March 18, 1930. R. J. GRAY 1,751,323

GREASE GUN

Filed May 21, 1927 2 Sheets-Sheet 1

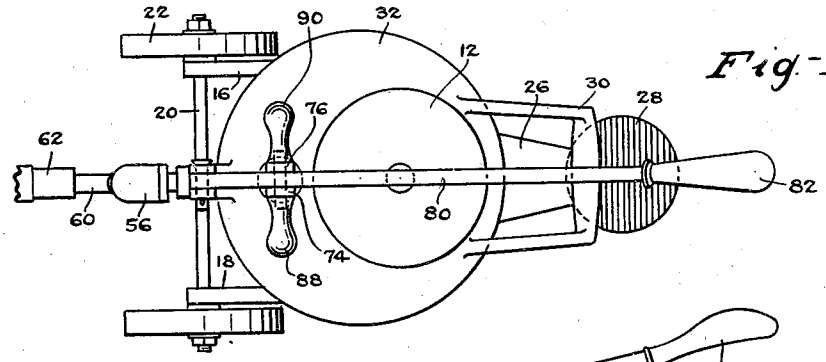


Fig. 1

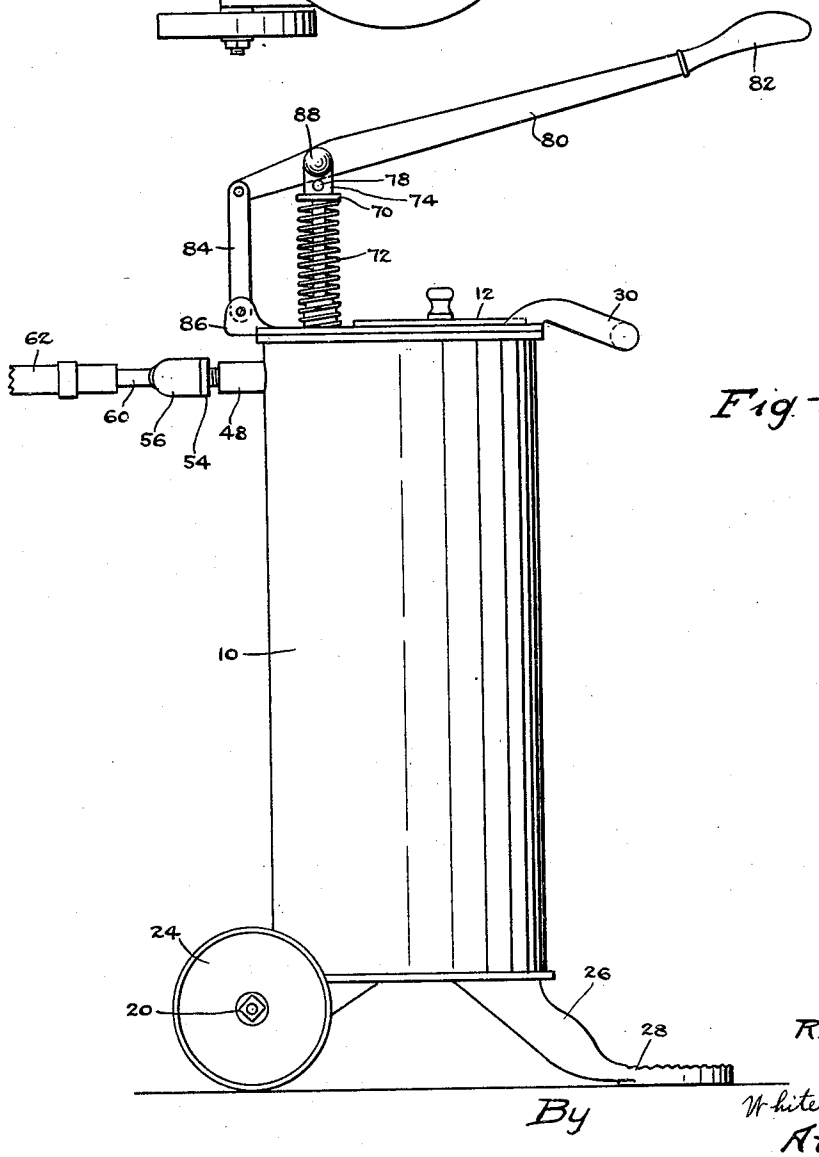


Fig. 2

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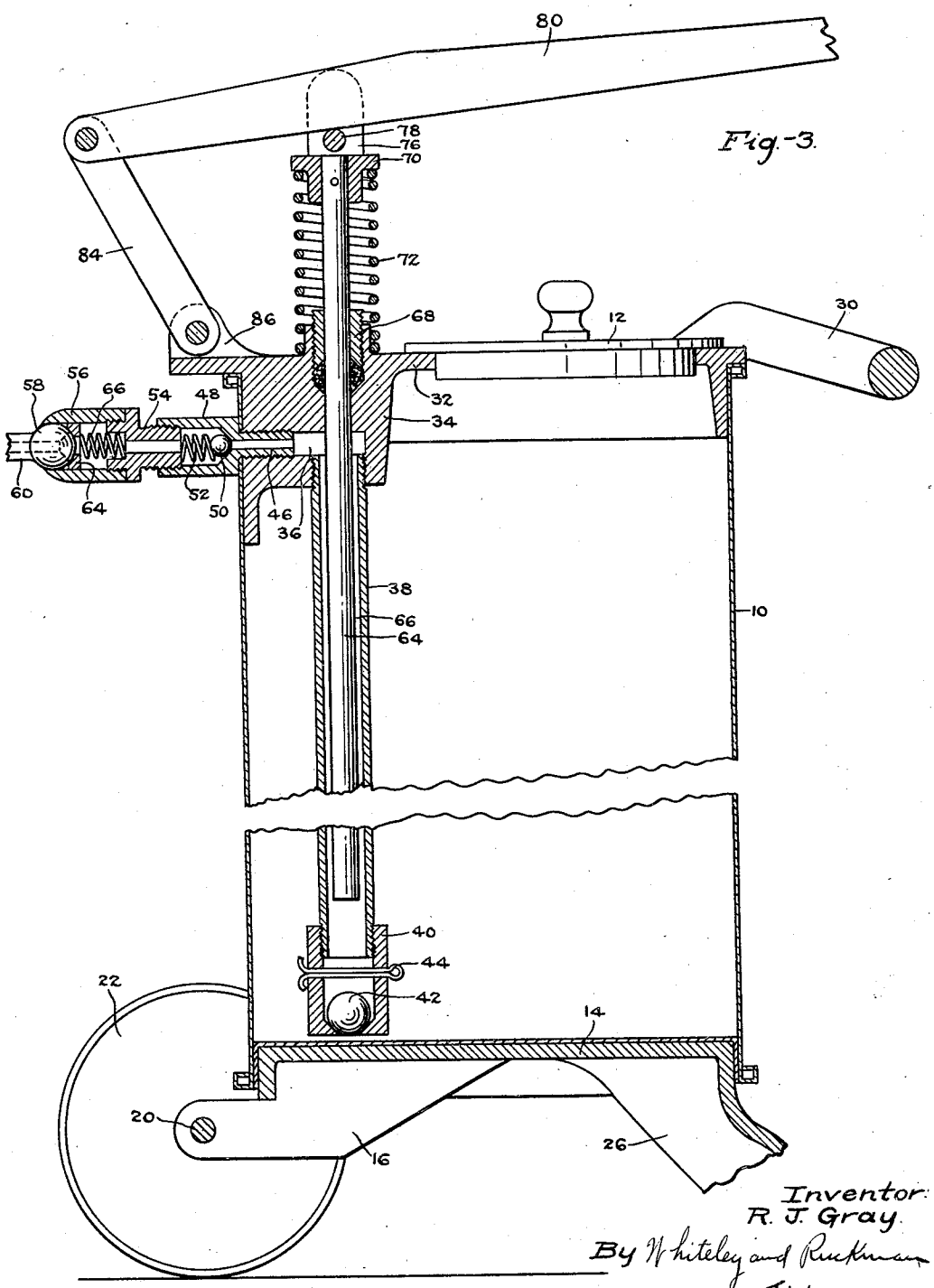


Fig. 3.

