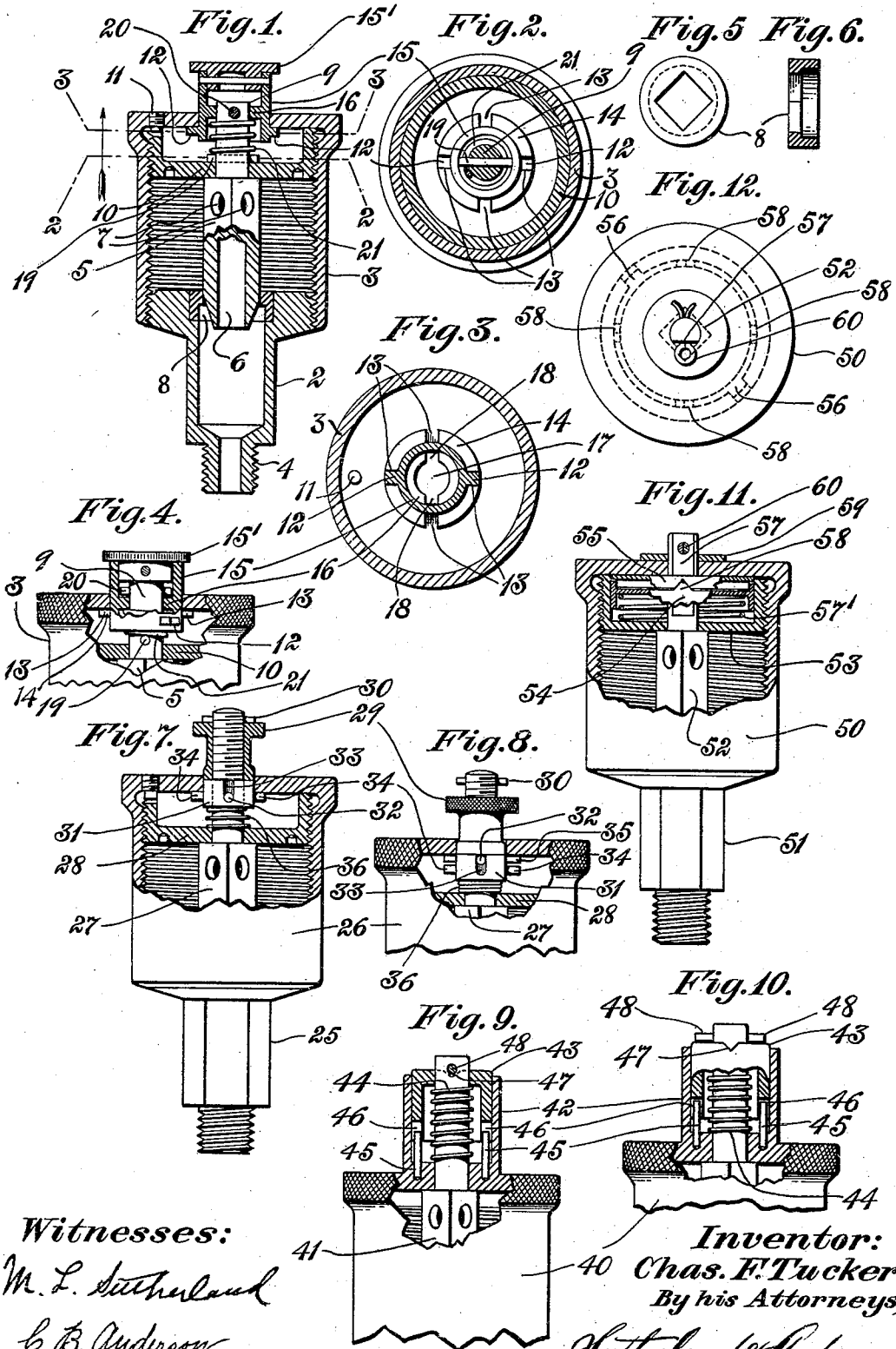


C. F. TUCKER.
GREASE CUP.

APPLICATION FILED AUG. 27, 1908.

946,290.

Patented Jan. 11, 1910.



Witnesses:
M. L. Sutherland
B. B. Anderson.

Inventor:
Chas. F. Tucker
By his Attorneys,
Sutherland & Anderson,

UNITED STATES PATENT OFFICE.

