

March 11, 1930.

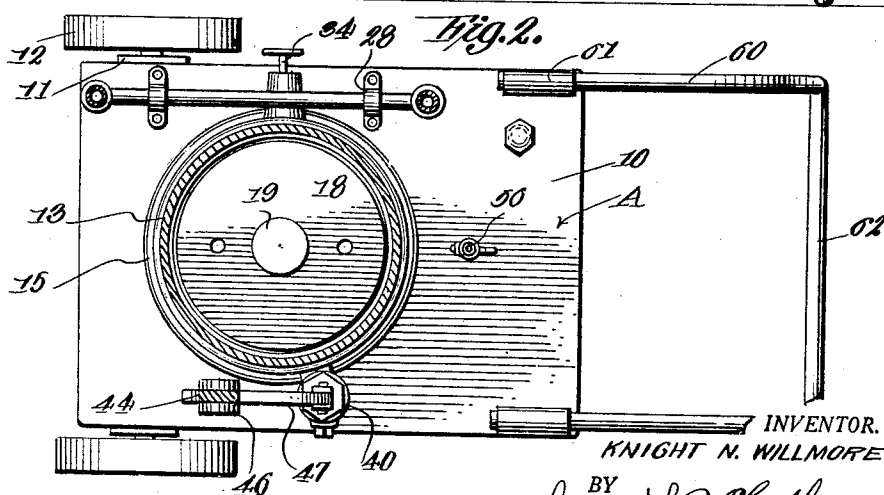
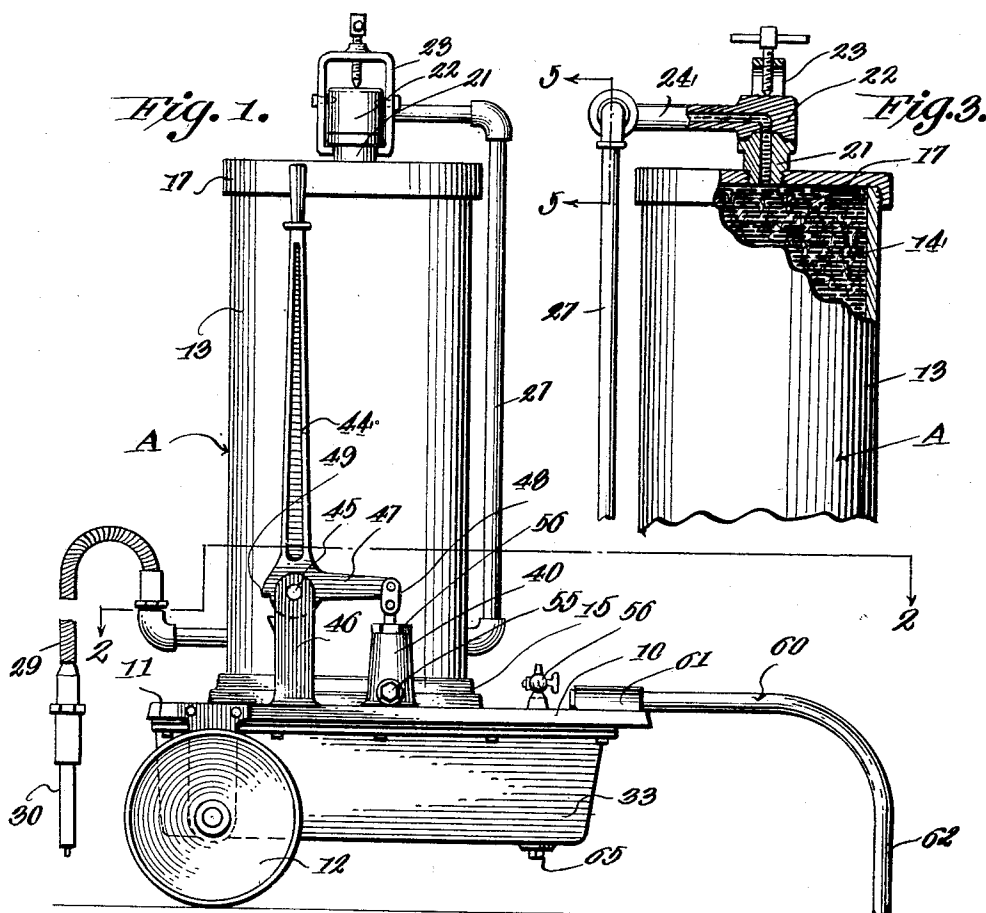
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1,750,378

GREASE GUN

Filed May 25, 1929

2 Sheets-Sheet 1



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Fig. 4.

