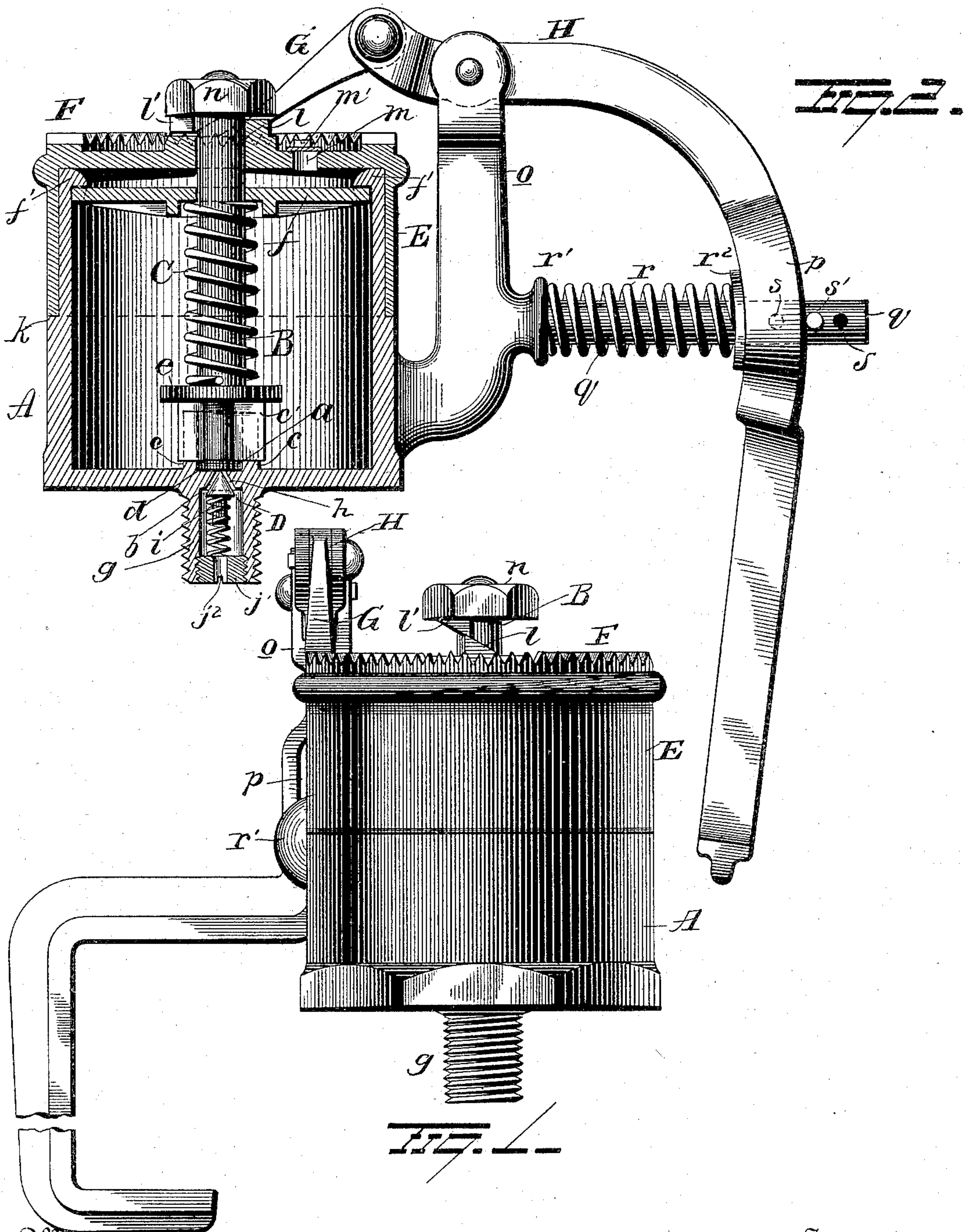


(No Model.)

C. C. JEROME.
LUBRICATOR.

No. 493,727.

Patented Mar. 21, 1893.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES C. JEROME, OF CHICAGO, ILLINOIS.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 493,727, dated March 21, 1893.

Application filed July 20, 1892. Serial No. 440,628. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. JEROME, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lubricators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved automatic force feed oil cup,—the object of the invention being to construct the device in such manner that leakage of the oil therefrom will be effectually prevented.

A further object is to provide a simple automatic force feed which will only feed the oil when the machine to which it is applied is in operation, and which then forces said oil directly to the spot wherever it may be led by a pipe or otherwise.

A further object is to provide an oil feed device by means of which the oil will be positively fed at certain intervals, without waste of oil.

A further object is to so construct the device that the feed may be easily and quickly regulated.

