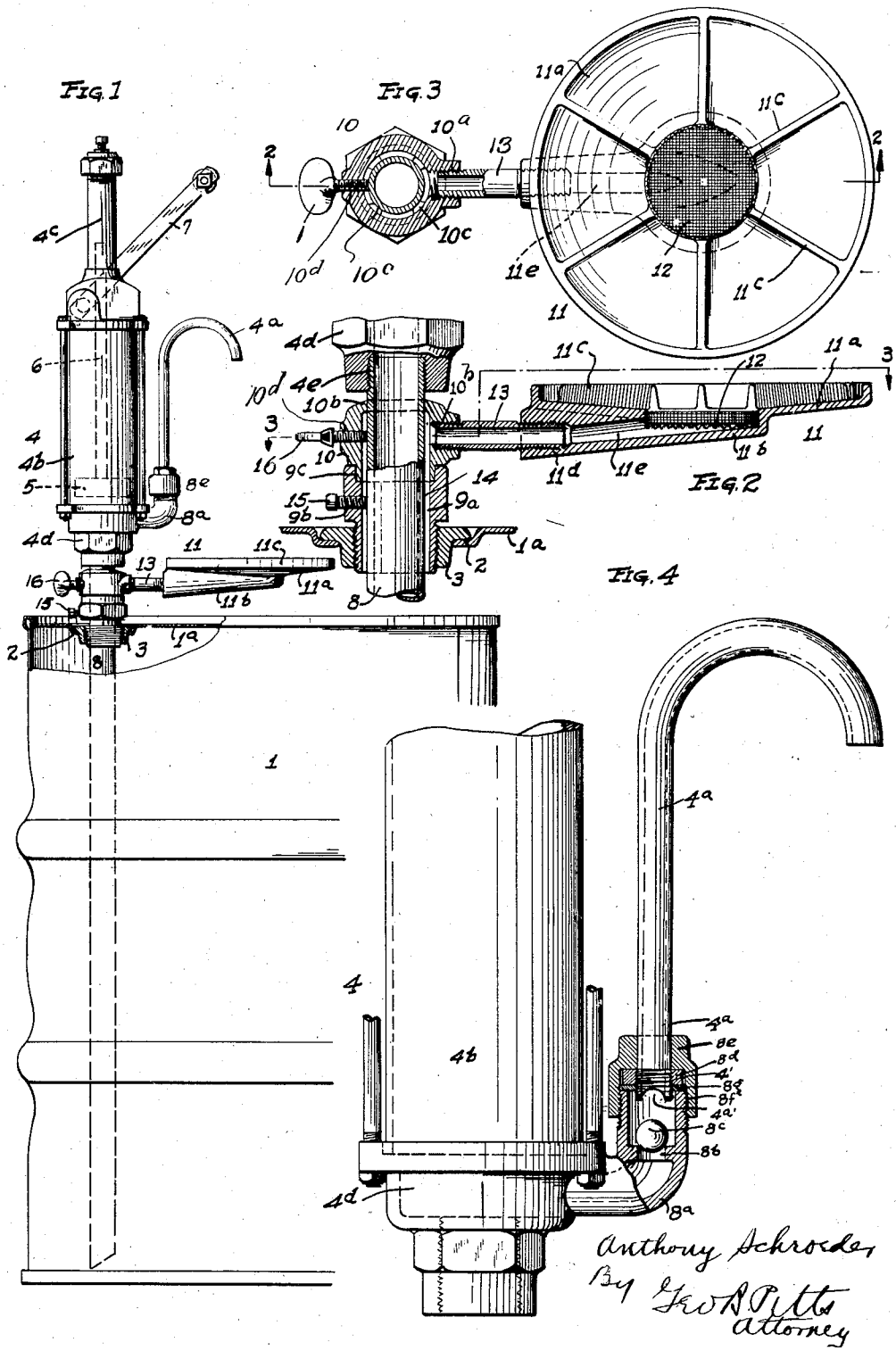
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DISPENSING MECHANISM

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DISPENSING MECHANISM

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This invention relates to a dispensing mechanism.

One object of the invention is to construct a pump having a nozzle adjustably connected to the casing of the pump or the discharge nipple leading therefrom, whereby the discharge end of the nozzle may be arranged at varying positions.

