

No. 747,524.

PATENTED DEC. 22, 1903.

D. B. WILLIAMS.

AUTOMATIC COMPRESSION GREASE CUP.

APPLICATION FILED JUNE 17, 1902. RENEWED APR. 23, 1903.

NO MODEL.

Fig. 1.

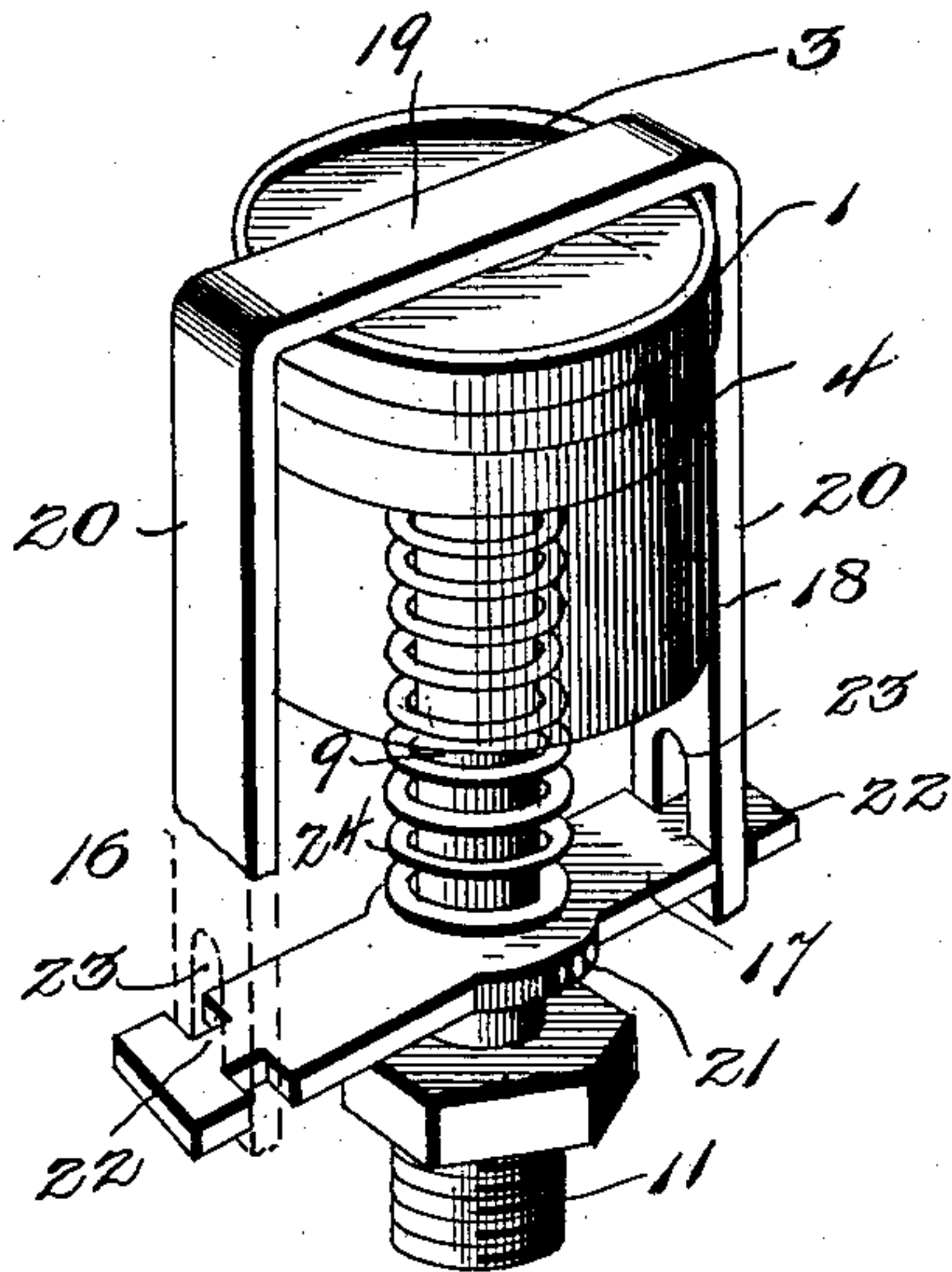


Fig. 2.

