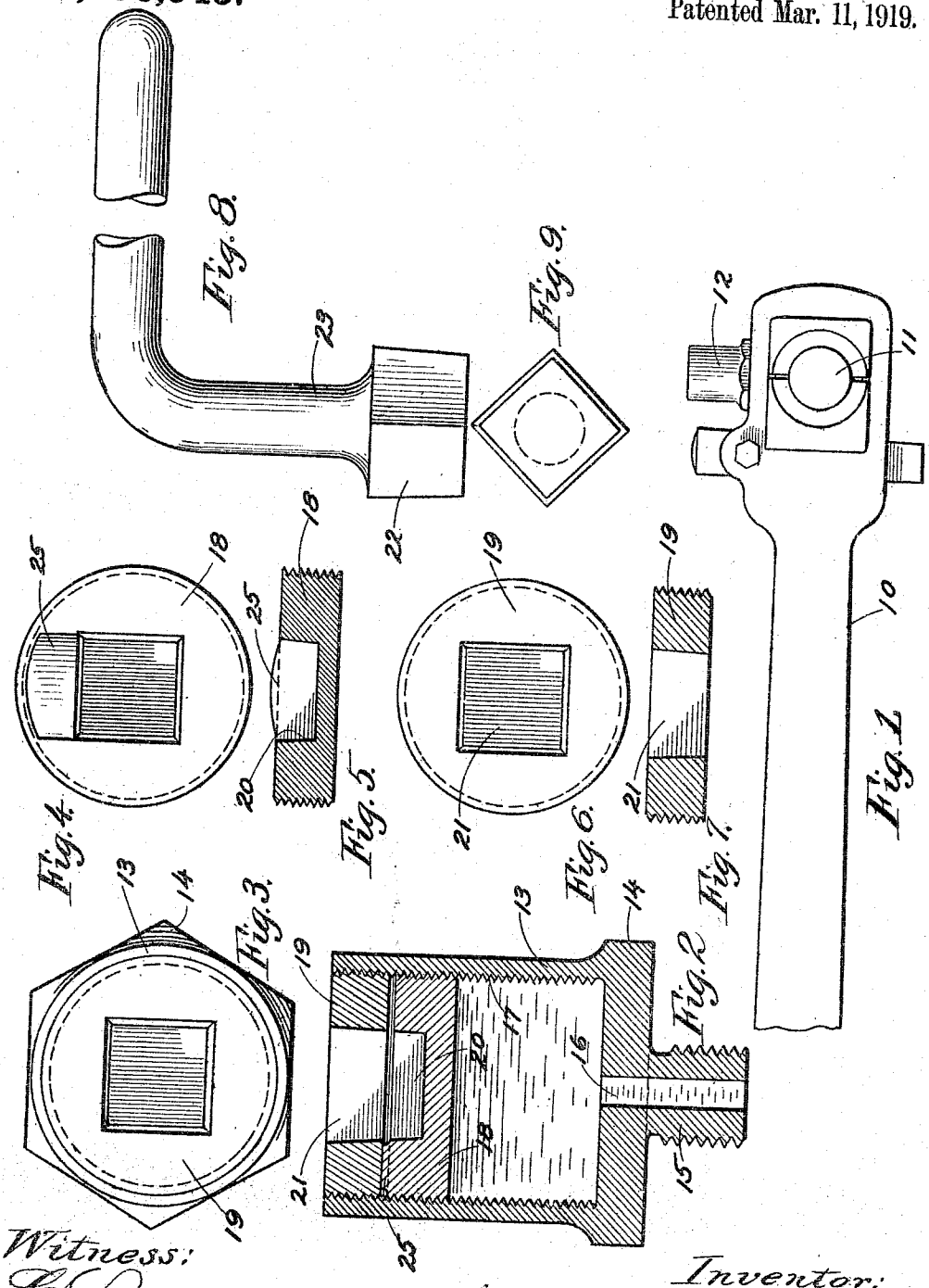
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GREASE CUP.

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GREASE-CUP.

1,296,943. Specification of Letters Patent. Patented Mar. 11, 1919.

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To all whom it may concern:

Be it known that I, GEORGE FRASER, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Grease-Cups, of which the following is a specification.