CHARLES F. TUCKER, OF HARTFORD, CONNECTICUT.

GREASE-CUP.

946,290.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed August 27, 1908. Serial No. 450,455.

To all whom it may concern:

Be it known that I, CHARLES F. TUCKER, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Grease-Cups, of which the following is a specification.

This invention relates to grease cups, the object of the invention being to provide a simple and effective device of this nature having means of a positive and certain character for preventing accidental separation of the parts thereof.

A grease cup comprising my invention involves a base member and a cup member in which latter the grease is preferably contained while the former serves to direct such substance to the part to be lubricated. I prefer to combine with the two members in question a non-rotative member in the cup and to associate with the same locking means for said cup member. The several parts to which allusion has been briefly made may be made of any suitable material, size or shape, these features being of no consequence. Except where I may modify the cup member and the base member said parts may be of the same general construction as those embodied in what are known as "compression grease cups". I have referred to a non-rotative member and while, as will be obvious, the same may be of any suitable type and mounting I advantageously connect it with the base member to prevent normally or under working conditions, its rotation and in addition so form it as to constitute a duct and in this way have such particular part serve a dual function.

In the drawings accompanying and forming part of the present specification I illustrate in detail several of the many different forms of grease cups including my invention and to enable those skilled in the art to practice said invention said forms thus represented will be hereinafter fully described while the novelty of the invention will be set forth in my claims. From this it will be clear that I do not restrict myself to any particular way of carrying into effect certain broad relations.

Referring to said drawings, Figure 1 is a vertical section of a grease cup embodying my invention, a portion of the duct member being in elevation and the cup member being locked. Figs. 2 and 3 are cross sections

on the lines 2—2 and 3—3 respectively, Fig. 1, looking in the direction of the arrow. Fig. 4 is a sectional elevation of the upper part of the cup member the latter being shown as released. Fig. 5 is a plan view and Fig. 6 a section of a bushing. Fig. 7 is a sectional elevation of a second form of cup, the parts being in positions corresponding with those of Fig. 1, and, Fig. 8 is a like view of the upper portion of the same with the cup member released. Figs. 9 and 10 are sectional elevations of the upper portions of another form of cup, the cup member being in the locked and unlocked conditions respectively. Fig. 11 is a sectional elevation of another form of cup, the cup member being locked, and, Fig. 12 is a top plan view of the same.

While I have termed my device a grease cup it is evident that the same could with advantage be put to other uses; as an illustration it might contain a lubricant other than grease. Said device may be employed in many different ways although it is of prime utility when used in places where unusual vibration exists such as on an automobile. When an ordinary grease cup is applied to an automobile it is subjected to unusual jars and shocks so that it is a simple matter to cause the accidental removal and loss of what I have termed the cup member thereof. On the contrary with my grease cup it is not possible that the cup member can be accidentally separated from the base member which is a fact of considerable importance especially where the connection between the base member and the cup is a screw-threaded one the simplest mode of uniting the two parts although it is conceivable that they might be otherwise connected.

Referring first to Figs. 1 to 6 inclusive the grease cup thereby shown comprehends a base member as 2 and a cup member as 3. To provide for the mounting of the cup the base member 2 thereof may be externally threaded as at 4 to fit the similarly threaded wall of an opening (not shown) through which grease or other lubricant is to be supplied to a moving or other element. The base member is hollow or tubular as is common with such articles. The cup member 3 is preferably though not necessarily threaded onto the base member and it is therefore removable to supply it with the necessary grease and it may be also turned on the base

member 2 to feed the grease by compression or force as distinguished from a mere gravity feed.

