

(No Model.)

J. ELLIS.  
LUBRICATOR.

No. 368,283.

Patented Aug. 16, 1887.

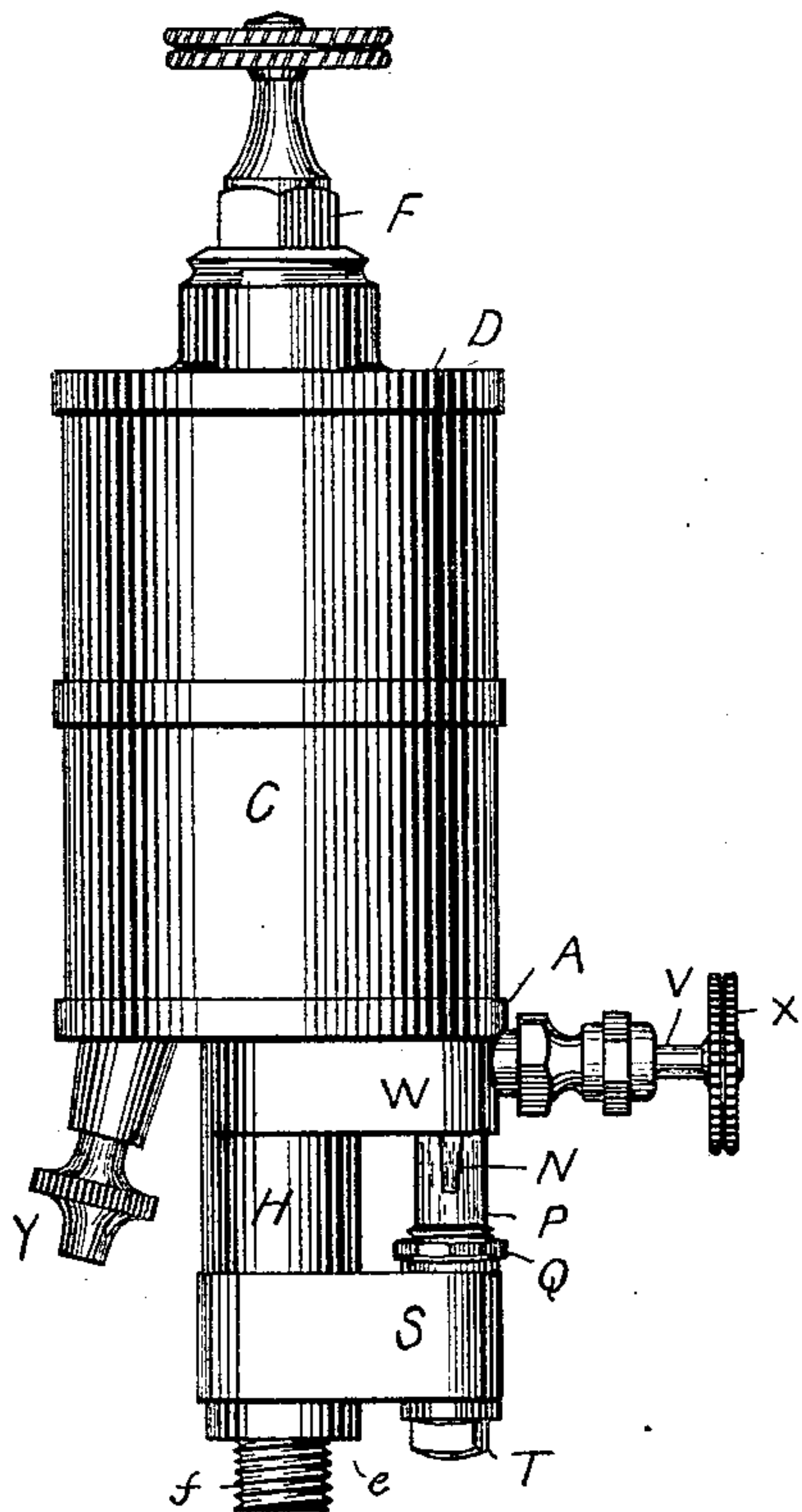


Fig. 1.

