

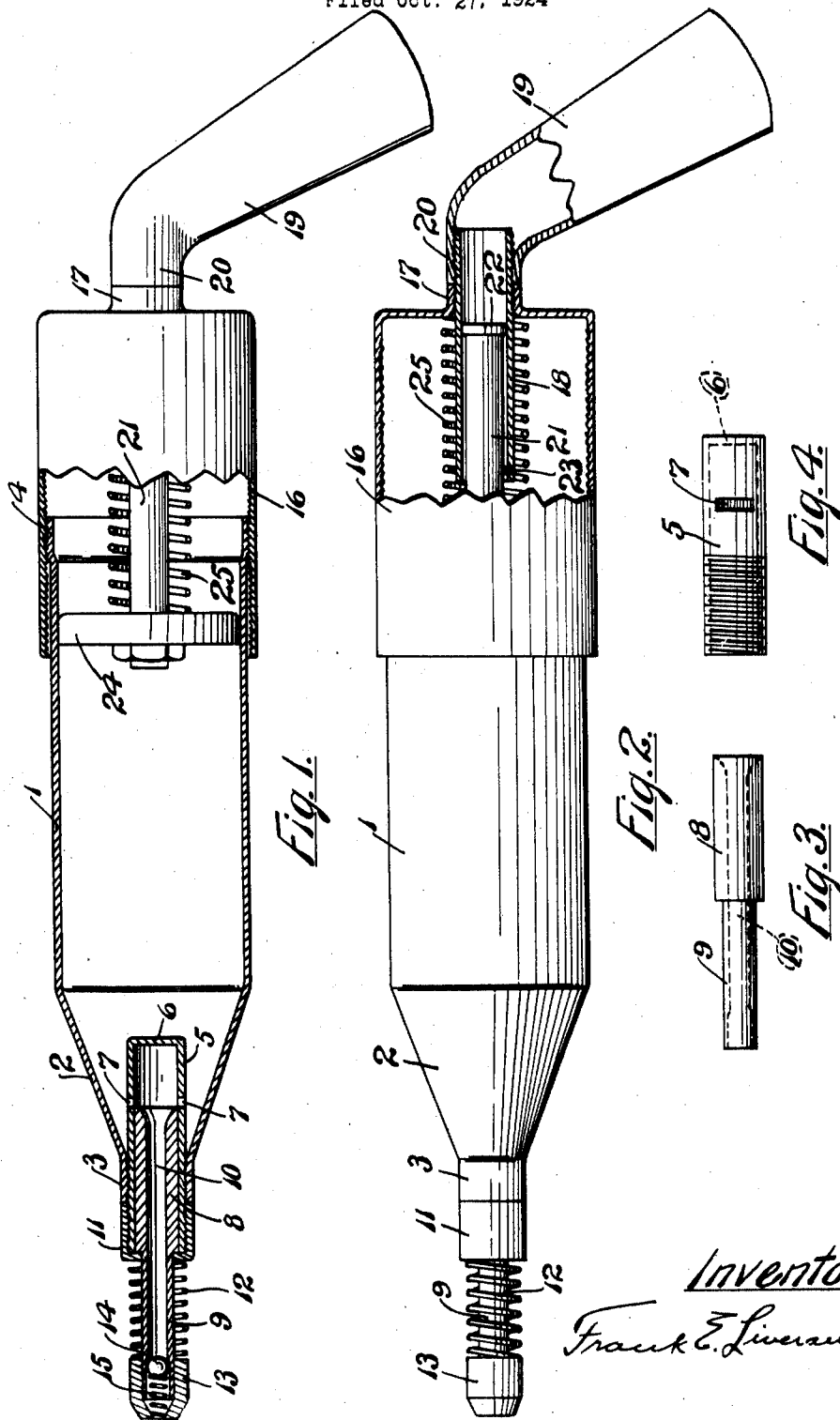
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GREASE GUN

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GREASE GUN.

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This invention relates to a grease gun of the type wherein grease may be forced with considerable pressure into the bearing or other place where it is needed. The present invention is directed to a relatively simple and compact grease gun wherein a quantity of the grease or other lubricant may be held, and small quantities taken therefrom and forced outwardly to the bearing or other element requiring the lubrication, the grease being delivered to the usual inlet nipple now commonly associated with such bearings and the like, particularly in motor vehicles.

