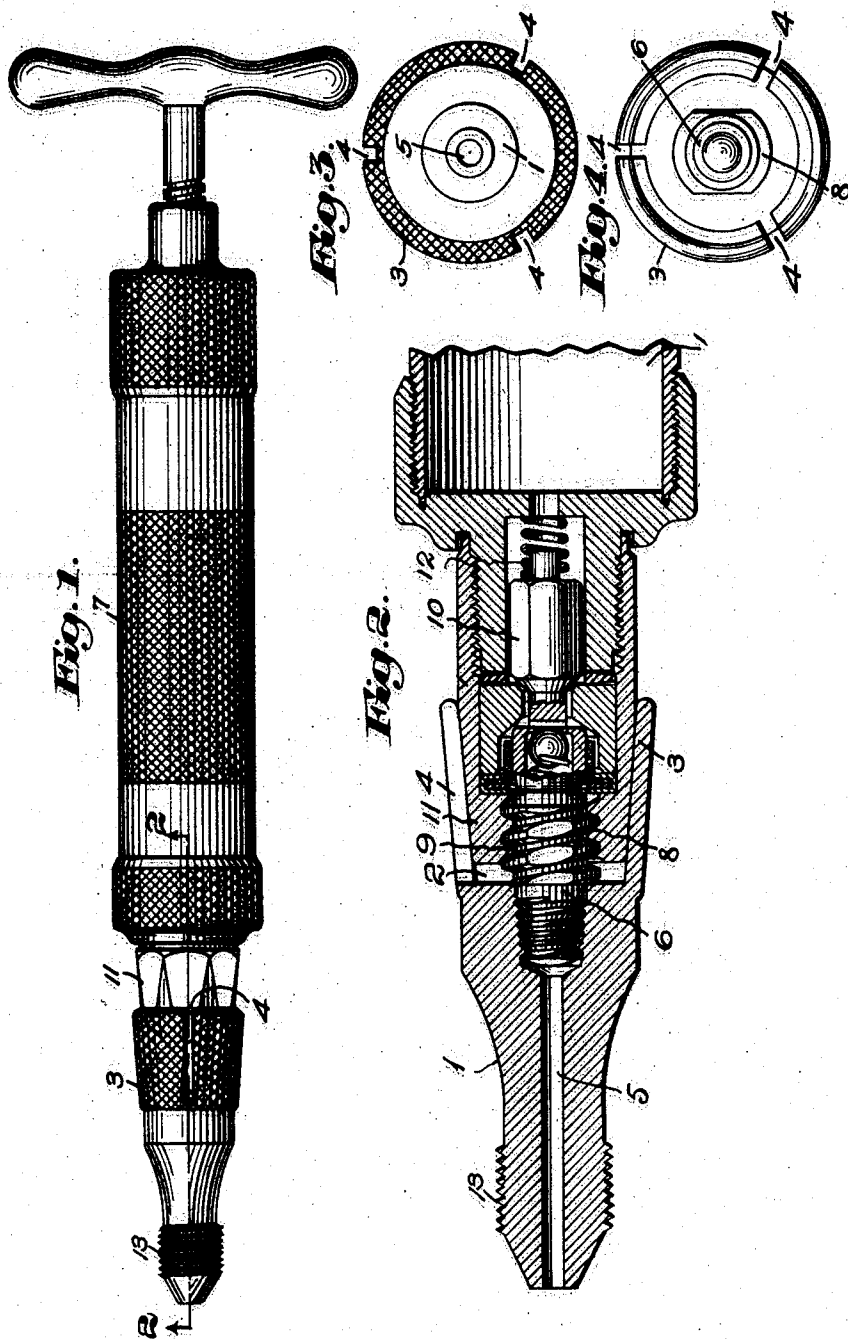


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H. J. MURPHY
LUBRICATING APPARATUS
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LUBRICATING APPARATUS

Application filed November 18, 1924. Serial No. 750,605.

This invention aims to provide an improved detachable nozzle for a lubricant-expelling device.

In the drawings, which illustrate a preferred form of my invention:—

Figure 1 is a side elevation of a lubricant-expelling gun showing the preferred form of my invention attached thereto;

Fig. 2 is an enlarged section on the line 2—2 of Fig. 1, being partly in elevation;

Fig. 3 is a front elevation of the nozzle; and

Fig. 4 is a rear elevation of the nozzle.