A further object is to produce an automatic force feed which shall be simple in construction and effectual in the performance of its functions.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is an elevation of my improved automatic force feed. Fig. 2 is a vertical sectional view.

A represents the cylinder or cup, in the center of the bottom of which a recess *a* is formed, and in the center of this recess an outlet opening *b* is made. At opposite sides of the recess *a*, flanges *c* project upwardly within the cup and serve to receive between them flanges *c'* projecting from diametrically opposite sides of a plunger B, whereby to guide said plunger in its movements as hereinafter explained,—the head *d* at the lower end of said plunger being adapted to enter the recess *a* in the bottom of the cup and normally close the opening *b*. Immediately above the flanges *c'*

of the plunger B, is a circular disk *e* which is normally disposed in proximity to the tops of the flanges *c* projecting from the bottom of the cup. The plunger B is of a length sufficient to project above the top of the cup B, and is encircled by a coiled spring C, the lower end of which bears against the disk *e*, and the upper end against a cross bar *f*, through which said plunger passes,—said cross bar being prevented from upward movement or escape from the body of the cup, by means of inwardly projecting flanges *f'* located at diametrically opposite points at the top of the body of the cup. By means of the spring C the plunger head *d* will be normally held down to its seat.

Projecting from the bottom of the cup A and communicating with the opening *a*, is an outlet pipe or stem *g*, which is screwthreaded externally for the reception of a suitable coupling whereby to attach a pipe to the lubricator to convey the oil to the desired point. At the upper end of the pipe or stem *g*, a conical seat *h* is formed for the reception of a conical valve D adapted to enter the outlet opening *a*. The stem *i* of the conical valve D enters one end of a, preferably conical, coiled spring *j* inserted in the pipe or stem *g*, said spring bearing at its other end on a plug *j'*, screwed into the end of the pipe or stem *g*, said plug being provided with an opening *j²* for the passage of the oil from the cup. The spring *j* tends to force the conical valve D to its seat to close the opening *a*.

The upper portion of the cup A is contracted somewhat on its exterior and has loosely fitted on it, a cap or top E, the lower edge of said cap resting on the shoulder *k* of the cup. The cap E is provided centrally with a perforation for the accommodation of the plunger B, and in proximity to said perforation a cam *l* is made on the cap E, for a purpose which will presently appear. An inlet *m* for filling the cup is made in the cap E, and normally covered by a spring cap plate *m'*, pivotally attached to the cap E. The upper end of the plunger B is screwthreaded for the reception of a nut *n*, on the under face of which a cam *l'* is made and adapted to be engaged by the cam *l* on the cap E. In proximity to the periphery of the cap E and extending entirely around the same, is a se-

ries of teeth F adapted to be engaged by a dog G, pivoted in the bifurcated end of a lever H,—which latter is pivotally connected to the bifurcated upper end of an arm o projecting laterally and upwardly from the cup A,—the pivotal connection of said lever being in proximity to the pivotal connection of the dog G thereto. From its pivoted connection with the arm o the lever H projects outwardly and downwardly, preferably in a curved line, and at the end of said downwardly projecting portion is provided with an elongated slot p, through which a rod q projecting horizontally from the arm o, passes. A spring r encircles the rod q, bearing at one end on a shoulder r' in proximity to the arm o and at the other end on the lever H or a washer r² interposed between said spring and lever. The rod q is provided near its free end with a series of perforations s for the reception of a key s', and by shifting said key from one perforation to another the tension of the spring may be readily regulated. From the base of the elongated slot p, the lever H projects laterally, then downwardly and then inwardly, so as to adapt it to be connected to the cross head of an engine. The free end of the lever H may be otherwise formed, should it be desired to connect it with some other moving part of the engine, it being only necessary to so connect it with the engine, that when the latter is in operation said lever will be vibrated to cause the dog G to engage the teeth F on the cap and thus rotate said cap, step by step. Thus it will be seen that by vibrating the lever H the dog G will engage the teeth F of the cap, and that every time the cam on the cap comes in contact with the cam on the nut n, it causes the plunger B to rise, thus allowing the oil to flow under its head. When the cams l, l' release the plunger, the spring C inside the cup causes it to be forced down and open the conical valve D in the bottom of the cup which allows the oil to be forced out by the head of the plunger to wherever it may be led by means of a pipe or otherwise.

One great point of merit in this cup is that it never leaks any oil and only feeds when the engine is running and then forces the oil directly to the spot wherever it may be led by pipe or otherwise. The feed is regulated by moving the pin s' from one perforation to another in the rod q as above explained thus allowing the dog G to feed three notches or less according to the position of the pin s' and as the cup feeds every time the cams come together or meet, the more notches the dog feeds at a time, the oftener the oil will feed. The feed can also be regulated by increasing or diminishing the size of the cams, thus allowing the plunger to be raised higher or not so high as the case may be, and the higher the plunger is raised the more the oil flows under it,—and thus the amount of oil fed at a time is regulated.

