No. 790,719. PATENTED MAY 23, 1905.

J. W. BULLOCK.

OIL CAN.

APPLICATION FILED JAN. 19, 1904.

3 SHEETS—SHEET 1.

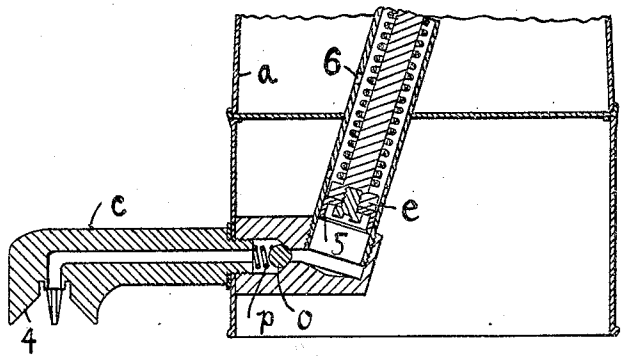

FIG. 3.

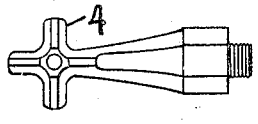

FIG. 1.

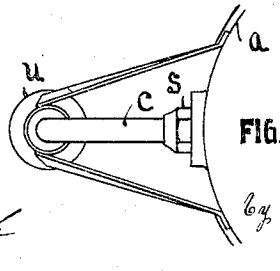

FIG. 2.

Witnesses

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3 SHEETS—SHEET 2.

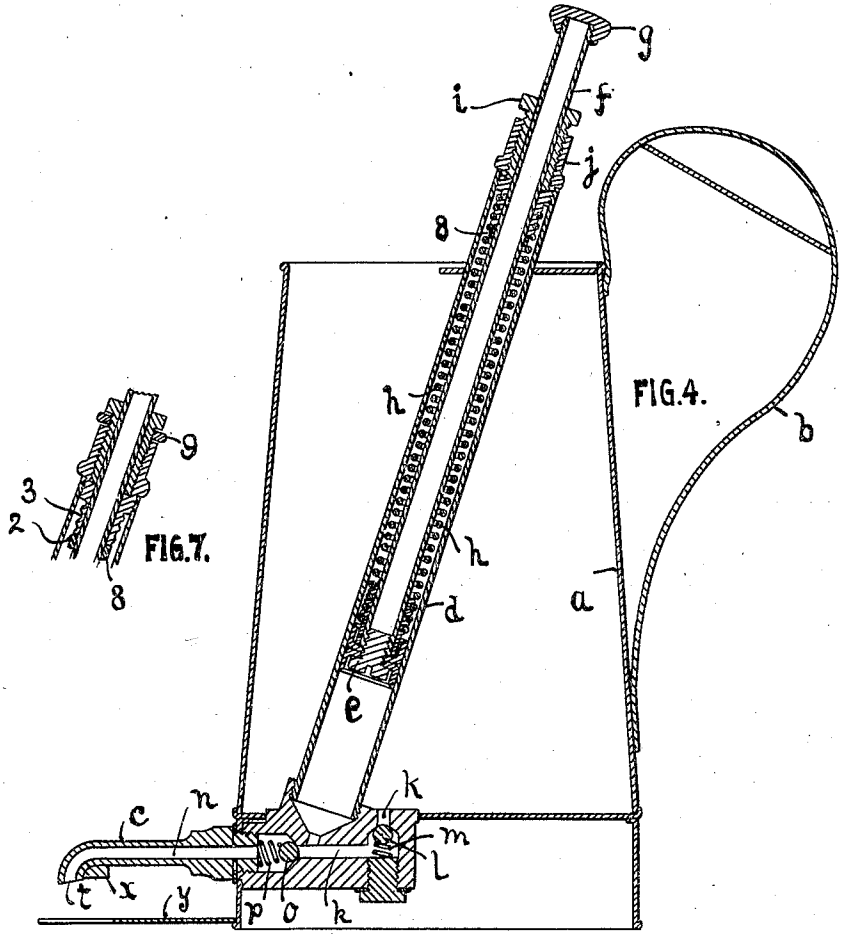

FIG. 4.

