

C. B. TRUESDELL.

Steam-Engine Cylinder-Lubricators.

No. 148,265.

Patented March 3, 1874.

Fig. 1.

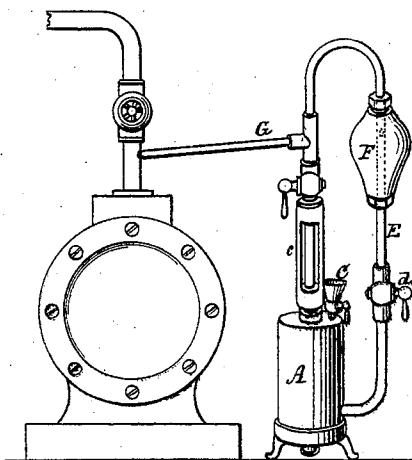
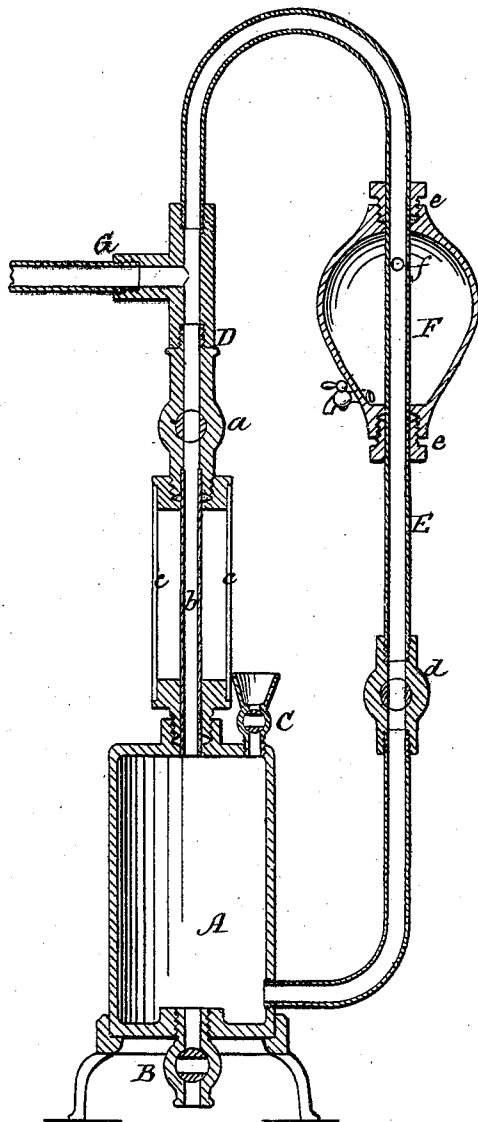


Fig. 2.



Witnesses.  
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CALVIN B. TRUESDELL, OF APPONANG, RHODE ISLAND.

## IMPROVEMENT IN STEAM-ENGINE CYLINDER LUBRICATORS.

Specification forming part of Letters Patent No. 148,265, dated March 3, 1874; application filed February 9, 1874.

*To all whom it may concern:*

Be it known that I, CALVIN B. TRUESDELL, of Apponang, in the county of Kent and State of Rhode Island, have invented certain new and useful Improvements in Steam-Engine Cylinder Lubricators.

My improvements relate generally to that class of lubricators in which the lubricating matter is forced from the supply-tank containing it toward the steam-cylinder by the pressure of a column of water, which is supplied continuously by condensation of direct steam. My invention consists in combining with the water-pipe, which contains the forcing column, an adjustable condenser, whereby the supply of condense-water may be increased or lessened, for the purpose of automatically increasing or lessening in a corresponding manner the flow of oil to the steam-pipe or steam-chest on its way to the cylinder; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear and true description of an apparatus embodying my invention.

Referring to the drawings, Figure 1 represents in perspective one of my lubricators, as if in proper relation to a steam-engine cylinder. Fig. 2 represents the same in vertical section.

