

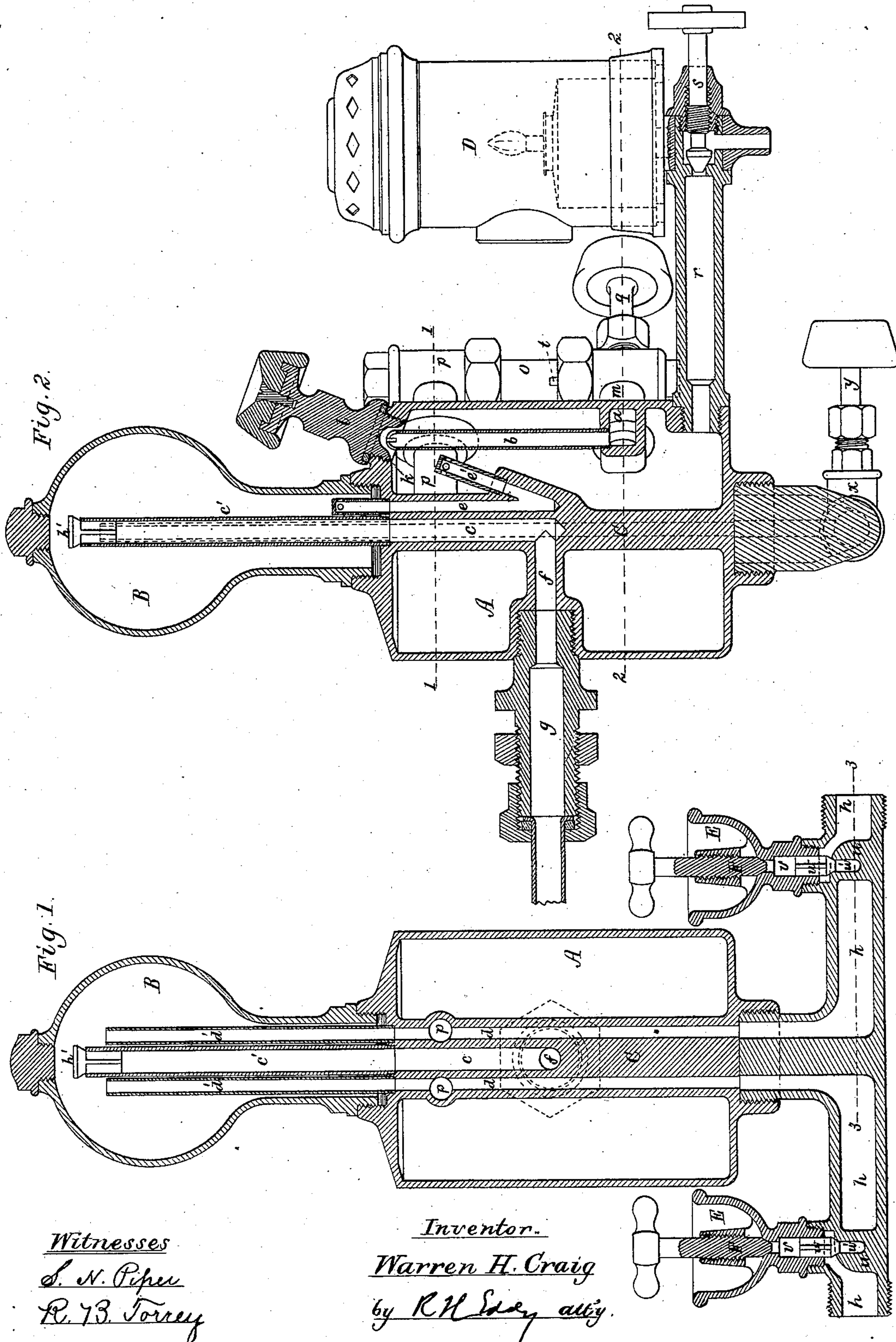
(No Model.)

2 Sheets—Sheet 1.

W. H. CRAIG.
LUBRICATOR FOR LOCOMOTIVES.

No. 367,370.

Patented Aug. 2, 1887.