FIG. 7.

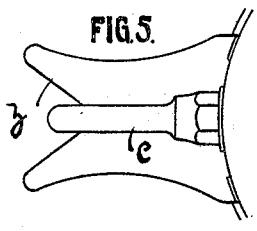

FIG. 5.

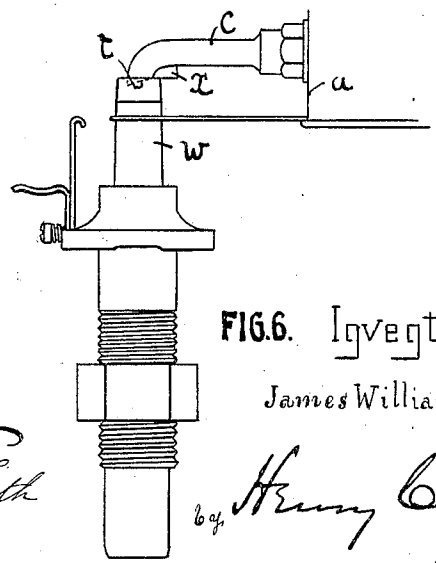

FIG. 6.

Witnesses

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3 SHEETS—SHEET 3.

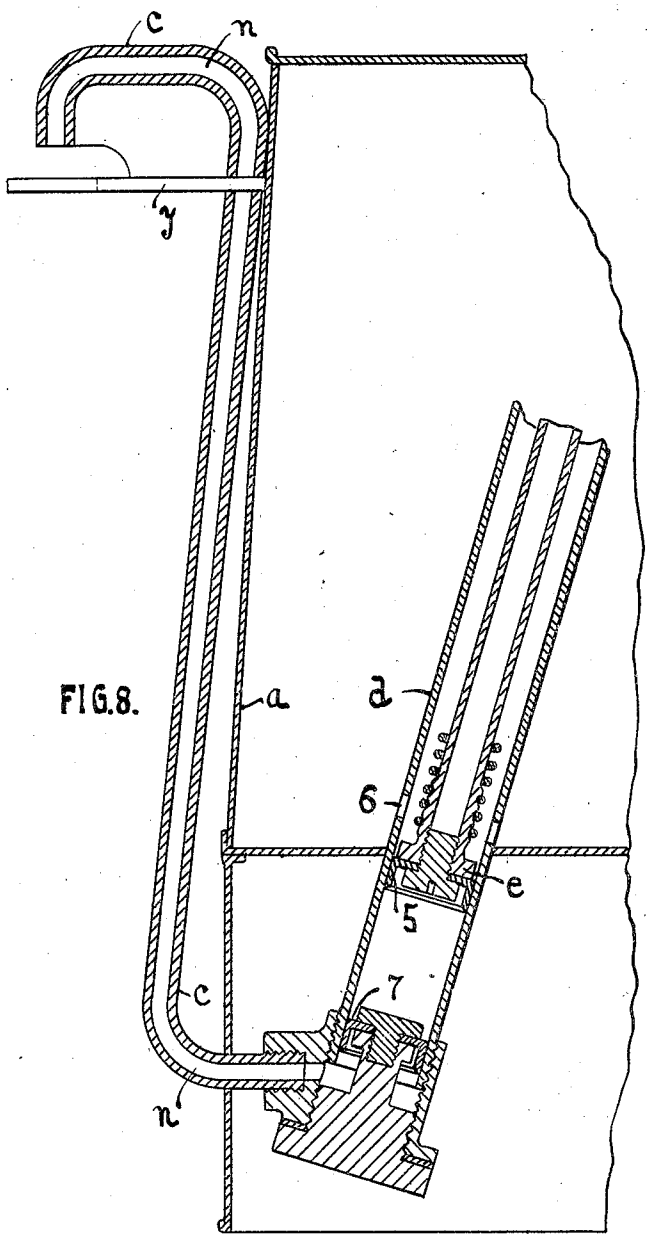

FIG. 8.

