

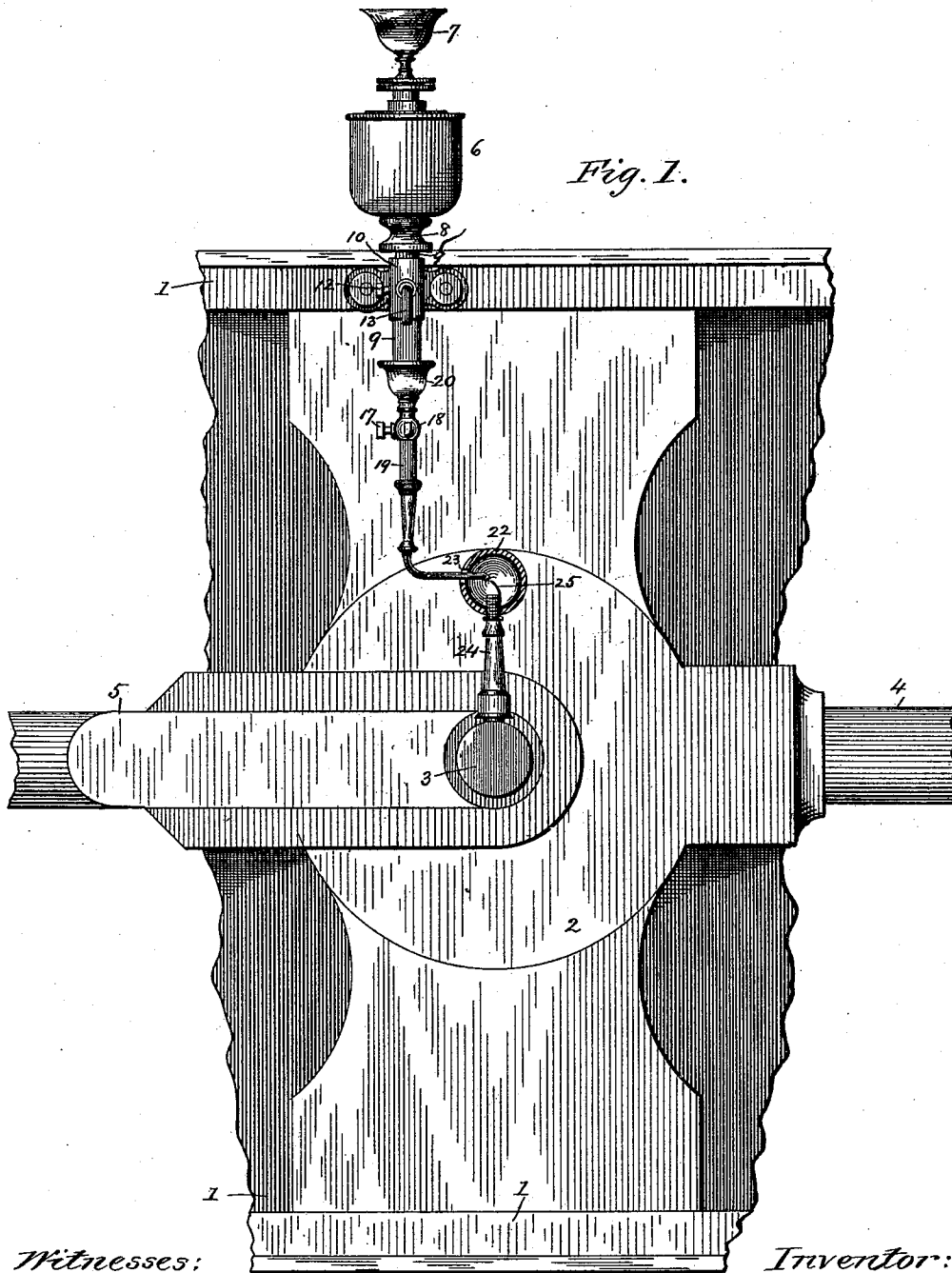
(No Model.)

2 Sheets—Sheet 1.

J. CLARK.
LUBRICATOR.

No. 465,344.

Patented Dec. 15, 1891.



Witnesses:

T. R. Stuart.

J. M. Fowler.

Inventor:

Joseph Clark.

By Marble, Mason & Confield,
Attorneys.

(No Model.)

2 Sheets—Sheet 2.

J. CLARK.
LUBRICATOR.

No. 465,344.

Patented Dec. 15, 1891.

Fig. 2.