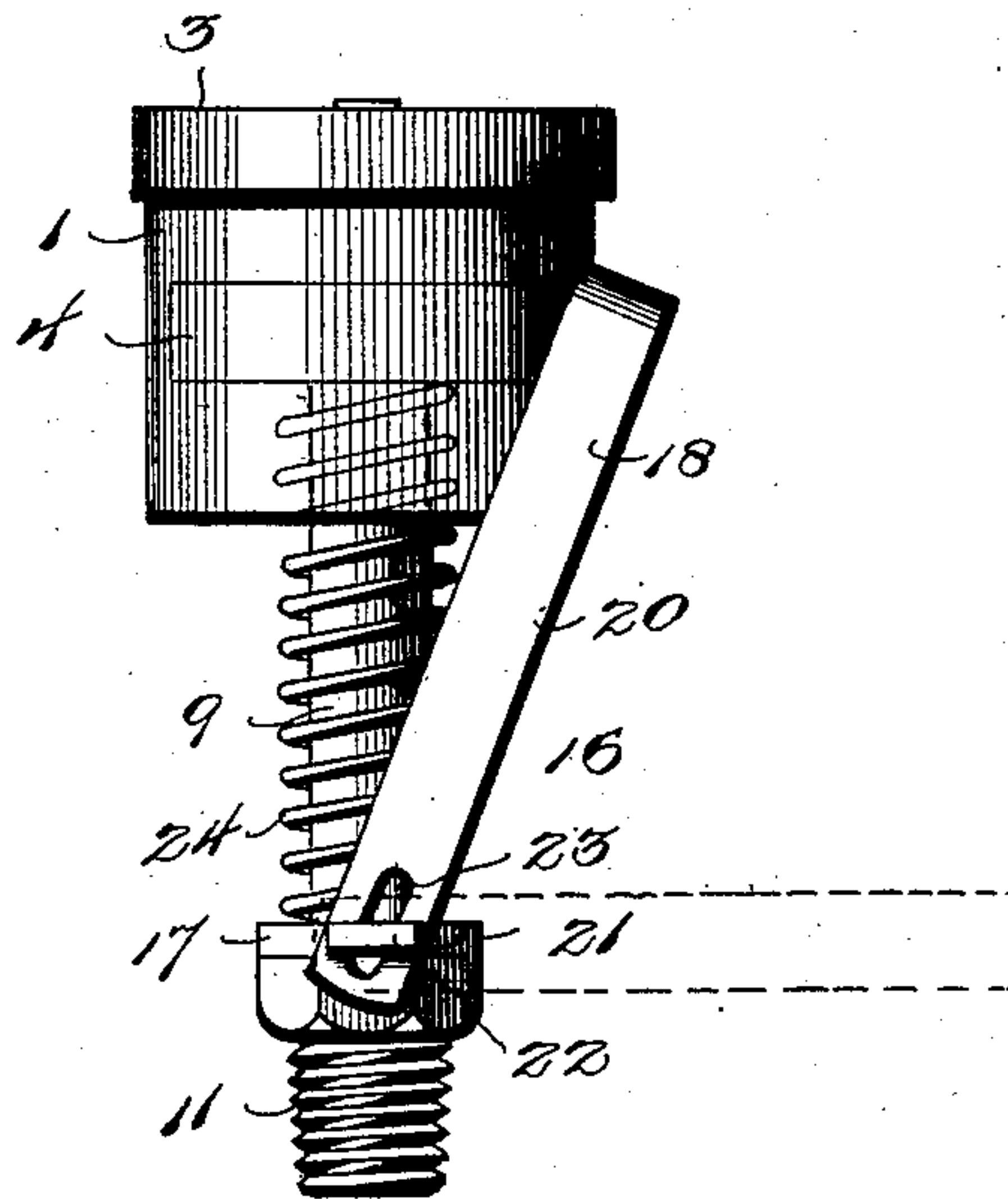


Fig. 4.