Witnesses

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No. 790,719. Patented May 23, 1905.

UNITED STATES PATENT OFFICE.

JAMES WILLIAM BULLOCK, OF WIGAN, ENGLAND.

OIL-CAN.

SPECIFICATION forming part of Letters Patent No. 790,719, dated May 23, 1905.

Application filed January 19, 1904. Serial No. 189,678.

To all whom it may concern:

Be it known that I, JAMES WILLIAM BULLOCK, accountant, a subject of the King of Great Britain, residing at Wigan, in the county of Lancaster, England, (whose post-office address is 67 Mesnes street, Wigan, aforesaid,) have invented certain new and useful Improvements in Oil-Cans, (for which application has been made in Great Britain, No. 17,555, dated the 13th day of August, 1903,) of which the following is a specification.

This invention has for its object a device for filling a receptacle (or lubricating it) with a measured or predetermined quantity of oil without spilling the oil, the measure also being capable of exact adjustment. It is applicable for lubricating ring-spindles used in cotton-spinning, but can be used for other purposes also.

In the accompanying drawings, Figure 1 is a vertical section of my lubricating device; Fig. 2, a plan of the spout thereof; Fig. 3, a vertical section and plan showing a slight modification in the arrangement of the spout; Fig. 4, a sectional elevation of the lubricating device, showing slight constructional alterations; Fig. 5, a plan of the spout thereof; Fig. 6, a front elevation of a foot-step for a ring-spindle; Fig. 7, a small detail view illustrative of the mode of attachment of the spring; Fig. 8, a fragmentary vertical section of the lubricating device, showing other slight constructional alterations.

Referring first to Figs. 1 and 2, I provide a can or upright container *a* with a suitable handle *b* for holding it by and a spout or nozzle *c*, projecting horizontally from the can at the bottom. The can is fitted with a pump *d* for obtaining a forced feed and with means whereby a measured quantity of oil can be ejected through the spout *c* at each stroke. The pump comprises a cylinder *d*, the interior of which is fitted with a packed plunger *e*, worked by a piston-rod *f* with thumb-piece *g* at the end, so that by placing the thumb on this piece and pushing the same the oil is forced out through the spout *c* into the part required to be filled or lubricated. A spring *h* returns the plunger to its normal position ready for the next charge to be squirted out, and there is an adjustable nut *i* on the piston-rod *f*, which, coming against the cylinder-cover *j*, stops the plunger and prevents it rising more than a given height. The spring in this case is outside the cylinder *d* and is in compression when the thumb-piece *g* is compressed. At the base of the can there is an admission-passage *k* for conveying oil from the can to the pump-cylinder, together with a suction or inlet valve *l* for regulating the same, this valve being controlled by a spring *m*, which keeps it normally on its seat. There is also an outlet-passage *n* for oil from the cylinder to the spout *c*, together with a valve *o* with a spring *p*, which keeps the valve normally onto its seat. These valves are so arranged that the rising of the plunger *e* will set up a suction which draws the outlet-valve *o* tighter onto its seat, but opens the suction-valve *l* and draws oil into the cylinder *d*. The converse action takes place when the piston or plunger *e* is forced downward, the suction-valve *l* in that case being kept closed and the outlet-valve *o* opened to squirt out the oil. Means are provided for regulating the amount of oil drawn into the cylinder by the plunger, this being effected by the adjustable nut *i* on threads cut on the piston-rod *f* and which comes against the cover *j* when the piston is raised to a certain height, thus limiting the stroke of the piston *e* and controlling the amount of oil drawn into the cylinder *d*. By this means, therefore, a measured or predetermined quantity of oil is ejected through the spout *c*, and this is capable of precise adjustment, as by turning the nut *i* the height to which the piston is raised is regulated, so as to increase or decrease the capacity of the measure. The suction and delivery valves *o l* are so arranged that they can be easily got at for cleaning purposes, all that is necessary being to unscrew the plugs *r s* in the valve-chambers, and the valves, with their springs, can then be taken out. The spout or nozzle *c*, which is placed horizontal and which is in communication with the outlet-valve *o*, is bent downward at the end, and in order to prevent this downwardly-projecting

