

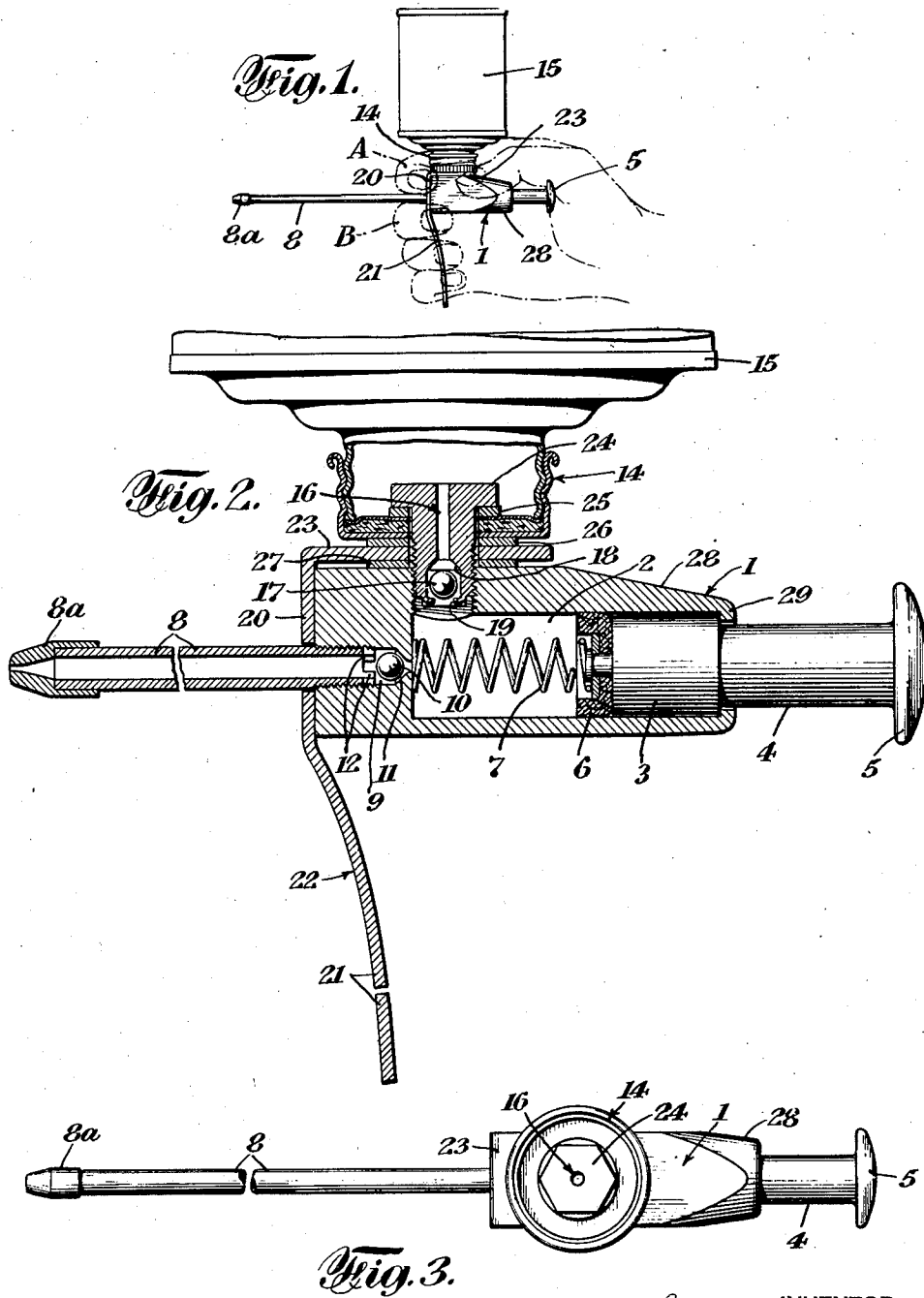
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OIL SPRAY GUN AND THE LIKE

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OIL-SPRAY GUN AND THE LIKE

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4 Claims. (Cl. 299-97)

My present invention relates to improvements in oil-spray guns and the like.

An object of the invention is to make an oil-spray gun where there is gravity feed for the oil from the oil receptacle which may consist of the ordinary screw-top oil-can in which the oil is sold and which is arranged to be carried bodily by the gun.

Another object is to provide an oil-spray gun operable with one hand by closing and opening the fist wherein the gun body, the oil-can receptacle and the operating piston and finger grips are so contrived and located relatively to the fist that the gun is made easy to hold, aim and operate without tiring the hand.

The drawing shows one preferred form of gun within my invention which is to be taken as simply illustrative thereof, but not as limiting the invention to said particular form. On the contrary it will be understood that my herein invention may be embodied in a variety of forms coming within the spirit of the invention and the scope of the appended claims.

