

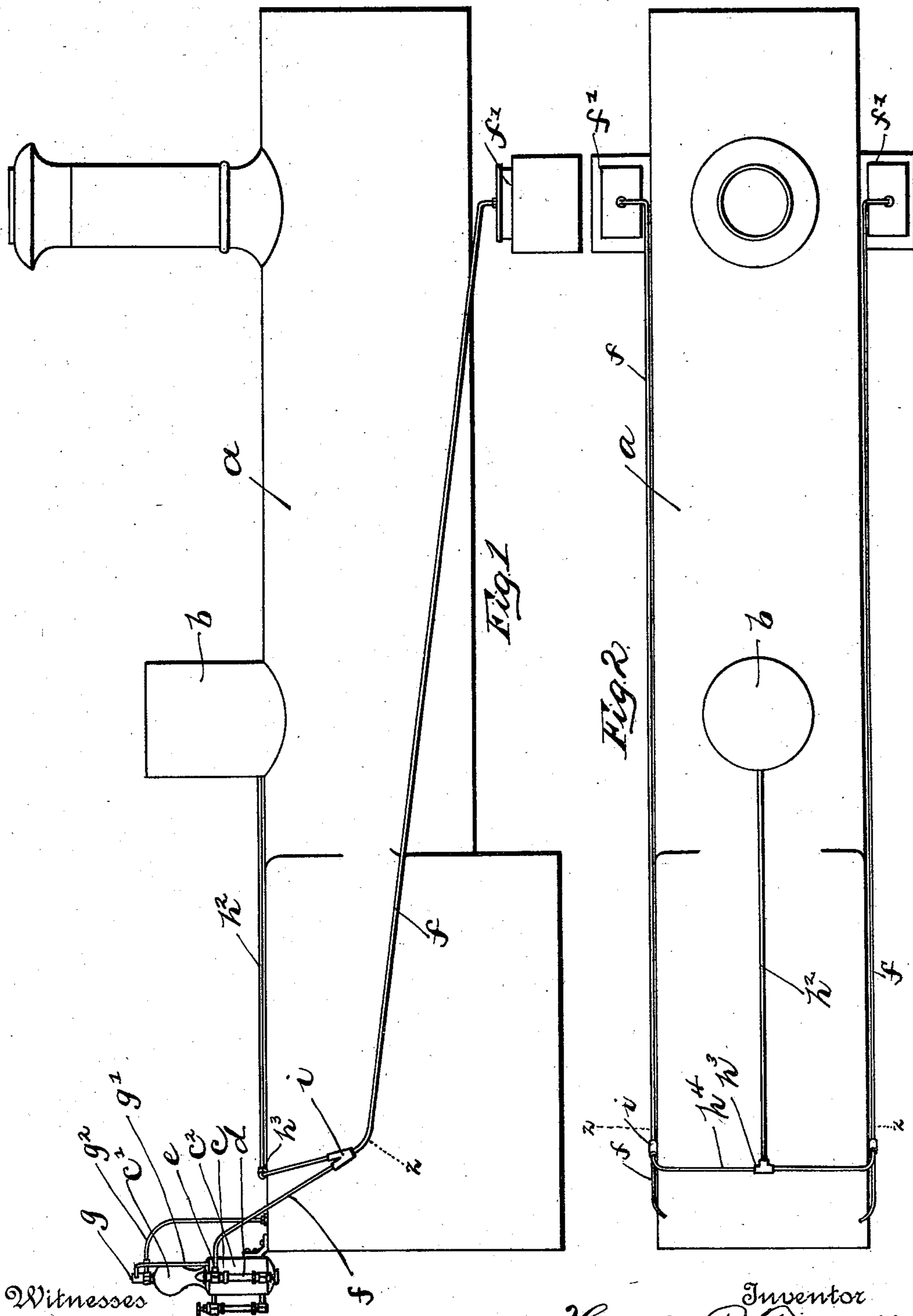
(No Model.)

2 Sheets—Sheet 1.

H. P. TIPPETT.
LUBRICATOR.

No. 556,074.

Patented Mar. 10, 1896.



Witnesses

C. B. Bradshaw
A. L. Phelps

Inventor

Harold P. Tippett.
By his Attorney C. C. Shepherd,

(No Model.)

