Jan. 23, 1934. E. R. WHARTON 1,944,201

GREASE GUN

Filed June 4, 1932

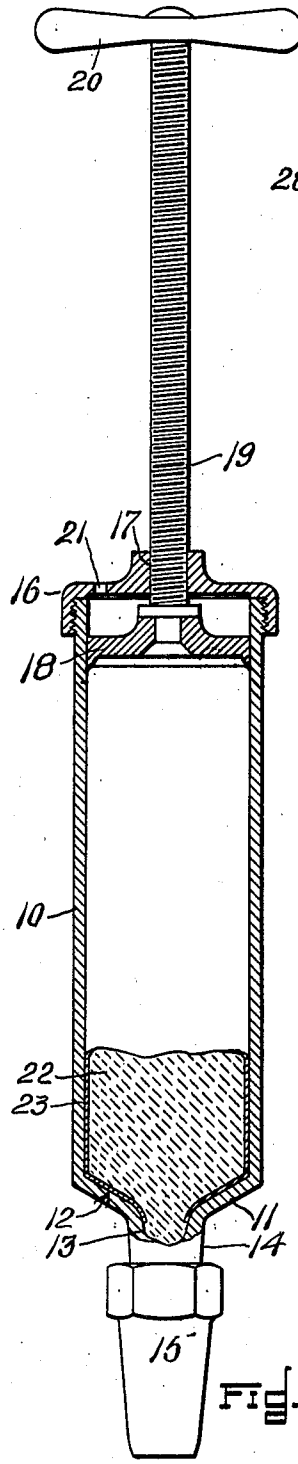



Fig. 1.

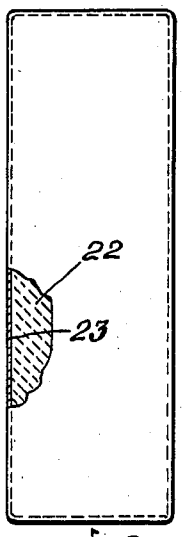



Fig. 2.

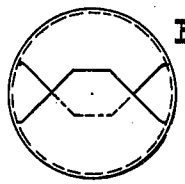


Fig. 3.

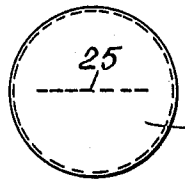



Fig. 4.

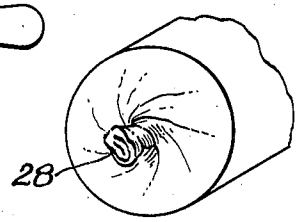



Fig. 5.

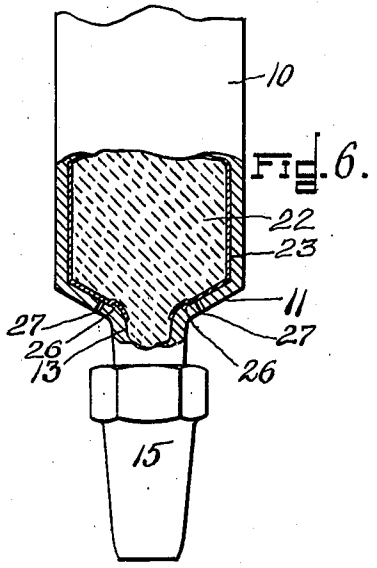



Fig. 6.

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# UNITED STATES PATENT OFFICE

1,944,201

## GREASE GUN

Edward R. Wharton, Medford, Mass.

Application June 4, 1932. Serial No. 615,366

2 Claims. (Cl. 221—47.3)

My invention relates to grease guns such as are used to deliver lubricating grease into machinery.

Small portable hand operated devices of this class have heretofore been provided comprising a cylinder containing a piston that was manually operated to discharge grease from the interior of the cylinder through a delivery nozzle provided at one end of the latter. Also the piston of a gun of this type as heretofore constructed has been provided with a screw threaded stem extending through and engaging the threads of a threaded aperture provided at the rear end of the cylinder. This stem has been provided at its outer end with a handle by means of which it was manually rotated to force the piston toward the delivery end of the cylinder.

It has also been proposed heretofore to provide a package or cartridge for use within a grease gun of the kind just described consisting of a body of grease inclosed within a collapsible wrapper of thin sheet material.

In using a gun constructed as heretofore and loaded with a cartridge of this kind, I have found that the collapsible wrapper would be so tightly packed and wedged at the delivery end of the cylinder that its removal from the cylinder after the grease was exhausted was a very difficult operation requiring the use of a probe with which to reach down into the cylinder in order to dislodge and withdraw the collapsed wrapper.

In order to overcome this objectionable feature accompanying the use of grease cartridges within guns as heretofore constructed, I have found that by constructing the head at the delivery end of the cylinder so that it is more or less funnel shaped or conical and by utilizing a piston of the proper construction this objectionable feature is overcome by reason of the fact that when the grease is exhausted the pressure of the piston will force the collapsed and compacted wrapper into the conical portion of the head thereby contracting the compacted wrapper radially so that when the usual cap is removed from the rear end of the cylinder carrying the piston with it, the wrapper may be caused by gravity to be discharged from the cylinder merely by holding the latter in an upright position, and sometimes by tapping the cylinder against a rigid object while it is held in this position.

My invention, therefore, consists in providing a gun which will contract the compacted wrapper thereby to free the same from the cylinder when the piston reaches the limit of its inward movement.

Other features of my invention are hereinafter pointed out.

