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QUICK RECHARGING TOP FOR GREASE GUNS

Filed Feb. 16, 1927

Fig. 1.

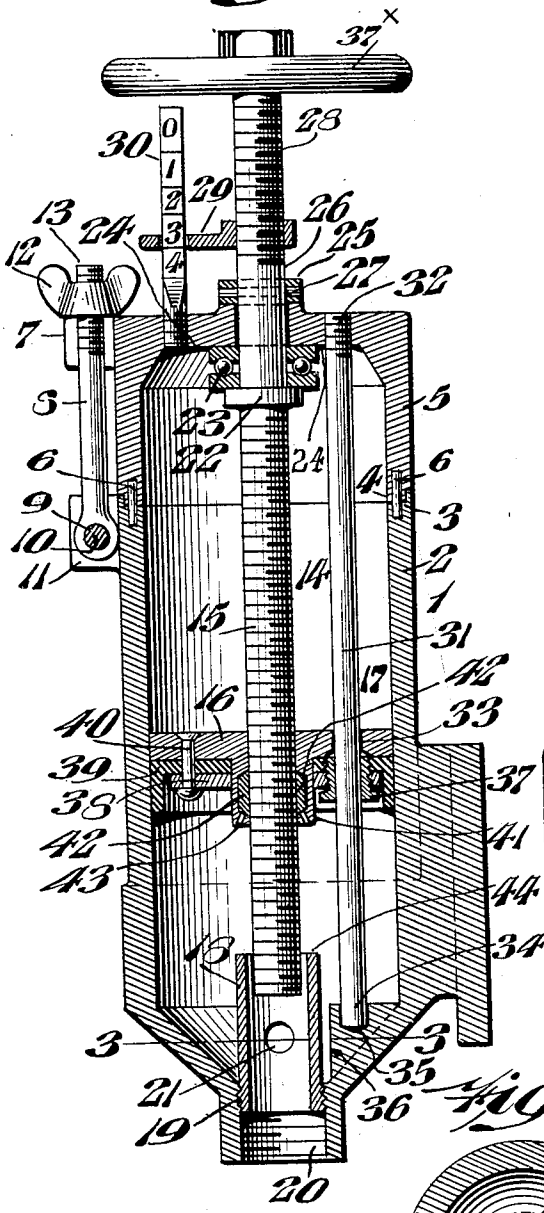


Fig. 2.

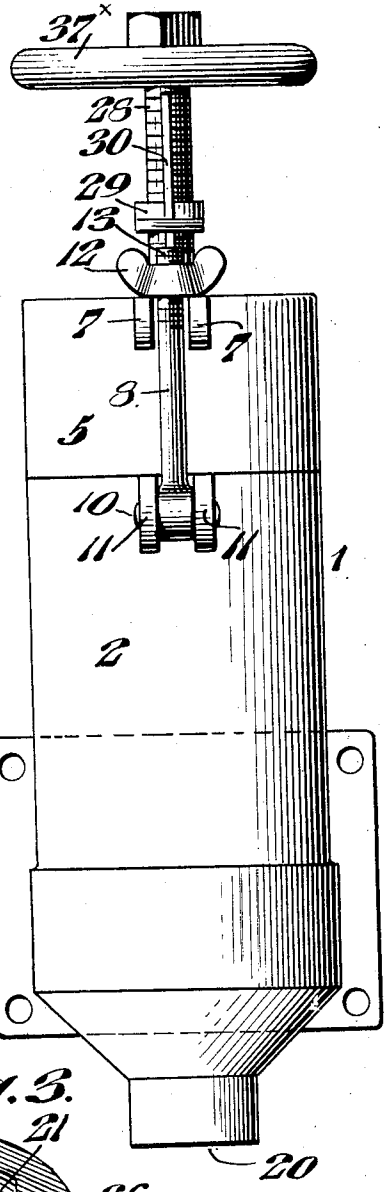
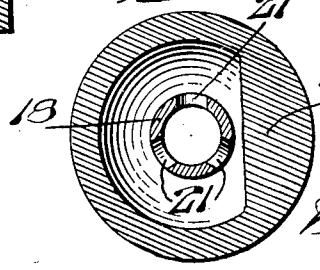


Fig. 3.



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QUICK-RECHARGING TOP FOR GREASE GUNS.

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My invention relates to grease guns of that character, wherein lubricant under high pressure is forced to the bearing to be lubricated by the rotation of a threaded piston rod, which is in threaded engagement with a piston movable longitudinally in a cylinder for forcing the grease to the desired destination.