2 Sheets—Sheet 2.

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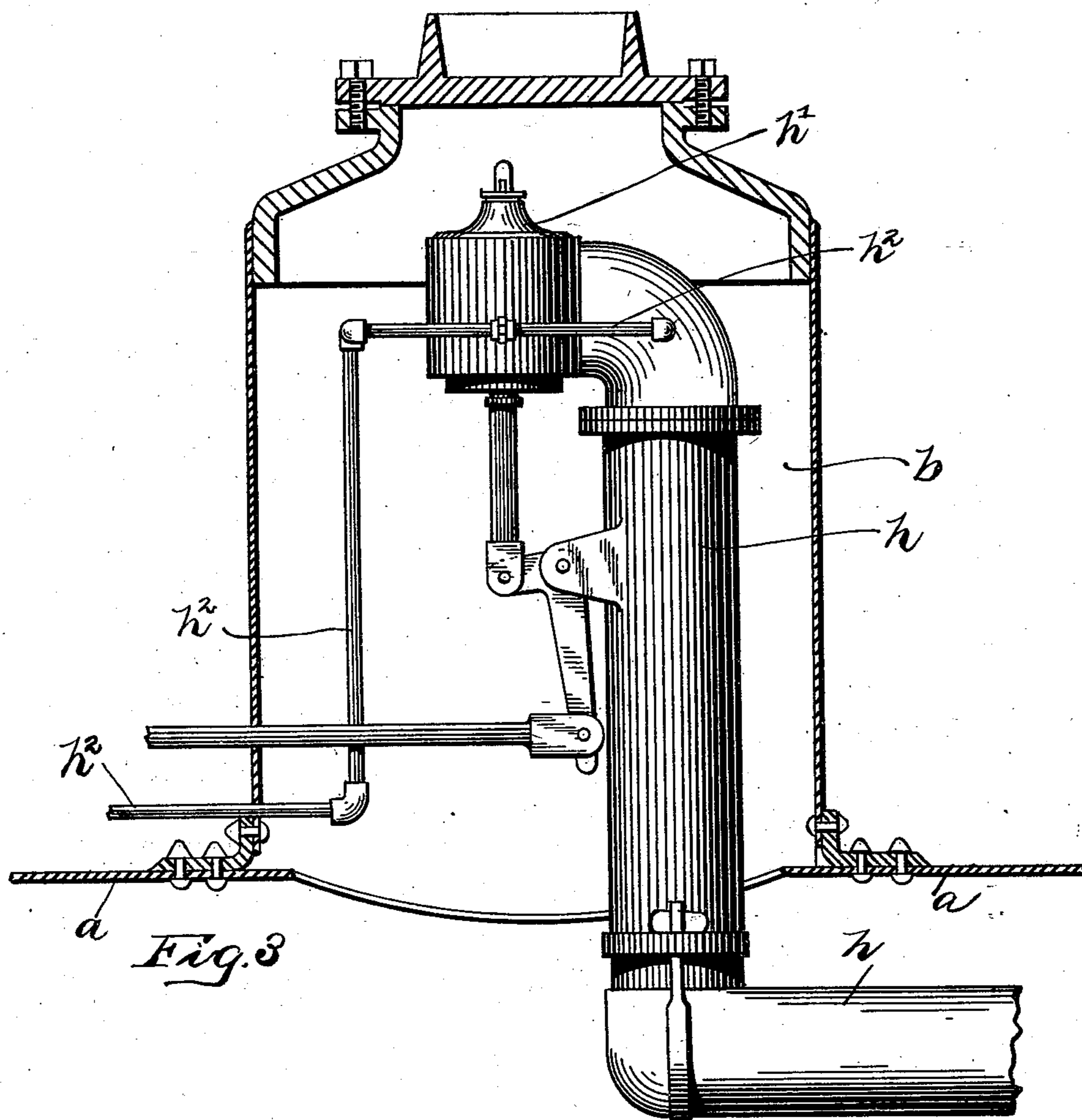


