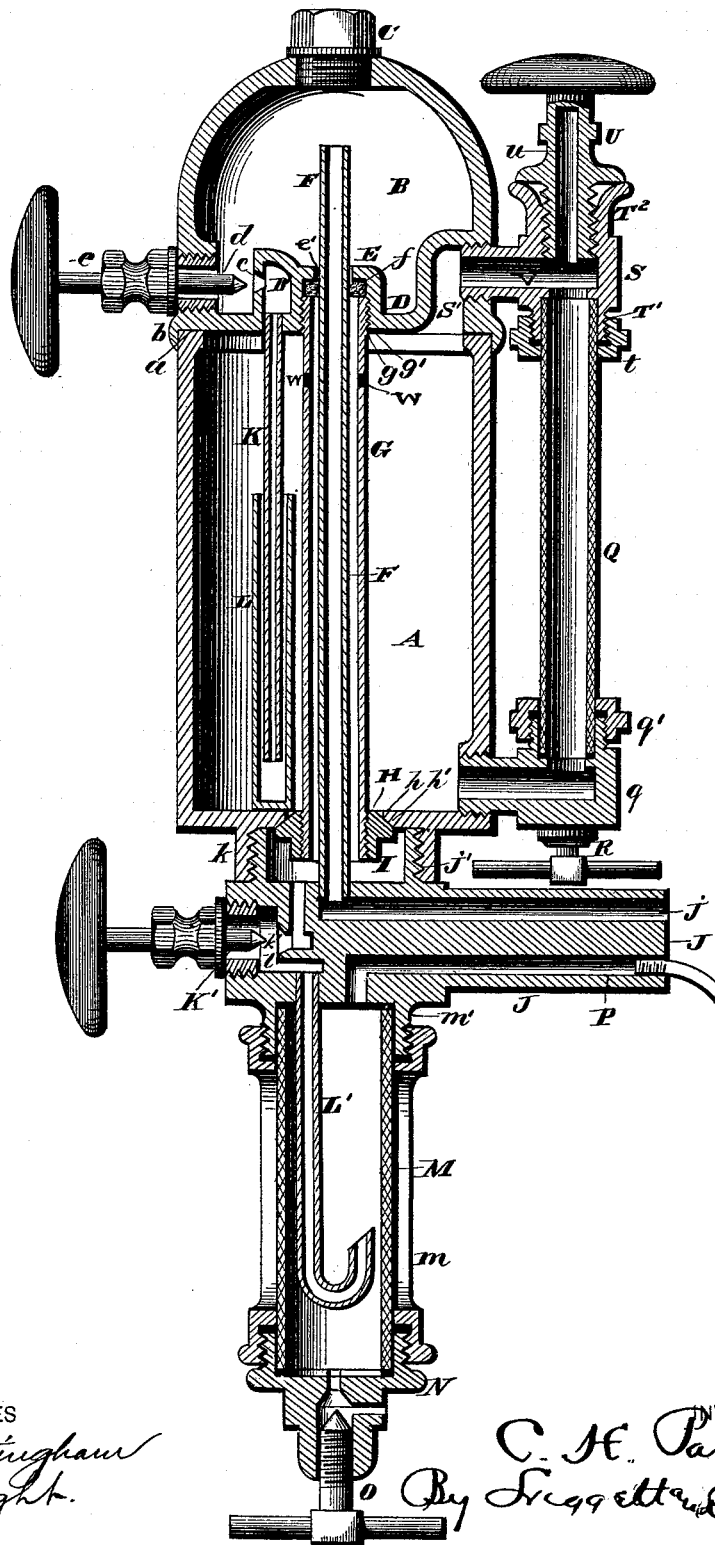


C. H. PARSHALL.
Lubricator.

No. 218,191.

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IMPROVEMENT IN LUBRICATORS.

Specification forming part of Letters Patent No. **218,191**, dated August 5, 1879; application filed April 17, 1879.

To all whom it may concern:

Be it known that I, CHARLES H. PARSHALL, of Detroit, in the county of Wayne 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 pertains to make and use it, reference being had to the accompanying drawing, which forms part of this specification.

My invention relates to an improvement in lubricators; and consists in certain details of construction and arrangement of parts, as will hereinafter be described, and pointed out in the claims.

The drawing represents a vertical section of my improved lubricator.

A represents the oil-reservoir, preferably constructed of a metallic shell or cylinder, the upper end of which is formed with a ground joint, to which is secured the condensing-chamber B, the latter having a ground joint at *a* and a depending flange, *b*, the latter snugly fitting over the upper edge of the oil-reservoir.