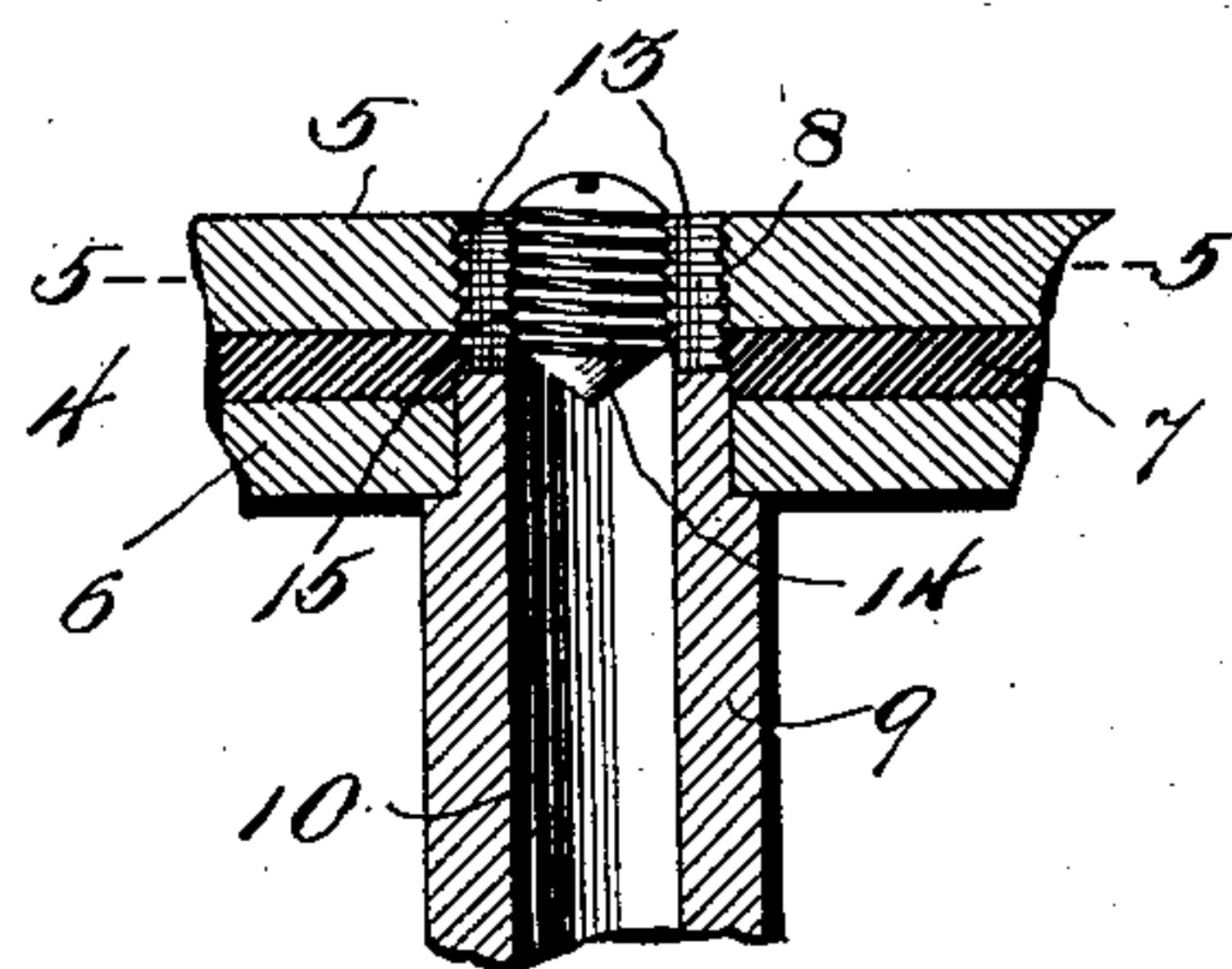
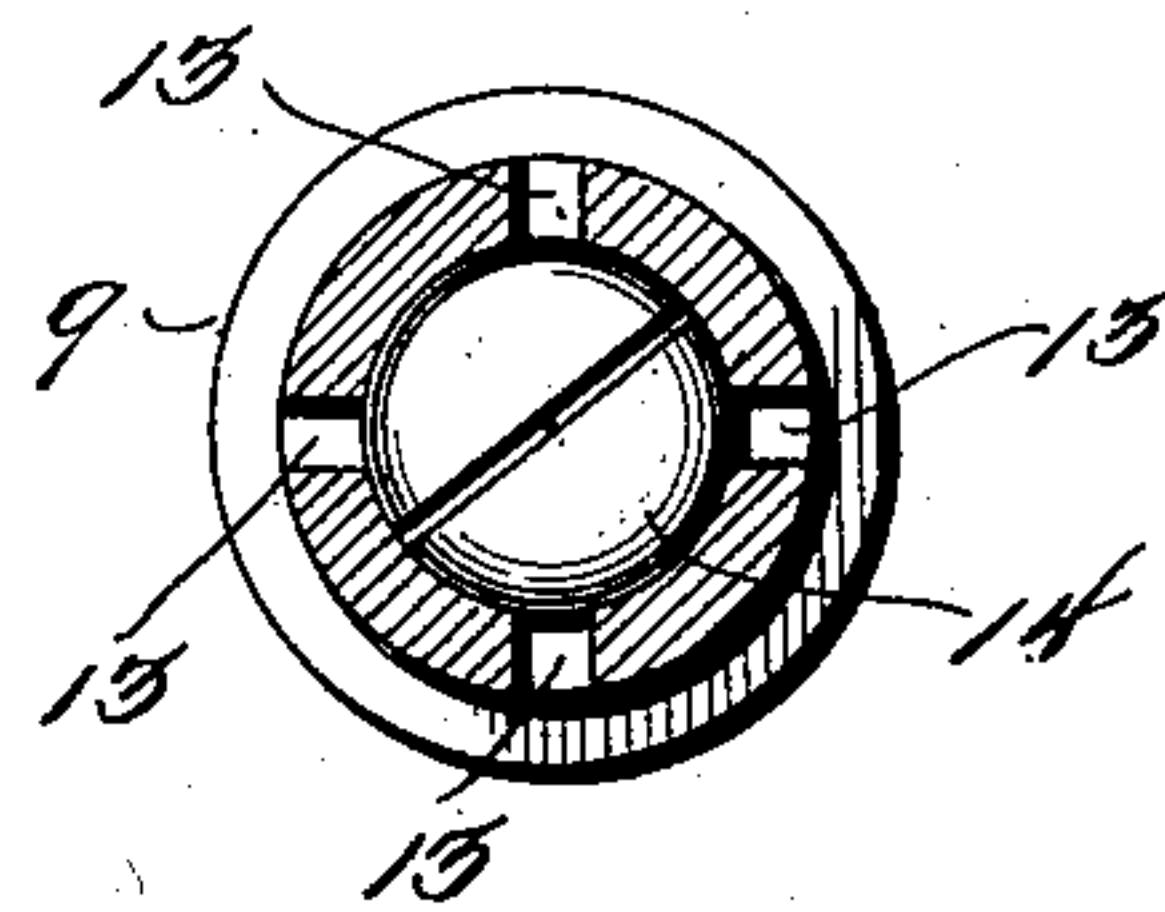


