

Feb. 23, 1932.

B. B. MAYNARD ET AL

1,846,446

FAUCET

Filed Oct. 14, 1929

2 Sheets-Sheet 1

FIG. 1.

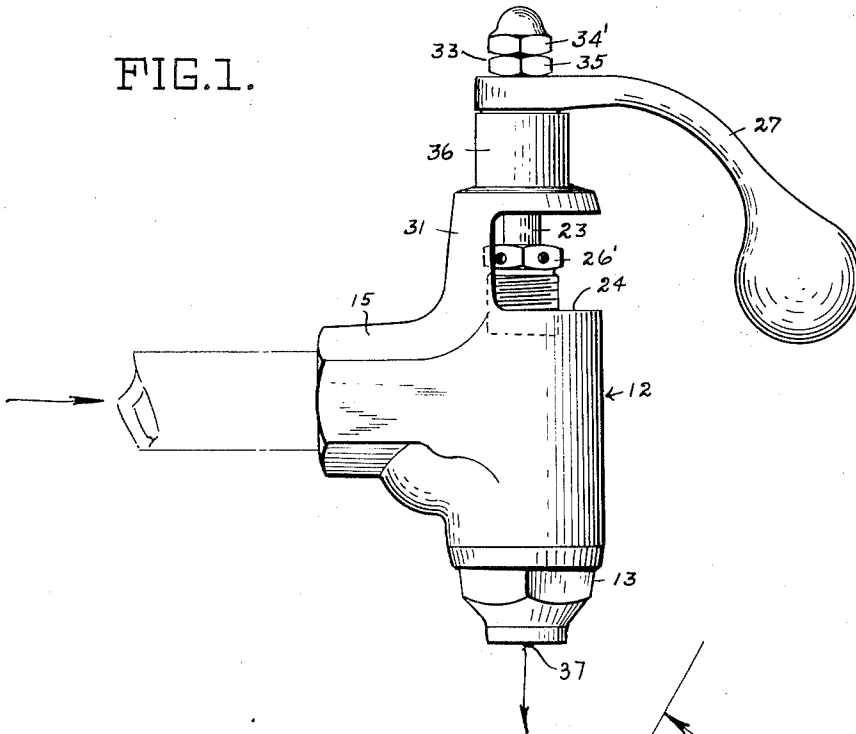
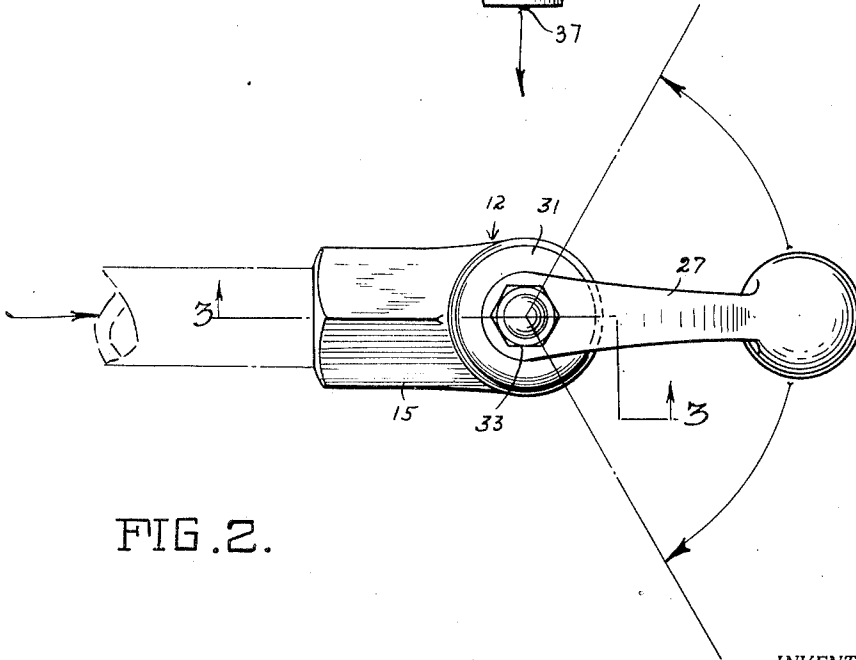


FIG. 2.