This invention relates to a grease cup for use in holding a lubricating grease to be applied to the moving parts of a machine, or the like.

The principal object of the invention is to provide a grease cup having in combination therewith an improved plug which may be locked in position in the cup to prevent the accidental removal thereof, due to the movement and vibration of the part to which the cup is applied. It has been found that the plugs used with grease cups applied to the side rods of locomotives, for example, are very likely to become loose, and thousands of these plugs are lost annually from the side rods of locomotives alone. The invention is not limited to this use, but may be applied to automobiles, and various other forms of machines with which the present invention is of particular advantage. A further important feature of the invention is that greater power is required to loosen the plug than is required to lock it in position within the cup, so that it can be removed only by an intentional operation thereof by a force greater than that with which the plug was first put in position. A further object is to provide a plug having two complementary members threadedly engaging the cup, one of these members being provided with a projection displaced laterally from its center to coact with the surface of the other member, and thereby set up a locking action between the members of the plug. Other objects relate to various features of construction and arrangement, which will appear more fully hereinafter.

In the drawings—

Figure 1 shows a side elevation of the side rod of a locomotive with my improved grease cup applied thereto;

Fig. 2 shows a vertical sectional view through the improved grease cup with the parts thereof assembled;

Fig. 3 shows a top plan view of the grease cup illustrated in Fig. 2;

Fig. 4 shows a top plan view of the lower plug or complementary locking member;

Fig. 5 shows a vertical section through the member illustrated in Fig. 4;

Fig. 6 shows a top plan view of the upper plug or complementary member;

Fig. 7 shows a vertical sectional view through the member illustrated in Fig. 6;

Fig. 8 shows a side elevation of an operating member or wrench for operating the members of the plug; and

Fig. 9 shows a bottom plan view of the wrench illustrated in Fig. 8.

In Fig. 1 of the drawings I have illustrated the side rod 10 of a locomotive mounted at one end in the usual manner upon the crank pin 11. My improved grease cup, designated generally by the numeral 12, is shown mounted upon the side rod above the crank pin 11, which is adapted to be lubricated by the cup. The cup comprises a cylindrical member 13 having a hexagonal portion 14 around the bottom thereof, to be engaged by a wrench, or the like, when applying the cup to or removing it from the side rod, or other member to which it is applied. The application of the grease cup to the side rod, or other member, is made by means of a threaded projection 15, which extends downwardly from the lower wall of the cup, and which is provided with an aperture 16 therethrough, to permit the grease or other lubricant to pass downwardly to the part to be lubricated. In some instances the cup 13 may preferably be formed integrally with the side rod or other member, instead of employing the threaded projection 15.

The cylindrical part 13 is internally threaded, as shown at 17, and is adapted to be threadedly engaged by a cylindrical plug 18. A complementary cylindrical plug 19 threadedly engages the part 13 above the plug 18. These complementary plugs 18 and 19 form together the locking plug by which the upper opening of the grease cup is closed. The lower plug 18 is provided on its upper side with a recess 20, or square or other non-cylindrical cross section, and the upper plug 19 is provided with a centrally located aperture 21 having a cross section similar to that of the recess 20. The walls of the aperture 21 and the recess 20

are preferably tapered, as illustrated in the drawings, and are adapted to be engaged by the tapered extremity 22, of rectangular cross section, which forms a part of the wrench 23. When the part 22 of the wrench is passed into engagement with the aperture 21 alone, the wrench may be employed to rotate the upper plug 19. When the upper plug has been rotated to bring the walls of the aperture 21 in alinement with the walls of the recess 20, the part 22 of the wrench may be pushed downwardly to engage the recess, after which both complementary members of the locking plug may be rotated together.

For the purpose of locking the members of the plug within the walls of the cup, one of the members, preferably the lower member 18, is provided with a projection 25, which is located at one side of the center of the plug, as illustrated particularly in Figs. 2 and 4. This projection rises upwardly from the surface of the plug 18, between the recess 20 and the outer periphery of the plug, and the upper surface thereof is curved in a plane lying transversely to a radius of the plug, so that when the upper plug 19 is screwed downwardly into the cup, the lower surface thereof will finally ride upon the projection 25, and cause a binding action between the plugs 18 and 19 and between the threads of the plugs and the walls of the cup, so that the complementary members of the plug will be held securely in position within the cup, and can not be removed, due to vibration or movement of the part to which the cup is applied. The locking action between the members of the plug may be varied by varying the curvature of the projection 25, and thereby varying the relative tilting tendency of the members when they are brought into engagement with each other.