Witnesses
S. N. Piper
R. B. Torrey

Inventor.
Warren H. Craig
by R. H. Sney atty.

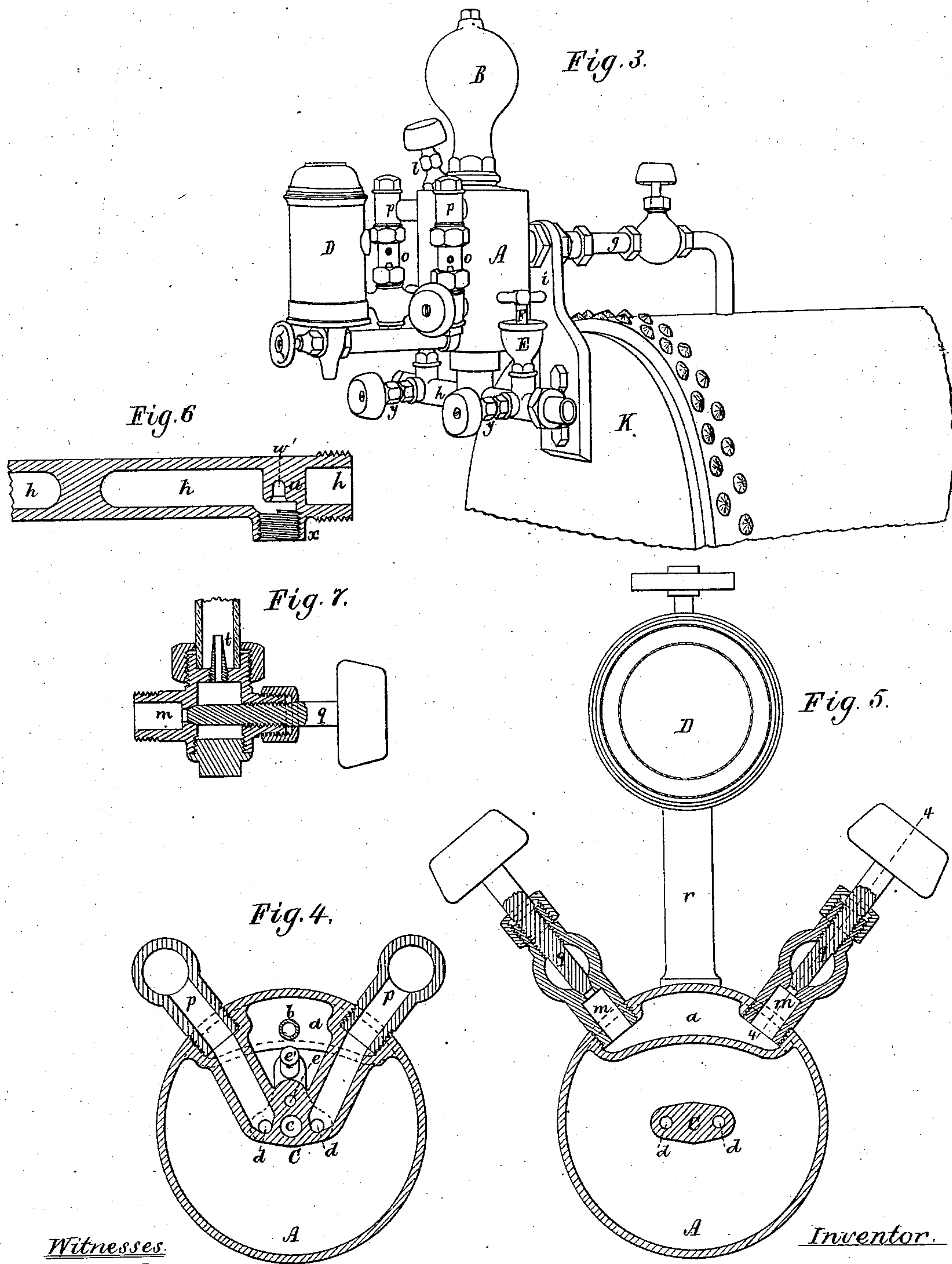
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UNITED STATES PATENT OFFICE.