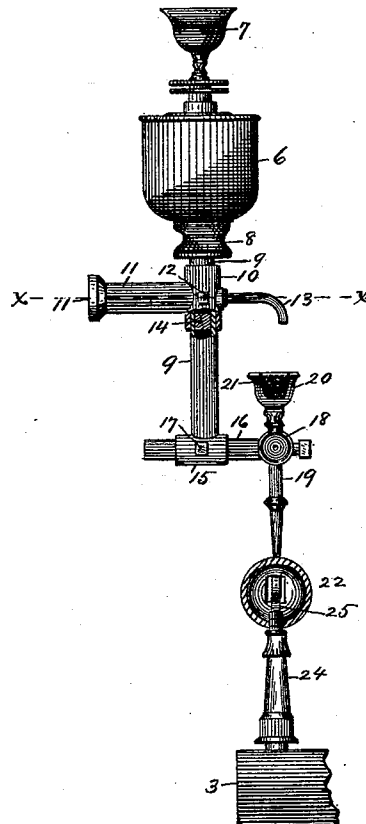


Fig. 4.

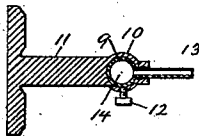
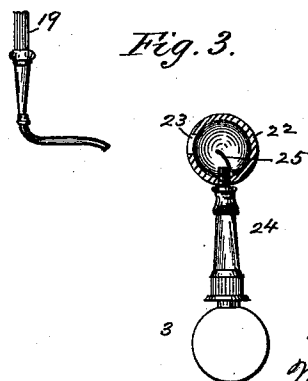


Fig. 3.



Witnesses:
T. R. Stuart.
J. W. Fowler Jr.

Inventor:
Joseph Clark.

By
Marble, Mason & Confield,
Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH CLARK, OF SAGINAW, MICHIGAN.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 465,344, dated December 15, 1891.

Application filed June 19, 1890. Serial No. 355,950. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH CLARK, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, 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, generally, to lubricators, and particularly to that class thereof in which provision is made for oiling wrist or cross-head pins and their bearings between the connecting-rods of steam-engines and their cross-heads, in which the "sight-feed" is embodied and in which are employed in connection with the delivery-pipes communicating with said wrist-pins and their bearings, knives, or scrapers, which, during the reciprocations of said connecting-rods and cross-heads, disengage small amounts or drops of the lubricant from said delivery-pipes and permit the same to descend by gravity to the parts requiring lubrication; and it consists in the peculiarities of construction and arrangement or combination of parts herein-after fully disclosed in the description, drawings, and claims.

The objects of my invention are, first, to provide a novel and improved construction and arrangement of parts for feeding the lubricant from the feed or oil-supply cup to the delivery-cup, whereby the downward passage of the drops of said lubricant will be clearly exposed to view at all times; second, to provide improved devices for the application and adjustment of my improved oiler or lubricator to engines of varying sizes and different forms or constructions; third, to provide novel means for feeding or delivering the lubricant to the wrist-pins and bearings of cross heads; and, fourth, to protect the lubricant in its passage to its final destination from being mixed with dust, cinders, and other foreign and injurious matters and to prevent said lubricant from being sprinkled over the adjacent parts of the engine. These objects are accomplished by the improved lubricator illustrated in the accompanying drawings, forming part of this specification, in which the

same reference-numerals indicate the same parts, and in which—

Figure 1 represents a broken side elevation of the cross-head guide-frame of a steam-engine provided with my improved lubricator, which is partly in section; Fig. 2, a detached view of my improved lubricator, which is also partly in section and arranged to communicate with the wrist-pin and bearings of a cross-head, this view being taken at right angles to that shown in Fig. 1; Fig. 3, a partly sectional side elevation of the upper stationary vertically and horizontally arranged discharge-pipe, and also of the movable combined hollow sphere and the lower vertically-arranged discharge-pipe, these parts being disconnected or in the position they appear when the two latter are moved forwardly or toward the former by the cross-head of the engine; and Fig. 4, a sectional plan view on the line *xx* of Fig. 2.

In the drawings, the numeral 1 indicates the cross-head guide-frame of a steam-engine; 2, the cross-head; 3, the wrist-pin thereof; 4, the piston-rod; and 5 the connecting-rod, all of any usual or suitable construction.