In the accompanying drawing:

Figure 1 is a central longitudinal sectional view of a grease gun constructed in accordance with my invention.

Figure 2 is a side elevation partly broken away of a grease cartridge.

Figures 3, 4 and 5 illustrate different forms of end closures for the grease cartridge.

Figure 6 is a side view partly in section of the delivery end portion of a grease gun embodying an alternative form of my invention.

The embodiment of my invention illustrated in Figure 1 comprises a cylinder 10 whose delivery end is constructed with a head or end wall 11 that is funnel shaped, or conical, as shown at 12 upon its inner side and provided at its middle with an outlet port 13 which extends through an exteriorly threaded nipple 14 provided upon the outside of said head or wall to receive upon it a delivery nozzle 15 which may be constructed interiorly as illustrated and described in my Patent No. 1,844,532.

At its opposite end the cylinder 10 is exteriorly threaded to receive upon it an interiorly threaded cap 16 made with a central threaded aperture 17.

Within the cylinder 10 is loosely mounted a piston head 18 to which is secured the inner end of a threaded stem 19 which extends from said piston head through the aperture 17 and engages the threads of the latter. At its outer end the stem 19 is provided with a handle 20 by means of which the stem is rotated manually to force the piston head 18 toward the delivery end of cylinder 10 thereby to discharge grease through port 13 and nozzle 15. A port 21 formed through cap 16 provides for the entrance of air into cylinder 10 behind the piston head 18 as the latter is moved inwardly. I prefer to connect the inner end of the stem 19 with piston head 18 so that the two can rotate relatively, but this is not essential.

The gun constructed as above described is especially adapted to receive within it a grease cartridge such as that illustrated in Figure 2 which comprises a body of grease 22 completely inclosed within a tubular wrapper 23 of thin flexible sheet material such as crafts or other strong paper, tinfoil or any other suitable sheet material. The tubular wrapper 23 may be made of greater length than the body of grease 22 to provide extensions at the opposite ends of the latter which may be secured in inwardly fold-

ed condition as shown in Fig. 3, or twisted as shown in Fig. 5, to close the wrapper at its opposite ends. Or the tubular wrapper 23 may be provided with plain end walls, such as that shown at 24, Fig. 4.

When a cartridge constructed as illustrated in Fig. 4 is used, one of its end walls is slitted as at 25 after which the cartridge is placed within the cylinder 10 with its slitted end wall opposite the outlet port 13 at the delivery end of the cylinder. It will thus be clear that when the cap and piston head are in place and the stem 19 is rotated, the grease will be forced from the cartridge through the slit 25 and ejected from the gun through port 13 and nozzle 15.

When the grease of the cartridge is exhausted and the piston head 18 has been forced as far toward the end wall or head 11 as possible, the collapsed and compacted wrapper is disengaged from the cylindrical side wall of the cylinder and disposed entirely within the conical or funnel shaped recess upon the inner side of the head 11. It will therefore be clear that by removing the cap 16 and piston head 18 the collapsed and compacted wrapper at the inner end of the cylinder may be discharged by gravity from the latter by inverting the cylinder and striking it downwardly endwise against a rigid article.

In Fig. 6 I have illustrated a form wherein the conical or funnel shaped recess upon the inner side of the end wall or head 11 is formed with an abrupt annular shoulder 26 which opposes sliding movement of the wrapper toward the outlet port 13 when the body of grease is subjected to pressure from the piston head 18. It is also a feature of my invention that I may provide a circular series of very small vent ports 27 adjacent to the annular shoulder 26 into which the adjacent material of wrapper 23 is bent by the internal pressure thereby further assisting in holding the wrapper against sliding toward the outlet port 13.

When a package or cartridge having end closures like that illustrated in Fig. 3 is employed, it may be opened at one end preparatory to using by means of a knife either by trimming off the end wall or slitting the same at its middle.

When a package or cartridge having an end closure like that illustrated in Fig. 5 is employed no preparatory operation thereon is required or necessary since, when the cartridge is within the gun and subjected to piston pressure, the twisted end 28 will be automatically opened.

As shown in Fig. 1 the cartridge-engaging face of the piston head 18 is concaved or otherwise recessed so that its marginal portion is, in effect, conical and cooperates with the inner conical face of the end wall 11 to contract the collapsed wrapper as will be clear.

Reference is herein made to my co-pending application Serial No. 436,484 filed March 17, 1930 relating to improvements in Grease guns and the like.

What I claim is:

1. A grease gun of the character described comprising a cylinder provided at its delivery end with an end wall having an outlet port adjacent to its middle, the inner side of said end wall being formed as an annular conical surface surrounding and sloping toward said outlet and said cylinder being adapted to receive within it an elongate cartridge comprising a body of grease and a collapsible envelope therefor of thin flexible sheet material; a piston head movably mounted within said cylinder, and means connected with said piston head and extending to the exterior of said cylinder that is operable to force said piston head toward said outlet port so that as said piston head reaches the limit of its grease ejecting movement it cooperates with said annular conical surface to radially contract the collapsed wrapper of said cartridge, the said end wall being made with a plurality of small holes extending from said conical inner surface to the exterior of said wall and into the inner ends of which portions of said wrapper are bent by the pressure of the grease against said wrapper thereby to hold the latter against slipping on said conical surface toward said outlet port.

2. A grease gun constructed in accordance with claim 1 wherein the inner side of said end wall is made with an annular abutment shoulder disposed between said outlet and the inner ends of said holes and closely adjacent to the latter.

EDWARD R. WHARTON.