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3,095,914

SUPPLY SYSTEM FOR VISCOUS FLUIDS

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2 Sheets-Sheet 1

Fig. 1

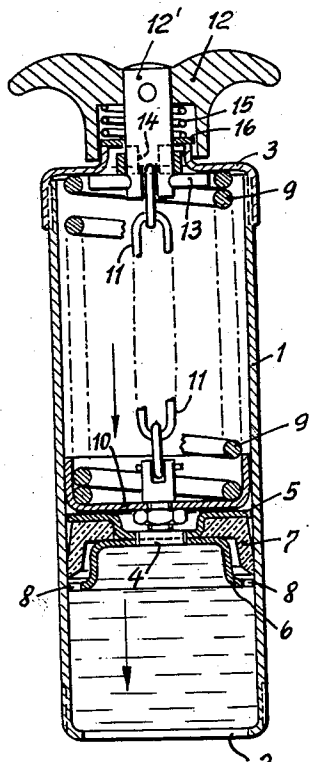


Fig. 2

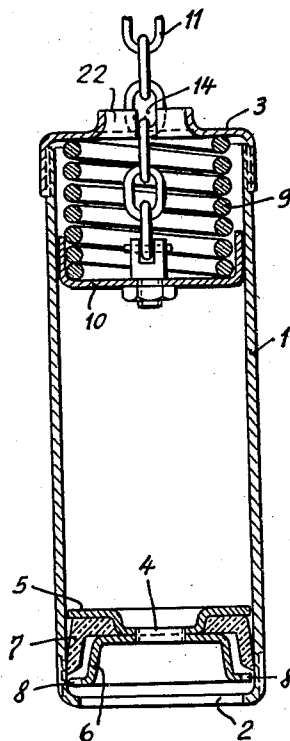


Fig. 3

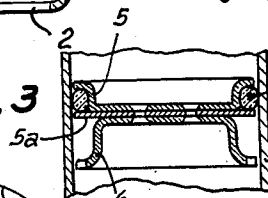


Fig. 4

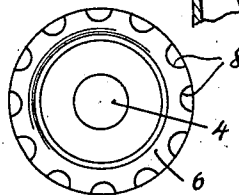
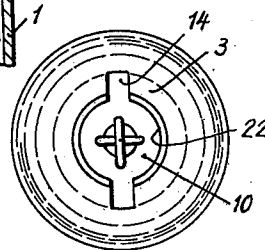


Fig. 5

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Fig. 6

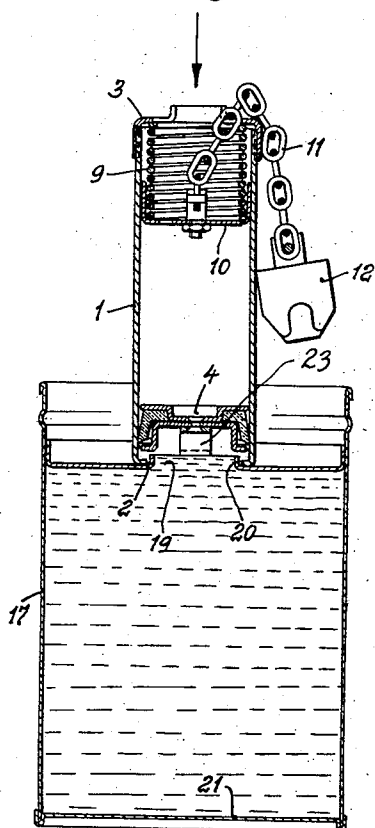
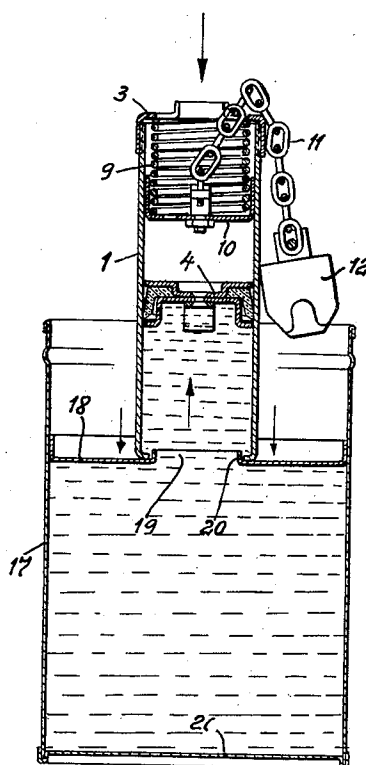


Fig. 7



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SUPPLY SYSTEM FOR VISCOUS FLUIDS

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3 Claims. (Cl. 141-27)

My present invention relates to a supply system for viscous fluids, including a receptacle used to store grease or other lubricants for delivery under pressure to a grease gun or similar force-feed dispenser therefor.