In the drawing:—

Fig. 1 is a side elevation of gun and attached can on a small scale;

Fig. 2 is an enlarged vertical section, partly in side elevation of the gun of Fig. 1, the can being shown only fragmentarily; and

Fig. 3 is a plan view looking down on top of the gun in Fig. 2 with the can omitted.

In the drawing, the cylinder 1 has a piston chamber 2. This chamber contains a piston indicated as an entirety by the numeral 3. The piston rod 4 projects through the rear end of the cylinder and has a knob or head 5 on its outer end suitable to be engaged by the palm of the operator's hand. Secured to the front end of the piston is the packing washer 6 making a snug piston fit with the cylindrical wall of the piston chamber. 7 is a compression spring located between the piston and the front end of the piston chamber, said spring operating to effect the return or backward stroke of the piston after it has been pushed forward manually and released.

A hollow stem 8 projects from the front end of the cylinder with a valve controlled passage 9 between it and the piston chamber. In the particular form shown, this stem consists of a tube having screw threaded engagement at one end with screw threads at the end of the passage 9. This same tube is shown equipped at its free end with a cap or nozzle 8a having an orifice of any

suitable or desired shape or size to deliver the oil from the gun.

10 is a ball-valve in the passage 9; and 11 is its seat; the ball when on the seat 11 sealing the passage, which it does on the return stroke of the piston. 12 indicates not a seat but a mere stop for the ball allowing the oil to flow around the ball and into the stem 8. In other words, when the ball is off the seat 11, which it is on the forward stroke of the piston, there is clearance and a free passage for the oil from the piston chamber into the oil delivery stem. In the illustrative device the stop 12 consists of the notched end of the tube 8.

14 is an upwardly open socket on the up-side of the cylinder for liquid tight engagement with the neck of an oil-can 15 and for supporting the can in inverted position thereon. Screw threads are shown in the walls of this socket for engaging with corresponding screw threads on the neck of the oil-can. This socket is connected by a valve controlled passage bearing the general designation 16 leading from the inside of the socket 14, through the wall of the cylinder 1 into the piston chamber 2. 17 designates a ball valve and 18 is its seat in this passageway. The part 19 below the ball is not a seat but a stop which allows the oil to flow from the can past the ball into the piston chamber. The forward stroke of the piston raises the ball against its seat and seals the passageway, whereas the return stroke of the piston unseats the ball and allows it to drop against the stop 19.

Grip means 20 and 21 are provided in connection with the gun body for the fingers of the operator's hand when the gun is grasped for operation by one hand with the palm against the head 5 of the piston rod. This grip means comprises an upper part 20 located ahead of the previously referred to socket 14 and above the hollow stem 8 for engagement by the forefinger, which is indicated dotted at A. The grip means further comprises a lower part 21 located below the hollow stem 8 for engagement by the middle and remaining fingers indicated at B.

In the illustrative embodiment of the gun, the finger grip means consists of the upper and lower portions designated 20 and 21 respectively, of a sufficiently rigid metal strap bearing the general designating numeral 22. This strap rests against the preferably flat front end of the cylinder 1 where it is apertured for the hollow stem 8 to project through it. The strap has its upper free-end 23 bent rearwardly so as to overlie the up-side of the cylinder which is preferably flat.

Also in the illustrative embodiment, the socket 14 takes the form of what is substantially an inverted oil-can cap which overlies the bent-over end 23 of the strap. A hole in the bottom of this cap registers with a hole through the strap and with the passage through the wall of the cylinder into the piston chamber for the delivery of oil from the can to said chamber.

24 is a headed screw whose shank projects through said holes in the cap-bottom and the strap end engages screw threads in the passage through the cylinder-wall into the piston-chamber. When the screw is in place, the cap-bottom and the strap and the intervening washers and packing elements 25, 26 and 27 are clamped by the head of the screw against the up-side of the cylinder so that the joints are tight and non-leaking.

The headed screw is formed with an axial bore which in effect constitutes in whole or in part the previously referred to passage 16 between the interior of the aforesaid socket or cap 14, the attached oil-can and the piston chamber of the cylinder. The previously described ball-valve 17 is contained in the aforesaid bore of the screw as are also the previously described seat 18 and the stop 19 for said valve.

The result of the combination of elements herein disclosed is an oil-spray gun having a gravity feed for the oil, which is a highly desirable and certain manner of feed from the oil-can or container in which the oil is marketed the gun being operable with one hand by the alternate closing and opening of the fist, the palm being against the head of the piston rod and the fingers at the grips 20 and 21 straddling the oil delivery stem 8 ahead of the socket connection 14 between the oil-can and the top of the gun, so that the can is in the axis of the fist and is adjacent the top of the fist with the oil delivery stem 8 projecting between the fingers, all of which allows the gun to be directed and manipulated with maximum ease and control and with minimum tiring of the hand. Also the full power of the entire hand can be used on the forward stroke to throw forcibly a fine stream of the oil into inaccessible and distant parts calling for lubrication. Each time the fist is closed the piston is driven forward and acting on the oil in the piston chamber closes the valve to the oil reservoir or can and opens the valve to the delivery stem and therefore forcibly ejects the oil from the piston chamber out through the stem and nozzle. Reversely each opening or relaxation of the fist permits the spring 7 to return the piston to its original position which reverses the position of the valves substantially sealing the piston chamber against the entrance of air through the stem 8 and refilling the chamber with oil from the oil-can ready to be ejected by the next forward stroke of the piston by the closing of the hand.