The feed or oil-supply cup 6, which may be of the form shown or any other suitable construction, is provided at its top with the flared or funnel-shaped filling-cup 7 with an interior needle-valve and stem, or any other suitable device for regulating or adjusting the discharge of the oil therefrom, and at its bottom with the interiorly screw-threaded collar 8, within which is screwed the upper end of the vertical feed-pipe 9, which is surrounded by the short vertical sleeve 10. This vertical sleeve is formed upon the outer end of the T-shaped bracket 11, which is arranged horizontally and secured at its inner or base end to the guide-frame 1 or any other suitable part of the frame-work of the engine. A set-screw 12 is passed into the vertical sleeve 10, abuts against the feed-pipe 9, and acts to hold the same and the supply-cup 6 in any position to which they may be vertically adjusted. A downwardly-curved and relatively small discharge-pipe 13 is tapped or passed through the vertical sleeve 10 and communicates with the vertical feed-pipe 9, which, at a point just below the inner end of said small discharge-

pipe, is provided with the plug 14, which arrests the downward passage of the lubricant and causes it to flow out through said small discharge-pipe. The lower end of the vertical feed-pipe 9 is provided with the horizontal sleeve 15, within which is adjustably secured the tubular support 16, which is held in place by the set-screw 17. The outer end of the tubular support 16 is provided with a hollow ball 18, through which passes the upper vertical discharge-pipe 19, which is provided at its upper end with the flared or funnel-shaped oil-discharge cup 20, which is arranged directly beneath the outer end of the curved pipe 13, and receives the oil as it drops therefrom, after it passes through the intervening open-air space, and which jointly produce a sight-feed which is far superior to those inclosed within glass tubes or cylinders, as the latter become dirty and smutty and consume time and labor in keeping them clean. This oil-discharge cup 20 is provided with suitable straining or filtering material 21, for protecting the oil in its downward passage at this point from being mixed with dirt, cinders, and the like. The lower portion of the upper discharge-pipe 19 is tapered, curved, and extended horizontally forward, as shown in Figs. 1 and 3, so as to be in proper position for entering and leaving the hollow sphere 22, which is formed with the slot 23 in its side. This hollow sphere is screwed or otherwise removably secured to the upper end of the lower discharge-pipe 24, and within the same and to the upper end of said pipe is secured the knife or scraper 25, which has its upper end arranged on a line passing close beneath the outlet of the upper discharge-pipe 19, so that during the reciprocations of the cross-head 2 small amounts or drops of the lubricant will be disengaged from the outlet end of said pipe and permitted to descend to the parts needing lubrication. This hollow sphere also excludes dust and other foreign matters from the ends of the adjacent discharge-pipes, and thus prevents the passage of the oil from being clogged or retarded. The slot 23 in this hollow sphere permits a strong air-current to enter therethrough and become concentrated or compressed within said sphere, and thus forces the drops of oil from the knife or scraper downward and into the lower discharge-pipe 24 during the forward movements of the cross-head.

The advantages and operation of my improved lubricator can be generally understood from the foregoing; but it may be further stated that under the provisions herein disclosed for the adjustment of its various parts it can be readily applied to engines of different forms and sizes without inconvenience or material modification; that modifications in the construction, location, and arrangement of its parts can be made without departing from the scope of my invention; that the feed-cup 6 is supplied with oil, which passes therethrough in regulated amount and

thence into the vertical feed-pipe 9 and the curved discharge-pipe 13; thence it drops into the discharge-cup 20, in which it passes through the filtering material 21, and thence through the upper and lower discharge-pipes 19 and 24. The flow of oil is regulated, as hereinbefore described, so that only a drop adheres to the outlet of the upper discharge-pipe 19. Hence when the cross-head travels forward and is at about the end of its stroke the knife or scraper 25 comes into contact with the outlet end of said pipe and scrapes off this drop of oil, which then remains upon said scraper until the cross-head again moves forward, when it is forced down into the lower discharge-pipe 24 by the force of the compressed air entering the slot 23 in the hollow sphere 22, and then it courses downwardly until it reaches the wrist-pin and its bearings or other surfaces to be lubricated. Among the other advantages of my improved lubricator are the open-air sight-feed, by which the feeding or dropping of the oil on its way to the parts to be lubricated may be observed without being obstructed by the glass tubes or cylinders usually employed, which become smutty or clouded and are difficult to keep clean; the hollow and slotted sphere for protecting the entrance to the lower discharge-pipe from dust, cinders, and other foreign substances, which would obstruct the free passage of the lubricant to the wrist-pin and its bearings, and for the concentration or compression of the air-current for forcing the drops of lubricant downward from the knife or scraper; the above-described facilities for the adjustment or adaptation of my lubricator to engines of different forms and sizes and the great saving in oil which is effected by feeding the same in drops or minimum quantities to the surfaces to be lubricated.

Having thus fully described the construction and arrangement or combination of the several parts of my invention, its operation, and advantages, what I claim as new is—

1. In a lubricator, the combination, with the feed or oil-supply cup and the oil-discharge cup, of the vertical and horizontal feed and discharge pipes, vertical and horizontal sleeves and set-screws for adjusting said pipes, and the upper discharge-pipe for delivering oil from said oil-discharge cup, substantially as described.