The device is very simple in construction,

not easy to become clogged or get out of order, and is effectual in the performance of its functions.

Slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope, hence I do not wish to limit myself to the precise details of construction herein set forth, but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a lubricator, the combination with a cup and a valve in the bottom thereof, of a revoluble cap or top, a plunger passing through the cap or top and adapted to normally bear on said valve, a cam carried by the cap or top, a cam carried by the plunger and engaged by the cam on the cap or top to raise the plunger, and means adapted to be connected with an engine for rotating said cap or top, step by step, substantially as and for the purpose set forth.

2. In a lubricator, the combination with a cup and a valve in the bottom thereof, of a cap or top, a plunger adapted to normally bear on said valve and pass through said cap or top, a spring for maintaining said plunger normally to its seat, a cam carried by the cap or top, a cam carried by the plunger and adapted to be engaged by the cam on the cap or top, and means connected with the engine for rotating said cap or top step by step, substantially as set forth.

3. In a lubricator, the combination with a cup having an opening in its bottom and a valve adapted to normally close said opening when released, of a revoluble cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve and close the opening in the bottom of the cup, and means for intermittently raising and lowering said plunger while the engine to which the lubricator is connected is running, substantially as set forth.

4. In a lubricator, the combination with a cup having a recess in its bottom and an opening in said recess, and a valve to close said opening, of a cap or top, a plunger adapted to pass through said cap or top and normally close said opening, a spring for maintaining the head of the plunger normally in said recess in the bottom of the cup, a cam carried by the plunger, a cam carried by the cap or top and engaging the cam carried by the plunger, and means adapted to be connected with a moving part of an engine, for rotating said cap or top, step by step, substantially as set forth.

5. In a lubricator, the combination with a cup and a valve in the bottom thereof, and flanges projecting upwardly from the bottom of the cup, of a cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve, flanges on said plunger adapted to enter between the flanges on the bottom of the cup, a cam carried by the

plunger, a cam carried by the cap or top adapted to engage the cam carried by the plunger, a spring for normally forcing said plunger down to its seat and means adapted to be connected with an engine for rotating said cap or top step by step, substantially as and for the purpose set forth.

6. In a lubricator, the combination with a cup and a valve in the bottom thereof, of a revoluble cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve, a projection on the plunger, a spring encircling said plunger and bearing at one end against said projection, a cross head at the top of the cup against which the other end of said spring bears, a cam carried by the plunger, a cam carried by the cap or top for engaging the cam carried by the plunger, and means for rotating said cap or top step by step, substantially as set forth.

7. In a lubricator, the combination with a cup having a valved opening in its bottom, of a revoluble cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve, a spring for normally maintaining said plunger to its seat, a cam carried by the cap or top, a nut on the plunger, a cam carried by the nut and adapted to be engaged by the cam on the cap or top and means for intermittently revolving said cap or top when the engine to which the lubricator is attached is running, substantially as set forth.

8. In a lubricator, the combination with a cup having a valved opening, of a revoluble cap or top, a plunger passing through said cap or top and bearing normally on the valve in the cup, cams carried by the plunger and cap or top, a series of teeth on said cap or top, a pivoted lever adapted to be connected with

a moving part of an engine, a dog carried by said lever and adapted to engage the teeth on the cap or top and a spring adapted to assist in operating said dog, substantially as set forth.

9. In a lubricator, the combination with a cup having a valve in its bottom, of a revoluble cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve, cams carried by the plunger and cap or top, a series of teeth on the cap or top, a pivoted lever adapted to be connected with a moving part of an engine, a dog carried by said lever and adapted to engage the teeth on the cap or top, and means for regulating the throw of the lever and dog, substantially as set forth.

10. In a lubricator, the combination with a cup having a valve in its bottom, of a revoluble cap or top, a plunger passing through said cap or top, and adapted to normally bear on said valve, cams carried by the plunger and cap or top, a pivoted lever, an arm for supporting said pivoted lever, a dog carried by the pivoted lever and adapted to engage the teeth of the cap or top, a rod projecting from said arm and adapted to pass through an elongated slot in the pivoted lever, said rod having a series of perforations for the reception of a key, and a spring on said rod, said spring being adapted to force the lever outwardly and the dog forwardly to turn the cap or top, substantially as and for the purpose set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES C. JEROME.

Witnesses:

C. R. GRAHAM,
GEO. C. JEROME.