Another object of the invention is to provide an improved pump construction wherein the outlet valve is housed and free to operate in a positive manner and the discharge nozzle is adjustably connected to the outlet pipe or nipple leading from the pump.

Other objects of the invention will be apparent to those skilled in the art to which my invention relates from the following description taken in connection with the accompanying drawing, wherein

Fig. 1 is an elevational view (partly in section) of a dispensing mechanism embodying my invention.

Fig. 2 is a fragmentary view, slightly enlarged.

Fig. 3 is a section on the line 3—3 of Fig. 2.

Fig. 4 is an elevational view (partly in section) of the pump cylinder and discharge nozzle.

In the drawings, 1 indicates a container which may be of any desired construction and shape, but preferably comprising a barrel or drum formed from sheet metal, having heads connected with the body portion of the barrel in a liquid-tight manner, for instance, by a double seam. The upper head 1^a of the drum is formed with one or more openings 2, in one of which is fitted a collar 3, being secured therein in any well known way. The inner wall of the collar 3 is provided with screw threads to receive a plug (not shown), whereby the opening may be sealed for shipping and other purposes.

4 indicates as an entirety a dispensing means, such as a pump of any desired construction. In the chosen illustrated example, I have shown a reciprocating piston type of pump, constructed to suck from the container 1 and discharge from its nozzle 4^a a predetermined quantity of oil or other liquid at each operation. The pump 4 comprises a cylinder 4^b in which a piston 5 (shown in dotted lines in Fig. 1) reciprocates, the rod 6 for the piston being guided to move into and out of a tubular extension 4^c. 7 indicates an operating member—such as a crank—preferably operatively connected with the rod 6 by one or more gears and a rack (not shown). The head 4^d at the lower end of the cylinder 4^b is formed with a central threaded opening 4^e. 8 indicates a pipe extending through the collar 3 into the container 1, its upper end being screw threaded into the opening 4^e in the cylinder head 4^d and rigidly connected thereto. As will be understood from Fig. 1, the pipe 8 extends through the opening 2 in the drum or container 1 and downwardly to or adjacent its bottom, for well known reasons.

8^a indicates a discharge nipple projecting from one side of the cylinder head 4^d, the walls of the nipple preferably being formed integrally with the cylinder head. Near its outer end, the inner wall of the nipple is provided with an annular rib 8^b, which forms a discharge port for the liquid and a seat for a valve 8^c. As will be understood, the valve 8^c engages its seat to close the port during the suction stroke of the piston 5. The inner end of the nozzle 4^a is adjustably mounted on or connected to the outer end of the nipple 8^a, whereby its outer or discharge end may be moved to any desired position relative to the pump cylinder 4^b, or the crank 7, or a support 11, to which reference will later be made. The adjustable connections for securing the nozzle 4^a on or to the nipple 8^a preferably comprises the following instrumentalities: 4′ indicates screw threads provided on the outer surface of the nozzle 4^a near or adjacent its inner end. 8^d indicates a collar screw threaded on the inner end of the nozzle and arranged to seat against the end wall of the nipple 8^a. As shown, the collar 8^d is disposed at a point remote from the end of the nozzle 4^a so that said end may extend into the nipple 8^a and form a stop to limit undue movement of the valve 8^c during the force stroke of the piston 5. 8^e indicates a coupling adapted, through the screw thread connection shown at 8^f, to engage the collar 8^d and clamp it against the end wall of the nipple. By loosening the

coupling 8^e, the nozzle 4^a and collar 8^d may be rotated or adjusted to arrange the outer end of the nozzle in the desired position. A gasket 8^g may be provided between the collar 8^d and the end wall of the nipple 8^a, to prevent leakage through the joint or connection. The inner end of the nozzle 4^a is cut-away at opposite sides, as shown at $4^{a'}$, to provide escape passages from the nipple into the nozzle during the discharge of the liquid; otherwise, the pressure of the liquid against the valve might cause the latter to close the inner end of the nozzle and thus shut off the flow of the liquid. The adjustable connections for the nozzle 4^a permit its ready removal and access to the valve 8^c.