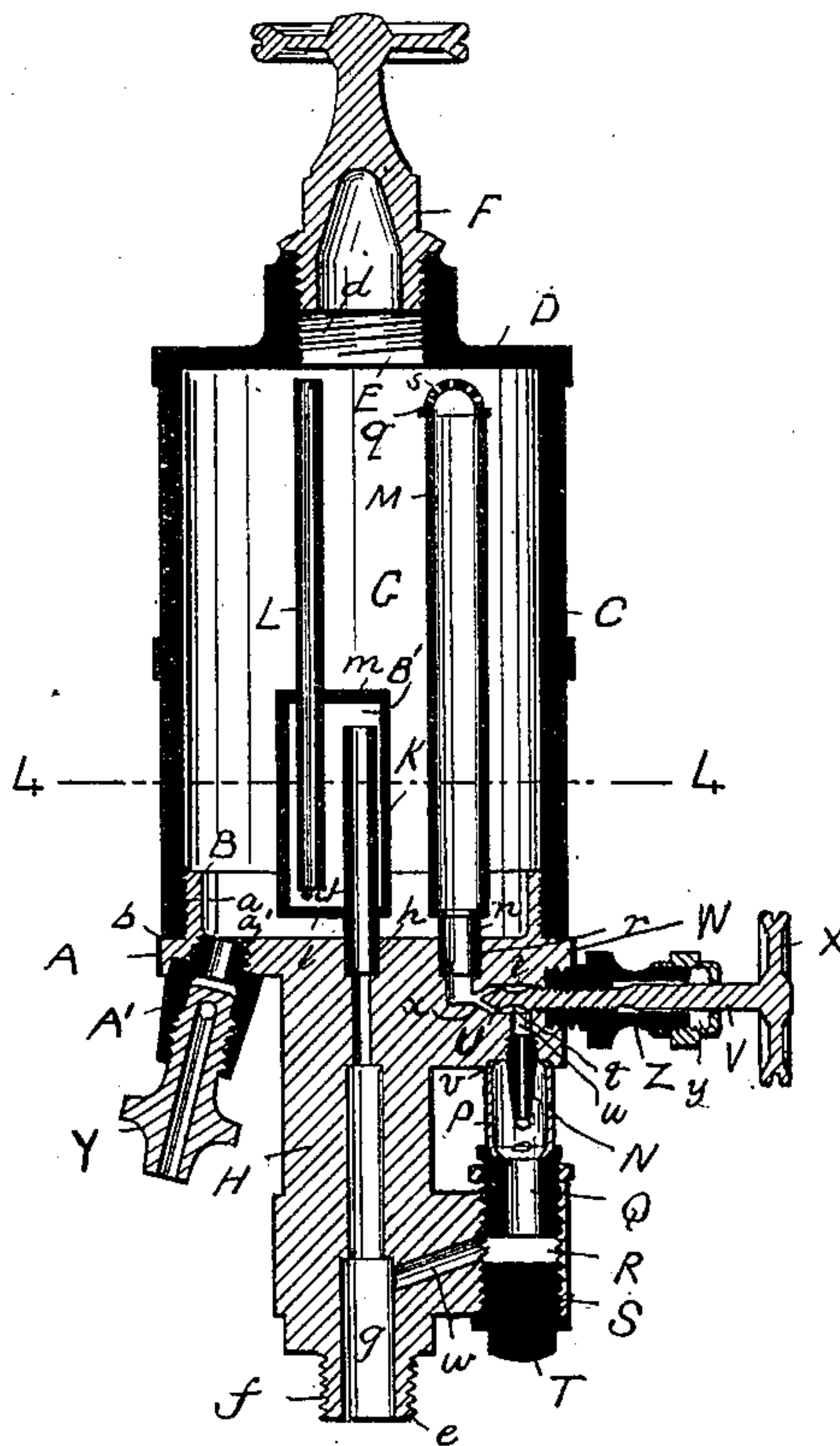


Fig. 2.

