(No Model.)

J. H. SHEPHEARD.

LUBRICANT CUP.

No. 554,092. Patented Feb. 4, 1896.

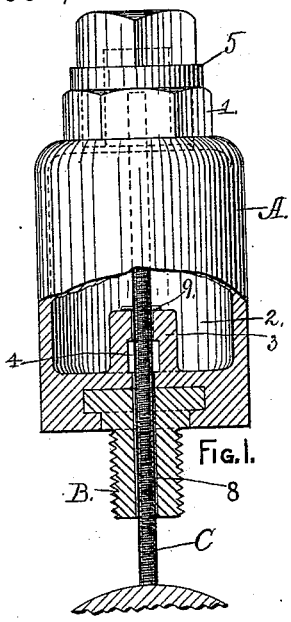

Fig. 1.

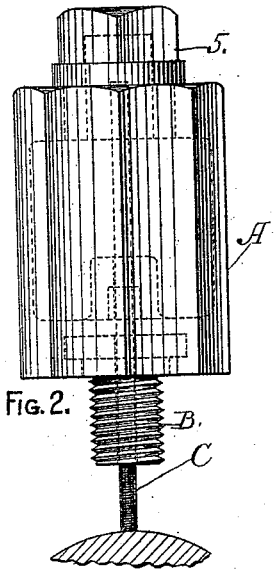

Fig. 2.

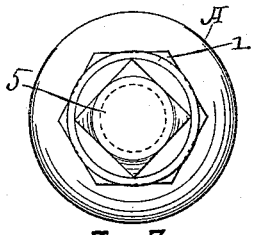

Fig. 3.

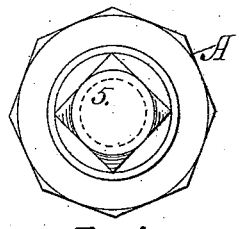

Fig. 4.

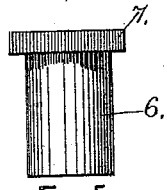

Fig. 5.

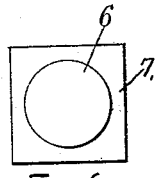

Fig. 6.

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LUBRICANT-CUP.

SPECIFICATION forming part of Letters Patent No. 554,092, dated February 4, 1896.

Application filed November 29, 1892. Serial No. 453,482. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. SHEPHEARD, of the city and county of Albany, in the State of New York, have invented new and useful Improvements in Lubricant-Cups, of which the following is a specification.

In mechanical engineering, but particularly that branch of it relating to locomotive-engines, much difficulty has been experienced in providing lubricant-cups that would not become weakened by use so that the body of the cup would fall from the screw-stem, by which said cups are usually secured in their respective places, such lubricant-cups, as a rule, being made of cast metal, usually bronze, brass, or gun-metal, with the screw-stem and body formed integrally of the same metal, the incessant jarring of the machine while in motion quickly producing a complete granulation of the metal that will destroy its integrity to such a degree that the body of the cup will separate and fall from the stem without apparent cause and without premonition, thereby leaving important parts of the machine without suitable lubrication and exposing them to destructive wear and cutting that will soon render the engine unfit for use.

The objects of my invention are, first, to produce a lubricant-cup that will endure the jarring of a locomotive-engine without the metal or metals of which it is composed becoming granulated sufficiently to affect its strength; and to effect these ends my invention consists in providing a screw-blank made of wrought iron, steel, or other tenacious and malleable metal, and provided with a flange-shaped head of a polygonous or other geometrical form of greater diameter than the body of said blank on which a screw-thread is to be cut, and casting the body of the lubricant-cup thereon in such manner that a portion of the body of said blank—that portion on which the screw-thread is to be cut—will protrude from the casting, and then finishing the cup in the same manner that it would be finished if the body of the cup and the screw-stem were integral, the body of said cup containing a lubricant-chamber having at its bottom a boss provided with a transverse passage, through which the lubricant will pass toward the central line of said cup, said boss also having a vertical opening, which corresponds to the opening through the screw-stem, for the discharge of the lubricant.

In the accompanying drawings, which are herein referred to and form part of this specification, Figure 1 is a side elevation of my lubricant-cup made in cylindrical form, the lower portion being shown in vertical section to expose underlying parts that would otherwise be concealed; Fig. 2, a side elevation of my lubricant-cup made with an octagonal body. Figs. 3 and 4 are respectively plan views of Figs. 1 and 2. Figs. 5 and 6 are respectively a detached side elevation and detached inverted plan view of a malleable-metal blank for the screw-stem before it is involved in the cast metal of the lubricant-cup.

