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M. R. CHIPMAN

DUST CAP FOR LUBRICATING APPARATUS

Filed Nov. 12, 1925

Fig. 1.

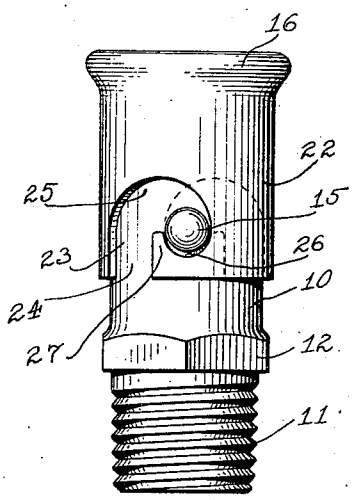


Fig. 2.

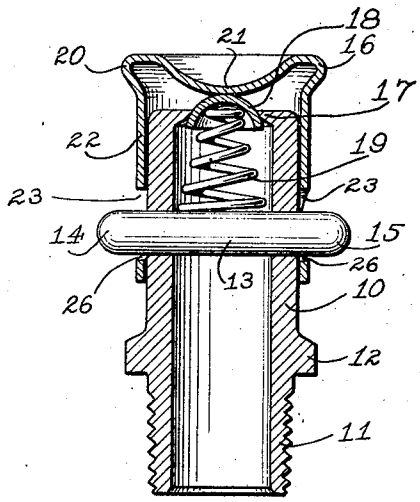
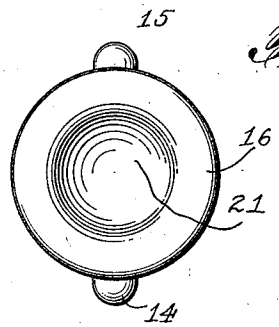


Fig. 3.



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DUST CAP FOR LUBRICATING APPARATUS.

Application filed November 12, 1925. Serial No. 68,696.

This invention relates to lubricating apparatus, and more particularly to lubricating inlet nipples of the automatic compression type adapted to be located on relatively inaccessible bearings of a machine.

One object of the invention is to provide a lubricating nipple of the above nature employing a spring-pressed internal valve closure and having an improved type of dust-excluding cap cooperating therewith.

A further object is to provide a dust-excluding cap of the above nature which will be securely held in detachable position upon the lubricating nipple without the use of springs in the cap itself.

A further object is to provide a dust-excluding cap of the above nature which is adapted to be attached to and detached from the lubricating nipple by the operation of forcing the cap downwardly against the interior valve closure, and then twisting said cap to respectively engage or disengage it from suitable locking pins on the exterior of said nipple.

A still further object is to provide a device of the above nature which will be simple in construction, inexpensive to manufacture, easy to manipulate, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view there has been illustrated on the accompanying drawing one form in which the invention may be conveniently embodied in practice.

Fig. 1 represents a side view in elevation of the lubricating nipple and dust-excluding cap.

Fig. 2 is a side sectional view of the same, the section being taken on a plane at right angles to the views shown in Fig. 1.

Fig. 3 is a top view of the same.

In the lubrication of inaccessible machine bearings, such as the brake bolts, steering mechanism, and springs, etc., of an automobile, it was formerly customary to equip said bearings with grease cups from which the grease was delivered to the bearings by screwing down suitable caps threaded thereon.

This former system has given way in late years to the use of the automatic compression type of inlet nipples adapted to receive lubricant, such as grease, under pressure from a supply nozzle or "grease gun" at intervals, a sufficient amount of lubricant being forced into the nipple at each filling to properly lubricate the bearings until the next filling.

In order to exclude dust, grit, dirt, and moisture from the interior of the nipple and to protect the spring-pressed closure thereof, a detachable cap was sometimes employed, said cap having suitable bayonet slots adapted to engage locking pins located on the exterior of said nipple. The closed end of the cap contained an interior spring which pressed down upon the top edge of the nipple and thus locked the pins in the bayonet slots and prevented the cap from falling off.

One disadvantage of the former type of dust-excluding cap was its high cost of manufacture.

The above and other disadvantages have been overcome by the present invention, in which a dust cap has been provided having no spring of any sort and so constructed that it will be detachably locked on the lubricator nipple by means of the spring-pressed closure of the nipple itself.

Referring now to the drawings in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates a lubricating nipple, said nipple being substantially cylindrical in shape and having a threaded bottom portion 11, by means of which the nipple may be attached to the bearing to be lubricated. Immediately above the threaded portion 11 the nipple is provided with a hexagonal flange 12 adapted to be manipulated by a suitable wrench, when it is desired to screw the nipple into or out of the bearing.