The two principal elements of the cup are
 5 as will be understood a cup member and a base member and in addition thereto I prefer to locate in the cup a non-rotative member such as 5 and although said member 5 is represented as being non-rotatively connected with the base member 2, the preferable
 10 relation, this is not essential. This construction provides, however, a simple way of non-rotatively mounting said member 5. With the latter is associated locking means for the
 15 cup member 3 and although said locking means effectually prevents positively the cup member from being accidentally turned off the base member from any cause it may be manually-operated to remove the cup member or to effect the feed of the grease. While
 20 said part 5 may be of any suitable shape or material, I prefer that it be rigid or stiff so that it will more effectually perform its office of acting as an anchoring device as illustrated in the drawings. There may be instances, however, where it is not essential that said part be of such nature. The member 5 in addition to serving as a means with which locking means for the cup member
 25 can be advantageously associated, also is of such construction as to cause it to act as a duct for which purpose it is provided with a longitudinal bore or passage as 6 into which one or more circumferential or surface openings or inlets as 7 open or communicate. As
 30 will hereinafter appear the grease is forced through these ports or openings 7, along the bore or passage 6, and through the base member 2 to the part to be lubricated by the cup member 3 when the latter is advanced on said base member which would be by turning the same to the right were the threads on the said two parts right hand ones while if the threads were oppositely
 40 pitched the cup member would be advanced by being turned to the left. As a simple means to prevent the turning of the duct member 5 when the parts are assembled the same may be polygonal in cross-section; for instance square to fit a correspondingly-shaped hole in a bushing as 8 driven or otherwise suitably fitted in a counterbore in the top of the base member 2, from which it will be clear that said bushing does not turn
 45 in its seat. The duct member 5 is removably fitted in the opening or hole in the bushing 8 and to facilitate the connection of these two parts the lower end of said duct member may be tapered.

50 The upper portion 9 of the duct member is shown as being of less diameter than the lower or key portion thereof and as cylindrical. The cylindrical portion 9 is shown as extending freely through a central perforation in the wall 10 represented as screw-

threaded into the cup member 3 and constituting that part of the cup which presses the grease through the ports 7 although as will hereinafter appear the top of the cup member may perform this function. This
 70 wall or threaded disk 10 also serves as a support for a locking spring hereinafter described, it being normally stationary. Preferably positive means will be provided to prevent accidental relative motion of the
 75 screwthreaded disk or wall 10 and a screw as 11 tapped through the top of the cup member 3 and engaging such disk is represented for such purpose. When the cup member is turned to the right the disk there-
 80 in acting against the grease will force such grease through the ports 7, along the bore 6 and through the base member 2 to the surface to be lubricated, the grease being supplied to the said surface when necessity
 85 therefore is indicated. As the cup member is advanced the duct member is moved therewith although it does not turn.

The cup member 3 is locked to the duct member 5 and as is clear there are a variety
 90 of ways for obtaining the locked relation. Preferably the means is of such character that the locking means is automatic although it may be manually operated at any time to back off the cup member 3 or to advance the same. As I am specifically describing the organization represented by
 95 Figs. 1 to 6 inclusive I shall of course now thus set forth the locking means therein. Said locking means is shown as comprising
 100 two opposite projections as 12 adapted when in working positions to fit two opposite of four notches or slots 13 formed in an annular bead 14 extending about the opening in the top of the cup member 3 through which
 105 the sleeve 15 extends and in which said sleeve is endwise movable. The projections 12 are shown as formed externally of said sleeve which with its cap 15' pinned or otherwise suitably rigidly connected therewith presents a thimble-like head for the duct member 5. In said sleeve 15 there is formed a
 110 partition 16 having a circular hole 17 from which there extend outward two substantially straight and opposite apertures 18 the hole and apertures presenting a key hole slot and serving a purpose that will hereinafter be pointed out. The cylindrical portion 9 of the duct member 5 fits this circular hole 17 and the sleeve 15 when moved
 120 endwise slides on said cylindrical portion. After the cylindrical portion 9 is passed through the central opening or perforation of the disk 10 I prefer to pass through said cylindrical portion above said disk a securing pin as 19 which presents a convenient means for holding the disk and duct member in assembled relation. I have shown as
 125 driven through the duct member 5 near the top or outer end thereof a pin as 20 the op-

posite projecting ends of which are normally or when the cup member 3 is held against rotation disposed in the apertures 18 at which time the locking projections 12 are seated in diametrically opposite notches 13, this relation being a simple key and key-way connection and being preferably yieldably maintained by a spring as 21. The spring is shown as being of coiled push type and as surrounding the cylindrical portion 9, one end thereof resting against the opposite projecting portions of the pin 19 while the other end thereof bears against the partition 16.