The upper end of the condenser B is provided with a screw-threaded stopper or plug, C, to admit of the inspection of the inner portion of the condenser.

The bottom or division plate, D, of condenser B is provided with an upwardly-projecting boss, consisting of the feed-water chamber D' and stuffing-box E. The feed-water chamber D' is provided on its outer side with a conically-formed passage-way, *c*, within which engages the regulating feed-valve *d*, which latter is connected with a screw-threaded shank having handle *e*, and provided with a suitable stuffing-box.

The stuffing-box E has a central opening, *e'*, through the upper portion thereof, through which is inserted the upper end of the steam-induction pipe F, the extreme upper end of which projects into the condenser B any desired distance. Around the pipe F, within the stuffing-box, is placed any suitable packing material, *f*. The packing-ring *f* is forced snugly around the pipe F, and a water and steam tight joint formed by means of the oil-feeding pipe G, the upper end of which is

screw-threaded at *g*, and engages with corresponding screw-threads *g'* cut in the inner surface of the stuffing-box, whereby the upper end of the pipe G serves as a gland for the stuffing-box.

The lower end of the oil-reservoir is formed with an opening, H, having a conical seat, *h*, within which is seated the conical end *h'* of the nut I, the latter having a screw-threaded bore, which engages with screw-threads formed on the lower end of the pipe G.

It will thus be observed that the pipe G serves as a tubular tie-rod, to firmly connect the oil-reservoir and condenser. The upper end of pipe G is first screwed into the stuffing-box, the condenser is then seated upon the upper end of the oil-reservoir, and the nut I then screwed onto the lower end of the pipe G serves to firmly secure the parts in position, the conical face of the nut allowing the parts to adjust themselves to their proper position to constitute firm and water-tight joints.

The steam-induction pipe extends down and connects with the steam-passage *j* in the stem J of the lubricator, thereby forming a continuous steam-passage from the steam-pipe, with which the stem is connected to the condenser of the lubricator.

To the bottom of the feed-water chamber in the condenser is connected a pipe, K, which extends downwardly near to the bottom of the oil-reservoir, the lower end of said pipe K entering a pipe, L, the lower end of which is closed and rests loosely upon the bottom of the oil-reservoir. Pipe L is of any desired length, its purpose being to form a water-trap to prevent the oil from flowing into the condenser from the oil-reservoir. The stem J is provided with a screw-threaded coupling, *j'*, which engages with a screw-threaded collar, *k*, formed on the lower end of the oil-reservoir.

K' is an oil-regulating valve, which seats in a valve-seat, *k'*, formed in the oil-passage *l*, extending transversely through the stem, and connecting with an inverted siphon-pipe, L', attached to the lower side of the stem.

M is a glass cylinder or tube connected with the under side of the stem, and secured in place by an open-work or skeleton guard, *m*, made of metal or other material desired, the upper end of which is screwed to the screw-

threaded boss *m'* on the stem, while to its lower end is attached a chambered follower-nut, *N*, the latter being provided with a stop-cock, *O*, for the purpose of drawing off the contents of the glass tube when desired.

P is an oil-feeding conduit in the stem of the lubricator, one end of which connects with the upper portion of the glass tube or cylinder *M*. A glass indicating-tube, *Q*, is connected with the side of the lubricator, as follows, and serves to indicate the height of oil in the reservoir. To the lower end of the oil-reservoir is attached an elbow-pipe coupling, *q*, within the upright portion of which is seated the lower end of the glass tube, and firmly secured by the follower-nut *q'*.

R is a stop-cock, located in the pipe *q*, for drawing off the contents of the oil-reservoir when necessary. A T-pipe coupling, *S*, is screwed into the lower portion of the condenser, and connects with the upper portion of the oil-reservoir, a chamber, *S'*, being formed in the under side of the lower division-plate of the condenser to insulate the chambers of the condenser and oil-reservoir, and yet allow of the attachment of the pipe *S* to the shell of the condenser.

In the lower limb, *T¹*, of the T-coupling *S* is received the upper end of the glass tube, which is firmly secured in place by the follower-nut *t*. The upper limb, *T²*, of said coupling is made outwardly flaring or of funnel form, to facilitate the introduction of the oil.

U is a stopper, screw-threaded, to be attached to the portion *T²* of the coupling, said stopper being provided with an elongated chamber, *u*, in order to insure a vertical column of oil, which will extend above the surface of the condense-water in the condenser, and thus insure a steady and certain flow of oil.