To note a detail not before mentioned, it will be seen that the rear end of the metal block from which the cylinder 1 is made, is tapered at 28 so as to be reduced to a relatively thin lipped mouth 29 which is adapted to be peened or otherwise turned over to form an abutment for the rear end of the piston 3 without however, interfering with the free reciprocation of the piston rod.

What I claim is:

1. A manually operable oil-spray gun and the like, comprising, in combination, a cylinder and a hollow stem delivering from the front end of the cylinder, a piston in said cylinder on a piston rod extending through the rear end of the cylin-

der, an upwardly open cap on the up-side of the cylinder for liquid-tight engagement with the neck of an oil-can and for supporting the can in inverted position thereon, said cap having a hole through its bottom connecting with a passage through the cylinder-wall into the piston chamber, spring means impelling the piston and piston rod rearwardly, finger grip means consisting of a substantially rigid strap-like member at the front end of the cylinder with the hollow stem passing through a hole in the strap, said strap having a portion above the hollow stem serving as a grip for the forefinger and having a portion below it serving as a grip for the middle and other fingers, the free upper end of said strap being bent rearwardly and located between the up-side of the cylinder and the bottom of the inverted cap and having a hole therethrough connecting with the hole in the bottom of the cap and with the passage to the piston chamber.

2. A manually operable oil-spray gun and the like, comprising, in combination, a cylinder and a hollow stem delivering from the front end of the cylinder, a piston in said cylinder on a piston rod extending through the rear end of the cylinder, an upwardly open cap on the up-side of the cylinder for liquid-tight engagement with the neck of an oil-can and for supporting the can in inverted position thereon, said cap having a hole through its bottom connecting with a passage through the cylinder-wall into the piston chamber, spring means impelling the piston and piston rod rearwardly, finger grip means consisting of a substantially rigid strap-like member at the front end of the cylinder with the hollow stem passing through a hole in the strap, said strap having a portion above the hollow stem serving as a grip for the forefinger and having a portion below it serving as a grip for the middle and other fingers, the free upper end of said strap being bent rearwardly and located between the up-side of the cylinder and the bottom of the inverted cap and having a hole therethrough connecting with the hole in the bottom of the cap and with the passage to the piston chamber, and an axially bored securing member extending through said holes and into said passage wherein it is anchored and secures the cap-bottom and the strap and suitable intervening gaskets leak-tight to the up-side of the cylinder, the bore of said securing member containing a suitable valve and valve seat whereby the interior of the cap and of any attached oil container is operatively connected with the piston chamber of the cylinder.

3. A manually operable oil-spray gun and the like, comprising, in combination, a cylinder and a hollow stem delivering from the front end of the cylinder with a valve controlled passage therebetween, said cylinder and stem constituting the body of the gun, a piston in said cylinder on a piston rod extending through the rear end of the cylinder, an upwardly open socket on the up-side of the cylinder for liquid-tight engagement with the neck of an oil-can and for supporting the can in inverted position thereon, said socket being connected by a valve-controlled passageway with the piston chamber of the cylinder, spring means impelling the piston and piston rod rearwardly, and grip means in connection with said gun body for the fingers of the operator's hand when the palm is against the outer end of the piston rod, said grip means comprising an upper part located ahead of the aforesaid socket and above the aforesaid hollow stem for engagement

by the forefinger and also comprising a lower part below the hollow stem for engagement by the middle and other fingers.

4. A manually operable oil-spray gun and the
5 like, comprising in combination, a cylinder and a hollow stem delivering from the front end of the cylinder, said cylinder and stem constituting the body of the gun, a piston in said cylinder on a
10 piston rod extending through the rear end of the cylinder, an upwardly open socket on the up-side of the cylinder for liquid-tight engagement with the neck of an oil-can and for supporting said can in inverted position thereon, said socket being
15 connected by a passageway with the piston member of the cylinder, and grip means in connection

with said gun body for the fingers of the operator's hand when the palm is against the outer end of the piston rod, said grip means comprising an upper part located ahead of the aforesaid socket and above the aforesaid hollow stem for engagement by the forefinger and comprising a lower
5 part below the hollow stem for engagement by the middle and other fingers, the wall at the rear end of the cylinder being reduced in thickness to a thin lipped mouth which lip extends radially
10 inwardly forming a stop for the rear end of the piston without interfering with the reciprocation of the piston rod.

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