An object of my invention is to provide means in such system for filling rapidly and easily, without air inclusion, the storage receptacle or cylinder serving such dispenser. Another object is to insure that the refilling operation is carried out cleanly and without any soiling of the cylinder.

In accordance with a feature of my invention I provide, within the tubular receptacle hereinafter referred to as the grease cylinder, a slidable piston member which is displaceable toward and away from a discharge opening and a spring-loaded pressure member which normally bears upon the piston member in a sense urging it toward that opening but which may be retracted, via a flexible stressing member such as a chain, to load the spring while leaving the piston member free to recede inwardly into the receptacle as the discharge opening thereof is dipped into a supply container from which the fluid can be forced into the receptacle, preferably under the control of a piston-shaped cover bearing upon the fluid within the container; this cover, advantageously, is formed with an outlet adapted to register with the discharge opening of the receptacle whereby pressure can be exerted upon the cover through the receptacle in order to force the fluid from the container into the receptacle while the piston therein is relieved of the spring force. Suitable retaining means, such as a detent formation engageable by a chain link, hold the piston withdrawn during this operation.

The accompanying drawing shows purely by way of example several embodiments of the invention. In the drawing:

FIG. 1 shows an axial cross-section of the grease receptacle of a fluid reservoir with the spring-loaded piston constituting a first embodiment;

FIG. 2 shows a similar cross-section of the grease receptacle with its spring retracted or stressed for the purpose of refilling the reservoir with grease;

FIG. 3 is an end view of a slightly modified piston showing the portion thereof confronting the outlet;

FIG. 4 is a top view of the receptacle of FIG. 2;

FIG. 5 is a part-sectional view of the grease receptacle of a further second embodiment;

FIG. 6 shows an axial section of the grease receptacle and of a lubricant container associated therewith; and

FIG. 7 is an axial section corresponding to FIG. 6, with some parts in another position.

As shown in the drawing, a reservoir having a cylindrical grease receptacle 1 is provided at one end with a refilling opening or outlet 2 and at the other end with a cover 3 having a narrow opening 22. Axially slidably guided in the grease cylinder 1 is a rodless piston 4 fitted with a packing sleeve 7 fixed between two guide plates 5, 6. The guide plate 6 located on the lubricant side of the piston has marginal recesses 8 enabling the pressure of the lubricant to act upon the packing sleeve. Numeral 9 designates the compression spring normally acting upon the piston, said spring bearing at one end on the cover 3 and at the other end on a support designed as a spring cap 10 which in turn, in the position of FIG. 1, acts on the piston 4. The support 10 may be raised from the piston 4 against the action of the spring 9 by means of a

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flexible stressing member. The latter comprises a chain 11 which is attached to support 10 and can be drawn with its other end, secured to the draw handle 12, through the opening in cover 3. The shank 12' of the draw handle carries a crosspin 13 which serves as a holding member for the chain 11 and at the same time as a detent for handle 12 on cover 3. The opening 22 in the cover 3 is extended by a diametrically extending slot 14 permitting the pin 13 to pass through. A spring 15, fitted with a pressure plate 16 and located within the handle, rests, with crosspin 13 passed through the slot 14, on the central boss of the cover 3. By turning the handle 12, with crosspin 13 passed through the cover opening 14, it can be locked, this locking being secured by the pressure of the spring 15 urging said crosspin against the inner side of cover 3. The chain 11 is so long as to be slack in any position in which the support 10 abuts on the piston.

For refilling the grease cylinder 1, it has associated therewith a lubricant container (FIGS. 6 and 7) comprising a cylindrical vessel 17 and a cover 18, designed as a piston slidably arranged therein, which is provided with a central opening 19 and a flange 20 surrounding it. In FIGS. 6 and 7 the piston 4 is shown as having attached to it a stop member 23 adapted to come to rest on the flange 20.

For refilling the grease receptacle 1, it has to be removed from the forced-feed dispenser such as a lubricator or grease gun (not shown), served by it, its draw handle unlocked and the support 10 retracted along with it from the piston, as shown in FIG. 2. In the retracted position, when the spring is compressed, locking of the support 10 may be effected by putting a chain link into the slot 14 of the cover boss (see FIG. 2) which forms a retaining means for releasably holding the chain 11 against the force of the spring. The piston 4 is still in its foremost position in cylinder 1.