INVENTOR.

Blanshard B. Maynard
Frederick L. de Saunno
BY M. C. Frank
ATTORNEY.

BY *M. C. Frank*
ATTORNEY.

Feb. 23, 1932.

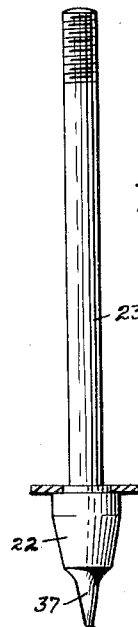
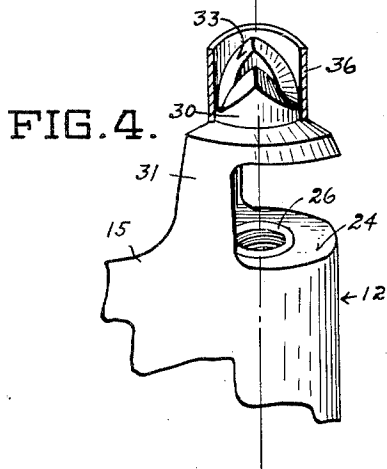
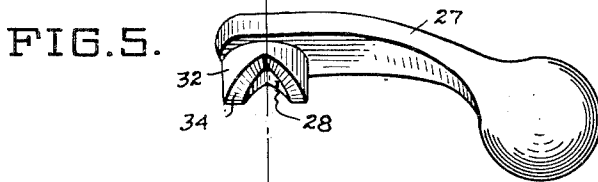
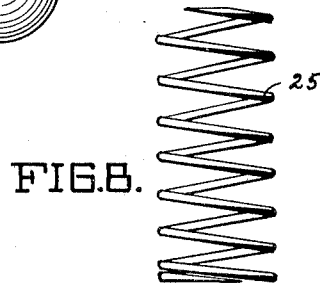
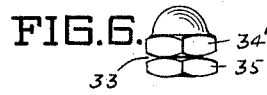
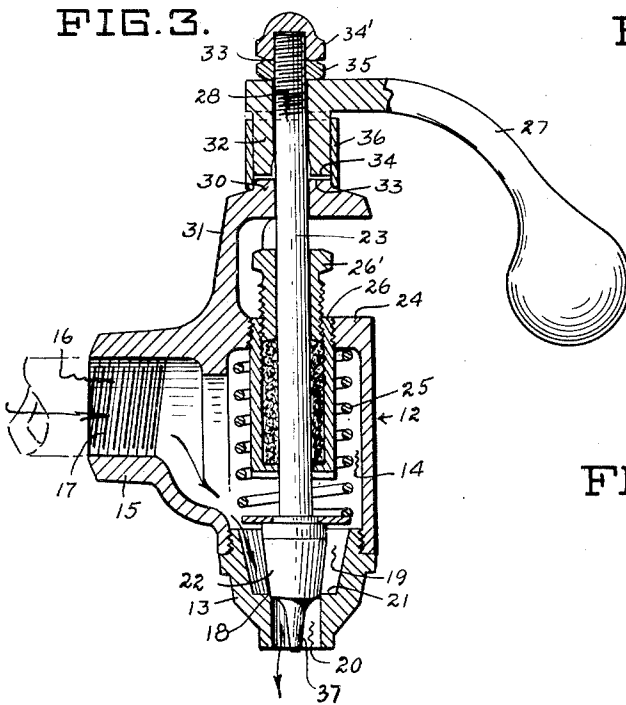
B. B. MAYNARD ET AL

1,846,446

FAUCET

Filed Oct. 14, 1929

2 Sheets-Sheet 2



INVENTOR.
Blanshard B. Maynard
Frederick L. de Sanno
BY M. C. Frank
ATTORNEY.

UNITED STATES PATENT OFFICE

BLANSHARD B. MAYNARD AND FREDERICK L. DE SANNO, OF OAKLAND, CALIFORNIA,
ASSIGNORS, BY MESNE ASSIGNMENTS, TO RHEEM MANUFACTURING COMPANY, OF
EMERYVILLE, CALIFORNIA, A CORPORATION OF CALIFORNIA

FAUCET

Application filed October 14, 1929. Serial No. 399,417.

