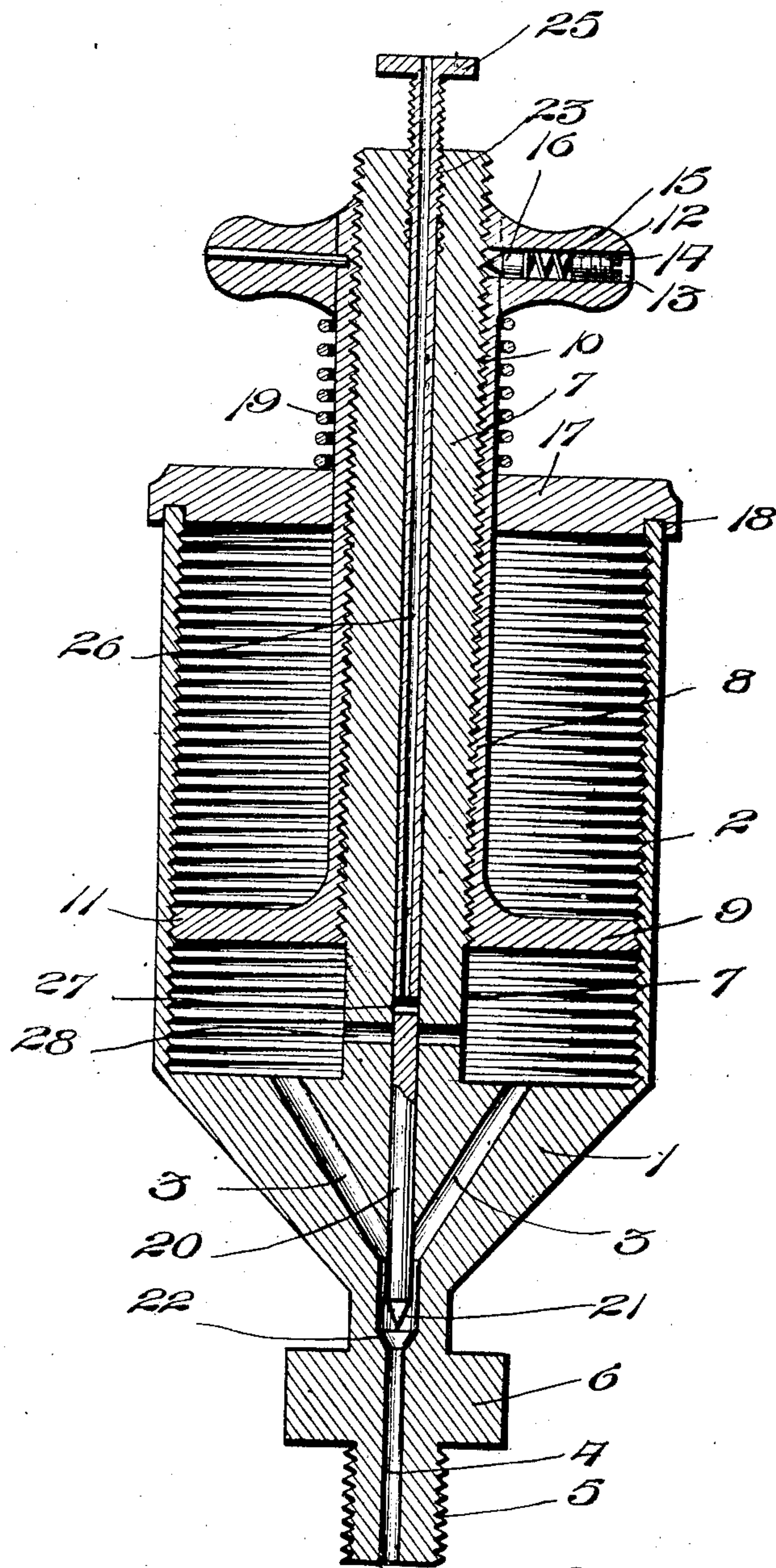


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G. W. INGHAM.
LUBRICATOR.

APPLICATION FILED SEPT. 17, 1904.



Witnesses

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LUBRICATOR.

No. 843,536.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE W. INGHAM, a citizen of the United States, residing at Sault Ste. Marie, in the county of Chippewa and State of Michigan, have invented new and useful Improvements in Lubricators, of which the following is a specification.

This invention relates to lubricators.

