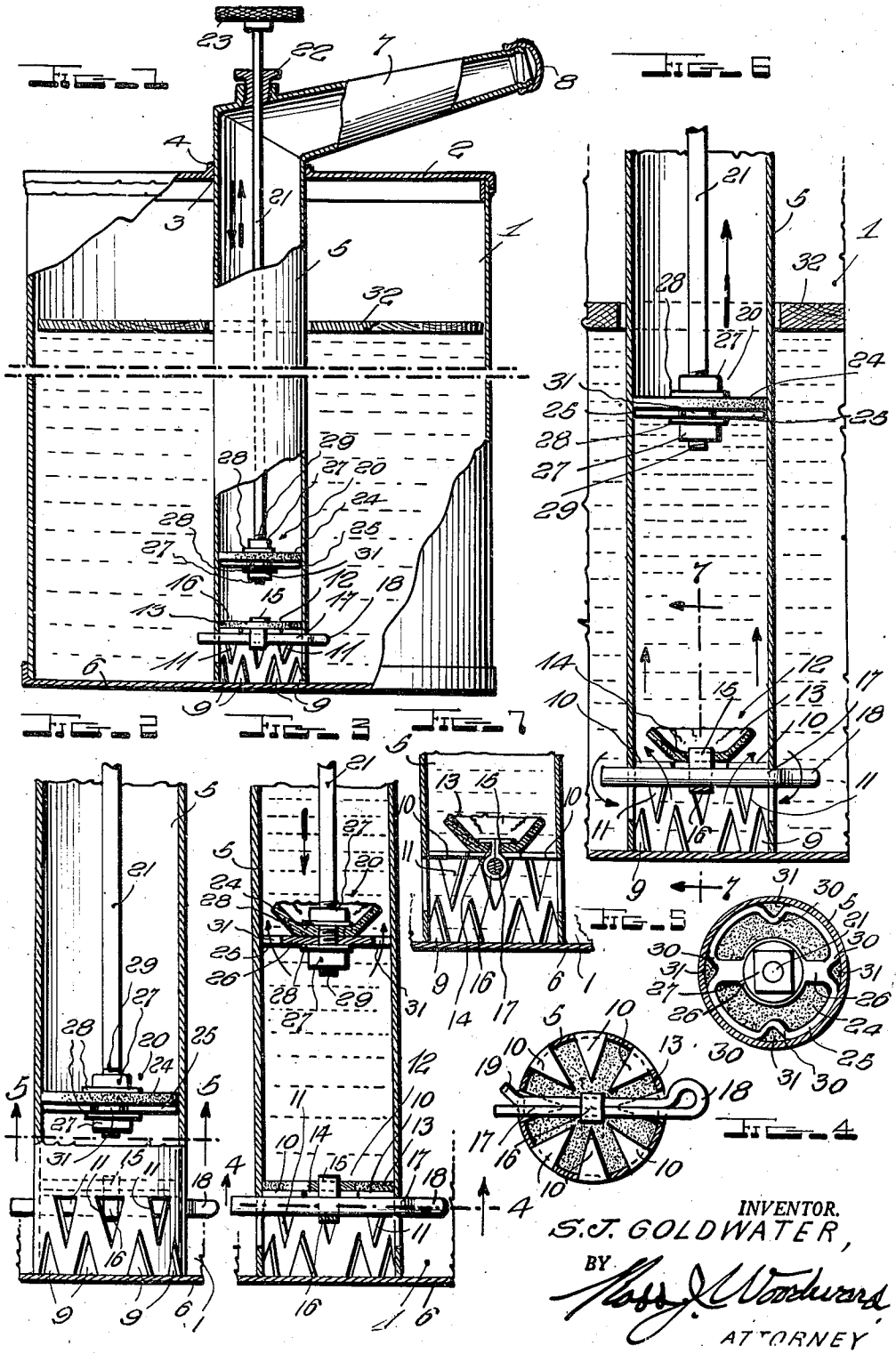
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VALVE FOR GREASE DISPENSERS

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VALVE FOR GREASE DISPENSERS

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This invention relates to valves for grease dispensers and it is one object of the invention to provide an improved form of standing valve so mounted in the dispenser pump that it may be easily applied and supported in a normally closed position, the standing valve being moved to open position by suction as the piston of the pump is moved upwardly and returned to closed position as the piston moves downwardly in the barrel of the pump.

Another object of the invention is to provide a standing valve for a grease dispenser having a pump including a vertically disposed cylinder having its lower portion formed with inlets at its lower end and above the inlets being cut to form tongues which are bent inwardly to provide supports for the standing valve and, when bent inwardly, provide the cylinder with additional inlet openings under the standing valve.