Fig. 5.



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AUTOMATIC COMPRESSION GREASE-CUP.

SPECIFICATION forming part of Letters Patent No. 747,524, dated December 22, 1903.

Application filed June 17, 1902. Renewed April 23, 1903. Serial No. 154,031. (No model.)

To all whom it may concern:

Be it known that I, DICK B. WILLIAMS, a citizen of the United States, residing at Connellsville, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Compression Grease-Cups, of which the following is a specification.

This invention relates to lubricators of the force-feed type, and has special reference to that class of lubricators commonly termed "grease-cups" and adapted for lubricating purposes generally in connection with different parts of machinery.

To this end the invention has in view the provision of an automatic compression grease-cup embodying a simple and practical construction of parts, while at the same time comprising effective means for positively forcing the grease or lubricant to its point of application for lubricating purposes. In carrying out this object the invention provides a novel construction and arrangement of elements admitting a very economical construction of the lubricator and also rendering the different parts thereof readily separable for refilling purposes, and also to permit the entire device being taken apart and assembled with facility and without the aid of any special tools.

Another object of the invention is to provide a novel construction of automatic compression grease-cup admitting of the employment of a glass receptacle or cup whereby a positive view of the contents of the receptacle or cup may be had at all times.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, as will be hereinafter more fully described, illustrated, and claimed.