A denotes the supply-chamber for receiving the oil in such quantities as will obviate the waste and inconvenience incidental to the frequent applications and recharging as ordinarily practiced. It should, of course, be made of metal, and have sufficient strength to withstand the pressure incidental to its use. As my lubricator is as a whole a distinct and separate apparatus, and as the tank affords in itself a suitable base for sustaining it in a vertical position, I provide it either with a broad flat bottom or base, or with a standard mounted on legs, as shown in the drawings. B denotes a discharge-tap, which is located in the lower end of the tank, and enters it through a raised center in the lower head. Should any packing be employed at said tap, of which oil is a destructive agent, it will be seen that as the annular recess surrounding said center will always be filled with water, the oil will be thereby kept from contact with

said packing. C denotes the supply-tap in the upper head of the tank. It may be combined with a cup-like device for effecting a ready induction of oil, or it may be a simple screw-plug, which, on being removed, will admit of the insertion of a funnel. D denotes the oil-pipe, which communicates through the top with the interior of the tank, and is supported vertically thereby. It is provided, preferably, with a cock, as at *a*, for affording a ready means of determining when the supply of oil is exhausted. I prefer to make the lower portion of said oil-pipe in whole or in part of strong clear glass, as at *b* in the drawings. For the purpose of protecting the same from injury it should be guarded by a skeleton cage, as at *c*. E denotes the water-column pipe. It may enter the tank at one side near the bottom, or extend below it, and curving upward enter through the lower head. A cock, as at *d*, should be provided for use with cock *a* when the tank is to be recharged. F denotes an adjustable condenser, composed preferably of thin brass or copper, and having sufficient strength to resist the pressure of steam to which it is necessarily subjected. At each of its ends are threaded sleeves *e* and stuffing-boxes, which encircle the water-pipe E, on which the condenser is mounted, and entirely through which it extends. By loosening up the boxes the condenser can be adjusted vertically on the water-pipe and fixed in any desired position. Within the condenser, and covered by it, is an opening, *f*, in the water-pipe E. G denotes the conducting-pipe, which connects the apparatus with the steam-pipe or steam-chest, and through which steam passes to the apparatus, and also through which oil passes on its way to the engine. In practice, the point at which this pipe enters the steam-pipe or steam-chest should be sufficiently lower than its junction with the apparatus and the pipe properly inclined to secure a ready downward flow of oil. It will be seen, too, that the opening *f* in pipe E within condenser F is somewhat higher than the junction of steam-pipe G with pipes D and E.

The apparatus, as described, may be placed on the floor of the engine-room adjacent to the engine or mounted on a shelf on the adjacent wall, and having been properly connected, will

be operated as follows: The cocks *a* and *d* being closed, as well as the tap B, the supply-tap C is removed, the tank filled, and tap C replaced. Cocks *a* and *d* are then opened. The direct steam, filling the pipes D and E, forces the oil to find a common level in both pipes. The condenser F is also filled with steam, and, owing to the great area of its interior surface, the steam is rapidly condensed, and when the water of condensation reaches the opening *f* it enters the pipe E. As this latter pipe becomes filled, the oil in tube D rises to the same level, and before the pipe E has been completely filled oil will commence flowing from the column in pipe D into the inclined steam-pipe G, down which it flows to steam-pipe or steam-chest, and thence to cylinder with the live steam.

It will be seen, if the condenser F be placed so low that its interior surface will be closely adjacent to the opening *f* in pipe E, that on its being filled to that point with the water of condensation, but little condensing-surface will be presented, and therefore the condensing operation will proceed slowly, and the discharge of oil from the tank be proportionate to the quantity of water so produced. On the contrary, if the condenser be raised so that its lower interior surface will be closely adjacent to the opening *f*, its entire condensing-surface will be utilized and condensation rapidly effected; and in proportion as the water is supplied will the oil be discharged from the tank to the engine.

Having determined the requisite condensing-surface, the oil will be automatically discharged with uniformity. Should intermittent applications of oil be desired, instead of a continuous discharge, the cock *a* may be kept generally closed and opened only at intervals. When the oil has all been driven from the tank the fact will be promptly observable at the glass portion of the tube. In order that it may be known how rapidly the oil is being discharged, the common well-known glass gage with indicators, may be attached to the outside of the tank. When the oil has been wholly discharged the water contained in the tank may be discharged through tap B, and the tank be recharged in the manner indicated.

The condenser may be provided with a cock, which, on being left partially open, will allow the water to drip therefrom if at any time condensation should be too rapid and cause a too liberal discharge of oil.

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

An adjustable condenser, in combination with a lubricating apparatus, substantially as described.

CALVIN B. TRUESDELL.

Witnesses:

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