The invention relates to a faucet of the self-closing type and particularly adapted for use with oily liquids.

An object of the invention is to provide a faucet of the type described which positively prevents a leakage of oily liquids therethrough.

Another object of the invention is to provide an improved means for opening and thereafter automatically closing a faucet of the type described.

A further object of the invention is to provide in the faucet means for insuring a solid discharge stream therefrom.

Yet another object is to bring about a new combination and correlation of parts in a device of the class described whereby marked economies in manufacture will be effected and the efficiency of the device will be enhanced.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth or be apparent in the following description of a preferred form of the invention which is illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of a faucet embodying the present invention.

Figure 2 is a plan view of the faucet.

Figure 3 is a section at 3—3 in Figure 2.

Figure 4 is a fragmentary perspective view of a portion of the faucet casing.

Figure 5 is a perspective view of a handle member of the faucet.

Figures 6, 7, 8 and 9 are elevations of various elements of the valve structure of the faucet.

In those faucets most commonly used for effecting a controlled discharge of oily liquids, as of lubricating oils and the like, the seal provided when such faucets are closed is that of opposed and relatively large surfaces of a valve and its seat. Owing, however, to the existence of more or less body in such liquids, a film of liquid actually separates the opposed surfaces to thereby permit a capillary creep or seepage of liquid through and from such faucets whereby a certain drip loss has been heretofore en-

countered and expected. In accordance with the present invention, however, the aforesaid drip is positively prevented by providing a faucet structure having a line seal for preventing the aforesaid capillary creep whereby the creation and maintenance of said seal is positively assured.

As particularly disclosed, the invention is incorporated in the structure of a faucet having the valve mechanism thereof mounted in a body or casing 12. In the present embodiment, the faucet is arranged to discharge a liquid therefrom into any suitable open receiver through a downwardly directed nozzle or spout portion 13 of the valve body. A generally cylindrical body cavity 14 extends axially upwardly from the nozzle 13 and a radial boss 15 of the body provides a passage 16 through a wall of the cavity 14. Threads 17 are provided at the outer end of the passage 16 for connecting a supply pipe thereat, it being clear that the passage 16 provides the inlet to the faucet cavity 14.

The passage of the spout portion of the body extends axially from the cavity 14 and is stepped to provide a valve seat 18 whereby the spout passage comprises inner and outer passage portions 19 and 20 separated by the seat 18, with the passage portion 19 somewhat larger than the passage portion 20. As particularly shown, the step 21 providing the seat 18 is perpendicular to the passage axis and the passage portion 20 is cylindrical whereby a right angled edge is defined at the juncture of the step 21 with the bore of the passage portion 20, and said edge is seen to provide and constitute the valve seat 18.

A valve plug 22 of frusto-conical outline is disposed within the cavity 14 and passage portion 19 for wedgedly engaging the seat 18 in a line contact therewith. For controlling the disposal of the plug 22 with respect to the seat 18, the plug is preferably mounted on a longitudinally reciprocable stem 23 which extends axially through the cavity 14 and through the casing wall portion 24 at the opposite cavity end from the spout 13. Means are preferably provided for urging a seated disposal of the plug 22, and as shown an helical compression spring 25 is disposed

about the stem 23 to simultaneously bear on the wall 24 and plug 22 for constantly urging the plug to maintain a forcibly engaged relation with the seat. Since the stem 23 emerges from the casing cavity at the pressure side of the plug 22, it is preferably engaged through a suitable stuffing box 26 mounted in the wall 24 and closed by a gland ring 26'. In the present instance, the stuffing box 26 is seen to extend into the cavity 14, and the spring 25 generally encloses the same.