It is a primary object and purpose of this invention to provide a simple and improved construction of grease gun, one which is substantially proof against the leakage of lubricant under the pressures to which it is subjected in use, and one wherein the main body or supply of lubricant is, at all times, kept under a moderate pressure to cause it to be forced at all times into position to supply the immediate lubricant ejecting portion of the device with grease. Other objects and purposes than those stated will appear as understanding of the invention is had from the following description, taken in connection with the accompanying drawing, in which,

Fig. 1 is a side elevation and central longitudinal section through the gun made in accordance with my invention, what may be termed the front end of the gun being shown in section.

Fig. 2 is a like view, the back end of the gun being in central longitudinal section.

Fig. 3 is a side elevation of the piston portion of the gun.

Fig. 4 is a like view of the barrel associated with said piston.

Like reference characters refer to like parts in the different figures of the drawing.

In the construction of the device, a relatively large cylindrical barrel 1 is used, at its front end being tapered and reduced in diameter, making a tapered section 2 which terminates in a short cylindrical section 3. This section 3 is interiorly threaded. The opposite or rear end of the barrel is slightly enlarged in diameter, making a short section 4 which is exteriorly threaded.

Extending through the section 3 is a cylinder 5 having its inner end closed to make a bottom 6 and with opposed slots 7 cut in its sides a distance from the bottom 6 but with the same located inside the tapered section 2

of the barrel. This cylinder is threaded at its front portion so that it may be screwed through the interiorly threaded section 3 of the main barrel, the front end of the cylinder projecting a distance beyond the end of the section 3, as shown in Fig. 1.

A plunger or piston is located within the barrel, having a rear portion 8 of a diameter nearly equal to the inner diameter of the cylinder, and a smaller portion 9 at its front end. The part 8, preferably, is of a length substantially equal to the distance from the outer front end of the cylinder to the front sides of the slots 7. At least it should not be longer than this distance. The piston or plunger is centrally bored its entire length making a passage 10, at its inner end being somewhat flared and enlarged, as shown.

After the piston or plunger has been placed in the cylinder 5, a cap 11 is screwed on to the projecting end of the cylinder, said cap having an opening to pass the reduced section 9 of the piston. A coiled spring 12 is located around the section or stem 9 of the piston and a head 13 secured in any suitable manner on the outer end of the said stem. This head has an opening therethrough and the bore or passage 10 is enlarged for the reception of a ball 14 pressed yieldingly into the passage by a spring 15 as shown and acting as a check against the withdrawal of grease through the passage 10 on operation of the device as will be described later.

An elongated cap 16 interiorly threaded for the greater portion of its length is screwed on to the exteriorly threaded section 4 of the barrel 1. The rear end or bottom of this cap is formed with a central projecting cylindrical part 17 which is interiorly threaded for the passage of a tube 18 therethrough for a distance, said tube extending a short distance back of the rear end of part 17 and extending into the cap substantially half of the length thereof. A handle 19 having an end interiorly threaded is attached to the projecting end of the tube 18 by screwing the said end portion 20 thereon. The handle is shown as similar to a pistol grip, but the form of the handle is not material in any way and may be varied as may be desired.

A rod 21 having a slightly larger diameter head 22 at its outer end is placed in the tube prior to the attachment of the handle. At the inner end of the tube, a short stop pin 23 is located so as to prevent the rod falling

out of the tube when the cap 16 is disconnected from the barrel. A valveless piston 24 is connected to the inner end of the rod 21, being preferably equipped with a cup 5 leather and of a size to fit snugly within the barrel 1, and a coiled spring 25 under compression is placed around the tube 18 and rod 21 between the piston and the end of the cap 16.

10 The barrel 1 is filled with the grease or other lubricant and the cap 16 attached. The piston 24 bearing against the lubricant serves to press the same downwardly, and this pressure may be increased by screwing 15 the cap 16 farther, spring 25 being more heavily compressed by such operation. While I have shown the tube 18 as extending about half of the length of the cap, this 20 length of the projection of the tube into the cap may be varied without affecting the invention in any manner. Normally, the pressure of the spring 25 transmitted to the grease in the barrel 1 causes it to flow through the slots 7 into the cylinder 5. It 25 is well, however, when the gun is assembled to fill the barrel 5 partly with grease so that reliance will not have to be placed entirely on the pressure exerted by the spring 25 on piston 24, though with all except the heaviest 30 greases this is not actually necessary. And of course, this is advisable only for the purposes of starting off the gun, or priming it, as after it is once in operation, the suction set up on operation serves to draw the grease 35 into the cylinder, the spring 25 merely acting to keep the grease pressed closely around the cylinder 5 so that there will always be a supply to replenish the cylinder.