Referring to the drawings, I have shown a detachable nozzle for use with lubricant-expelling devices wherein the lubricant cannot be discharged unless the device is connected to a lubricant-receiving nipple.

In automobiles, particularly, all the parts thereof that may be lubricated are not equipped with nipples, such for instance, as the differential gearing and the transmission gearing. These gears are covered by housings, which are generally provided with a small opening for reception of lubricant. Ordinarily, the lubricant-expelling device, used in lubricating most parts of the car, cannot be used to expel lubricant into these housings and therefore my invention will be found useful in connection with the lubricant-expelling device of the type mentioned to permit lubricating of all parts of the car including those not equipped with lubricant-receiving nipples to which the device may be attached. The nozzle may be quickly and easily attached to and detached from the discharge end of the gun and is so constructed that it is strong and durable and can be used in connection with supplying lubricant through relatively small openings.

My invention, as illustrated, comprises a nozzle having at one end thereof a relatively long nose-like portion 1 and at the other end a tapered chamber 2, which fits over the coupling member of a lubricant-expelling device, as illustrated.

The chamber is surrounded by a relatively thin wall 3 which is provided with slots 4 extending throughout the entire length of the chamber to permit slight expansion and contraction of the wall.

The nose-like portion 1 is provided with a central passage 5 which communicates at its inner end with a lubricant-receiving nipple 6 threadedly secured to the nozzle and surrounded by the wall 3.

While the nipple 6 may be of any suitable construction for proper engagement with the coupling member of the device to which the nozzle is to be attached, I have preferred to illustrate a nipple substantially as shown and described in my copending application, Serial No. 616,302 now Patent No. 1,637,326.

The lubricating device, as illustrated, is also substantially as shown and described in the above-mentioned application, and the detachable nozzle may be secured thereto by entering the discharge end of the device into the chamber 2 and rotating the barrel 7 of the device in a clockwise direction. Thus the lubricant-receiving nipple 6 is entered into the open end of the device and the male threads 8 located on the nipple engage the female threads 9 in the discharge end of the device, thereby drawing the two parts together until the end of the nipple engages and opens the closure valve 10. At the same time the relatively thin wall 3 contacts with and is slightly expanded by the cone-shaped end 11 of the discharge end of the lubricant-expelling device, thus holding the nozzle firmly connected to the lubricant-expelling device so that the substantially strong spring 12 behind the valve 10 cannot force the valve 10 into closed position as it would, because of the pitch of the threads, if the wall 3 were not provided.

When the nozzle is thus secured to the discharge end of the device, lubricant may be freely forced from the barrel 7 past the valve 10 through the passage in the nipple 6 and through the passage 5 in the nose-like portion 1 into the part to be lubricated.

The seal between the lubricant-expelling device and the nozzle is effected in exactly the same manner as when the device is connected with a lubricant-receiving nipple located upon some part of the car.

The nozzle is also provided with a male thread 13, as illustrated, which may be threaded into a supply tank or the like, so

that, when the lubricant-expelling gun is coupled with the nozzle, the gun may be filled from the front end thereof because the valve 10 in the gun is held open and lubricant may pass by it in any direction, as shown in Fig. 2. When the nozzle is used in the above mentioned manner, however, the ball check in the nipple 6 is substituted for a valve (not shown) which may be opened by engagement of the nipple with the gun so that lubricant may pass through the nipple in any direction.

While I have shown and described a preferred form of one embodiment of my invention, it will be understood that changes involving omission, alterations, substitution and reversal of parts, and even changes in the mode of operation, may be made without departing from the scope of my invention, which is best defined in the following claims.

Claims:

1. Lubricant-expelling apparatus including a barrel, means for expelling lubricant therefrom, a discharge end beyond said barrel having a discharge passage therethrough normally closed by a spring-pressed valve, a detachable nozzle having means for opening said valve and resilient means for engagement over the discharge end of said lubricant-expelling apparatus for maintaining said nozzle in a fixed relation therewith.

2. A removable nozzle for the end of a lubricant-expelling device, including a chamber at one end thereof for reception of the discharge end of a lubricant-expelling device and a lubricant-receiving nipple carried by said nozzle and projecting into said chamber and presenting means for coupling said nozzle to said lubricant-expelling device and to conduct lubricant from said device to said nozzle.