In grease guns of the conventional type the cap at the rear of the cylinder or barrel of the gun has been in practice frequently threaded thereupon. It is frequently somewhat difficult to unscrew said threaded cap, and if the barrel or cap is placed in a vise and the jaws thereof are unduly tightened either the barrel or the cap are liable to be fractured, or disturbed.

The object of my present invention is to obviate these disadvantages, by the employment of a quick recharging top for a grease gun, which is held in position against a suitable counterbored seat on the juxtaposed end of the cylinder or barrel by a bolt and wing nut, which latter can be readily manipulated by the fingers of the user, so that the top can be readily removed and replaced upon the manipulation of a single wing nut, whereby much time and bother is saved when it is desired to recharge the gun with lubricant.

To the above ends my invention consists of a quick recharging top for grease guns, which is provided with a pair of parallel lugs into which the rear end of a bolt pivoted to the gun barrel is dropped, said bolt being held or tightened in place within the top lugs by a suitable wing nut or the like.

It further consists in the provision of a front tubular guide member for the front end of the threaded piston rod, ports being provided in said guide member for permitting the exit of the lubricant under pressure to the desired point and, the inner or rear end of said guide, serving as an abutment to arrest the forward end of the piston actuated by said piston rod.

It further consists of a novel manner of mounting the rear end of the threaded piston rod in the wall of the detachable top said rod being provided with an annular shoulder between which and the inner wall of said top is interposed a ball or thrust bearing, there being an outer collar pinned to said rod for maintaining said rod, ball bearing and said top in proper relation, so that longitudinal movement of said rod in said top is prevented.

It further consists in a guide rod having its rear end secured in said quick detachable top and its forward end passing through the piston and seated in a seat at the front end of the gun barrel, said piston being provide with a suitable stuffing box or packing device, at the point where said rod passes through it.

For the purpose of illustrating my invention I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Fig. 1 represents a longitudinal sectional view of a grease gun, having a quick recharging top and its adjuncts embodying my invention.

Fig. 2 represents a top plan view of Fig. 1.

Fig. 3 represents a transverse section on line 3—3, Fig. 1.

Referring to the drawings:

1 designates my novel construction of grease gun, the same comprising a barrel or cylinder 2 having at the rear thereof a female counterbore as indicated at 3, in which is seated the male counterbore 4 of the detachable top 5, there being dowel pins 6 provided, which engage aligning holes or seats in the juxtaposed contiguous ends of said barrel and top. The top 5 provided with a pair of parallel lugs 7 between which the threaded end 13 of the bolt 8 is adapted to drop, said bolt having an eye 9 at its forward end through which passes the transverse pin 10, whose ends are seated in the lugs 11 the construction being such that one end of the bolt 8 is pivotally mounted, so that when the parts are in the assembled position seen in Fig. 1 and the wing nut 12 is tightened, the top 5 will be rigidly and firmly clamped against the end of the barrel or cylinder. The top of the lug 7 is preferably flush with the end wall of the top 5, and the top of the lugs 11 is preferably flush with

the end of the cylinder or barrel 2. 14 designates a piston rod which has the inner threaded portion 15 which is in threaded engagement with the piston 16, which is slidably but non-rotatably mounted within the bore 17 of the cylinder or barrel 2. 18 designates a tubular guide, whose forward end 19 is in threaded engagement with the forward end or nozzle 20 of the barrel 2, said guide having a plurality of ports as 21 therein for permitting the grease to be forced to the desired point. The length of the tubular guide member 8 is such that the forward end of the threaded piston rod 15 is always guided therein as will be understood from Fig. 1. The rear end of the threaded piston rod 15 is provided with a collar 22 which abuts against the ball bearing member or thrust bearing 23 which is in contact with the contiguous inner wall 24 of the detachable top 5. The outer collar 25 is pinned upon the outer portion 26 of the piston rod by the pin 27, so that the piston rod 15 is freely rotatably in, but is prevented from longitudinal movement with respect to the wall 24. The provision of the thrust bearing greatly facilitates the rotation of rod or screw 15. The outer end of the piston rod 15 is threaded as indicated at 28 which latter threaded portion carries a finger 29 mounted thereon, through the outer end of which passes the gauge 30. 31 designates a guide rod which is arranged in parallelism to the threaded piston rod 15 and which has its outer end 32 in threaded engagement with the detachable top 5, said guide rod 31 passing through the hole 33 in the piston 16 and having its forward end 34 seated in a seat 35, when the parts are assembled as seen in Fig. 1, said seat 35 being located in the boss or wall 36, said rod 31 preventing the piston 16 from rotating, as is evident.