The essential features of the invention involved in the novel mounting of the receptacle or cup in conjunction with the detachable clamping-carrier therefor and also in means for regulating the supply of lubricant to the tube are necessarily susceptible to some modification from a structural standpoint without departing from the spirit of the invention; but a preferred embodiment

of the latter is illustrated in the drawings, in which—

Figure 1 is a perspective view of an automatic compression grease-cup embodying the improvements contemplated by the present invention. Fig. 2 is a side elevation thereof, showing different positions of the swinging clamp-bail of the carrier for the receptacle or cup. Fig. 3 is a vertical sectional view of the grease-cup or lubricator, showing the different elements thereof in the operative relation which they occupy while the lubricator or cup is feeding the lubricant under compression to the bearing or other machine element to be lubricated. Fig. 4 is an enlarged detail sectional view of the receiving end portion of the supporting-stem, illustrating more clearly the provision for regulating the supply of lubricant to the passage through the stem. Fig. 5 is a detail sectional view on the line 5 5 of Fig. 4.

Like reference-numerals designate corresponding parts throughout the several figures of the drawings.

In the carrying out of the invention it is of course understood that the receptacle or cup proper may be of any suitable material; but inasmuch as a glass receptacle possesses special utility in a force-feed lubricator, particularly of the grease-cup type, it is preferable that the present invention embody as one of the elements thereof a glass receptacle or cup, which being entirely uncovered presents at all times a clear and positive view of the contents thereof.

Referring particularly to the drawings, the numeral 1 designates the grease or lubricant containing receptacle, which, as stated, is preferably of glass and is of the inverted-cup type, being provided with the lower open end 2 and the closed top portion 3, constituting the bottom of the receptacle. In the present invention the lower open end 2 of the receptacle or cup 1 is designed to be left entirely uncovered, thus dispensing with a cover or cap at this point such as heretofore used in similar devices, and the said receptacle or cup 1 is designed to receive and be inverted over a stationary piston or piston-head 4. This piston or piston-head 4 may be constructed in any approved way and fitted with suitable packing to provide an oil-tight

joint between the same and the inner periphery of the receptacle or cup 1; but a simple and practical construction of the piston is shown in the drawings, in which the said piston is illustrated as consisting of separate piston-disks 5 and 6, respectively, of different diameters and clamping therebetween a leather packing-washer 7, having the peripheral edge thereof cupped over the periphery of the smaller disk 6, thus producing an effective cup-packing for the piston to positively prevent leakage of the lubricant around the edge of the piston.

The packed piston is threaded or otherwise suitably mounted, as at 8, on the upper extremity of a tubular supporting-stem 9, having a longitudinal conducting-passage 10 extending throughout the entire length thereof to provide for conducting the grease or lubricant to the part to be supplied therewith. The lower end of the tubular supporting and conducting stem 9 may be fitted to the machine element to be lubricated in any suitable manner, but preferably through the medium of a coupling member 11, to which the lower end of the stem is threaded or otherwise detachably connected, as at 12. This, however, is a mere mechanical detail, as the stem may obviously be mounted in any suitable manner to meet the conditions of use.

One of the desirable features of the invention resides in the provision of simple means for positively regulating the supply or quantity of lubricant admitted from the receptacle or cup 1 into the conducting-passage 10 of the stem. While this may be accomplished in different ways, the present invention contemplates forming a circular series of spaced port-grooves 13 inside of the tube 9 at the extreme upper end of the conducting-passage 10 therein. In other words, the grooves 13 are formed longitudinally in the wall of the passage 10 at the upper end of the latter and lead out to the extreme upper end of the stem, so as to always be in communication at their receiving ends with the interior of the receptacle or cup 1.

In conjunction with the plurality of port-grooves 13, which terminate in the same horizontal plane near the upper end of the conducting-passage 10, there is a common regulator, preferably in the form of a single regulating-screw 14, adjustably engaging the internally-threaded socket 15, provided in the upper end of the passage 10, inside of the circle of the ports or port-grooves 13. By adjusting the screw 14 more or less into the conducting-passage of the stem the inner ends of the port-grooves will be more or less covered and uncovered, thereby providing means for positively governing or regulating the quantity of grease which will pass into the stem or tube in a given time.