WARREN HILLIARD CRAIG, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR,
BY MESNE ASSIGNMENTS, TO HIMSELF AND DAVID FRANKLIN ROBIN-
SON, OF SAME PLACE.

LUBRICATOR FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 367,370, dated August 2, 1887.

Application filed March 23, 1887. Serial No. 232,172. (No model.)

To all whom it may concern:

Be it known that I, WARREN HILLIARD CRAIG, of Lawrence, in the county of Essex, of the Commonwealth of Massachusetts, have
5 invented a new and useful Improvement in Lubricators for Railway-Locomotive Steam-Engines; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of
10 which—

Figure 1 is a vertical and median section of a lubricator for oiling both the engine-cylinders and their valves and pistons, the plane of such section being taken through the line of
15 the axes of the oil-educts leading in opposite directions from such lubricator to the valve-chests of the said cylinders. Fig. 2 is a vertical and median section of the lubricator, the plane of such section being at right angles to that of Fig. 1. Fig. 3 is an elevation of the lubricator as applied to a boiler, and having
20 both its sight-feed chambers arranged so as to be seen by the engineer when in his usual position next the right side of the cab of the engine. Fig. 4 is a horizontal section taken on
25 line 1 1 of Fig. 2. Fig. 5 is another horizontal section taken on line 2 2 of Fig. 2. Fig. 6 is a horizontal section taken on line 3 3 of Fig. 1. Fig. 7 is a vertical section taken on
30 line 4 4 of Fig. 5, and showing the passages or parts leading to one of the sight-feed glass tubes.

The nature of my invention is duly defined in the claims hereinafter presented.

35 In my improved lubricator the two sight-feed glass tubes of it are arranged at one side of the oil-reservoir, rather than on opposite sides thereof, as is the usual custom, my arrangement of them being to admit of both be-
40 ing readily seen by the engineer when at his post in the cab of the engine, such post being close to the right side of the cab, the usual arrangement, in which the reservoir is directly between the two sight-feed tubes, causing one
45 of them to be behind and so covered by the reservoir as to be out of sight of the engineer, who to obtain a view of it has to leave his position.

In the drawings, A denotes the oil-reservoir,

and B the steam-condenser, of the lubricator. 50
In the lower part and on one side of the oil-reservoir is a pocket or chamber, *a*, (see Figs. 2, 4, and 5,) from the middle part of which a tube, *b*, rises nearly to the top of the oil-reservoir and opens into such pocket and reser- 55
voir.

Extending up through the central part of the oil-reservoir is a post, C, in which are four passages, *c*, *d*, *d*, and *e*, which are arranged as represented in Figs. 1, 2, 4, and 5, the median 60
one, *c*, extending from the top of the post downward half or about half the length of such post, and opening into a tubular branch conduit, *f*, extending laterally from it to the side of the reservoir, and opening into a tubular sup- 65
porting-shank, *g*, through which steam from the boiler is to pass into the part *f*, and thence to and into the passage *c*, and thence through a tube, *c'*, into the condenser, the said tube *c'* being in continuation of the passage *c*, and at 70
top having in it a valve, *h'*, to open upward. The shank *g* is supported by a bracket, *i*, extending from the boiler K, (see Fig. 3,) such shank being to receive steam from such boiler, and also to serve as a support for the lubri- 75
cator.

The tube *c'* is between two other tubes, *d'* *d'*, whose upper ends are at a short distance below that of the tube *c'*. These tubes *d'* *d'* lead up- 80
ward into the condenser from the passages *d* *d*, which at their lower ends open into two branch educts *h* *h*, arranged as shown in Fig. 1, and leading to the two valve-chests of the steam-cylinders of the locomotive-engine.

The passage *e* leads from the lower part of the 85
condenser downward within the post C, and thence turns upward and opens into the oil-reservoir, all being as shown in Fig. 2, there being on the top of such oil-reservoir a filling-orifice, *k*, provided with a screw-plug, *l*, for 90
closing it.