As it is essential that there be no leakage or loss of compression at the point where the guide rod 31 passes through the piston 16, I provide at this point a stuffing box or packing gland 37, which is in threaded engagement with the metal plate 38 between which and the piston body is secured the cup shaped leather packing 39, the parts being secured together by rivets or the like 40, said packing member 37 being screwed through said leather 39, and resting itself in the body of the piston. The hub 41 of the piston has a chamber therein filled with packing 42, which may be lead or the like, which is poured into said recess or chamber through the ports 43 with the screw in place, so as to make a tight joint and prevent grease from leaking from one chamber to the other when under pressure in the act of lubricating.

It will be apparent that when the piston 16 is near the end of its forward stroke, the contact of the hub 41, with the end 44 of the guide tube will arrest the forward movement of said piston, thus giving notice the gun needs to be replenished with the lubricant. The operation is as follows:—

The parts normally appear when assembled, as seen in Figs. 1 and 2, the detachable top 5 being firmly clamped upon the rear end of the gun by tightening the wing nut 12.

When it is desired to use the gun, the lubricant is fed under high pressure to the desired point by the rotation of the hand wheel 37× and the threaded piston rod 15, whereby the piston 16 is propelled forwardly and the grease is forced to the ports 21 through the tubular guide 18 to the desired point. The provision of the collars 22 and 25 prevent the threaded piston rod from longitudinal movement and the piston 16 is prevented from rotation by the employment of the guide rod 31. When the piston 16 reaches the end of its forward movement, its hub 41 will contact with the rear end 44 of the tubular guide member 18. The piston can then be returned to its extreme rear position within the top 5 by the rotation of the piston rod 15 in the desired direction. The wing nut 12 is now loosened and the bolt 8 rotated away from the lugs 7, whereupon by a pull outwardly from the position seen in Fig. 1, the top 5 can be quickly detached from the barrel 2 along with the piston 16 and guide rod 31 and barrel 2 can be readily replenished with lubricant in the usual manner. The top 5 can then be readily replaced in position by reason of the male and female counterbores, and slightly turned till the dowel pins 6, find their aligning seats. The bolt 8 is then turned into the position seen in Figs. 1 and 2, and upon tightening of the wing nut 12, the top and barrel will be firmly and rigidly assembled, a tight joint being formed between the male and female counterbores 4 and 3, and upon the rotation of the threaded piston rod 15 in the proper direction, the piston 16 will be advanced forwardly and the lubricant fed through the ports 21 to the desired point.

It will now be apparent that I have devised a novel and useful construction of quick recharging top for grease guns which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, a

barrel, a quick detachable top secured thereto, there being male and female counterbores common to the contiguous, juxtaposed ends of said top and barrel, a pivoted locking means for said top, a threaded piston rod rotatably mounted in said top but prevented from longitudinal movement therein, a piston in said barrel in threaded engagement with said rod and actuated thereby, a guide rod having its rear end fixedly mounted in said top, and its front detachably positioned in a seat in the forward end of the said barrel, said guide rod passing through said piston to prevent the rotation of the latter, a stuffing box for packing the joint where said guide rod passes through said piston, a stuffing box for packing the joint where said piston rod passes through said piston, and a guide tube in the forward end of said barrel into which the forward end of said piston rod projects the rear end of said guide tube being adapted to contact with the hub of said piston when the latter reaches its extreme forward position.

2. In a device of the character stated, a grease gun barrel, a quick detachable top therefor, male and female counterbores common to the juxtaposed, contiguous ends of said barrel, a bolt pivotally mounted on said barrel, parallel lugs on said top having their outer walls flush with the end of said top, a nut on said bolt adapted frictionally to engage said lugs when tightened to lock said top to said barrel, a threaded piston rod rotatably mounted in said top, collars on said rod in proximity to said top, a roller bearing between said collars, an outer collar secured to said rod in proximity to the outer wall of said top, whereby said rod is prevented from longitudinal movement with respect to said top, a piston carried by said piston rod, a guide rod for said piston to prevent the rotation of the latter, a guide tube in the forward end of said barrel in alignment with said piston rod, the latter normally projecting into said tube, the rear end of said guide tube being adapted to arrest the forward movement of said piston and means on the outside of said top for indicating the position of said piston.

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