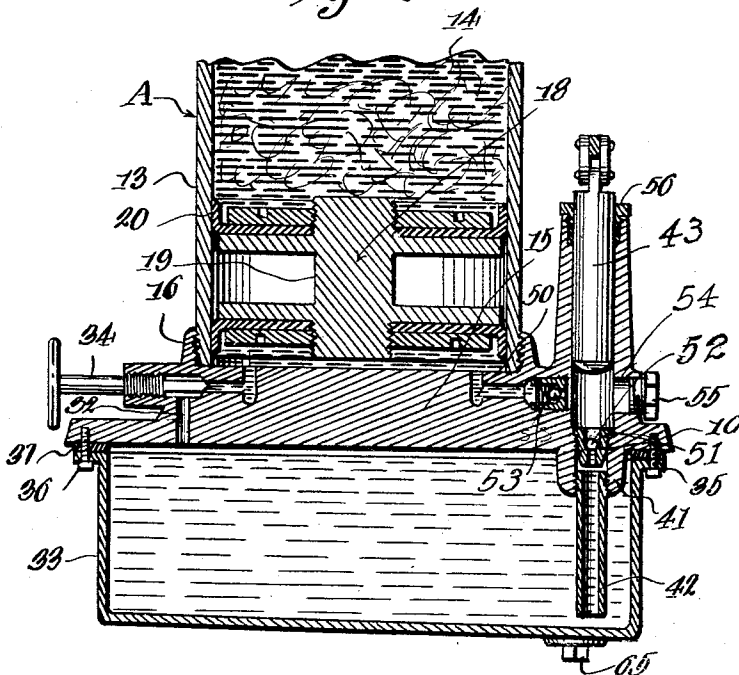


Fig. 5.

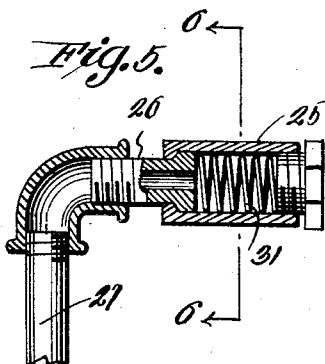
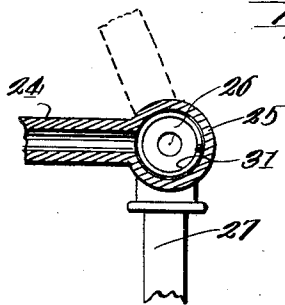


Fig. 6.



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GREASE GUN

Application filed May 25, 1929. Serial No. 366,056.

This invention appertains to a portable device for greasing bearings, such as the bearings of motor vehicles and one of the primary objects of my invention is to provide a novel device for effectively handling heavy lubricants incident to the greasing of tractors, but which is susceptible for handling all types of lubricant for all classes of motor vehicles.

Another salient object of my invention is the provision of novel means for forcing a lubricant from a portable grease gun by hydraulic means and so arranging the parts that a compact and durable structure will be had.

A further object of my invention is the provision of a portable hydraulic greasing device for motor vehicles embodying a base plate carrying the supporting wheels, which has attached therewith the lubricant receiving cylinder and the pump for forcing the liquid under pressure through the piston in the cylinder, the base plate having bolted directly thereto the reservoir tank for the liquid used in actuating the piston.

A still further object of my invention is to provide a lubricating device of the above character, which will be efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawings, in which drawings:

Figure 1 is a side elevation of my improved lubricating device;

Figure 2 is a horizontal section through the same taken on the line 2—2 of Figure 1 looking in the direction of the arrows;

Figure 3 is a fragmentary rear elevation of the upper end of the device showing parts thereof broken away and in section;

Figure 4 is a transverse section through the lower portion of the improved device illustrating the novel arrangement of the operating parts;

Figure 5 is a detail section taken on the line 5—5 of Figure 3 looking in the direction of the arrows, and

Figure 6 is a detail section taken on the line 6—6 of Figure 5 looking in the direction of the arrows.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout these several views, the letter A generally indicates my improved device which comprises a base plate 10 cast from suitable metal. The base plate 10 has riveted or otherwise secured to the side faces thereof adjacent to its forward end depending brackets 11 for the ground wheels 12 whereby the device can be conveniently moved from point to point. In conjunction with the base plate 10 I utilize a cylinder 13 for the reception of the grease 14 which is to be used for lubricating the bearings and I prefer to cast the lower cylinder head 15 thereof integral with the base plate 10. This head 15 is provided with an annular upstanding internally threaded flange 16 for the reception of the threaded lower end of the cylinder 13. The upper head 17 for the cylinder is threaded thereon so that the same can be removed to permit the filling of the cylinder with the desired grease. Slidably mounted within the cylinder 13 is a double-ended piston 18, the portions of which can be integrally connected together by an axial boss 19 and each portion can carry an oppositely extending washer 20. The upper cylinder head 17 supports the outlet boss or nipple 21 for the lubricant and the upper end of the boss is provided with a ground seat for the reception of the outlet head 22 which can be removably held in place by the use of a suitable clamp 23. The outlet head 22 is provided with a laterally extending pipe 24 which has threaded thereon a sleeve 25 which rotatably receives a threaded nipple 26 for connection with the feed pipe 27, the lower end of which can be strapped as at 28 to the base plate 10. The outer end of the pipe is provided with a flexible hose 29 and nozzle 30 for feeding the lubricant to the desired bearing. When it is desired to fill the cylinder 13 with the lubricant 14, the head 22 is swung off of the seat 21 after the clamp 23 has been released and the head rotates on the nipple 26. After which the cylinder head 17 can be unthreaded