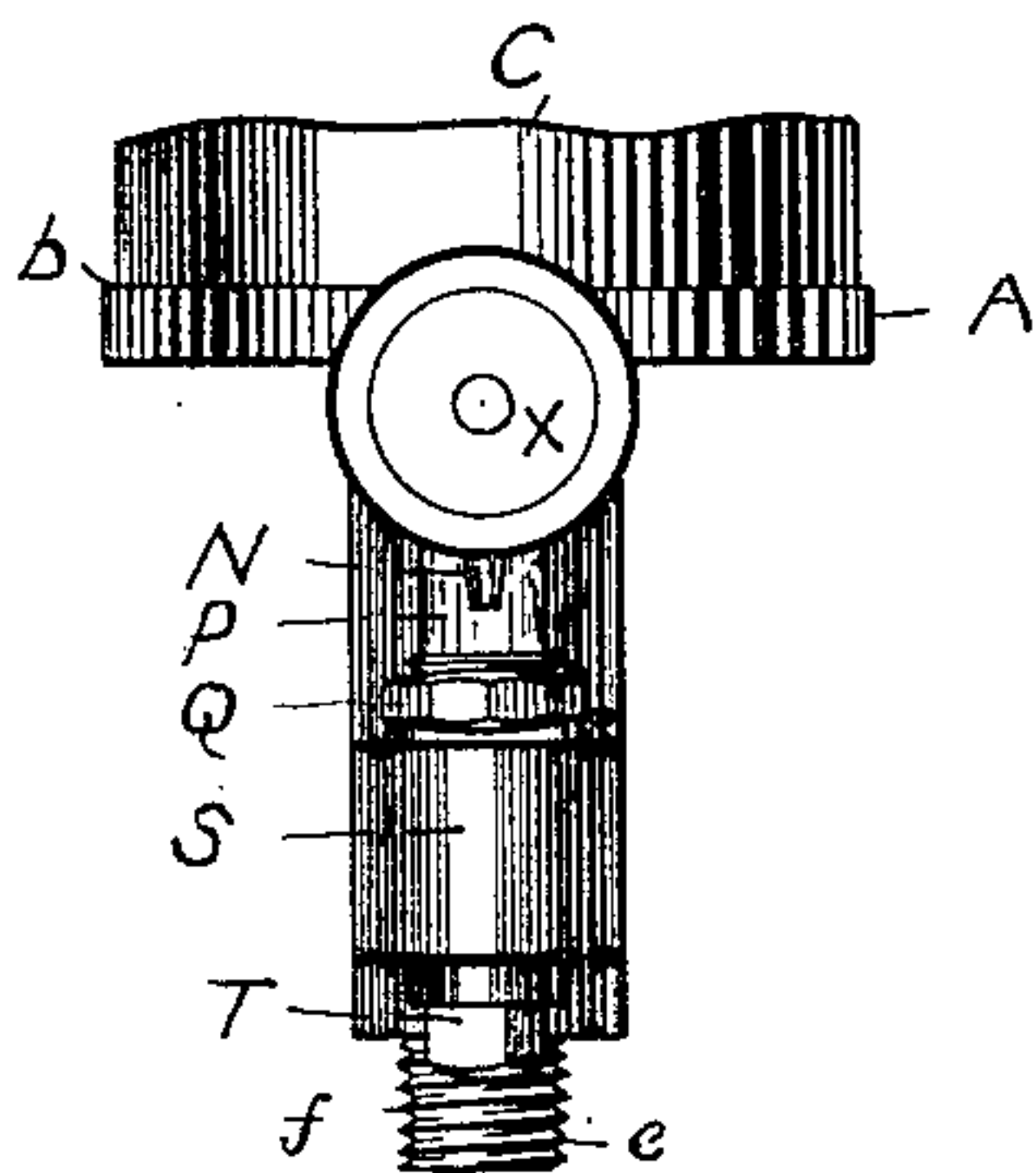


Fig. 3.