Another object of the invention is to provide the pump with a standing valve consisting of a leather disc resting on the inturned tongues and held in place by a key which extends diametrically through the cylinder against under faces of the tongues with end portions passing through certain of the openings formed by the tongues and its intermediate portion passing through an eye of a fastener mounted through the disc centrally thereof.

Another object of the invention is to provide a standing valve for a grease dispenser having a pump which is simple in construction, efficient in operation, and not liable to get out of order.

In the accompany drawing:

Fig. 1 is a view showing the improved grease dispenser partially in side elevation and partially in vertical section.

Fig. 2 is a view on an enlarged scale, showing the lower portion of the pump in vertical section with portions in elevation.

Fig. 3 is a view similar to Fig. 2, showing the piston moving downwardly.

Fig. 4 is a sectional view taken transversely through the pump on the line 4—4 of Fig. 3.

Fig. 5 is a view taken transversely through the pump on the line 5—5 of Fig. 3, looking toward the under face of the piston.

Fig. 6 is a view similar to Fig. 3, showing the piston moving upwardly.

Fig. 7 is a sectional view taken vertically through the lower end portion of the pump on the line 7—7 of Fig. 6.

The container 1 may be formed of sheet metal or other suitable material and will be of such dimensions that it will hold a predetermined quantity of grease or the like which is to be dispensed therefrom. The top 2 of the container is secured about its margins to walls of the container and, at its center, is formed with an opening 3 bordered by an upstanding flange 4 so that a tight joint may be formed about a pump cylinder 5 which extends vertically in the container with its lower end resting on the bottom 6 of the container and its upper portion protruding from the container. A spout 7 extends laterally from the upper end of the cylinder and is of such length that its outer end, which is normally closed by a removable cap 8, projects beyond the container.

The lower end of the cylinder is cut to form inlet openings 9 which are spaced from each other circumferentially of the cylinder and are tapered upwardly. Tongues 10, triangular in shape, are struck from the cylinder above the inlet openings 9 and are bent inwardly to form supports which are disposed radially of the cylinder and taper toward the center of the cylinder, as shown in Fig. 4. When the tongues are bent inwardly, auxiliary inlet openings 11 are formed in the cylinder, said openings being located above the openings 9 in staggered relation and tapered downwardly with their lower portions disposed between upper portions of the openings 9. Since the lower end portion of the cylinder is provided with upper and lower rows of inlet openings, the grease may easily flow into the cylinder below the standing valve 12 which is supported by the tongues 10.

The standing valve consists of a disc 13 formed of leather or other suitable pliable material and is of such diameter that it fits snugly within the cylinder and normally rests flat upon upper faces of the tongues 10. An opening 14 is formed through the disc, centrally thereof, and through this opening are passed the prongs 15 of a clip 16 formed similar to an eye bolt and firmly held in place when its prongs are spread and depressed for clamping engagement with the upper surface of the disc. A key 17 passes through the eye of the clip 16 diametrically of the cylinder 5 with its end portions passing through diametrically opposed ones of the openings 11 with its head 18 disposed externally of the cylinder and an end portion of one of its arms bent, as shown at 19, in Fig. 4, to hold the disc in place. Since the lower end of the cylinder or barrel 5 is formed with upper and lower rows of inlet openings, grease may easily flow into the barrel under the standing valve and since the tongues 10 are spaced from each other, the grease may be drawn upwardly into the barrel when the disc is flexed upwardly, as shown in Figs. 6 and 7.

In order that the grease may be drawn into the cylinder and then carried upwardly therein for discharge through the spout 7, there has been provided a piston 20 carried by a piston rod 21. This piston rod extends vertically in the cylinder or barrel 5 with its upper end passing through a packing gland 22 and provided with a head or button 23 by means of which the piston is to be grasped and reciprocated vertically during op-

eration of the pump. The piston, or working valve, consists of a pliable disc 24 formed of leather or other suitable material and a supporting frame or valve seat 25 upon which the leather disc rests. The frame 25 is in the form of a spider having a ring of a diameter to be slidably received in the barrel and a bridge 26 extending diametrically across the ring and formed with a central opening through which the piston rod passes. Securing nuts 27 and washers 28 are applied to the threaded lower end portion 29 of the piston rod above and below the disc and the spider and when the nuts are tightened the disc and spider will be gripped between them and firmly held in place to move with the piston rod. Portions of the marginal ring of the spider are crimped inwardly to provide inwardly projecting extensions 30 which assist in supporting the disc and also form openings or recesses 31 spaced from each other circumferentially of the spider so that grease may pass the spider at these points as well as flow through the spider during downward movement of the piston.