The operation of my improved lubricator is as follows: Steam enters the stem of the lubricator, and flows upwardly through the central steam-pipe, and discharges into the upper portion of the condenser. The shell of the condenser serves to condense the steam, and the lower portion of the condenser is thus kept filled with condense-water. Oil is admitted to the oil-reservoir through the funnel-shaped pipe above the glass indicating-tube, and flows through the passage-way *r* leading to the oil-reservoir. By opening the valve governing the flow of water to the feed-water chamber in the condenser, water is allowed to flow into the pipe depending into the oil-reservoir and fill the trap-pipe surrounding the same. Thus the lower end of the downwardly-projecting pipe in the oil-reservoir is always effectually water-sealed at its lower open end, and oil thereby prevented from entering said pipe and flowing into the condenser.

As the water flows over the top of the trap-pipe it sinks to the bottom of the oil-reservoir and displaces an equal quantity of oil, which latter flows into the central oil-feeding pipe through the opening *w* in the upper end thereof. The displaced oil flows downwardly through

the annular space between the outer surfaces of the steam-pipe and inner surface of the oil-feeding pipe, and is subjected to sufficient degree of heat to cause the oil to readily flow to the lubricator-stem. The displaced oil continues its downward course through the oil-passage in the stem of the lubricator and through the inverted siphon-pipe situated in the depending glass cylinder. This cylinder is filled with condense-water resulting from its direct connection with the steam-pipe, whereby steam is allowed to flow directly into said glass cylinder and condense therein.

The oil issuing from the lower and shorter limb of the inverted siphon-pipe is caused to flow into the oil-conduit of the stem of the lubricator and from thence into the steam-supply, owing to the fact that the column of oil supplying the feed is of sufficient height to secure a greater pressure than is afforded by the comparatively short column of feed-water.

The column of oil extends from the bend in the lower portion of the inverted siphon-pipe to the openings in the top of the oil-feeding pipe in the oil-reservoir. In fact, the oil-column may extend upwardly within the bore of the stopper located in the funnel-shaped pipe through which oil is admitted to the lubricator, whereby the column of oil extends above the surface of water in the condenser, owing to the fact that the elongated chamber in the stopper extends above the discharge-opening in the condensing-chamber of the lubricator.

The glass tube or cylinder through which the oil is fed from the lubricator allows the attendant to watch the rapidity of the feed as the drops of oil ascend through the water, and the feed can be regulated either by the valve governing the flow of feed-water to the oil-reservoir or by the valve governing the flow of oil from the oil-reservoir to the glass reservoir.

It is evident that many slight changes in the construction and arrangement of parts may be resorted to without departing from the spirit of my invention, and hence I do not limit myself to the exact construction shown and described; 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 an oil-reservoir, of a condenser constructed with a division-plate provided with a stuffing-box formed solid therewith, substantially as set forth.

2. In a lubricator, the combination, with an oil-reservoir and a stem provided with a steam-passage, of a condenser constructed with a division-plate having a stuffing-box formed integral therewith, and a steam-pipe connecting at its lower end with the steam-passage in the stem of the lubricator, while its upper end extends through the stuffing-box and projects upwardly into the condenser, substantially as set forth.

3. In a lubricator, the combination, with an oil-reservoir and a condenser constructed with a stuffing-box formed solid therewith, of a steam-pipe extending through the oil-reservoir and stuffing-box, and an oil-feeding pipe which is arranged to serve as a gland to pack the steam-pipe, and also to secure the oil-reservoir to the condenser, substantially as set forth.

4. In a lubricator, the combination, with an oil-reservoir and a condenser provided with a stuffing-box, of a steam-pipe for conveying steam through the oil-reservoir and discharging it into the condenser, and an oil-feeding pipe surrounding the steam-pipe and serving to convey the oil from the upper portion of the oil-reservoir to the oil-regulating valve in the stem of the lubricator, substantially as set forth.

5. The combination, with a water-pipe de-

pending from the condenser into the oil-reservoir of a lubricator, of a pipe formed with a closed lower end, which rests upon the bottom of the oil-reservoir, and receives within its upper end the lower end of said depending water-feed pipe, the two pipes being disconnected, substantially as set forth.

6. In a lubricator, the combination, with the oil-reservoir and condenser, of a glass indicator provided with a hollow stopper for admitting oil above the surface of the water in the condenser, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of April, 1879.

CHARLES H. PARSHALL.

Witnesses:

DONALD BREMNER,
W. M. LILLIBRIDGE.