Another distinctive feature of the invention resides in the employment of a detachable clamping-carrier 16 for the receptacle or cup 1. This clamping-carrier comprises means

for clamping and holding the receptacle or cup in proper operative position with reference to the stationary piston 4, while also constituting the medium through which the compression is transmitted to the receptacle or cup and is readily detachable or removable from the receptacle or cup to leave the same entirely free for refilling purposes. The said detachable clamping-carrier 16 essentially consists of a cross-bar 17, slidable upon the supporting-stem 9, and a swinging clamp-bail 18, of an inverted-U form and consisting of the end bar 19 and the side arms 20. The cross-bar 17 of the carrier is provided with a central collar member 21, loosely mounted upon the stem 9, and at its opposite ends or terminals the said bar is formed with T-shaped locking elements 22, constituting keys and disposed within the plane of the bar proper. The said T-shaped locking elements or keys 22 at the ends of the cross-bar 17 are designed to have a separable interlocking connection with the engaging slots 23, formed longitudinally in the ends of the side arms 20 of the bail 18.

Normally when the parts are assembled and in operative relation the bail 18 extends around and embraces the top and opposite side portions of the receptacle or cup 1, and the slotted terminals or ends thereof are turned at right angles to the T-shaped keys 22 and are interlocked within the necks of such keys. This provides a positive locking connection between the bail and the cross-bar elements of the clamping-carrier 16 to positively prevent their disengagement while the device is in use; but in order to free the receptacle or cup it is simply necessary to swing the bail 18 laterally upon the ends of the cross-bar 17 as a pivot to secure this result. By swinging the bail into a horizontal plane, as indicated in Fig. 2 of the drawings, the slots 23 thereof are brought into a registering plane with the heads of the locking-keys 22, thus permitting of the ready separation of the bail from the cross-bar. This construction also permits the parts to be readily and conveniently assembled without any special tools or fastenings.

To provide for the automatic action of the cup or lubricator, the same is provided with a compression device 24. This compression device is preferably in the form of a pressure-spring arranged upon the stem 9 and interposed between the cross-bar 17 and the stationary piston 4. The pressure of said spring is therefore exerted in a direction against the cross-bar 17 to normally exert a compression upon the contents of the cup in a direction for forcing such contents into the passage 10 of the stem or tube 9.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described automatic compression grease-cup will be readily apparent to those familiar with the art without further description, and it will also be understood

that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a lubricator of the class described, a tubular stem carrying a stationary piston, an inverted lubricant-cup movable over the piston, a clamping-carrier having a member shiftable on its own support to positions in engagement with and also clear of the cup, and a compression device arranged to exert its pressure against the carrier.

2. In a lubricator of the class described, a tubular stem carrying a stationary piston, an inverted lubricant-cup movable over the piston, a clamping-carrier including a member having a pivotal support and movable on the latter to positions in engagement with and clear of the cup respectively, and a compression device arranged to exert its pressure against the carrier.

3. In a lubricator, a tubular stem carrying a stationary piston, an inverted lubricant-cup movable over the piston, a clamping-carrier having a yoke member for completely embracing the top and side portions of the cup, said yoke member being shiftable on its own support to positions over and clear of the cup respectively, and a compression device arranged to exert its pressure against the clamping-carrier.

4. In a lubricator of the class described, a tubular stem carrying a stationary piston, a lubricant-receptacle movable over the piston,

a clamping-carrier for the receptacle having a member arranged to extend over the receptacle and to swing clear of the same and a compression device arranged to exert its pressure upon the carrier.

5. In a lubricator of the class described, a tubular stem carrying a stationary piston, a lubricant-receptacle movable over the piston, a clamping-carrier for the receptacle having a swinging bail member adapted to removably embrace the receptacle, and a compression device arranged to exert its pressure upon the carrier.

6. In a lubricator of the class described, a tubular stem carrying a stationary piston, a lubricant-receptacle movable over the piston, a clamping-carrier comprising a cross-bar slidable upon the stem, and a swinging bail member having pivotal connection with the bar and adapted to removably embrace the receptacle, and a compression device arranged to exert its pressure upon the carrier.

7. In a lubricator of the class described, a tubular stem carrying a stationary piston, a lubricant-receptacle movable over the piston, a clamping-carrier consisting of a cross-bar slidable upon the stem and having T-shaped locking-keys at its ends, and a swinging clamp-bail having slotted side arms separably and pivotally interlocked with said T-shaped keys, and a compression device actuating said cross-bar.

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

DICK B. WILLIAMS.

Witnesses:

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MAE E. LARKIN.