As generally constructed the lubricators used upon engines or other machinery are defective in several particulars. One objection is that when the cover of the lubricator is removed it is necessary for the oiler either to hold said cover in his hand while filling the cup or to place said cover in some convenient position until the lubricator shall have been filled. It frequently happens that when the cover is removed from the cup particles of dirt or other gritty substances adhere thereto and when the cover is replaced said dirt or gritty material finds its way into the oil-cup, where it adulterates the oil and frequently causes overheating of the bearings or boxings. A further objection to lubricators as generally constructed is that when the cover has been removed from the oil-cup great difficulty is experienced often in replacing it while the machinery is in operation, as the jar, vibration, and pressure of the engine or other machinery render it difficult to register the threads of the cover with the threads of the oil-cup. In attempting to force the cover upon the cup the threads are liable to become crossed, thus destroying the usefulness of the cup. A further and more serious objection to lubricators as generally constructed is that when the compressor-cover of the oil-cup is removed the vacuum which is thereby created in the oil-cup sucks back into said cup a portion of the oil which has been forced into the passages leading to the bearings or boxings that are to be lubricated. For this reason when the cover is removed it is frequently found that the oil-cup is partially filled, and consequently but a small quantity of lubricant can be placed therein, whereby it is necessary frequently to refill the cup or else to fill it once, screw down the compressor-cover until part of the lubricant is forced into the passages leading to the bearings, remove the cover again, and refill the oil-cup, which operation of course consumes time and labor.

The object of the present invention is to improve the construction of lubricators in

such manner that the compressor element may be separated readily from the cup and held in suspended position thereover while refilling the device.

A further object of the invention is to hold the compressor element always in operative relation with respect to the cup or base element, whereby when it is screwed toward the base element its threads will be guided into accurate register with the threads of the said base element.

In the accompanying drawing, forming part of this specification, the figure is a vertical central section of a lubricator constructed in accordance with the invention.

In said drawing the reference-numeral 1 indicates the base element of the improved lubricator, said base element consisting, preferably, of a cup having internal screw-threads, such as 2. The base element 1 is formed with a plurality of passages 3, merging into a single passage 4, which leads to the bearings or boxings that are to be lubricated. By providing a plurality of passages 3, merging into a single passage 4, the liability of the lubricator becoming clogged by bits of waste or the like which may be contained in the lubricant is lessened, as it is improbable that both of the passages 3 will become blocked at the same time. At its lower end the base element 1 is formed with screw-threads 5, by means of which it may be attached to the machinery which is to be lubricated and with an annular enlargement or collar 6. Secured to the base element 1 in any suitable manner or formed integral therewith is a supporting element 7, on which is mounted the sleeve 8 of the compressor element 9, said compressor element 9 being longitudinally adjustable upon the supporting element 7 in any suitable manner, as by means of the screw-threads 10. The periphery of the compressor element 9 is screw-threaded, as shown at 11, in order to cooperate with the screw-threads 2 of the base element. At its upper end the sleeve 8 of the compressor element 9 is formed with a handle 12, in which is formed a bore 13, closed by a screw-plug 14. Disposed in the bore 13 is a coil-spring 15, which serves normally to force a follower 16 against the threads of the supporting element 7, in order to prevent the compressor element 9 from chattering loose. Surrounding the sleeve 8 of the compressor element 9 is a cover 17, which is formed with an annular

groove 18, adapted to fit the upper end of the base element 1. The cover 17 is held normally upon the base element 1 by means of a coil-spring 19, which bears at its lower end against the said cover and at its upper end against the handle 12. The supporting element 7 is formed with a longitudinal bore and is also screw-threaded at its upper inner end, in which is mounted a needle-valve 20, the lower pointed end 21 of which is adapted to cooperate with a cone-shaped valve-seat 22, formed at the upper end of the passage 4. The needle-valve 20 is adapted to be adjusted longitudinally in the supporting element 7, by means of suitable screw-threads 23, formed at its upper end, which contacts with the inner upper end screw-threads of the supporting element to lock the needle-valve securely in adjusted position. Upon its upper end the needle-valve is formed with a handle 25, which is smaller in diameter than the supporting element 7, so that the sleeve 8 of the compressor element may clear said handle 25 when the compressor element is in raised position. The needle-valve 20 is formed with a central bore 26, which is open to the atmosphere at its upper end and terminates in lateral passages 27 at its lower end. When the needle-valve is moved to its lowest position, the lateral passages 27 are adapted to register with similar passages 28 in the supporting element 7.