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Patented Mar. 18, 1930 1,751,323

UNITED STATES PATENT OFFICE

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GREASE GUN

Application filed May 21, 1927. Serial No. 193,359.

My invention relates to grease guns, and an object is to provide a device of this character which is simple in construction and efficient in operation. It has been customary heretofore to provide grease guns embodying cylinders in which plungers operate in such manner that grease is drawn in at one end of the cylinder and then upon reverse movement of the plunger is forced out at this same end of the cylinder through a delivery tube. An object of my invention is to provide a combination which embodies a hollow member in communication at one end with the interior of a grease receptacle, a delivery tube in communication with the other end of the hollow member and a device adapted to be reciprocated in the hollow member for causing grease to move therethrough from said first mentioned end and be delivered at the other end into the delivery tube. Another object is to provide a grease gun which may be conveniently operated to deliver either small or large shots of grease as desired.

The full objects and advantages of my invention will appear in connection with the detailed description thereof, and the novel features of my inventive idea will be particularly pointed out in the claims.

In the accompanying drawings which illustrate one form in which my invention may be embodied,—

Fig. 1 is a top plan view of the apparatus. Fig. 2 is a side elevational view. Fig. 3 is a view in vertical section.

Referring to the construction shown in the drawings, the numeral 10 designates a grease receptacle which at its upper end is provided with a filling opening adapted to be closed by a cover 12. For convenient use of the device, a casting 14 is secured to the bottom of the receptacle, this casting having two arms 16 and 18 extending out at one side and carrying a shaft 20 upon which wheels 22 and 24 are mounted. The other side of the casting has a downward extension 26 which terminates in a foot member 28 whose upper surface is corrugated in order that the foot of the operator may not slip off. Above the side having the foot member 28 a handle 30 is secured to the top of the receptacle. By lifting up on this handle, the foot member 28 is raised from the floor so that the device may be readily wheeled to any desired place. In the embodiment shown, the top of the receptacle is formed by a casting 32 which fits tightly into the upper end of the cylindrical wall of the receptacle. This casting has a downward projection 34 which at one side fits against the wall of the receptacle. The projection 34 contains a laterally extending chamber 36, the lower wall of which is provided with a threaded opening into which the upper threaded end of a cylinder 38 is screwed. The lower end of the cylinder 38 is threaded to receive internal threads on a valve casing 40 within which is an upwardly opening check valve 42. The lower end of the casing 40 is spaced somewhat above the bottom of the receptacle and has an opening which is controlled by the valve 42. A pin 44 extends across the casing 40 above the valve 42 for limiting the upward movement thereof. The wall of the receptacle 10 is perforated in line with the laterally extending chamber 36 and the adjacent portion of this chamber is screwthreaded to receive the threads on a hollow stem 46 formed integrally with a valve casing 48 which contains an outwardly opening check valve 50 backed by a coiled spring 52 which engages the rear end of a coupling member 54 which connects the valve casing 48 with a socket member 56. A ball 58 located in this socket has a passageway therethrough which continues on through a stem 60 projecting out from the ball and adapted to receive a flexible tube 62 leading to the place where the grease is to be applied. A washer 64 in the socket member 56 engages the rear end of the ball 58, this member being backed up by a coiled spring

66. The ball 58 is thus held firmly in engagement with the forward end of the socket so as to have a tight fit therewith to prevent leakage and at the same time the ball can be turned in accordance with the inclination of the tube 62. The simple and yet extremely efficient construction of my device will now be apparent when it is observed that the cylinder 38 contains a plunger 64 having a diameter somewhat less than the internal diameter of the cylinder 38 so that there is a clearance or space indicated at 66 between the plunger and the cylinder so that the grease is forced upwardly in the cylinder when the plunger is depressed. The plunger passes through the projection 34, the latter being provided with a packing gland 68 so that there is no leakage around the plunger. The upper end of the plunger has a collar 70 secured thereto. A coiled spring 72 interposed between the collar 70 and the casting 32 normally holds the plunger elevated to the extent shown in Fig. 3. The collar 70 has two lugs 74 and 76 extending up therefrom in spaced relation to each other and carrying a pin 78 which bridges the gap between the lugs near their lower ends. A lever 80 passes between the lugs 74 and 76 and rests upon the pin 78 so that upon depressing the lever, the plunger 64 will be forced further down into the cylinder. One end of this lever is provided with an operating handle 82 and the other end is connected by a link 84 with a lug 86 carried by the casting 32. The upper ends of the lugs 74 and 76 carry handle members 82 and 90.