A handle 27 is provided for manual operation to longitudinally displace the stem 23 to unseat the plug 22. As shown, the handle is of a lever type and is provided at one end with a transverse bore 28 for loosely receiving the extending end of the valve stem 23. Means are provided whereby a rotation of the handle from a normal position thereof and about the stem will effect the faucet-opening displacement of the stem against the resistance of the spring 25 in such manner that the spring is operative upon a release of the displaced handle to restore the plug and handle to their normal positions. Accordingly, and as shown, a bracket-like and integral extension 31 is provided on the faucet body, an end portion of said extension lying transversely across the axial line of the stem 23 above and in spaced relation from the wall 24, and being perforated to receive the stem therethrough. The handle 27 engages the stem 23 above the extension 31 and is provided with a sleeve-like boss 32 extending downwardly therefrom and toward the extension 31. An upwardly extending annular boss 30 is provided on the extension 31, and the respective opposed faces 33 and 34 of this boss and the boss 32 are formed in a complementary hill-and-valley manner as cam elements whereby the axial spacing of the bosses may be varied by and upon a relative rotation of the extension 31 and handle 27, the latter, of course, being actually moved. The upward displacement of the handle on the stem is limited to a desired minimum by a stop collar 33, the same being here shown provided by nuts 34' and 35 threadedly mounted on the extending stem end and arranged for mutual engagement for locking them in set position on the stem.

The cooperating cam slopes are seen to be oblique whereby a rotation of the handle 27 from its normal position will wedgedly force the same upwardly against the stop collar 33 and thereafter axially shift the stem to unseat the plug 22 to any desired degree. When the handle is released, the cams react, by reason of the pressure engagement thereof caused by the spring 25, to rotate the handle back to its normal position and restore the plug to its sealed position. It is noted that the present arrangement does not require a rotation of the valve stem during its reciprocative movement, though such is permitted

and is urged by the frictional engagement of the handle with the collar 33 while the valve is being unseated. A sleeve 36 encloses the bosses 30 and 32.

It will now be noted that when the handle is released for a return from a faucet-opening position, the spring 25 will operate to quickly and sharply propel the valve plug into its seated position. As the plug seats, the line edge of the seat 18 will wipe the liquid from the plug thereat to provide a direct contact between the plug and seat, thus cutting any liquid film on the plug and thereafter preventing capillary seepage along the plug and by the seat. Best results are found when the contacting plug and seat portions are of materials of different degrees of hardness; a steel plug and a seat of brass or bronze have been found to cooperatively provide and maintain a particularly effective seal. With the present arrangement, any wear of the parts is seen to be automatically taken up, so that a long operative life of the faucet is assured.

For purposes of the assembly of the faucet now described, the spout portion 13 is seen to constitute a separate element of the faucet body and threadedly engages the remaining body portion at the discharge end of the cavity 14. The discharge passage portions 19 and 20 and seat 18 are provided in the structure of the spout member 13 whereby said member may be of brass or bronze while the remaining body portion may be ferrous material.

When the faucet is opened slightly, the liquid will be discharged therefrom in a thin sheet directed generally axially inwardly. To insure a smooth discharge from the faucet at all times, it is, of course, desirable to direct the liquid axially from the spout passage 20 and appropriate means are accordingly provided for the purpose. As shown, a conically tapered point 37 is provided on the valve plug, said point extending into the spout passage 20 and collecting the liquid therein for discharge in a solid and united stream, the action of said point being particularly marked in the case of oily liquids for the dispensing of which the present faucet is particularly designed.

From the foregoing description taken in connection with the accompanying drawings, the advantages of the construction and method of operation will be readily understood by those skilled in the art to which the invention appertains, and while we have described the principle of operation, together with the device which we now consider to be the best embodiment thereof, we desire to have it understood that the device shown is merely illustrative, and that such changes may be made, when desired, as fall within the scope of the appended claim.

Having thus described our invention, we

claim as new and desire to secure by Letters Patent of the United States the following:

In a faucet for controllably discharging an oily liquid, a casing providing a fluid flow passage, a valve seat in said passage providing an angular edge encircling the passage, a plug engageable solely with said seat edge for closing the said passage, and a projecting member on said plug for uniting the liquid passing thereby in a solid discharge stream.

In testimony whereof, we affix our signatures.

BLANSHARD B. MAYNARD.
FREDERICK L. DE SANNO.