

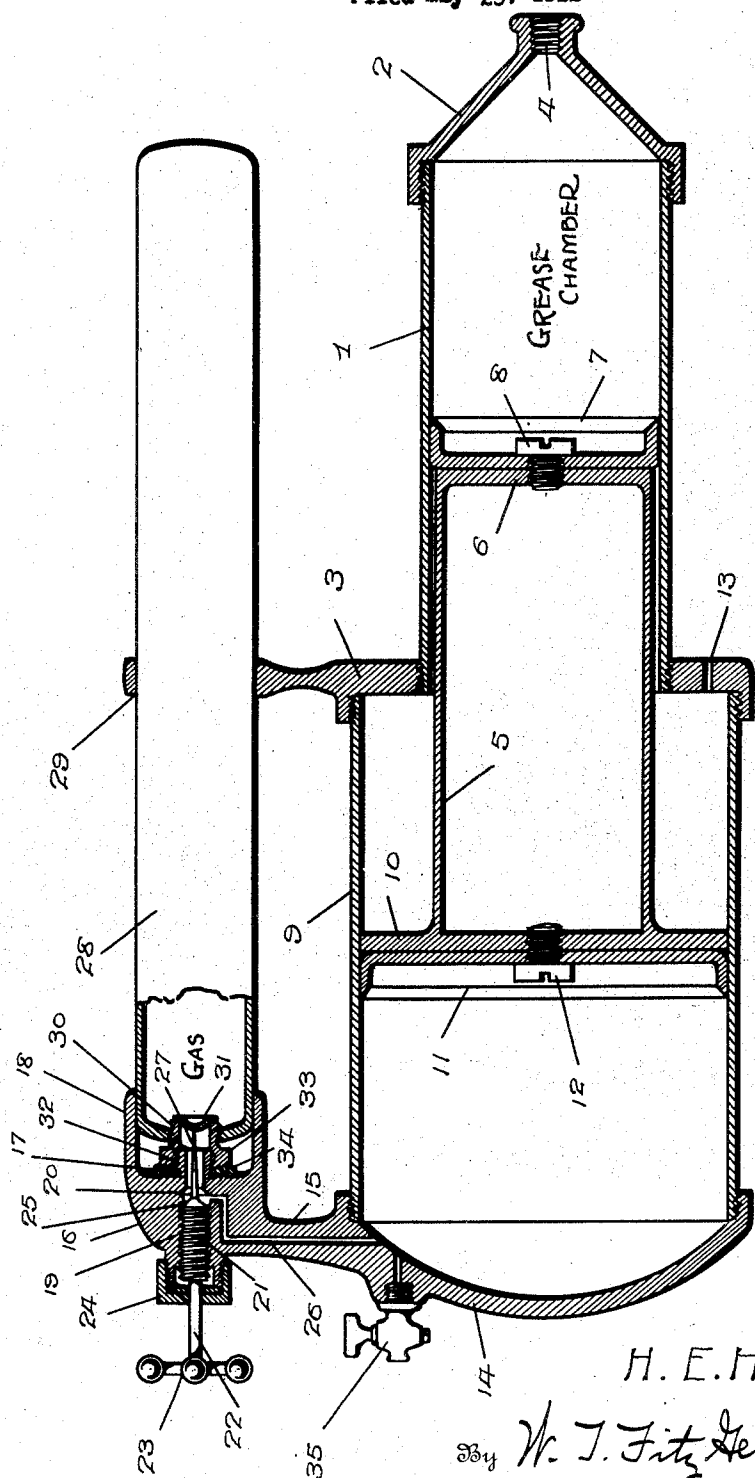
Sept. 22, 1925.

1,554,348

H. E. HAWKINS

GREASE GUN

Filed May 29, 1922



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UNITED STATES PATENT OFFICE.

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GREASE GUN.

Application filed May 29, 1922. Serial No. 564,379.

To all whom it may concern:

Be it known that I, HARRY E. HAWKINS, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Grease Guns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to dispensers for grease and similar viscous substances, commonly known as grease guns, and aims to provide a novel and improved device of that kind, which is simple and inexpensive in construction, as well as being thoroughly practical and efficient in use.

Another object is the provision of such a device which employs an expansive gas, such as liquid air, carbonic acid gas, or any compressed expansive gas, as the pressure element or power for ejecting the grease or viscous substance, thereby not only eliminating mechanical mechanism for that purpose to simplify the construction, but also eliminating the usual labor required in forcing the grease out.

A further object is the provision of such a grease gun having a novel construction and assemblage of the component elements, to enhance the utility and efficiency of the device.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein the figure is a longitudinal section of the device, portions being shown in elevation and portions broken away.

The grease (the term grease being used in a broad sense for viscous substances generally) holder or receptacle comprises a barrel or cylinder 1 of suitable size, having a cap or head 2 threaded or otherwise secured on the front end thereof, said cap being formed with a nipple or nozzle 4 for the delivery of the grease. The rear end of the barrel 1 is screw-threaded or otherwise secured to a plate 3. A plunger 5 enters the

rear end of the barrel 1 and is provided at its forward end with a piston 6 movable in said barrel, a packing cup 7 of leather or other suitable material being secured to the piston 6 by means of a screw 8, or the like, to prevent leakage, and to force the grease ahead with the piston 6, toward and through the discharge cap 2.