As illustrated in the drawings, A designates the body of my lubricant-cup, whose cross-sectional form may either be cylindrical, as shown in Figs. 1 and 3, or polygonal, as shown in Figs. 2 and 4. When made in a cylindrical form, said body should have a polygonous boss 1 formed on it for the purpose of taking a wrench, by which said cup can be screwed into place; but when made in the form shown in Figs. 2 and 4 said boss may be dispensed with, and the wrench can be applied directly to the parallel square parts of said body.

The body A is made of some cast metal, preferably of bronze, and in either form shown it contains a lubricant-chamber 2, whose lower end has a boss 3 centrally located therein and having a transverse passage 4, whose lower side should be at least as low as the plane of the bottom of said chamber. The upper end of said body is provided with an opening, through which the lubricant is introduced into the chamber 2, and into said opening a screw-stopper 5 is fitted to form a closure for said opening.

At the lower end of the body A a screw-stem B projects for the purpose of securing the lubricant-cup in a required position on the part of the machine that the cup is to lubricate. Said screw-stem is first made in the form of a blank, preferably in the shape shown in Figs. 5 and 6, with a cylindrical body 6 and a flange-shaped head 7, whose di-

ameter is greater than said body. Said blank is placed in the mold in which the casting for the body A is to be made, and it is arranged in said mold in such manner that, in the operation of casting, the head 7 will be involved by the molten metal, and nearly the entire body 6 will project from the body of the lubricant-cup.

The blank for the screw-stem B is made of malleable metal having greater strength and resistibility to granulation than the cast metal of the body A, and by the shrinkage of the cast metal of said body in the process of solidifying while cooling the head and upper part of the body of said blank will be tenaciously held by the cast metal, and the screw-stem will be much stronger and less liable to become granulated than if made integral with the body A. After the casting is completed a discharge-opening 8 is drilled through the boss 3 and screw-stem B, said discharge-opening being made for the purpose of allowing lubricant to pass from the lubricant-chamber 2 to the part to be lubricated.

A feeding-rod C is fitted to pass loosely through the discharge-opening 8 and is of sufficient length to allow its lower end to ride on the part to be lubricated and its upper end to extend to the upper part of the opening in the top of the body A, where it will be in position to be easily reached by the fingers of an attendant, who by imparting a reciprocating movement to said rod can pump the lubricant through the discharge-opening 8 onto the part to be lubricated.

In addition to its function of mechanically pumping the lubricant the feeding-rod C, by becoming slightly warmed by the moving part on which it bears, serves to liquefy an incrassated lubricant to a condition which will allow it to flow freely by its gravity from the lubricant-chamber 2. When preferred, a check-pin 9 can be fixed crosswise in the feeding-rod C, and by bearing on the top of the boss 3 said check-pin will prevent the feeding-rod C from descending below a prescribed point.

In manufacturing my lubricant-cup after the casting of the body A has been completed, with the blank for the screw-stem B embedded therein, as hereinbefore described, said casting is "chucked" in a lathe or other suitable tool, the cylindrical portions of said body finished, and a screw-thread cut on the screw-stem B in the usual manner.

I am aware that in the art of metal founding it is not new to form a composite body by casting metal in a molten state on a rod or other body in a solid state; but as heretofore practiced whenever said bar was to have the form of a screw it has been usual to have the screw-thread cut thereon before it was placed in the mold in which the molten metal was cast thereon, and, as a rule, the screw would be imperfectly centralized and out of a proper alignment with the body of the casting. A further defect in the previous practice just referred to is that the screw quickly becomes loosened by use.

I do not broadly claim every form of malleable-metal blank for screw-stems to be involved by cast metal in a lubricant-cup; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The herein-described lubricant-cup, consisting of a cast-metal body, A, and a malleable-metal screw-stem, B, having a cylindrical body, 6, and a flange-shaped head, 7, of greater diameter than its body; said screw-stem being made independently of the lubricant-cup and involved in the casting of said cup, so that its head and part of its body will be held by the cast metal as and for the purpose herein specified.

JOHN H. SHEPHEARD.

Witnesses:
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