The upper portion of the nipple 10 is smooth and has a shaft 13 extending transversely therethrough. The ends 14 and 15 of the shaft 13 are adapted to form locking pins for a dust-excluding cap 16, to be hereinafter more fully described. The top of the nipple 10 is provided with an inwardly extending beveled flange 17 adapted to form a seat for an internal valve closure member 18, herein shown in the shape of a section of a hollow sphere. The closure member 18 is pressed against the beveled seat by a tapered spiral spring 19, as clearly shown in Fig. 2. The spring 19 is thus confined between the shaft 13 and the nipple valve closure member 18 and will press the latter resiliently against its seat at all times, thereby preventing outward leakage of the lubricant from the nipple 10.

The dust-excluding cap 16 is formed in the shape of a cup and has an enlarged head portion 20 at the centre of which is a concave spherical depression 21 for engagement with the nipple valve closure member 18. Depending from the enlarged head portion 20 of the cap is a cylindrical skirt portion 22 provided with a pair of oppositely disposed bayonet slots 23 of special form. Each of the bayonet slots 23 comprises a lower vertical entrance section 24, a semi-circular top recess 25, and a smaller semi-circular recess 26 communicating with the upper recess 25 and forming a seat for the end of the pin engaged therein.

As will be seen upon reference to Fig. 1, an upwardly extending lug 27 is left between the entrance section 24 and the seat 26 for preventing the pins 14 and 15 from accidentally coming out of the bayonet slots. The shape of the seats 26 is such that when the cap is in position upon the nipple, the pins 14 and 15 will not touch the bottom of the seats but will be slightly spaced therefrom. This loose fit of the cap upon the nipple eliminates all pressure upon the closure 18 which would tend to open it and cause leakage of the lubricant.

In operation, when it is desired to protect the end of the nipple valve, the dust-excluding cap will be placed over the upper end of the nipple with the entrance sections 24 of the bayonet slots 23 in alinement with the pins 14 and 15. The cap will then be forced downwardly against the upward pressure of the spring pressed closure 18 until the ends 14 and 15 of the pin are at the top of the recess 25. The cap will then be twisted in a clockwise direction and then permitted to move upwardly under the upward pressure of the spring-pressed closure 18 until the cap has assumed the position shown in Figs. 1 and 2. It will be understood that this operation will be performed so quickly that no appreciable amount of lubricant will be permitted to escape from the nipple.

The operation of removing the cap to permit the lubricant in the nipple to be replenished from a suitable grease gun or other source is the reverse of that just described.

The improved dust-excluding cap is especially adapted for use on the so-called "Alemite" lubricating system for automobiles, but it will be understood that it is not limited to such a system, and may be employed on various other machine bearings within the spirit and scope of the invention.

One advantage of the present invention is that the dust-excluding caps may be made on an automatic machine at an extremely low cost.

While there has been disclosed in this specification one form in which the invention may be embodied, it is to be understood that this form is shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosure but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

1. In a lubricating apparatus, an inlet nipple having a spring-pressed valve closure, and a detachable cup-shaped dust-excluding cap slidably fitted over the end of said nipple, said cap having a depression in its head to engage said valve closure and said cap being removable only by moving it downwardly to force said closure inwardly.

2. In a lubricating apparatus, an inlet nipple having an interior spring-pressed valve closure, a tubular dust-excluding cap slidably fitted over the end of said nipple, means on said nipple for retaining said cap, said cap having means for depressing said valve closure when pushed downwardly to release said cap from said retaining means, said cap while in dust-excluding position exerting no pressure against said closure, except that due to its own negligible weight.

3. In a lubricating apparatus, an inlet nipple for attachment to a bearing having a spring-pressed valve closure, a locking pin projecting from the side of said nipple, a dust-excluding cap for covering said nipple, said cap having a portion adapted to engage with and depress said closure, and also having a depending tubular section provided with a bayonet slot to receive said pin, said cap being removable from said nipple by first forcing it downwardly into engagement with said closure and then twisting said cap to disengage said pin from said bayonet slot.

4. In a lubricating apparatus, an inlet nipple connected with a machine bearing, said nipple having an outwardly-pressed valve closure, and a dust-excluding cap fitted over the end of said nipple, said cap having a depressed top portion for engagement with and depressing said closure, said cap being removable only by moving it downwardly to force said closure inwardly, said depressed portion exerting no pressure except its own weight upon said closure when the cap is in normal dust-excluding position.

5. In a lubricating apparatus, an inlet nipple connected with a machine bearing, said nipple having an outwardly-pressed valve closure, and a dust-excluding cap fit-

ted over the end of said nipple, said cap having a depressed top portion for engagement with and depressing said closure, said cap being removable only by moving it downwardly to force said closure inwardly, said depressed portion exerting no pressure except its own weight upon said closure when the cap is in normal dust-excluding position, said cap having a depending skirt with a bayonet slot, said nipple having a pin to engage in said bayonet slot to prevent said cap from moving out of dust-excluding position.

In testimony whereof, I have affixed my signature to this specification.

MORTON R. CHIPMAN.