9, 10, indicate a pair of elements arranged co-axially and adapted to support the dispensing means 4 on the container 1 and the support 11 for a receptacle (not shown) that is to be filled with oil or other liquid. The support 11 preferably comprises a circular shaped casting having a wall 11^a that is inclined downwardly and inwardly from its circumferential edge, a centrally arranged chamber 11^b and ribs 11^c extending from the outer edge of the chamber 11^b to the circumferential edge of the casting. The upper edges of the ribs 11^c are horizontally disposed so as to properly support the receptacle to be filled, while permitting the spilled or surplus oil to flow or drain from the wall 11^a into the chamber 11^b. At 11^d the walls of the casting are thickened and formed with an opening 11^e, which serves as a conduit leading from the chamber 11^b.

12 indicates a screen that may be provided in the chamber 11^b. 13 indicates a pipe having screw threaded connection at its outer end with the inner wall of the conduit 11^e. The inner end of the pipe 13 is threaded into an opening 10^a formed in and extending through one side wall of the supporting element 10.

The supporting element 9 comprises a tubular member surrounding the pipe 8 and forming with its outer surface a conduit 14. The lower end of the tubular member is preferably reduced and provided with screw threads which fit the screw threads formed on the inner wall of the collar 3, thereby permitting the tubular member 9 to be rigidly supported in the collar 3. The inner wall of the tubular member 9 is provided with longitudinally extending spaced ribs 9^a, which engage the pipe 8 and maintain it and the tubular member in concentric relation. At one side, the tubular supporting element 9 is formed with a screw threaded opening 9^b to receive a set screw 15, adapted to be tightened against the pipe 8 to rigidly connect it and the tubular member together, so that the latter may rigidly support the pipe 8 and dispensing means 4 in the position shown in Fig. 1. At its upper end, the tubular member 9 is formed with an annular recess 9^c, which provides a seat and a bearing for the lower reduced end of the supporting element 10, whereby the latter may be rotated to different positions about the pipe 8 and relative to the supporting element 9 to arrange the support 11 below or at either side of the nozzle 4^a. The supporting element 10 comprises a collar the inner wall of which co-operates with the outer wall of the pipe 8 to form a continuation of the conduit 14, so as to provide a liquid connection from the pipe 13, through the opening 10^a, to the drum or container 1. By this arrangement, the oil draining from the support 11 is conducted, independently of the pipe 8, that is, the oil flowing therethrough to the dispensing means 4, back to the container 1 and to or on top of the oil therein, so that if there is any dirt in this returning oil, it will not get into that portion of the oil that is being dispensed. The upper end of the collar 10 is provided with an inwardly extending flange 10^b, which engages with the pipe 8. The flange 10^b serves to rotatably support the upper end of the collar 10 on the pipe 8 and also forms an end wall for the conduit 14, it co-operating with the bearing 9^c in the tubular member 9 to permit adjustments of the collar, as already set forth. The inner wall of the collar 10 is provided with longitudinally extending spaced ribs 10^c, which engage the pipe 8 and thus serve to maintain the collar concentric thereto. The ribs 10^c terminate at a point below the opening 10^a, so that the oil draining through or from the pipe 13 may enter any or all of the passages between the ribs and freely escape. At one side, the collar 10 is formed with a screw threaded opening 10^d, through which a suitable set screw 16 extends, whereby its free end may be caused to engage the pipe 8 and thereby secure the collar 10 thereto in the position to which it is adjusted.

In constructions of dispensing mechanisms of which I am aware, the dispensing means and the receptacle support had a fixed relation to the pipe or sleeve member which was secured in the collar in the container opening. As a result these means and elements had to be arranged according to the position in which the pipe or sleeve member came to rest when it was tightened in the container opening, thus preventing adjustment of the dispensing means and the receptacle support either relative to the container or relative to each other.