From the pocket *a* two educts, *m*, are led in radial directions relatively to the oil-reservoir, as shown in Fig. 5. Each of such educts opens into one of the two lower vertical carriers or 95
supports of the two sight-feed glass tubes *o* *o*, whose upper vertical carriers or supports (shown at *p* *p* in Figs. 2 and 4) communicate

directly with the vertical passages *dd* in manner as represented in Fig. 4. To each educt *m* there is a stop-cock, *q*, (see Fig. 5,) to regulate the discharge of oil into the next adjacent sight-feed tube, and there is at the lower part of the oil-reservoir, and opening out thereof, a drainage-pipe, *r*, provided with a stop-cock, *s*. (See Fig. 2.) On and projecting upward from such drainage-pipe is fixed a lantern, *D*, which is arranged so as to illuminate both of the sight-feed tubes, the arrangement of it being as shown in Figs. 2 and 5.

The steam entering the lubricator through the inducts *g* and *f* passes into the ducts *c* and *c'*, and thence into the condenser *B*, from which the water of condensation flows by the ducts *e* and *e'* into the oil-reservoir, displacing the oil therein and causing it to flow into and down the pipe *b*, and thence into the pocket *a*. From the said pocket the oil passes into and up through the sight-feed glass tubes, it escaping into them through their induction-nipples *t* and flowing in drops up through such tubes or the water therein, and thence into the conduits *pp*, and thence into the steam-passages *dd* to and into the branch educts *hh*, by which the steam charged with the oil is conveyed to the valve-chests of the cylinders of the engine.

There is to each educt *h* a common oil-cup, *E*, having to its discharging-orifice a screw-plug, *F*. Within the tube *h*, and directly underneath each cup *E*, is a transverse partition, *u*, (see Figs. 1 and 6,) above which is a duct, *v*, leading to the discharging-orifice of the cup, and also into the part of the tube *h* which is in advance of the partition. Within such duct *v* is a valve, *w*, whose seat is at the top of a passage, *w'*, in the partition *u*, and opening into a branch, *x*, that communicates with the bore of the part of the tube *h*, which is in rear of the partition. There is to the branch *x* a screw-plug, *y*, (see Fig. 2,) to act against and close the mouth of the passage *w'*.

When the plug *F* is closed on its seat and the plug *y* is off its seat, no oil from the cup *E* can escape, the steam passing through the passages *h* and *w'* and forcing upward the valve; but when the plug *F* is off its seat and the plug *y* is closed on its seat oil from the cup can flow

into and through the pipe *h* to the valve-chest of the cylinder, the steam to the said chest and for operating the piston being at the time shut off.

In the apparatus as hereinbefore described, I claim—

1. The oil-reservoir provided with the central vertical tubular steam-induct leading into the condenser, and with the lateral branch or induct opening out of the lower part of the vertical one and through the side of the reservoir, all being essentially as set forth.

2. The combination of the tubular supporting-shank, having the steam-passage extending through it, with the oil-reservoir provided with the central vertical tubular steam-induct leading up from such reservoir into the condenser, and with the lateral induct opening out of the lower part of the vertical one, and extending to the side of the reservoir and opening into the said supporting-shank, all being essentially as set forth.

3. The oil-reservoir provided with the pocket in its lower part and at one side of it, as represented, and having thereto an oil-induction tube extending up from such pocket nearly to the top of the said reservoir, and also having the two educts leading from it (the said pocket) to the sight-feed glass tubes arranged in the same side of such reservoir, all being substantially as set forth.

4. The combination, with the oil-reservoir, of two sight-feed glass chambers or tubes arranged on one side only of and in the same horizontal plane with the oil-reservoir, substantially as and for the purpose represented.

5. A sight-feed lubricator having its two sight-feed glass chambers or tubes arranged at one side only of and on a level or in the same horizontal plane with the oil-reservoir, and also having its oil educts leading from it to the valve-chests of the engine-cylinders arranged to extend in opposite direction from the reservoir, as set forth.

WARREN HILLIARD CRAIG.

Witnesses:

R. H. EDDY,

R. B. TORREY.