3. A removable nozzle for the end of a lubricant-expelling gun, including means presenting external projections for threadedly securing said nozzle to the gun, said means adapted when secured to the gun to maintain the closure valve in the gun in open position, thereby to permit free passage of lubricant through the nozzle of the gun and the removable nozzle and means presented by said removable nozzle for surrounding the end of the nozzle of the gun.

4. A removable nozzle for the end of a lubricant-expelling gun, including means for threadedly securing said nozzle to a gun, and means for maintaining the closure valve in said gun in open position, thereby to permit free expulsion of lubricant to parts having no nipple for engagement with a gun, and yieldable means for frictionally holding said nozzle in a fixed relation to said gun.

5. A removable nozzle for a lubricant-expelling device including a recess in one end thereof, a lubricant-receiving nipple carried

by the nozzle and extending into said recess and having a male thread thereon for reception of the female threads of a lubricant-expelling gun, said lubricant-receiving nipple providing means for connecting the lubricant in said gun with the passage in said nozzle to permit free passage of lubricant from said nozzle to the part to be lubricated.

6. A quick detachable nozzle for attachment to the coupling member of a lubricant-expelling device, said nozzle including a relatively long nose-like portion at one end thereof, a tapered chamber at the other end thereof surrounded by a resilient wall for gripping the coupling member of the lubricant-expelling device, a passage through said nose-like portion and a lubricant-receiving nipple secured to said nozzle for opening the valve in the device to permit passage of lubricant from the device through said nipple and said passage to the part to be lubricated.

7. A detachable nozzle for cooperation with the fixed nozzle of a lubricant-expelling device comprising a sleeve for resilient engagement with the outer surface of the fixed nozzle and a nipple within said sleeve for engagement within said fixed nozzle.

8. A detachable nozzle for cooperation with the fixed nozzle of a lubricant-expelling device, said detachable nozzle including a contractible and expansible sleeve for engagement over the outer surface of the fixed nozzle, a nipple within said sleeve for engagement within the fixed nozzle, and means for securing a coupling to said detachable nozzle.

9. A detachable nozzle for cooperation with the fixed nozzle of a lubricant-expelling device, said detachable nozzle including a contractible and expansible sleeve for engagement over the outer surface of the fixed nozzle, a nipple within said sleeve for engagement within the fixed nozzle, and a male thread on said detachable nozzle for engagement with a cooperating thread on a nipple-engaging coupling.

10. Lubricating apparatus comprising, in combination, a nipple secured to a support, a lubricant-expelling gun including a nozzle for engagement with said nipple, a valve in said nozzle adapted to be opened by engagement of said nozzle with said nipple, thereby to permit passage of lubricant past said valve, means presented by said nipple for cooperating with said nozzle by relative rotation thereby to maintain said nozzle and nipple in coupled engagement and open a valve, and means presented by said support for engagement with the external surface of said nozzle.

11. Lubricating apparatus comprising, in combination, a nipple secured to a support, a lubricant-expelling gun including a nozzle for engagement with said nipple, a valve in

said nozzle adapted to be opened by engagement of said nozzle with said nipple, thereby to permit passage of lubricant past said valve and resilient gripping means for cooperating with said nozzle to maintain said nozzle and nipple in coupled engagement thereby to maintain said valve in open position.

12. A coupling device for lubricating apparatus comprising a lubricant-receiving nipple for cooperative engagement with a lubricant-expelling gun to open the normally closed valve means in the nozzle end thereof, and resilient gripping means surrounding said nipple for engagement with the lubricant gun when the gun is coupled to said nipple, thereby to hold said gun in coupled relation with said nipple to permit passage of lubricant through the nozzle of the gun.

13. Lubricating apparatus of the class described comprising, in combination, a lubricant compressor, a discharge end communicating with said compressor, a detachable nozzle, a lubricant nipple detachably carried by said nozzle, quick detachable coupling means carried by said discharge end and nipple to effect a mechanically interlocking engagement therebetween, and a resilient flange on said nozzle for frictionally engaging said discharge end to prevent accidental disengagement of the discharge end and nipple.

14. Lubricating apparatus of the class described comprising, in combination, a lubricant compressor, a detachable nozzle, a lubricant nipple detachably carried by said nozzle, quick detachable coupling means carried by said discharge end and nipple to effect a mechanically interlocking engagement therebetween, and a resilient sleeve formed on said nozzle for telescopically receiving and frictionally engaging said discharge end, thereby to prevent accidental disengagement of the discharge end and nipple.

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

HOWARD J. MURPHY.