaking up against the walls of the tube 48. The hole 59 is below the ring 52 and remains open at all times.

A receiving tube 60 extends from the side of the housing 46 and has a threaded head 4 for screwing it on the end of a beer supply pipe (not shown). The tube 60 is of a conical shape inside, expanding from a diameter substantially smaller than the diameter of the tube 48, to a much larger diameter at the housing. A floating cone 61 is placed in the conical tube 60, conforming to its shape inside. It has a tubular recess 62 at the front end for a spring 63 resting against the end of a lever 64.

The lever 64 is pivoted on a pin 65 passing through the walls of a pocket 66 at the side of the tube 60. The other end of the lever is engaged by a screw 67. By turning the screw, the lever is moved so as to change the tension of the spring 63. The lever passes through a slot in the cone 61 and a similar slot in the tube 62. The spring 63 tends to press the cone 61 into the tube 60 thereby closing the passage for the beer. As soon as the valve is opened, however, the pressure of beer overcomes the tension of the spring 63 and pushes the cone outward thereby opening a passage for beer as shown in Fig. 2. The area of the passage gradually increases thereby causing beer to expand and to retard in its motion, the corresponding change in its pressure causing liberation of the carbonic acid. The rate of change of pressure being very gradual, the gas formation will be also retarded, so that gas will form very fine bubbles. The resultant foam will be of a fine, creamy nature, lasting for a relatively long time.

The housing 46 is closed by a cover 68 screwed 60

on top and permitting a convenient access to the valve for its repairs or replacement.

It is understood that my invention may be further modified without departing from its spirit as set forth in the appended claims.

I claim as my invention:

1. A faucet comprising a receiving tube, a delivering tube, a valve housing with a valve seat between the tubes, a valve plug for closing the seat, a lever operatively connected with the plug, a handle on the lever for manually operating the plug, and an auxiliary valve of a relatively small area adapted to be opened by a small movement of the handle prior to lifting the plug from its seat, the auxiliary valve being adapted to deliver the liquid in a finely dispersed state.

2. A faucet comprising a receiving tube, a delivering tube, a valve housing between the tubes with a valve seat, a valve plug for closing the seat, a tubular rod slidably passing through the plug, means to limit the relative movements of the rod in the plug, a lever engaging the rod, a handle operatively connected with the lever for raising the plug by the rod thereby opening the valve, the rod being provided with transverse apertures adapted to establish communication for a liquid between the tubes, said apertures being adapted to be opened when the rod is raised by the first portion of the movement of the handle prior to raising the plug.

3. A faucet comprising a receiving tube, a delivering tube, a valve housing between the tubes, a manually operable valve in the housing, the receiving tube being of a gradually expanding section toward the valve, and means in the receiving tube controlled by the flow of a liquid for regulating the area of the expanding passage to accommodate varying volumes of liquid flow so as to increase the area of the passage for greater flow.

4. A faucet comprising a receiving tube, a delivering tube, a valve housing between the tubes, a manually operable valve in the housing, the receiving tube being of an expanding section toward the valve, a floating cone-shaped member in the receiving tube, a spring adapted to press the member toward the narrow end of the tube, and means to adjust the compression of the spring.

5. A faucet comprising a receiving tube, a delivering tube for a liquid, a manually operable valve between the tubes, the receiving tube being of a gradually expanding section toward the valve, a member movably supported in the receiving tube and adapted to restrict the passage for the liquid, and a retrieving spring for the member, the member being adapted to be moved by the flow of the liquid against the compression of the spring thereby enlarging the passage in accordance with the intensity of the flow.

6. A faucet comprising a receiving tube, a delivering tube for a liquid, a manually operable valve between the tubes, the receiving tube being of a gradually expanding section toward the valve, a member movably supported in the receiving tube and adapted to restrict the passage of the liquid causing the same to gradually expand, a retrieving spring for the member, the member being adapted to be moved against the spring by the flow of the liquid thereby enlarging the passage, and means to manually adjust the compression of the spring.

7. A faucet comprising a receiving tube, a delivering tube, a valve housing between the tubes

with a valve seat, a valve plug for closing the seat, a rod slidably fitted in the plug, means to limit the movements of the rod in the plug, a handle operatively connected with the rod, the rod being adapted to permit the flow of a fine spray of a liquid through the valve when said rod is raised by the handle but before the plug is lifted from its seat.

8. A faucet comprising a receiving tube, a delivering tube, a valve housing between the tubes, a manually operable valve in the housing, means to gradually expand the cross-sectional area of a passage for a liquid in the receiving tube, and means to regulate the size of said area by the flow of the liquid, said regulating means being adapted to increase the area when actuated by a greater flow of the liquid.

9. A faucet comprising a receiving tube, a delivering tube, a valve housing between the tubes, a manually operable valve in the housing, means to gradually expand the cross-sectional area of a passage for a liquid in the receiving tube, means to regulate the size of said area by the flow of the liquid, said regulating means being adapted to increase the area when actuated by a greater flow of the liquid, and means to manually adjust the regulating means.

10. A faucet comprising a receiving tube, a delivering tube, a valve housing between the tubes with a valve seat, a valve plug in the housing adapted to close the valve seat, means to manually raise the plug thereby opening a passage through the valve seat, and a supplementary valve in the plug adapted to be opened by a small motion of the manual means prior to raising the plug.

11. A faucet comprising a receiving tube, a delivering tube, a valve housing between the tubes with a valve seat, a valve plug adapted to close the valve seat, means to manually raise the plug from the seat, and a supplementary valve in the plug adapted to be opened by a small motion of the manual means prior to raising the plug, and further adapted to deliver a liquid through the plug in the form of a fine spray directed against the side walls of the delivering tube at an angle to the axis of the supplementary valve.

12. A faucet comprising a receiving tube, a delivering tube, a manually operable valve between the tubes, the receiving tube being of a gradually expanding section toward the valve, a member movably supported in the expanding portion adapted to form a gradually expanding annular passage for a liquid, and a yieldable member adapted to move the first mentioned member toward the narrow portion of the receiving tube and against the flow of the liquid, the first mentioned member being adapted to be moved back against the action of the yieldable member by the flow of the liquid thereby proportionately increasing the cross-sectional area of the expanding passage at all points along its length with the greater flow of the liquid.

13. A method of dispensing beverages containing gases, consisting in passing a beverage through a gradually expanding passage thereby gradually reducing pressure in the beverage, and regulating the cross-sectional area of the passage by the flow of the beverage so as to increase the area with greater rate of flow while retaining substantially the same rate of expansion for different rates of flow.

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