Constructed as above described the operation of the improved lubricator is as follows: When the lubricator is in operation, the needle-valve 20 is in raised position, so that the lateral passages 27 are out of register with the lateral passages 28, and the pointed end 21 of said valve is located away from the valve-seat 22. For this reason as the handle 12 is rotated periodically to screw the compressor element 9 toward the base element 1 lubricating material is forced through the passages 3 3 and 4 into the bearings or boxings until the lubricator becomes empty. The needle-valve 20 is then screwed down to close the passage 4 and to bring the lateral passages 27 and 28 into register with each other. For this reason when the compressor element 9 is rotated in reverse direction to move it away from the base element 1 air is permitted to enter through the bore 26 and passages 27 and 28 to destroy any vacuum which may be created in the lubricator. Furthermore, the needle-valve prevents any lubricating material from being sucked back through the passage 4 after it has been once fed to the bearings. It will be understood that the coil-spring 19 maintains the cover 17 upon the base element 1 until the compressor element 9 abuts against said cover, after which the continued reverse rotation of the compressor element causes the cover to be raised along with said compressor element until sufficient space has been left above the

base element to permit it to be filled with lubricating material, it being understood that the compressor element 9 is not screwed entirely off the supporting element 7, but is simply held thereby in suspended position above the base element 1, this operation being rendered possible by reason of the fact that the supporting element 7 is of greater length than the base element 1. In addition to its function of holding the compressor element 9 in suspended position above the base element 1, and thus avoiding the necessity of holding said compressor in the hand or of placing it where particles of dirt or grit may adhere thereto, the supporting element 7 also serves the important function of guiding the threads of the compressor element accurately into register with the threads of the base element after the device has been filled, whereby any danger of crossing and ruining the threads of the two elements as the result of the vibration or pressure of the machinery is avoided.

The cover 17 is employed to prevent the screw-threads 2 from becoming clogged with dust and dirt, and said screw-threads 2 are employed in order to strengthen the connection between the base and compressor elements, so that pressure in the machinery will not injuriously affect the lubricator. Furthermore, by employing the screw-threads 2 it is possible to form a tighter joint between the compressor element 9 and the base element, although, if desired, said screw-threads 2 may be omitted.

When the sleeve of the compressor element 9 is in a raised position to extend above the operating-handle 25 of the valve-stem, the valve-stem can be adjusted by means of a suitable key, such as are used in turning the valves of street water-boxes.

Having thus described the invention, what is claimed is—

1. A lubricator comprising a base element, a compressor element, and a supporting element connected with said base and compressor elements, the length of the supporting element being such as to permit the base and compressor elements to be separated without losing their engagement with the supporting element.

2. A lubricator comprising a threaded base element, a threaded compressor element, and a threaded supporting element connected with said elements, the length of the supporting element being such as to permit the base and compressor elements to be separated from each other without losing their engagement with the supporting element.

3. A lubricator comprising a base element, a compressor element, and a threaded supporting element connected with said base and compressor elements, the length of the supporting element being greater than the combined lengths of said base and com-

pressor elements, whereby they can be separated from each other without losing their engagement with the supporting element.

4. A lubricator comprising a base element, 5 a compressor element, a supporting element connected with said base and compressor elements, the length of said supporting element being such as to permit the base and compressor elements to be separated from each 10 other without losing their engagement with the supporting element, and means for destroying a vacuum between said base and compressor elements.

5. A lubricator comprising a base element, 15 a supporting element, a compressor element having a sleeve, a cover surrounding said sleeve and adapted to engage said base element, and means for maintaining said cover normally in position upon said base element.

20 6. A lubricator comprising a base element, having a plurality of passages merging into a

single passage formed with a valve-seat, a supporting element having a bore formed with lateral passages, a needle-valve in said 25 bore adapted to cooperate with said valve-seat, and having a central bore formed with lateral passages adapted to register with the lateral passages of the supporting member, a compressor element having a sleeve surrounding the supporting element, a handle on the 30 sleeve, a spring-pressed follower in the handle bearing against the supporting element, a cover surrounding the sleeve and having an annular groove to fit the base element, and a coil-spring surrounding the sleeve and bearing 35 against the handle and the cover.

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

GEORGE W. INGHAM.

Witnesses:

WILLIAM MAXWELL,
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