The head 13 is placed in proper position 40 against the inlet nipple through which the grease is carried to the bearing and force applied to the handle 20 sufficient to compress the spring 12 and move the piston or plunger 8 inwardly. The first action of said 45 movement is to close the slots 7 whereupon the grease in the cylinder 5 is forced outward through passage 10 and past the ball valve 14 and into the nipple. When the pressure on handle 19 is lessened, the spring 50 12 acts to move the piston or plunger 8 outwardly or to the position shown in Fig. 1, creating a vacuum within the cylinder 5 which is relieved as soon as the slots 7 are uncovered by the piston, grease passing 55 through the slots into the cylinder, while the check interposed by ball valve 14 prevents the grease in the passage 10 going back into the cylinder.

This construction of grease gun is very 60 effective for forcing grease into places where high pressure is required to make the grease pass to the bearing. It is practically leak proof, as any grease which passes out other than at the end of the head 13 will have to 65 pass the whole length of the piston part 8

and before passing very far will come to the slots 7 through which it would go rather than the remaining length of the piston. The means used for keeping a steady pressure on the main supply of grease in the 70 barrel 1 is sure and effective in action and with it the over all length of the gun may be reduced considerably. The parts making up the gun are easily formed while the assembly is exceptionally simple, requiring 75 that the parts be merely screwed together, and the disassembly for purposes of repair or for other reasons is quite as simple and easy. The invention is defined in the appended claims and is to be considered as 80 comprehensive of all forms of structure coming within their scope.

I claim:

1. In a device of the class described, a barrel for containing lubricant, a short cyl- 85 inder of reduced diameter housed in an end of the barrel having a closed inner end and projecting from the barrel a short distance in longitudinal alignment therewith, a piston mounted in the cylinder adapted to be 90 reciprocated therein, said piston having a longitudinal passage therethrough and having a reduced extension extending beyond said cylinder, a cap secured to the outer end of the cylinder and against the adjacent 95 end of the barrel through which said extension passes, spring means normally acting on the piston to project it outwardly, and a check valve at the outer end of the passage through the piston normally closing 100 said passage, said cylinder having a passage for lubricant from the cylinder therinto.

2. In a device of the class described, an elongated container for holding a quantity of lubricant, a cylinder of reduced diameter 105 having a closed inner end, an open outer end secured in one end of the container and extending therinto in longitudinal alignment with said container, said cylinder having an opening in its side adjacent its inner end, a piston shorter than the length of the cylinder mounted in said cylinder and provided with an outwardly extending stem of reduced diameter, said piston and stem having a longitudinal passage therethrough, a 115 cap connected to the outer end of the cylinder through which said stem passes, a head attached to the outer end of the stem, said head having a passage therethrough, a check valve carried by said head and adjacent end of the stem normally closing said 120 passage, and a coiled spring under compression disposed between the head and cap and around the stem.

3. In a device of the class described an 125 elongated barrel for containing lubricant, a cylinder of reducing diameter having a closed inner end located in said barrel and threaded through the end thereof so that the threaded end of the cylinder projects a 130

short distance beyond the end of the barrel, a piston mounted in the cylinder and adapted to reciprocate therein, said piston having an inner portion having a diameter substantially the same as the inner diameter of said cylinder and an outer portion of reduced diameter and said piston being provided with a longitudinal passage extending lengthwise therethrough, a cap threaded onto the projecting end of the cylinder having an opening for the passage of the reduced portion of the piston, a head attached to the outer end of the piston, a coiled spring located between said head and cap and a check valve carried by said head, said cylinder having an opening through its side a short distance from its inner closed end.

4. In a device of the class described a container for holding a quantity of lubricant, a cylinder of reduced diameter having a closed inner end and an open outer end secured in one end of the container and ex-

tending thereinto, a short portion of said cylinder at its outer end projecting beyond the end of the container, a piston mounted in said cylinder and provided with an outwardly extending stem of reduced diameter, said piston and stem having a longitudinal passage therethrough, a cap secured to the projecting outer end of the cylinder and provided with an opening for the passage of said stem, a head having a larger cross sectional area than the stem attached to the outer end of the stem, a coiled spring under compression disposed around said stem between the head and cap, and a check valve carried by said head adjacent the end of the stem, normally closing the outer end of the passage through the piston and said stem, said cylinder being formed with an opening in its side a short distance from its inner closed end.

In testimony whereof I affix my signature.

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