and the lubricant placed in the cylinder in any preferred way. If desired, I can provide an expansion spring 31 in the sleeve 25 for engaging the inner end of the nipple 26 to normally hold the same in tight contact with its seat formed on the sleeve 25 to prevent the leakage of the lubricant around the same

The lower cylinder head 15 and the base plate 10 have formed therein a return passage 32 communicating with the lower end of the cylinder on the lower side of the innermost piston and opening out through the lower face of the base plate 10 into the reservoir tank 33 which holds the fluid, such as light oil, for raising the piston 18 to force the lubricant from the cylinder. Any suitable valve means can be provided such as the needle valve 34, for manually controlling this return passageway, and the passageway is normally cut off by said needle valve.

The reservoir tank 33 preferably has formed on its upper edge a laterally extending attaching flange 35 which is bolted or attached to the base plate 10 by means of cap screws 36. In order to make a fluid tight connection between the base plate 10 and the flange 35, a suitable gasket 37 can be interposed between the base plate and said flange.

Cast integral with the base plate 10 and the lower cylinder head 15 at one side of the cylinder 13 I provide a relatively small pump cylinder 40 and in alignment with the pump cylinder and communicating therewith is a depending hollow boss 41 which extends into the reservoir tank 33. If desired, this boss can have threaded into the same a suitable inlet pipe 42 which terminates short of the lower wall of the reservoir. The pump cylinder 40 has slidably mounted therein a solid pump plunger 43 which can be actuated in any desired way, such as by a hand lever 44 which extends up along the side of the cylinder 13. The lower end of the hand lever 44 is rockably mounted as at 45 to an upstanding bracket 46 which can be formed on the base plate. The lower end of the lever is provided with an operating arm 47 which is connected by means of a link 48 with the pump plunger 43. The bracket 46 and the hand lever 44 can be provided with companion lugs 49 so as to limit the swinging movement of the hand lever in one direction. The cylinder head and the base plate diametrically opposite the passage 32 are provided with a passage 50 which communicates with the lower end of the cylinder 13 and the lower end of the pump cylinder 40 below the plunger 43.

An inlet valve seat 51 is arranged in the bore of the boss 41 and is provided with an upwardly opening ball valve 52 for controlling the flow of oil into the pump cylinder. Likewise the passageway 50 is provided with a one-way spring pressed ball check valve 53

which constitutes the outlet valve for the oil from the pump.

The lower end of the cylinder 40 in alignment with the passageway 50 can be provided with a radially extending enlarged opening 54 which can be closed by a plug 55 which facilitates the placing of the valve 53 in position and also the cleaning of the device.

The valve 52 and its seat 51 can be placed in position through the upper end of the pump cylinder after the removal of the pump plunger. The upper end of the cylinder 40 can receive a packing gland 56 for preventing the leakage of oil around the said pump plunger.

I can also provide an air release valve 56 for the oil reservoir, if preferred.

A suitable support 60 is formed for the rear end of the base plate 10 and may consist of a piece of pipe bent into substantially U-shaped form with the terminals thereof inserted in sockets 61 carried by the upper face of the base plate 10. This port 60 is curved downwardly as at 62 for engaging the ground.

In operation of the improved device, the cylinder 13 is filled with the lubricant and the valve 34 is closed to cut off communication between the reservoir 33 and the cylinder 13, and the pump plunger 43 is now manipulated by the lever 44. On the up stroke of the pump plunger 43, oil will be sucked into the pump cylinder and lift the valve 52 off of its seat. Upon downward movement of the pump plunger, the oil will be trapped between the plunger and the valve 52 and consequently will force the valve 53 from its seat and the oil will be forced into the cylinder below the piston. Upon continued movement of the pump plunger, the oil will be forced into the cylinder below the piston under pressure gradually forcing the piston upwardly and the lubricant out of the nozzle of the desired bearing.