Now the grease cylinder 1 is positioned in the manner shown in FIG. 6 on the piston 18 of the lubricant container 17, whereby the flange 20 enters the outlet 2 of cylinder 1 and serves for guiding or centering it onto the piston 18. Then, by pressure applied to the grease cylinder 1 in the direction of the arrow indicated in FIG. 6, the piston 18 of the lubricant container 17 is forced back into the interior or to the bottom 21 thereof, whereby lubricant enters the cylinder 1 from the vessel 17 and pushes the piston 4 before it and into the interior of the grease cylinder 1, as visible from FIG. 7.

Upon completion of the filling of the grease cylinder 1, it is reconnected to the forced-feed lubricator or grease gun; the chain 11 is allowed to slide back into the interior of spring 9, and the draw handle 12 is locked on cover 3 in the described manner. The piston 4 then rests again under pressure on the pressure member 10, the grease gun served by the receptacle 1 thus being again ready for operation.

In the modified embodiment according to FIG. 5, numeral 1 again designates the grease cylinder 1, and 5 and 6 are the guide plates of the piston. In contradistinction to the aforescribed example, no sleeve is used as a piston packing, but a so-called O-ring 7' is interposed between the plate 5 and an auxiliary plate 5a.

Alternatively, it is possible to arrange a packing ring on piston 18 around the centering flange 20, in order to achieve perfect sealing between the grease cylinder 1 and piston 18 when refilling the former. Obviously, it is also possible to keep the lubricant container 17, 18, when not in use, closed by means of a cup put thereon.

What I claim is:

1. A fluid reservoir for filling a force-feed dispenser for viscous fluids, comprising a generally tubular receptacle having a discharge opening at one end thereof, a

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piston member slidably received in said receptacle and displaceable toward and away from said discharge opening, pressure means within said receptacle for urging said piston member toward said opening, said pressure means comprising a pressure member displaceable within said receptacle and spring means in said receptacle for urging said pressure member against said piston member, and stressing means operable externally of said receptacle for withdrawing said pressure member from engagement with said piston member while simultaneously loading said spring means, thereby relieving said piston member for enabling displacement of the latter by the pressure of an external fluid admitted through said opening, said stressing means comprising an elongated flexible member secured to said pressure member, said receptacles being provided with an opening at its other end adapted to pass said flexible member and retaining means at said other end adapted releasably to engage said flexible member in a selected one of a plurality of relative positions of said flexible member and said receptacle for temporarily holding said pressure member against the force of said spring means out of engagement with said piston member to enable filling of said receptacle with said fluid.

2. A reservoir as defined in claim 1 wherein said flexible member is a link chain centrally secured to said pressure member, said retaining means including a slot formed in a wall portion of said receptacle at said other end adapted to receive links of said chain for holding the latter against displacement by said spring means.

3. A supply system for a viscous fluid comprising a container for said fluid provided with an outlet bore and a fluid reservoir provided with a generally tubular receptacle removably positionable on said container, said reservoir having a discharge opening at one end thereof adapted to register with said outlet bore, a piston member slidably received in said receptacle and displaceable toward and away from said discharge opening, pressure

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means within said receptacle for urging said piston member toward said opening, said pressure means comprising a pressure member displaceable within said receptacle and spring means engaging said receptacle for urging said pressure member against said piston member, and stressing means operable externally of said receptacle for withdrawing said pressure member from engagement with said piston member while simultaneously loading said spring means, thereby relieving said piston member, said container being provided with a slidably displaceable piston-forming cover member formed with said inlet bore, said cover member being capable of being urged into said container for forcing fluid from said container through said outlet bore and said discharge opening in their registering position and in the relieved condition of said piston member, said stressing means comprising an elongated flexible member secured to said pressure member, said receptacle being provided with an opening at its other end adapted to pass said flexible member and retaining means at said other end adapted to releasably engage said flexible member in a selected one of a plurality of relative positions of said flexible member and said receptacle for temporarily holding said pressure member against the force of said spring means out of engagement with said piston member to enable filling of said receptacle with said fluid.

References Cited in the file of this patent

UNITED STATES PATENTS

1,106,144	Harrison	Aug. 4, 1914
1,926,399	Nielsen	Sept. 12, 1933
1,976,061	Eastman	Oct. 9, 1934
2,393,217	Brewton	Jan. 15, 1946
2,596,447	Sundholm	May 13, 1952

FOREIGN PATENTS

212,810	Switzerland	Mar. 17, 1941
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