part accidentally catching in the footstep or other receptacle which it is desired to fill with oil I chamfer off at *t* the mouth of the spout and provide a conical sleeve *u*, which fits onto the footstep to hold the spout truly concentric therewith.

The mode of action is as follows: The device is placed so that the cone *u* abuts against the outside of the part requiring lubrication, such as *w*, Fig. 6, and holds the spout concentric therewith, also with the spout a little above or slightly dipping into it, but not enough to catch therein. I then place the thumb on the knob *g* and depress it. This squirts a measured quantity of oil directly into the receptacle requiring lubrication and in such a manner that none is spilled, and also the exact amount is injected and no more and no less than required, the device effecting the economical application of oil to the working part and the avoidance of waste due to the use of ordinary oil-cans. By releasing the knob *g* the piston *e* springs upward, closing the outlet-valve *o* and drawing in a fresh quantity of oil through suction-valve *l* into the measure ready for the next operation.

In thus describing my invention I wish it to be understood that I do not confine myself to the exact arrangement described, as this can be altered without departing from the nature of the invention. The other figures of the drawings illustrate alterations in the arrangement; but in all cases similar letters and figures of reference in the several figures indicate like parts. The main points of difference are as follows:

In Fig. 4 the spring *h* is shown inside the cylinder *d* instead of outside and is in tension when the thumb-piece *g* is depressed. Also the packing of the piston *e* is effected by means of a pair of cup-leathers. The mouth of the spout *c*, Figs. 4 and 5, is chamfered off at *t*, and an abutment *x* or stop is provided at the bend, so placed that the downwardly-projecting part of the spout cannot enter the receptacle *w*, Fig. 6, far enough to catch in it or injure the same. Furthermore, the base of the can or container *a* is provided with a guide or shoulder *y*, which is arranged to guide or hold the device with its spout or nozzle *c* truly concentric with the foot-step *w*, socket, or other part requiring to be filled with oil, and thus avoid spilling. The guide *y* comprises projecting arms with a **V**-groove *z*, which abut against the outside of the part *w* requiring to be filled with oil. The spring *h* in this figure is in tension when the knob *g* is depressed, and I form the projecting part 2 of the pump-cover *j*, Figs. 4 and 7, to which the spring is attached, of a diameter somewhat larger than the internal diameter of the spring. On this round part 2 I cut a spiral or helical groove 3 or thread, on which the rounds or coils of the spring *h* are screwed. The diameter of the bottom of the groove 3, however, is slightly larger than the diameter of the helical spring *h*, and instead of the screw groove or thread 3 being of the same pitch as the pitch of the coils of the spring *h* I make the thread 3 of rather coarser or greater pitch. Thus if it be a close-wound spring I form the spiral or helical groove 3 with a pitch that is coarser than the pitch of the spring-coils *h* when closed together. Therefore when the spring *h* is screwed onto the spiral or helical groove 3 the pitch of the spring *h* at that particular part is increased to equal the pitch of the spiral or helical groove 3, and it is also expanded outwardly diametrically somewhat, because the bottom of the groove 3 is slightly larger than the internal diameter of the spring *h*. The coils of the spring *h* by this arrangement bind in the groove 3. It is quite easy to screw the spring onto the spirally or helically grooved part; but it is practically impossible for it to accidentally become unscrewed in working.