In Fig. 1 the parts are shown as occupying their normal positions the projections 12 being seated in cooperating notches 13 and the ends of the locking pin or key 20 being situated in the apertures 18 and the spring 21 holding said projections in said notches and the ends of said pin in said apertures whereby in the first place the sleeve 15 cannot be turned and in the second place the cup member 3 cannot also be turned until released by the manual operation of the locking means. To effect the release of the cup member two distinct actions are necessary—first the inward thrust of the sleeve 15 until the same is released from the pin 20 at which point the projections 12 will have been carried out of the notches 13 in which they were located, and second the turning of said sleeve until said projections are out of registration with said particular notches. When the projections are out of the notches the cup member 3 will be released and can be freely advanced to effect a feed of the grease or turned wholly off to replenish the lubricant. When the sleeve 15 has been advanced sufficiently to free the cup member the projecting portions of the pin or key 20 will have passed out of the apertures 18 so that said sleeve can be freely turned and when the latter operation takes place said projecting portions will traverse the upper surface of the partition 16. All the parts of the cup described are inclosed or cased so as to be protected wholly from flying particles and to also keep the grease in a clean condition which is advantageous although it is not essential that said parts be thus inclosed.

In Figs. 7 and 8 the base member is denoted by 25, the cup member by 26, the duct member by 27 and the interior partition in said cup member by 28 and these parts may be and preferably are substantially like the corresponding elements hereinbefore described. The upper portion of said duct member 27 is threaded to receive a nut as 29 which as will hereinafter appear constitutes a suitable actuator for the locking member forming part of the cup shown in said Figs. 7 and 8. The nut is held against removal from the upper portion of the duct member 27 by a pin as 30. The locking

member to which reference has been made is designated by 31 and it is made in the form of a sleeve having a sliding movement upon the plain portion of the duct member 27 above the partition 28, said locking member as will hereinafter appear having a downward movement to release the cup member 26 and an upward movement to lock said cup member. The nut 29 constituting a head for said duct member 27 serves to move said locking member into its inoperative position, said two parts bearing at all times against each other as shown in both said Figs. 7 and 8. The locking member 31 is non-rotatively connected with the duct member 27 and to secure this function a locking pin or key as 32 carried fixedly by said duct member 27 may be provided the said key fitting key-ways or slots as 33 extending downward from the upper or outer edge of said locking member 31. Only one of said slots is seen, however. On the outer surface of said locking member 31 are locking projections as 34 fitting notches like those (13) previously described, in the bead or flange 35. A coiled push spring as 36 encircles the duct member 27 one end of the same bearing against the disk 28 while the other acts against said locking member 31 to yieldingly hold the locking projections 34 in the notches of the bead or flange 35, the normal relation, as shown in Fig. 7, at which time the cup member 26 is locked to the duct member 27 through the intermediate locking means. To release the cup member 26 so that it may be advanced the nut 29 is turned to the right (if it be provided with right threads) thereby thrusting the locking member 31 inward this motion being continued until the locking projections 34 are out of their notches in the bead 35, the spring 36 during this action being compressed. To again lock the cup member 26 the operation described is reversed and the spring 36 will force the projections 34 into the proper notches in the bead 35. It will be understood that the top of the cup member 26 has a central hole to receive and permit the movement of said locking member and nut and further that the depth of the slots 33 exceeds the amount of stroke of said locking member so that the latter unlike the locking member 15 hereinbefore described, is always in keyed connection with its cooperating duct member. Each of the forms of the device, however, has its particular advantages which need not be herein stated.

In Figs. 9 and 10 is shown a cup wherein the feed of the grease is effected by the top of the cup member 40 thereof from which it will be evident that said cup member contains no interior partition or wall. The duct member forming part of this particular cup is denoted by 41, the base member thereof being omitted. From the top of the cup

member exteriorly thereof there is shown as extending outward a boss 42 which receives for sliding movement a thimble 43 through the top of which the outer cylindrical portion of the duct member 41 passes. Said cylindrical portion is illustrated as surrounded by a coiled push spring 44 bearing at its opposite ends against the tops of the cup member 40 and thimble 43 on the outer and inner surfaces, respectively, of said tops. The thimble 43 which constitutes the locking means for the cup member 40 has in connection therewith means of a suitable type for preventing rotation thereof and for this purpose I have shown two pins 45 rising from the outer face of the top of said cup member 40 and fitted in notches or slots as 46 extending outward from the inner or lower edge of said thimble. The said pins fit at all times said slots. In the outer surface of the top of the locking thimble 43 are diametrically-opposite V-shaped notches as 47 which receive when the cup member 40 is locked, the projections 48 so as to prevent accidental turning of said cup member, this relation as will be obvious being maintained by the spring 44. Owing to the fact that the V-notches are present the cup member 40 may be easily turned by hand the projections 48 on such action being cammed out of the notches 47. I find that in a device of this type while the cup member may be freely turned either on or off by hand it is not possible to accidentally remove the same by vibration or from like causes.