Fig. 3

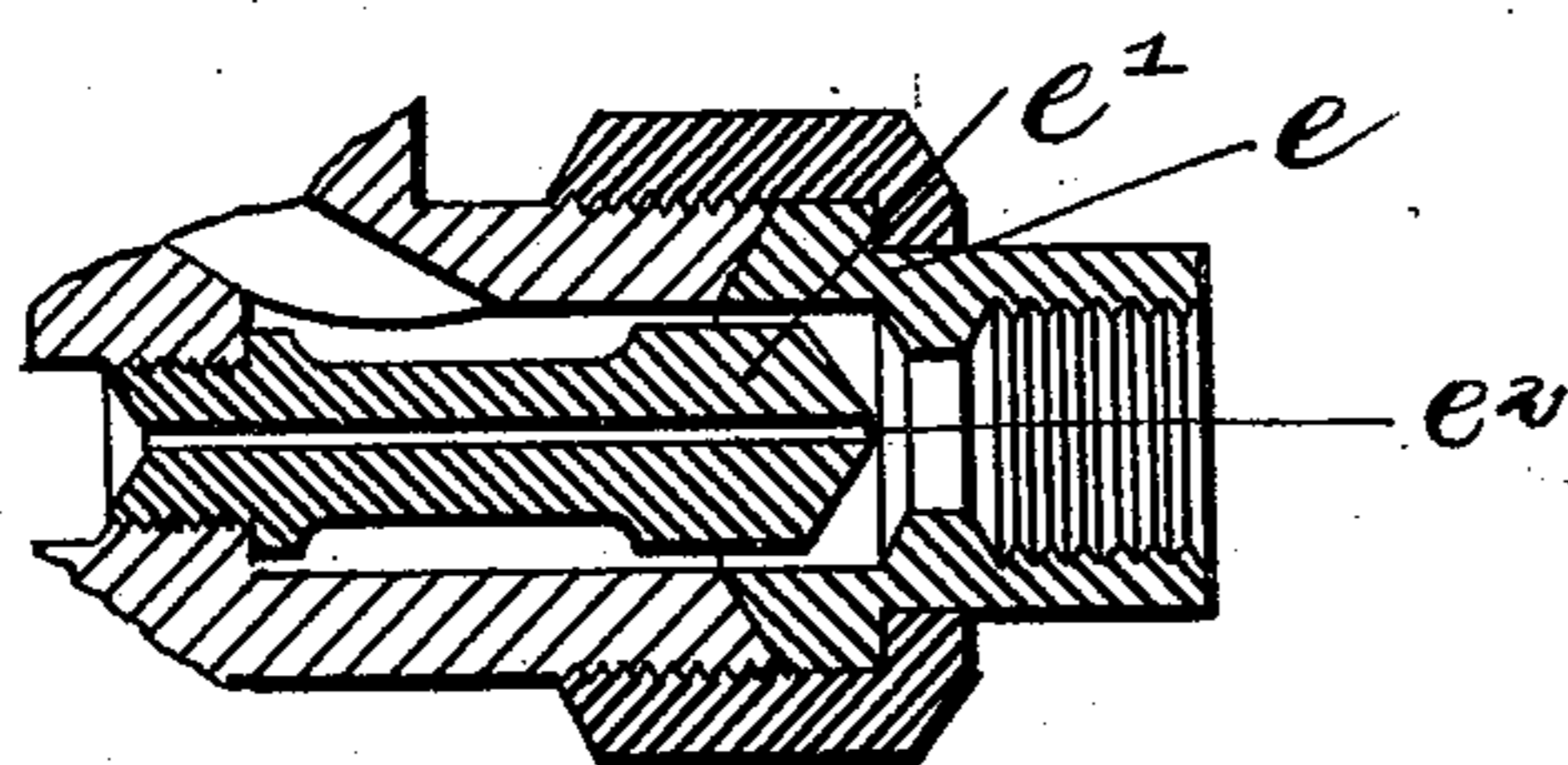


Fig. 4

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UNITED STATES PATENT OFFICE.

HAROLD P. TIPPETT, OF COLUMBUS, OHIO.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 556,074, dated March 10, 1896.

Application filed April 15, 1895. Serial No. 545,703. (No model.)

To all whom it may concern:

Be it known that I, HAROLD P. TIPPETT, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Lubricating Mechanism for Locomotive Cylinders and Valves, of which the following is a specification.

My invention relates to the improvement of locomotive cylinder and valve lubricating mechanism; and it consists in the improved construction and arrangement of parts fully set forth hereinafter and by means of which the objects of my invention as hereinafter stated are attained.

These improvements I produce in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a locomotive-boiler, showing my improved lubricating mechanism thereon. Fig. 2 is a plan view of the same. Fig. 3 is a central vertical section of the steam-dome, showing the connection therein of the cylinder supply-pipe and the additional or auxiliary steam-pipe which I employ in carrying out my invention; and Fig. 4 is a detail sectional view of the upper lubricator feed-arm, showing the nozzle therein.

Similar letters refer to similar parts throughout the several views.

a represents a locomotive-boiler; *b*, the steam-dome, which rises therefrom in the usual manner, and *c* the cylinder-lubricator, which may be supported at the rear end of the boiler in the usual manner.

The lubricator shown and employed in conjunction with my improvement is of that type which consists in a condenser *c'*, the latter communicating in the usual manner with an oil-reservoir *c²* located beneath said condenser and connected or formed therewith. The lubricator-body is also provided with the usual external sight feed-tubes *d* and the outlet or feed arms *e*. Each of these feed-arms contain the usual outlet-nozzle *e'*, which in order to more fully illustrate the operation of my device I have shown in section in Fig. 4 of the drawings. This nozzle, as is usual, is provided with an exceedingly small discharge-opening *e²*, which communicates in the usual manner with the tallow-pipes *f*. As indicated in the

drawings, these tallow-pipes, of which there are two, lead downward and forward on opposite sides of the boiler and communicate with the steam-chests *f'* in the usual manner.