I have sought to overcome these disadvantages by providing a pair of relatively movable supporting elements, so that one thereof may be fixed in the container opening while the other may be moved to permit of the necessary and desired adjustments of the dispensing means and receptacle support. From the foregoing description it will be noted that the collar 10, the receptacle support 11 and dispensing means 4 are carried by that sup-

porting element (9) which is rigidly fixed in the container opening; also, that the dispensing means 4 and the delivery pipe therefor and the support 11 and the collar 10 may be removed as a unit from the supporting element 9 or assembled as a unit thereon in a ready manner; or these elements may be adjusted about the axis of the collar 3 by loosening the set screw 15, to arranged the dispensing means 4 or its nozzle 4^a in any desired position. Likewise, by loosening the set screw 16, the support 11 may be swung about the pipe 8 relative to the supporting element 9, to any desired position. When the set screws 15 and 16 are tightened, it will be noted that the collar 10 is fixed to the pipe 8 and that the latter is fixed to the tubular member 9; accordingly, these elements and the dispensing means 4 and support 11 may be assembled as a unit in the opening in the container head 1^a, and also removed therefrom in the same manner, so that when the oil in one container has been completely dispensed, these parts may be removed and assembled in the opening in a container that is full.

The construction is such that the pump cylinder and receptacle support may be adjusted independently of each other, irrespective of the position of the supporting element 9 when it is tightened in the collar 3, it being desirable to tighten the supporting element 9 in the collar 3 so that the pump 4 and support 11 may be rigidly held in position for operation. Furthermore, it will be noted that the nozzle 4^a is adjustable relative to the pump cylinder. As a result, my construction of dispensing mechanism permits the container to be placed at any desired point and thereafter the pump cylinder, receptacle support and nozzle to be adjusted to bring any one or all thereof into the most convenient position for manipulation.

By supporting and connecting the inner end of the nozzle in the manner shown, its assembly and adjustment is readily provided for and it also serves as a simple means for holding the valve in operative relation to its seat, particularly where the nipple has a vertical section so that the valve may seat by gravity as well as permitting quick and easy access thereto. By extending the threaded portion 4', the inner end of the nozzle 4^a can be adjusted to a greater extent relative to the valve 8^e.

In my construction, the outer end of the nipple 8^a is not restricted in any manner and the connection of the nozzle 4^a therewith is made by a collar 8^d engaging the end wall and a coupling engaging the outer wall of the nipple. This construction permits the use of a relatively large ball, since a ball substantially equal to the diameter of the nipple may be positioned therein.

To those skilled in the art to which my invention relates, many alterations and modifications of the invention and applications thereof will suggest themselves without departing from the spirit and scope thereof. The description and the disclosures herein are purely illustrative and are not intended to be in any sense limiting.

What I claim is:

1. In mechanism of the class described, the combination of a dispensing means having a discharge nipple, a valve seat in said nipple, a nozzle, and means for removably and rotatably supporting the inner end of said nozzle in said nipple, said means comprising a collar for supporting said nozzle and engaging the end wall of said nipple, the inner end of said nozzle extending into said nipple, and a coupling engaging said collar and said nipple, and a valve element in said nipple between the inner end of said nozzle and said valve seat and arranged to engage and disengage the latter.

2. In mechanism of the class described, the combination of a casing, a discharge nipple leading therefrom and provided with a vertical section having a valve seat, a nozzle of less diameter than said nipple and fitting into its outer end, a collar for supporting said nozzle, said collar being adjustably connected to said nozzle and engaging the end wall of said nipple, a coupling through which the nozzle extends to form a bearing for it and engaging the nipple and collar to removably secure the latter to said nipple, said coupling and collar cooperating to rotatably support said nozzle and a valve element in said nipple arranged to engage and disengage said valve seat.

3. A mechanism as claimed in claim 1 in which the inner end of the nozzle is formed with a cutaway through which discharge may take place when the valve is unseated.

4. In mechanism of the class described, the combination of a dispensing means having a casing and a discharge nipple leading therefrom, said nipple comprising a chamber open at its outer end and formed with a valve seat at its inner end, a nozzle having its inner end projecting into said chamber, means for removably and rotatably mounting said nozzle on the outer end of said nipple and arranged to close the outer end of said chamber, said means comprising a collar adjustably mounted on said nozzle and engaging the walls of said chamber and a coupling engaging said collar and the walls of said nipple, and a valve element in said chamber arranged to engage and disengage said valve seat, the inner end of said nozzle serving as a stop to limit the movement of said element away from its seat.

In testimony whereof, I have hereunto subscribed my name.

ANTHONY SCHROEDER.