In the device shown in Figs. 11 and 12 the cup member is designated by 50, the base member by 51, the duct member by 52, and the interior partition by 53, the latter being of cup form and of sufficient depth to receive the peripherally flanged disk 54 and a second disk as 55 which is keyed to said partition by means of two circumferential offsets as 56 on said disk 55 fitting seats or apertures in the marginal portion of said cup-like partition 53 from which it will be evident that said disk 55 turns with the cup member 50. The disk 54 does not, however, turn with said cup member being non-rotatively connected with the duct member 52, for illustration by flattening as at 57 one portion of said duct member and having the part on which said flattened face is located pass through an opening in said disk 54, such opening agreeing in shape with the cross section of said duct member where such flat face is situated. A coiled spring 57' surrounds the duct member 52 and bears against the partition 53 and the inner disk 54 and serves to normally hold V-shaped teeth as 58 on said disk 54 in corresponding notches in the inner face of the outer disk 55. This provides a construction for securely locking the cup member 50 against accidental backward movement or unscrew-

ing although the said cup member may be easily advanced or retracted by the application of sufficient manual force thereto. To prevent foreign matter working into the cup shown in said Figs. 11 and 12 I may provide a cap piece or circular plate as 59 through which the duct member 52 extends and which is held in place on said duct member by a pin as 60.

I prefer in all the forms of the device that what has been termed the "duct member" shall be endwise movable, it being advanced by and on the movement of the cup member so that there is always provision for supplying lubricant.

What I claim is:

1. A grease cup comprising a base member, a member non-rotatively connected with said base member, a cup member having a screwthreaded connection with said base member, said non-rotative member being advanceable with the cup member, locking means for preventing positively backward motion of said cup member, and means whereby said cup member may be released independently of power applied thereto and exteriorly of said grease cup.
2. A grease cup comprising a base member, a cup member connected with said base member, a locking member accessible exteriorly of the cup and provided with locking means for engaging said cup member interiorly thereof to prevent accidental retractive motion thereof, and a part in the cup, to which said locking member is connected and normally non-rotative.
3. A grease cup comprising a base member, a cup member threaded onto said base member, a normally non-rotative part disposed within the cup, and yieldable locking means for said cup member, operatively associated with said normally non-rotative part and manually movable into a position to release said cup member independently of power applied to the latter.
4. A grease cup comprising a base member, a cup member threaded onto said base member the latter having an opening there-through, a duct member non-rotatively fitted in said opening and having a bore extending longitudinally thereof and also having an inlet port opening into said bore, above the bottom of the base member, and locking means for the cup member, operatively associated with said duct member.
5. A grease cup comprising a base member, a cup member threaded onto said base member, a member non-rotatively connected with said base member, a locking device, and spring means for normally holding said locking device in an operative position said locking device when in an operative position engaging a part of the cup member and having a key connection with said non-rotative member and being movable in the direc-

tion of the axis of motion of said cup member to release both said non-rotative member and said cup member.

5 6. A grease cup comprising a base member, a cup member threaded onto said base member, a non-rotative member in the cup, a locking device surrounding said non-rotative member and having a normal locked connection both with said non-rotative member and said cup member, and spring means for normally maintaining said locked relation said locking device being movable in the direction of the axis of motion of said cup member to release both the cup member
15 and the non-rotative member.

7. A grease cup comprising a base member, a cup member threaded onto said base member, a member non-rotatively connected with said base member, a locking device for normally locking both the cup member and the non-rotative member and movable to release both of them, and a coiled spring surrounding said non-rotative member, for nor-

mally holding said locking device in an operative position.

8. A grease cup comprising a base member, a cup member threaded onto said base member, a member non-rotatively connected with said base member, a locking device having an opening to receive the non-rotative member the latter having a pin and the locking device having an aperture extending from said opening to receive said pin, said locking device also having means to lock said cup member to prevent accidental turning of the same when said pin is in said aperture, and spring means for normally holding the locking device in operative position.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES F. TUCKER.

Witnesses:

ROGER OTIS CLAPP,
FREDERICK E. ANDERSON.