(No Model.)

R. T. CRANE.

LUBRICATOR FOR STEAM ENGINE CYLINDERS.

No. 315,128. Patented Apr. 7, 1885.

Fig. 1.

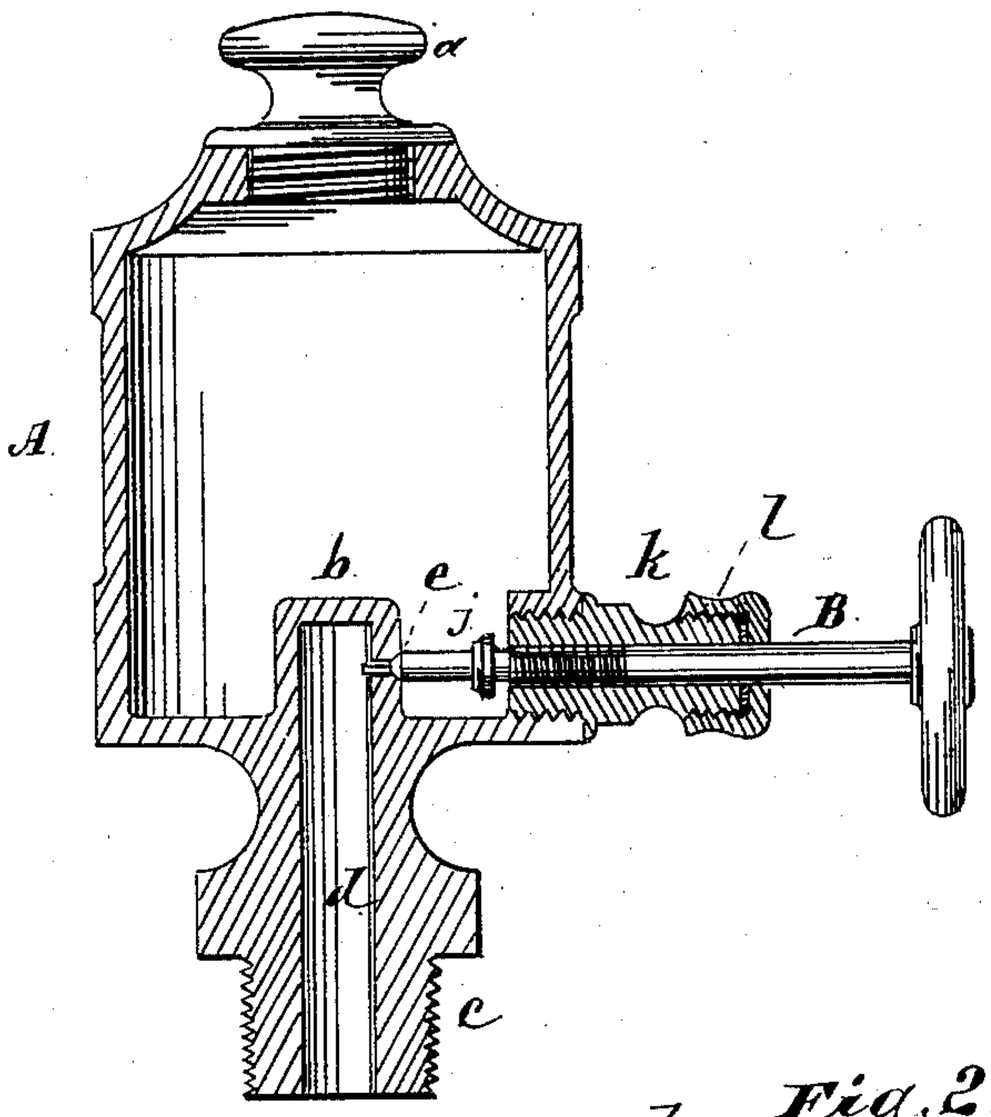

Fig. 2.

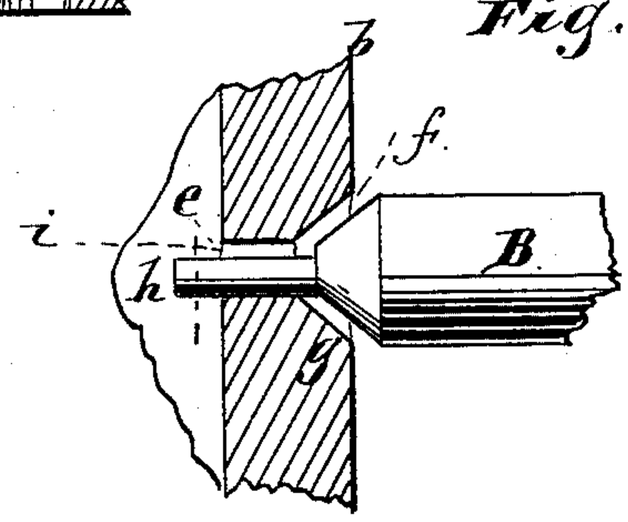

Fig. 3.