The operation and advantages of my invention will be readily understood in connection with the foregoing description. The particular construction shown operates upon the principle of displacement since the more of the plunger there is in the cylinder the less will be the amount of grease which can remain therein. When the device is to be used and assuming that the receptacle 10 contains grease, the outer end of the delivery end 62 is engaged with the place to be lubricated. It will be understood that there is grease in the lower portion of the cylinder 38 which has been drawn therein by the previous operation of the plunger. The operator depresses the handle 82 and since the valve 42 is then closed, the downward movement of the plunger 64 causes grease to move upwardly in the cylinder 38 and to be displaced laterally out through the delivery tube. When the handle 82 is released, the spring 72 causes the plunger 64 to be returned to the position shown in Fig. 3, this movement of the plunger causing grease to be drawn into the lower portion of the cylinder 38 since the check valve 42 is now free to move upwardly and the check valve 50 has automatically closed and prevents backward movement of grease into the cylinder. This operation can be repeated as fast as the tube 62 is moved to engage successive places which are to be lubricated. The action of the spring 72 causes the plunger to be raised sufficiently for ordinary small charges of grease. Much larger charges or shots of grease can be obtained when the lever 80 is thrown over out of the way. The plunger 64 can then be lifted much further than it is carried up by the spring 72 such movement being effected by grasping the handles 88 and 90. A much larger charge of grease will be sucked into the cylinder and upon depression the plunger, this large charge will be forced out through the delivery tube.

I claim:

1. A grease gun comprising a grease receptacle, a member containing a chamber secured to the upper end of said receptacle, a delivery tube connected with said chamber, a cylinder extending from said chamber to a place near the bottom of said receptacle, an upwardly opening check valve at the bottom of said cylinder, a plunger of smaller diameter than the interior dimension of said cylinder and working therein, said plunger extending up through said chambered member, an enlargement on the upper end of said plunger, a coiled spring interposed between said enlargement and said chambered member, a handle fixedly secured to the upper end of said plunger, and an operating lever pivotally connected with said receptacle for downward engagement only with the upper end of said plunger.

2. A grease gun comprising a grease receptacle, a member constituting a chamber secured to the upper end of said receptacle, a delivery tube connected with said chamber, a cylinder extending from said chamber to a place near the bottom of the receptacle, an upwardly opening check valve at the bottom of said cylinder, a plunger of smaller diameter than the interior dimension of said cylinder and working therein, said plunger extending up through said chambered member, an enlargement on the upper end of said plunger, a coiled spring interposed between said enlargement and said chambered member, lugs extending up from said enlargement, a pin bridging the gap between said lugs near their lower ends, an operating lever pivotally connected with said receptacle for downward engagement only with the upper side of said pin, and handles fixedly secured to the upper ends of said lugs.

3. A grease gun comprising a grease receptacle, a member containing a chamber secured to the upper end of said receptacle, a delivery tube extending out from said chamber, a cylinder extending from said chamber to a place near the bottom of said receptacle, an upwardly opening check valve at the lower end of said cylinder, a plunger of smaller diameter than the interior dimension of said cylinder working therein, a spring normally

holding said plunger in partly lifted position and permitting it to be fully lifted, an operating lever pivotally connected with said receptacle for downward engagement only with the upper end of said plunger, and a handle fixedly secured to the upper end of said plunger by means of which the latter may be fully lifted and depressed.

In testimony whereof I hereunto affix my signature.

RUSSELL J. GRAY.