After all of the lubricant has been dispensed, the valve 34 can be opened and the cylinder head 17 removed as heretofore described and the piston 18 is forced down in any desired way and the oil below the piston will be forced through the passageway 32 into the reservoir 33. The lubricant can now be placed in the cylinder and the device again operated as heretofore described.

If desired, a drain plug 65 can be provided for the reservoir 33 to permit the draining thereof when preferred.

From the above description, it can be seen that I have provided an exceptionally simple hydraulic grease gun which will permit the effective use of heavy lubricants therewith.

Changes in details may be made without departing from the spirit or the scope of this invention, but:

What I claim as new is:

1. A lubricating device comprising a base plate, ground wheels carried by the base plate, a reservoir tank secured to the lower face of the base plate, a cylinder head formed on the base plate, a cylinder for receiving a lubricant connected with the cylinder head, a removable head carried by the upper end of the cylinder having a lubricant outlet, a piston slidably mounted in the cylinder, and a pump carried by the base plate and communicating with the lower end of the cylinder below the piston and with the reservoir for forcing a liquid from the reservoir into the cylinder.

2. A lubricating device comprising a base plate, ground wheels carried by the base plate, a reservoir tank secured to the lower face of the base plate, a cylinder head formed on the base plate, a cylinder for receiving a lubricant connected with the cylinder head, a removable head carried by the upper end of the cylinder having a lubricant outlet, a piston slidably mounted in the cylinder, a pump carried by the base plate and communicating with the lower end of the cylinder below the piston and with the reservoir for forcing a liquid from the reservoir into the cylinder, the cylinder head and base plate having a return passageway therein communicating respectively with the reservoir and the lower end of the cylinder, and a manually controlled valve for said passageway.

3. A lubricating device comprising a base plate, a wheel support for the base plate, a cylinder head connected with the base plate, a cylinder connected to said head, a removable head for the upper end of the cylinder, a reservoir secured to the lower end of the base plate, a double ended piston slidably mounted in the cylinder, a pump cylinder carried by the base plate, the cylinder head and base plate having a passageway connecting the lower end of the first cylinder with the lower end of the pump cylinder, an inwardly opening outlet valve in said passageway at one side of the plunger, an inwardly opening inlet valve in said passageway below the plunger, and means for manually operating said plunger.

4. A lubricating device comprising a base plate, a wheel support for the base plate, a cylinder head connected with the base plate, a cylinder connected to said head, a removable head for the upper end of the cylinder, a reservoir secured to the lower end of the base plate, a double ended piston slidably mounted in the cylinder, a pump cylinder carried by the base plate, the cylinder head and base plate having a passageway connecting the lower end of the first cylinder with the lower end of the pump cylinder, an inwardly opening outlet valve in said passageway at one side of the plunger, an inwardly opening inlet valve in said passageway below the plunger,

and means for manually operating said plunger including a hand lever rockably mounted at its lower end on the base plate and extending alongside of the first cylinder, an arm extending beyond the pivot of the lever and formed thereon, and a link connecting the outer end of said arm to the pump plunger.

5. A lubricating device comprising a base plate, a wheel support for the base plate, a cylinder head connected with the base plate, a cylinder connected to said head, a removable head for the upper end of the cylinder, a reservoir secured to the lower end of the base plate, a double ended piston slidably mounted in the cylinder, a pump cylinder carried by the base plate, the cylinder head and base plate having a passageway connecting the lower end of the first cylinder with the lower end of the pump cylinder, an inwardly opening outlet valve in said passageway at one side of the plunger, an inwardly opening inlet valve in said passageway below the plunger, means for manually operating said plunger including a hand lever rockably mounted at its lower end on the base plate and extending alongside of the first cylinder, an arm extending beyond the pivot of the lever and formed thereon, a link connecting the outer end of said arm to the pump plunger, the cylinder head and base plate having a passageway formed therein diametrically opposite the first passageway and connecting the lower end of the first cylinder with the reservoir, and a manually controlled valve for controlling the flow of fluid through said last passageway.

6. A hydraulic lubricating device comprising a base plate, a wheeled support for the base plate, a liquid receiving reservoir bolted to the lower face of the base plate, a cylinder head formed on the upper face of the base plate, a cylinder secured to said head, a removable head for the upper end of the cylinder, a double ended piston slidably mounted in said cylinder, means for pumping the liquid from the reservoir into the cylinder below the piston, an outlet nipple formed on the upper cylinder head having a ground seat, an outlet head removably fitted on said seat, a clamp for detachably connecting the head on the nipple, an outlet pipe connected with the base plate, a hose and nozzle connected with the outlet pipe, and a supply pipe carried by the outlet head and rotatably associated with said outlet pipe.

In testimony whereof I affix my signature.

KNIGHT N. WILLMORE.