Fig. 4.

Witnesses:

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RICHARD T. CRANE, OF CHICAGO, ILLINOIS.

LUBRICATOR FOR STEAM-ENGINE CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 315,128, dated April 7, 1885.

Application filed November 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, RICHARD T. CRANE, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Lubricators for Steam-Engine Cylinders, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section. Figs. 2 and 3 are enlarged details; Fig. 4, a modification.

The leading object of my invention is to construct lubricators for steam-engine cylinders, so that a uniform quantity of oil will flow when the valve is open, and so that the flow can be entirely cut off, if desired, no provision being required for regulating the flow so that it will be at one time greater than another. A further object is to construct the valve in such a manner that while a very small opening is used for the passage of oil it can be readily cleaned in case it becomes choked by any accumulation therein; and these objects I accomplish by the construction and combination of devices hereinafter described and claimed, as illustrated in the drawings.

In the drawings, A represents an oil-chamber. *a* is a removable cap or cover. *b* is an upward projection from the bottom of the oil-chamber; *c*, a screw-threaded end by which the device can be connected with the steam-chest; *d*, a passage communicating with the steam-chest and extending up into the projection *b*, but not through the same. *e* is a hole in the wall of the upward projection *b*. *f* is a valve-seat in such wall. B is the valve-stem. The end proper, *g*, of the stem B fits the valve-seat *f*. *h* is a projection from the end of the valve-stem B, which projection is in the form of a smooth cylinder, and is of uniform diameter from end to end, fitting the hole *e*, except that this projection *h* is flattened upon one side, as shown in Fig. 3, thus leaving a small passage, *i*, for the flow of oil. *j* is a fixed collar on the stem B. *k* is a metal plug, which is secured by a screw-thread into the wall of the oil-chamber, and is screw-threaded on the inside to receive a screw-thread upon the valve-stem B. *l* is a stuffing-box.

The operation is as follows: When the end of the valve-stem B is in contact with the valve-seat *f*, as shown in Fig. 1, the flow of oil from the chamber A to the steam-chest will be entirely cut off. If the valve be drawn out a little, so as to open a passage-way between the part *g* and the valve-seat *f*, as shown in Fig. 2, the oil will flow through such passage to and through the small opening *i*, between the cut-away portion of *h* and the wall of the hole *e*, and will pass through the passage *d* to the steam-chest. The passage *i* is to be originally made of such capacity as to allow of the passage of the desired quantity of oil, and the size of this passage having been once determined will always remain uniform, except the same be choked by some accumulation therein, and hence a uniform quantity of oil will always flow through such passage, no provision being required for regulating and varying the quantity of oil which will flow through *i*, it being the intention always to open the valve sufficiently to bring the collar *j*, which serves as a stop, in contact with the inner end of the plug *k*. It will be desirable to occasionally remove the valve for the purpose of cleaning the recessed or flattened portion of the small stem *h*, and this can be done as often as may be desired or necessary.

The flattened part of the projection *h* may be as in Fig. 3 or as in Fig. 4; but in either event the edges formed by the flattened part will, during the rotation of the projection, act to clean the oil-passage *e*. The flow of oil can be wholly cut off by the valve, but not regulated—that is to say, the flow is uniform at all times whenever the valve is moved from its seat, which is due to the fact that the projection *h* is of uniform diameter from end to end. The rotation of the part *h* in the hole *e*, as the valve is opened and closed, will prevent any accumulation upon the wall of the hole *e*, and it will be very easy to occasionally clean the flattened or cut-away part of *h*, so that under all ordinary conditions there will be a uniform flow of oil when the valve is open. To clean the part *h* the valve can be removed.

Heretofore the passage for the supply of oil in lubricators has been made very much too large, (often two thousand times too large,)

and a valve has been relied on to regulate the quantity of oil flowing; but it is impossible to properly regulate the flow through such large opening.

By providing a very small hole for the passage of oil in combination with the valve, which does not regulate, but only cuts off the flow of oil to the outlet-passage or admits it to such passage, I provide against any material waste. It may not be easy to make the small oil-passage of exactly the proper size, but it can readily be made to approximate the required size, so that there will be a sufficient flow of oil without great waste.

My improvement, while primarily designed for use in lubricating steam-engine cylinders, may also be used for any other purpose to which it is adapted.

What I claim as new, and desire to secure by Letters Patent, is—

In a steam-engine lubricator, an oil-chamber provided with an outlet-passage, *e*, and a valve-seat, in combination with a valve provided with a projection or extension, *h*, of uniform diameter from end to end, and also flattened or cut in a straight line from end to end, fitting the passage *e*, except upon one side, whereby when the valve is moved from the valve-seat there will be a small open passage, *i*, for the flow of oil from the oil-chamber to the part to be lubricated, substantially as and for the purpose specified.

RICHARD T. CRANE.

Witnesses:
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