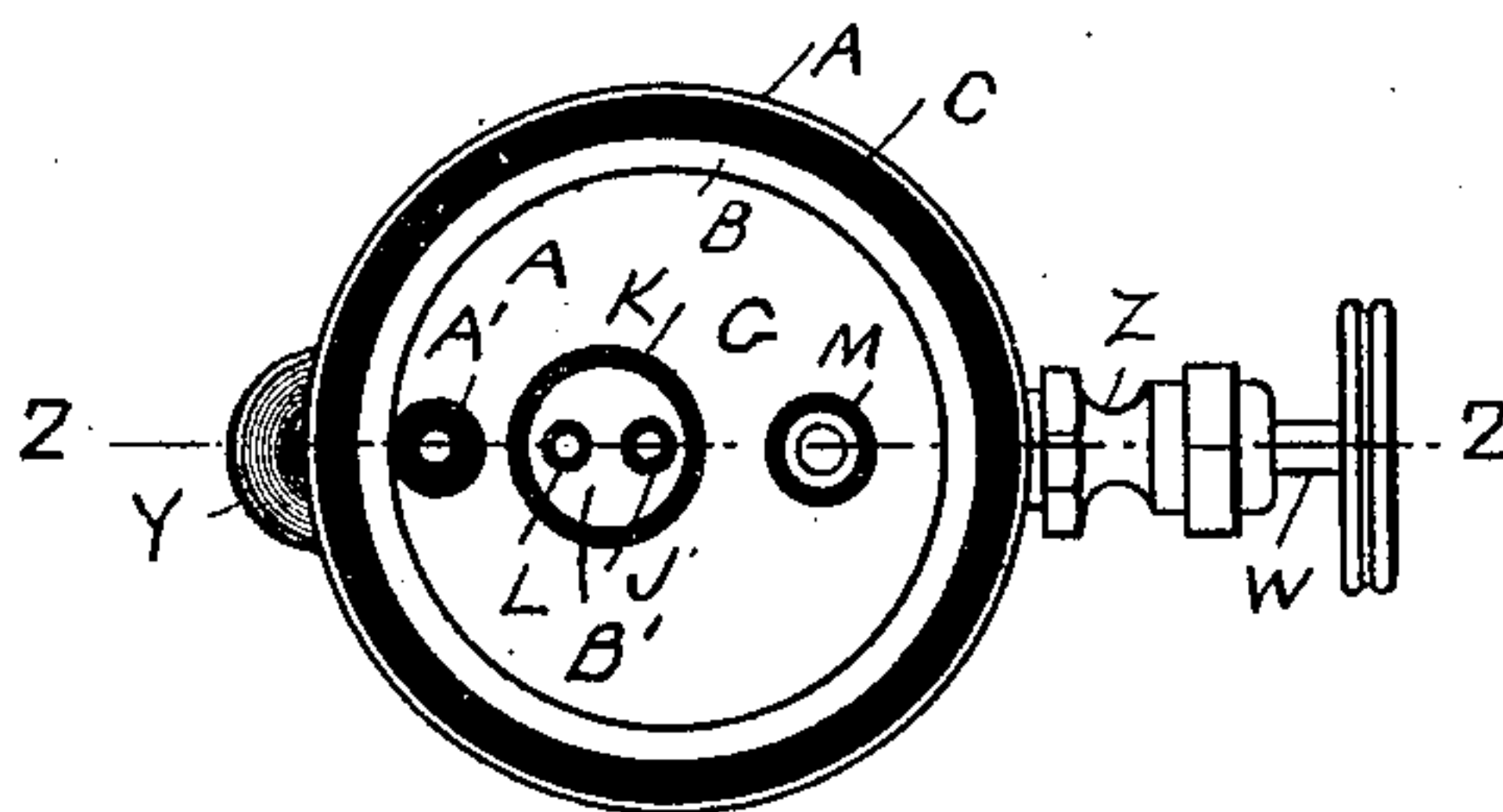


Fig. 4.

WITNESSES  
*Percy Bryant*  
*Elbridge Harris*

INVENTOR  
*John Ellis.*  
PER  
*Edwin W. Brown.*  
Attorney



# UNITED STATES PATENT OFFICE.

JOHN ELLIS, OF LYNN, MASSACHUSETTS.

## LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 368,283, dated August 16, 1887.

Application filed October 30, 1886. Serial No. 217,602. (No model.)

*To all whom it may concern.*

Be it known that I, JOHN ELLIS, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Lubricators for Cylinders of Steam-Engines, of which the following is a full, clear, and exact description.

This invention relates to improvements in lubricators particularly adapted for steam-cylinders of steam-engines; and the invention consists of certain construction and arrangement of parts in a lubricators for steam-cylinders of steam-engines for operation, all substantially as hereinafter fully described, reference being had to the accompanying sheet of drawings, in which—

Figure 1 is a side view of a lubricator for a steam-cylinder of a steam-engine constructed and arranged for operation in accordance with this invention, Fig. 2 being a central vertical section on line 2 2, Fig. 4; Fig. 3, a detail side view of the lower portion turned a quarter round from the view of Fig. 1; Fig. 4, a horizontal cross-section on line 4 4, Fig. 2.

In the drawings, A represents a base having a circular upwardly-extending flange or rim, B, having an external screw-thread, *a*, on which is screwed the cylinder or casing C, screwing down close upon the shoulder *b* of the base to make a tight joint. This cylinder or casing C is closed by its top D, which has a central opening, E, having an internal screw-thread, *d*, in which is screwed the screw-plug F. When the cylinder C is in place on the base A, it makes a chamber, G, for the oil, and it is filled at the opening E by removing the plug F.

The base A has a downward central extension portion, H, its lower end, *e*, having an external screw-thread, *f*, by which the lubricator can be attached to the steam-pipe leading to the steam-cylinder, or to the steam-cylinder direct, as desired. This portion H has a central vertical passage, *g*, which extends from its end *e* up and through the base, and in its upper end, *h*, is screwed or secured in any suitable manner a small vertical pipe or tube, J. This pipe or tube J passes up through the bottom *l* (to which it is secured) of a small closed cylinder, K, in the oil-chamber G, the upper end of the pipe terminating near the top *m* of the cylinder K. Secured to and ex-

tending through the top *m* of this cylinder K is a tube or pipe, L, reaching from near the bottom *l* nearly to the top D of the oil-chamber G, all as shown in section in Fig. 2.