A power cylinder 9 of larger diameter than the cylinder or barrel 1 has its forward end threadedly or otherwise secured to the plate 3 concentric with the barrel 1, said plate providing a common head for the two cylinders which are located at opposite sides of and which project in opposite directions from said plate. The plunger 5 has a piston 10 of larger diameter than the piston 6 working in the cylinder 9, and a packing cup 11 is also secured to the piston 10 by means of a screw 12, or the like, to prevent leakage of the gas in the cylinder 9 past said piston. The packing cups 7 and 11 are secured to the opposites sides of the two pistons, and the plate 3 has a vent aperture 13 between the adjacent ends of the cylinders, for the inlet and outlet of air, when the plunger is moved, it being noted that owing to the difference in diameters of the cylinders, the air chamber between the pistons is enlarged and reduced in size when the plunger moves rearwardly and forwardly, respectively.

A cap or head 14 is threadedly or otherwise secured on the rear end of the cylinder 9, and has a neck 15 projecting laterally to one side and formed with a valve body 16 having a central forwardly projecting screw-threaded nipple 17 and an annular flange 18 surrounding said nipple and providing a socket or recess in which said nipple is disposed. The valve body 16 has a bore 19 in alinement with said nipple extending from the rear end of the body to the passage of the nipple, and a bevelled or conical valve seat 20 is formed between said bore and passage, for the contact of a valve member 21 screw-threaded into said bore. The valve member has a stem 22 projecting from the rear end thereof through a packing gland or stuffing box 24 provided on the rear end of the valve body, and said stem has a suitable handle 23 for turning the valve. The forward end of the valve is conical, as at 25, to seat against the seat 20, and there is a passage or duct 26 extending through the neck 15 into the valve body 16 and com-

municating with the bore 19 adjacent to the valve seat 20. The opposite end of the passage 26 extends into the cap or head 14 and communicates with the gas chamber of the cylinder 9 between the piston 10 and cap 14. The forward end of the valve member 21 has a puncturing needle or prong 27 projecting through the nipple 17.

The expansive fluid, such as liquid air, carbonic acid gas, or other compressed expansive gas, is contained within a container or cylinder 28, which is of elongated form, and which is preferably of small diameter to be grasped in the hand. The container 28 is inserted through an opening 29 in an extension of the plate 3, for conveniently supporting said container from the cylinder or barrel structure. A discharge nozzle 30 is screw-threaded into the rear end of said container, and has a sealing disk or closure 31 disposed across the inner end of said nozzle, to confine the gas in said container. The outer end of the nozzle has internal screw-threads 32, for screwing the nozzle over the nipple 17 when the container 28 has been inserted through the opening 29 and into the socket surrounded by the flange or wall 18, thereby connecting the container with the valve structure. The nozzle 30 has a surrounding flange 33 at its outer end, to bear against a gasket 34 disposed on the nipple, for clamping the gasket between the flange 33 and valve body 16, to prevent leakage of the gas when the container 28 is connected to the nipple. The container 28 can be used as a handle for manipulating the device, and said container can be readily withdrawn from the flange 18 and opening 29, when the nozzle 30 thereof is unscrewed from the nipple 17, for replacing the container or recharging it with gas.

In using the device, the plunger 5 is shoved to its rearmost position, and the grease chamber in front of the piston 6 within the barrel or cylinder 1 is then filled with grease, the cap 2 being removed if desired for conveniently injecting the grease into the barrel. In order to force the plunger rearwardly, the container 28 is unscrewed from the nipple 17, and the valve member 21 opened to permit the air to escape from the rear end of the cylinder 9 to the atmosphere. Then, when the container 28 is inserted and connected to the nipple 17, the valve member 21 is screwed forwardly so that the needle or prong 27 will puncture the disk or closure 31, thereby opening the discharge outlet of

the container 28 for the flow of gas through the passage or duct 26. The flow of gas is controlled by the valve member 21, which can be turned for establishing or shutting off the flow of gas. When the valve member is opened, the gas flowing through the passage 26 into the rear end portion of the cylinder 9, will force the piston 10 forwardly with sufficient pressure to force the piston 6 forwardly in the barrel or cylinder 1. This will eject the grease through the discharge nozzle or nipple 4, and by closing the valve, the discharge of grease is stopped. The only manual effort required is to control the valve. The container 28 holds sufficient gas for ejecting all of the grease from the barrel. Should the container 28 hold sufficient gas for discharging several charges of grease from the barrel 1, a discharge valve 35 is carried by the cap or head 14, so that when the valve member 21 is closed, the valve 35 can be opened, for the escape of gas from the cylinder 9 when the plunger 5 is slid rearwardly to a position for refilling the barrel 1. The device is portable, being readily carried or manipulated by using the container 28 as a handle.

Having thus described the invention, what is claimed as new is:—

A grease gun comprising a barrel for holding grease, a cylinder, a plate between said barrel and cylinder to which the adjacent ends of said barrel and cylinder are detachably secured, a plunger having pistons working in the barrel and cylinder, a cap detachably secured on the other end of the cylinder and having a portion projecting to one side of the cylinder and provided with a socket and a passage leading from said socket to the inner surface of said cap in communication with the cylinder, said plate projecting to the same side of the cylinder and having an opening in alinement with said socket, an elongated expansive fluid container extending through said opening and into said socket and providing a handle at said side of the cylinder, said container and projecting portion of the cap having means for detachably securing them together, and a valve carried by said projecting portion to control the flow of expansive fluid from said container through said passage.

In testimony whereof I have signed my name to this specification.

HARRY E. HAWKINS.