When it is desired to tighten the plug within the cup, in order to force the lubricant down through the outlet 16, the wrench is caused to engage the upper plug alone, which is first loosened, after which the wrench is passed downwardly to engage both of the plugs, after which they are rotated to a lower position within the cup. The wrench is then withdrawn to engage the upper plug alone, which is rotated until it has a binding or locking action upon the lower plug. It has been found in practice that the force required to loosen the upper plug is at least fifteen per cent. greater than that which is necessary to move it into locking engagement with the lower one. An important advantage of the invention is that the upper plug can be moved into locking engagement with the lower one without the necessity of holding the lower plug against movement during the operation of the upper plug. When the two members 18 and 19 are in locking engagement with each other, the aperture 21 does not register with the recess 20, so that it is always necessary to loosen the upper plug before it is possible to adjust the lower plug and secure greater compression on the grease.

Although I have shown and described a single embodiment of the invention for purposes of illustration, it will be understood that it may be constructed in various other forms without departing from the spirit of the invention as defined in the appended claims.

I claim:—

1. The combination with a grease cup having a threaded portion, of a plug threadedly engaging the threaded portion of said cup, said plug comprising two complementary non-resilient rigid cylindrical members having relative longitudinal movement and adapted to have a locking engagement with each other by the coaction of parts located at one side only of the centers of said members.

2. The combination with a grease cup having a threaded portion, of a plug threadedly engaging the threaded portion of said cup, said plug comprising two complementary members, one of said members having an unyielding projection disposed at one side of the center of the plug and adapted to bear upon the other member.

3. In combination, a cup having an internally threaded portion, a plug threadedly engaging said cup, a second plug threadedly engaging said cup above said first-named plug, and a projection carried by one of said plugs outwardly from the center thereof to coact with the other plug when said plugs are brought together within said cup.

4. In combination, a cup having an internally threaded portion, a plug threadedly engaging said cup, a second plug threadedly engaging said cup above said first-named plug, and a projection carried by one of said plugs outwardly from the center thereof to coact with the other plug when said plugs by relative rotation are brought together within said cup, said projection having the outer surface thereof curved in a plane lying transversely to a radius of the plug passing therethrough.

5. In combination, a cup having an internally threaded portion, and a cylindrical plug threadedly engaging said cup, a second plug threadedly engaging said cup above said first-named plug, one of said plugs having an integrally formed projection located at one side of the center thereof upon which the other plug is adapted to ride when the two plugs are brought together within said cup, said first-named plug having a non-circular recess in the upper part thereof, and said second-named plug having a non-circular aperture of similar form adapted to register with said recess.

6. The combination with a grease cup having a threaded portion, of a plug threadedly engaging the threaded portion of said cup, said plug comprising two complementary unconnected members, one of said members having a projection disposed at one side of the center of the plug and adapted to bear upon the other member.

7. The combination with a grease cup having a threaded portion, of a plug comprising two independent members each threadedly engaging said cup, one of said members having a projection at one side of the center thereof, said projection being adapted to be brought into engagement with the end surface of the other member upon relative rotation of said members and to effect a locking engagement between said members upon continued relative rotation thereof in the same direction by which they are brought together.

8. The combination with a grease cup having a threaded portion, of a plug engaging the threaded portion of said cup, said plug comprising two complementary cylindrical parts, and means interposed between said parts at one side of the center thereof tending to effect a relative tilting of said parts when they are brought together and thereby setting up a binding action longitudinally of said cup between the threads of said parts and the threads of said cup.

9. In combination, a cup having an internally threaded portion, and a plug having threaded parts engaging the threaded portion of said cup, said plug comprising two complementary members each having relative rotation with respect to the threaded portion of said cup, and an integral projection formed on one of said members and adapted to ride upon the end surface of the other member to lock said members in position within said cup.

In testimony whereof, I have subscribed my name.

GEORGE FRASER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."