The lubricator-condenser *c'* is provided with an extension-top *g*, from the upper end portion of which leads to each of the upper feed-arms *e* an equalizer-pipe *g'*. This pipe extension *g* and condenser are fed in the ordinary manner by a constant supply of steam from the boiler through the medium of the usual feed-pipe *g²*.

h represents the cylinder steam-supply pipe, which rises within the steam-dome *b*, as indicated in Fig. 3 of the drawings. The upper end portion of this steam-pipe *h* is provided with the usual throttle-valve *h'*. From the pipe *h*, and preferably from a point in its upper portion, leads a smaller steam-pipe *h²*, the latter extending outward and rearward through the side of the dome *b* and having its outer end connecting, as indicated at *h²*, with the central portion of a substantially U-shaped pipe-arm *h⁴*, the downwardly-extending portions of which embrace opposite sides of the rear portion of the boiler and connect, by means of suitable Y-couplings *i*, preferably with the rear portions of the tallow-pipes *f*.

As is usual in the class of lubricating devices to which my invention pertains, the condenser *c'* and its extension *g* are provided with a constant supply of steam from the boiler through the medium of the pipe *g²*, and the equalizer-pipes *g'*, which lead into the feed-arms *e*, furnish steam supplies which meet the oil in the upper feed-arms, said oil being, as is usual, driven to said feed-arms through the pressure within the body of the lubricator and the weight of the water in the condenser. The construction and operation of this form of lubricator are, however, well known, and for that reason I do not deem it necessary to give a detail description of the same.

The feed-arm nozzles *e'*, which are provided with the exceedingly small discharge-openings, serve in the usual manner to equalize the pressure within the lubricator, said nozzles also acting as atomizers in the discharge of the combined steam and oil in the form of spray into the tallow-pipes *f*. Owing to the fact that the steam supply for the lu-

bricator is directly from the boiler, it is evident that the escape of steam and oil through the feed-arm is substantially continuous, even though the throttle-valve be closed and
 5 the engine is motionless. When the throttle-valve is open and the steam is thus admitted to the steam-chest, it has been found that the small volume of steam which escapes through the nozzle condenses within the tallow-pipes
 10 at or near the points z , (indicated in the drawings,) resulting in a reduced pressure of the steam therein. This reduced steam-pressure is not sufficient to resist the back-pressure of steam from the steam-chest, with the result
 15 that the steam from said chest, rising in the tallow-pipes and meeting the condensation therein, also becomes condensed. In this manner the tallow-pipes become filled or choked with oil and water and are thereby
 20 rendered useless.

By the use of the pipe h^2 and its branch h^4 it will be seen that a connection is formed between the supply-pipe h and the rear portions of the tallow-pipes f , these connections
 25 being made, as indicated, at points near the points of condensation referred to in said tallow-pipes.

Owing to the fact that the pipe h^2 has no communication with the steam-dome, but with
 30 the supply-pipe h' , it is evident that the tallow-pipes are not supplied with the additional volume of steam through said pipe h^2 unless the throttle-valve is open. When the throttle-valve is open, however, the additional
 35 steam-pressure supplied through the medium of the pipe h^2 to the tallow-pipes results in a forcing of any condensed steam or other matter contained in the tallow-pipes to the steam-chests and in a consequent clearing of said
 40 pipes. This additional steam-pressure, as will readily be seen, serves to overcome any back-pressure from the steam-chests and as-

sists the lubricator in its work of providing a uniform discharge of the oil into said chests and cylinders. 45

It is evident that the direct connection of the tallow-pipes with a constant steam source, such as the steam dome or boiler, instead of with the pipe h , must result in the tallow-pipes being supplied with steam-pressures 50 which would be almost if not entirely sufficient to move the engine. By the construction and arrangement of parts which I have shown and described it will be seen that this additional steam-pressure in the tallow-pipes 55 is had at such times only as the steam-pressure is necessary.

From the construction and operation of my improvement it will be observed that simple, reliable and effective means are provided for 60 supplying a uniform discharge of oil from the lubricators to the steam chests and cylinders and that by its use the equalization of pressure within the lubricator is in no wise interfered with. 65

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a lubricating mechanism for locomotive cylinders and valves the combination with a 70 locomotive-boiler, steam chests and cylinders, an oil-discharging lubricator and tallow-pipes leading therefrom to said steam-chests, of a steam-pipe leading from the cylinder supply-pipe at a point between the 75 throttle-valve and cylinders into said tallow-pipes at points on the outer side of the lubricator-nozzle, substantially as and for the purpose specified.

HAROLD P. TIPPETT.

In presence of—

C. C. SHEPHERD,
 WALTER B. PAGE.