In Figs. 4 and 7 the cover *j* is screwed into the cylinder *d* and the sleeve *i* screwed thereinto. The thumb-piece *g* coming against this sleeve *i* stops the plunger and prevents it descending more than a given distance, and the abutment 8 prevents it rising more than a given height. By turning the sleeve *i* the distance to which the piston descends is regulated, so as to increase or decrease the capacity of the measure. The sleeve can be locked by nut 9, Fig. 7.

In Fig. 3 the guide or abutment on the spout *c* is made of radiating arms 4, with a space in the center where their planes intersect to receive the part requiring lubrication and hold it concentric with the spout.

Instead of the valves hereinbefore described a cup-leather 5 could be provided at the end of the piston *e*, as shown in Figs. 3 and 8, and a hole 6 in the cylinder *d*, communicating with the oil-container provided in the wall of the cylinder, so that the cylinder *d* above the plunger *e* is always full of oil. The ascent of the plunger *e* will freely cause oil to flow past the cup-leather to the space in the cylinder *d* below the plunger *e*. The descent of the plunger *e*, however, will cause the cup-leather 5 to be pressed tightly against the sides of the cylinder *d* and squirt a measured quantity of oil out through the nozzle *c*, drawing in a fresh supply into the cylinder above the plunger. In such case a non-return outlet-valve 7, Fig. 8, consisting of a similar cup-leather to that used in the plunger, is provided in proximity to the spout *c* to prevent oil being drawn back through the spout when the plunger *e* is raised. Furthermore, the pump arrangement can be partly inside and partly outside, as shown in Figs. 3, 4, and 8, or wholly inside, as shown in Fig. 1. In Fig. 8 the spout *c* is carried upward to the top of the container *a*, which in special cases may be found a more convenient form of construction.

I declare that what I claim is—

1. In a lubricating device for supplying a receptacle with a measured quantity of oil, the combination with a container of a valve-chest at base thereof, a pump-cylinder screwed thereinto, a pump plunger and piston working in the cylinder, a spring for returning the plunger to its normal position after being depressed, means for regulating the stroke of the piston so as to regulate the capacity of the measure and the amount of liquid squirted out through the nozzle, an inlet-valve in the valve-chest for delivering oil from the container to the cylinder at each upstroke of the piston, and a delivery-valve in the said valve-chest for delivering oil from the cylinder to the spout at each downstroke.

2. In a lubricating device for supplying a receptacle with a measured quantity of the lubricant, the combination with a container having a spout or delivery-nozzle, of a **V**-shaped guide *y* adjacent to the outlet of the spout, said guide having its arms disposed in a plane which cuts transversely the axis of the jet from the spout, and said arms diverging at equal angles from said axis.

3. In a lubricating device for supplying a receptacle with a measured quantity of oil, a pump for delivering a forced and measured feed from the container to the spout, a spring for returning the plunger to its normal position after being depressed, a spiral or helical groove cut on the part to which the spring is attached but of rather coarser pitch and slightly larger diameter, whereby if the spring is screwed onto this groove, the pitch of the spring at that particular part besides being expanded diametrically by the larger diameter is increased to equal the pitch of the spiral groove, whereby the coils of the spring will bind in the groove and be locked therein.

4. In a lubricating device for supplying a receptacle with a lubricant, the combination with a container having a spout or delivery-nozzle with a downwardly-directed outlet, means within the container for forcing out a measured quantity of the lubricant, and a **V**-shaped fixed guide adjacent to the outlet of the spout and disposed in a plane substantially at right angles to the axis of the outlet from the spout, the arms of said guide diverging at equal angles from the said axis.

In witness whereof I have hereunto signed my name, this 4th day of January, 1904, in the presence of two subscribing witnesses.

JAMES WILLIAM BULLOCK.

Witnesses:
G. C. DYMOND,
JOHN MCLACHLAN.