During downward movement of the piston, the pliable disc is flexed upwardly, as shown in Fig. 3, so that the piston passes freely through the grease to its lowered position and, during this downward movement of the piston, the disc 13 of the standing valve rests on the tongues 10 in closed position. As the piston rod is drawn upwardly the disc 24 assumes the closed position in which it rests on the spider and grease above the piston or working valve, will be carried upwardly and discharged through the spout 7, another charge of grease being drawn inwardly through the openings 9 and 11 to fill the portion of the cylinder or barrel under the upwardly moving piston or working valve. The inwardly moving grease flexes the disc 13 upwardly to open position, as shown in Figs. 3, 6 and 7, and the lower portion of the cylinder will be quickly filled with grease which is trapped in the cylinder under the piston as the disc 13 of the standing valve resumes its closed position. By repeatedly moving the piston rod upwardly and then downwardly in the cylinder, grease may be discharged through the spout 7 until a sufficient quantity has been discharged and the piston rod brought to a stop in its lowered position. A large disc 32, formed of wood or other suitable material, surrounds the cylinder and floats upon the upper surface of the grease where it serves as a shield for the grease and also as a weight for urging the grease downwardly and assisting flow of grease into the lower end of the cylinder during upward movement of the piston.

Having thus described the invention, what is claimed is:

1. In a device of the character described, a cylinder having its lower end formed with openings tapered upwardly and constituting inlets, tongues struck from the cylinder above the openings, the tongues being tapered toward their lower ends and bent inwardly to provide inwardly extending supporting tongues and auxiliary inlet openings tapered downwardly and located in staggered relation to the first inlets with their lower portions disposed between upper portions of the first inlets, a pliable disc normally resting on said tongues within the cylinder in closing relation to spaces between the tongues and adapted to be flexed upwardly away from the tongues to an open position, an eye having arms extending upwardly through the center of said disc, and a key passing through said eye with end portions passing through certain of the auxiliary inlet openings.

2. In a device of the character described, a cylinder having its lower end formed with inlets and above the inlets having tongues struck from its walls, the tongues being disposed in staggered relation to the inlets and attached at their upper ends and free at their lower ends and bent inwardly to provide inwardly extending supporting tongues and auxiliary inlet openings having their lower ends between upper ends of the first inlets, a disc of pliable material resting on said tongues within the cylinder for closing spaces between the tongues and adapted to be flexed upwardly away from the tongues to an open position, an eye carried by said disc and extending downwardly between free ends of the tongues, and a fastener passing through the eye diametrically of the cylinder with end portions passing through certain of the auxiliary inlets.

3. In a device of the character described, a cylinder formed with main inlets at its lower end spaced from each other circumferentially of the cylinder, tongues struck from the wall of the cylinder above the main inlets and bent inwardly to provide inwardly extending supporting tongues and auxiliary inlets spaced from each other circumferentially of the cylinder, a pliable disc within the cylinder resting on said tongues and constituting a closure for spaces between the tongues adapted to be flexed upwardly away from the tongues to an open position, a depending eye carried by said disc, a fastener passing through said eye and having end portions passing through certain of the auxiliary inlets.

4. In a device of the character described, a cylinder formed with main inlets at its lower end spaced from each other circumferentially of the cylinder and auxiliary inlets above the main inlets spaced from each other circumferentially of the cylinder, tongues extending inwardly of the cylinder from the wall thereof at upper ends of the auxiliary inlets, a pliable disc resting on said tongues for closing spaces between the tongues and adapted to be flexed upwardly away from the tongues to an open position, a fastener connected with the central portion of said disc and extending diametrically of the cylinder under the tongues with its end portions passing through certain of the auxiliary inlets.

5. In a device of the character described, a cylinder formed with inlets in its lower portion spaced from each other circumferentially of the cylinder, tongues extending inwardly from the wall of the cylinder at upper ends of the inlets, a pliable disc resting on said tongues for closing spaces between the tongues and adapted to be flexed upwardly to open position, and a fastener connected with the central portion of the disc and extending transversely of the cylinder under the tongues and through certain of the inlets to hold the disc in place.

6. In a device of the character described, a cylinder, tongues struck from the wall of the cylinder and bent inwardly at their upper ends to provide inlets spaced from each other circumferentially of the cylinder and constituting supporting means at upper ends of the inlets, a closure resting upon said tongues for normally closing spaces between the tongues and having a portion movable to open position, a depending eye at the center of said disc, and a fastener for the closure under the tongues passing through the eye and through certain of said inlets.

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