2. In a lubricator, the combination, with a feed or oil-supply cup and an oil-discharge cup provided with filtering or straining material and devices for adjusting said cups, of right-angularly arranged and connected feed and discharge pipes communicating with said cups, the latter pipe having its outlet end arranged a short distance above said discharge-cup, and a discharge-pipe for delivering the oil from the latter cup, substantially as described.

3. In a lubricator, the combination, with a feed or oil-supply cup and an oil-discharge cup, of the right-angularly arranged and con-

5 nected feed and discharge pipes in communi-
cation with said cups, the latter pipe having
its outlet end terminating a short distance
above said discharge-cup, the hollow sphere,
10 the lower discharge-pipe for conveying the
oil from said sphere to the surface to be lubri-
cated, and the sleeves and set-screws for ver-
tically and laterally adjusting said oil-cups,
substantially as and for the purpose de-
scribed.

15 4. In a lubricator, the combination, with a
feed or oil-supply cup and a downwardly-
curved discharge-pipe communicating there-
with, of an oil-discharge cup situated just
below the outlet end of said discharge-pipe, a
20 discharge-pipe communicating with the latter
oil-cup and having its lower portion tapered,
curved, and horizontally arranged, the hollow
sphere, and the lower discharge-pipe for sup-
plying lubricant therefrom to the wrist-pin,
substantially as and for the purpose de-
scribed.

25 5. In a lubricator, the combination, with a
T-shaped bracket having a vertical sleeve, an
oil-supply cup, right-angled feed and dis-
charge pipes, the latter having its lower por-
tion tapered, curved, and horizontally ar-
ranged, a sphere, and a lower discharge-pipe
30 provided with a knife or scraper at its upper
end and connected at its lower end with the
bearing of the wrist-pin, so as to deliver the
lubricant thereto, substantially as described.

35 6. In a lubricator, the combination, with
supporting means, cup 6, pipes 9 and 13, an
oil-discharge cup, and an upper discharge-
pipe having its lower portion tapered, curved,
and horizontally arranged, of a lower recip-
rocated discharge-pipe, a hollow sphere se-
cured to the upper end thereof and formed
40 with a slot in its side, and a reciprocated
knife or scraper arranged within said sphere
for directing the oil into the latter pipe, sub-
stantially as and for the purpose described.

45 7. In a lubricator, the combination, with
supporting means, an upper oil-discharge cup
and an upper discharge-pipe having its lower
portion tapered, curved, and horizontally ar-
ranged, of a lower discharge-cup and its exit-
50 pipe, a lower discharge-pipe, a hollow sphere
secured to the upper end thereof and formed

with a slot in its side, a knife or scraper,
which is also secured to the upper end of the
latter pipe, and means for reciprocating said
sphere, pipe, and scraper, substantially as and
for the purpose described.

55 8. In a lubricator for steam-engines, the
combination, with the guide-frame, cross-
head, and T-shaped bracket, of the oil sup-
ply and discharge cups, sleeves and screws
for adjusting said cups, the vertical feed- 60
pipe, and the downwardly-curved discharge-
pipe for feeding oil from the former to the
latter cup, the upper discharge-pipe, and the
lower discharge-pipe for delivering oil to said
cross-head, substantially as described. 65

9. The combination, in a lubricator, with
an oil-discharge cup, an upper discharge-pipe
having a tapered, curved, and horizontally-
arranged lower portion, and a lower discharge-
pipe having a hollow, slotted, and reciprocating 70
sphere, and a knife or scraper attached to
its upper end, substantially as and for the
purpose described.

10. In a lubricator, the combination, with
the feed or oil-supply cup and the vertical 75
feed-pipe connected at its upper end to said
cup and having a plug intermediate of its
ends and a horizontal sleeve at its lower end,
of a bracket having a vertical sleeve at its
outer end, a tubular support mounted in said 80
horizontal sleeve, a downwardly-curved dis-
charge-pipe, an oil-discharge cup arranged
below the same, upper and lower discharge-
pipes, and screws for adjusting said cups
vertically and laterally, substantially as de- 85
scribed.

11. In a lubricator, the combination, with
an oil-discharge cup and an upper discharge-
pipe having a tapered and curved lower por-
tion, of a lower discharge-pipe having a slot- 90
ted hollow sphere at its upper end and a de-
vice secured within said sphere, which is ar-
ranged to engage the outlet end of said up-
per discharge-pipe, substantially as described.

In testimony whereof I affix my signature in 95
presence of two witnesses.

JOSEPH CLARK.

Witnesses:

D. W. GOODING,
F. E. MOORE.