M is a vertical pipe or tube, preferably of larger area in cross-section than the tubes J or L, and its lower end, *n*, is screwed into or secured in any suitable manner in a socket, *r*, in the base A, and it extends nearly to the top of the oil-chamber G, its upper end having a head or cap, *q*, adapted to be screwed thereon, and having perforations *s* through it. The cap can be made integral with the tube in lieu of detachable. It is preferable, however, to have it detachable. This pipe or tube M communicates by the socket *r* with a short horizontal passage, *t*, which opens into a vertical passage, *u*, having a small tube, N, secured therein, its lower end projecting into a vertical glass tube, P, secured between a shoulder, *v*, and an external threaded sleeve or tube, Q, screwing up through an opening, R, in a side projection, S, of the lower portion, H, of the base, which holds the glass tube firmly and tightly in place. A passage, *w*, leads from the opening R below the sleeve Q into the central vertical passage, *g*. The opening R, in which is screwed the sleeve Q, is closed at its bottom end by a screw-plug, T. The horizontal passage *t* is reduced in area where it communicates with the socket or passage *r*, forming a seat, *x*, for a valve, U, on the end of a rod, V, adapted to be screwed into the plug Z, screwed in the side projection, W, and having the usual packed joint at *y* to prevent leakage, the valve having a head, X, by which to operate it.

Y is a screw-plug screwing into an opening in a plug, A', which is screwed into an opening, *a'*, in the base, by which the water or oil, &c., can be withdrawn from the chamber G as desired.

The operation is as follows: With the lubricator properly secured in place on the steam-pipe leading to or on the steam-cylinder itself, as desired, its chamber G is filled with oil, the screw-plugs Y and F closed, and the valve U opened, and steam then let in from the steam-cylinder to the passage *g*, which passes up through such passage into the pipe J, out at its upper end into the chamber B' of the small cylinder K, filling the same and condensing therein, which condensation then passes up



through the tube L, out at its upper end into the chamber G, down and through the oil to the bottom of the chamber, raising the oil in the chamber and forcing and pressing it through the perforations in the cap *q*, down through its pipe or tube M into the socket *r*, and passages below in communication therewith to the tube N, from which it drops drop by drop into the glass tube and sleeve Q, and thence flows through the passage R into the vertical passage *g* to the steam-cylinder and lubricates the necessary parts. The flow of the oil from the oil-chamber is controlled and regulated by the valve *t* by turning it out or in, according to the amount of oil desired to be passed to the cylinder.

When the oil-chamber becomes too full of the condensed steam, it can be drawn off by unscrewing the plug Y.

Among the advantages of this invention may be mentioned the following: The condensing-chamber B' is of such large area or capacity in comparison with the area or capacity of its inlet and outlet tubes and with their arrangement for communication therewith that condensation of the steam is insured to a great degree; also, the receiving end of the outlet-tube for the oil to pass to the steam-cylinder, being at the top of the oil-chamber, insures the oil only passing through the same, as the condensation is at or near the bottom of the oil-chamber, its perforated end straining the oil, preventing dirt or sediment from passing into the tube, which is also prevented more or less by the upper end of the tube being at the top of the oil-chamber; also, the large diameter of this tube insures that the oil, which passes

through it before it leaves the tube, will become free, clear, and settled, and not mixed with foam, &c., which is caused more or less from the heating of the oil by the steam.

The lubricator is made of brass or of any suitable material, and is adapted for lubrication of other machinery, as well as steam-cylinders of steam-engines particularly referred to; also, the parts can be connected and secured together in any suitable manner other than as herein particularly shown.

Having thus described my invention, what I claim is—

1. In a lubricator, the combination, with its oil-chamber, of a steam-condensing chamber within said oil-chamber, having an inlet-tube in communication with a steam-supply extending nearly to the top of said condensing-chamber and an outlet-tube leading from near its bottom into the oil-chamber, and terminating near the top of said oil-chamber.

2. In a lubricator, the combination, with its oil-chamber having an outlet near its top, of a steam-condensing chamber within the oil-chamber, having an inlet-tube in communication with a steam-supply extending nearly to the top of said condensing-chamber and an outlet-tube leading from near its bottom into the oil-chamber and terminating near the top of said oil-chamber.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN ELLIS.

Witnesses:

EDWIN W. BROWN,  
PERCY BRYANT.