

No. 630,065.

Patented Aug. 1, 1899.

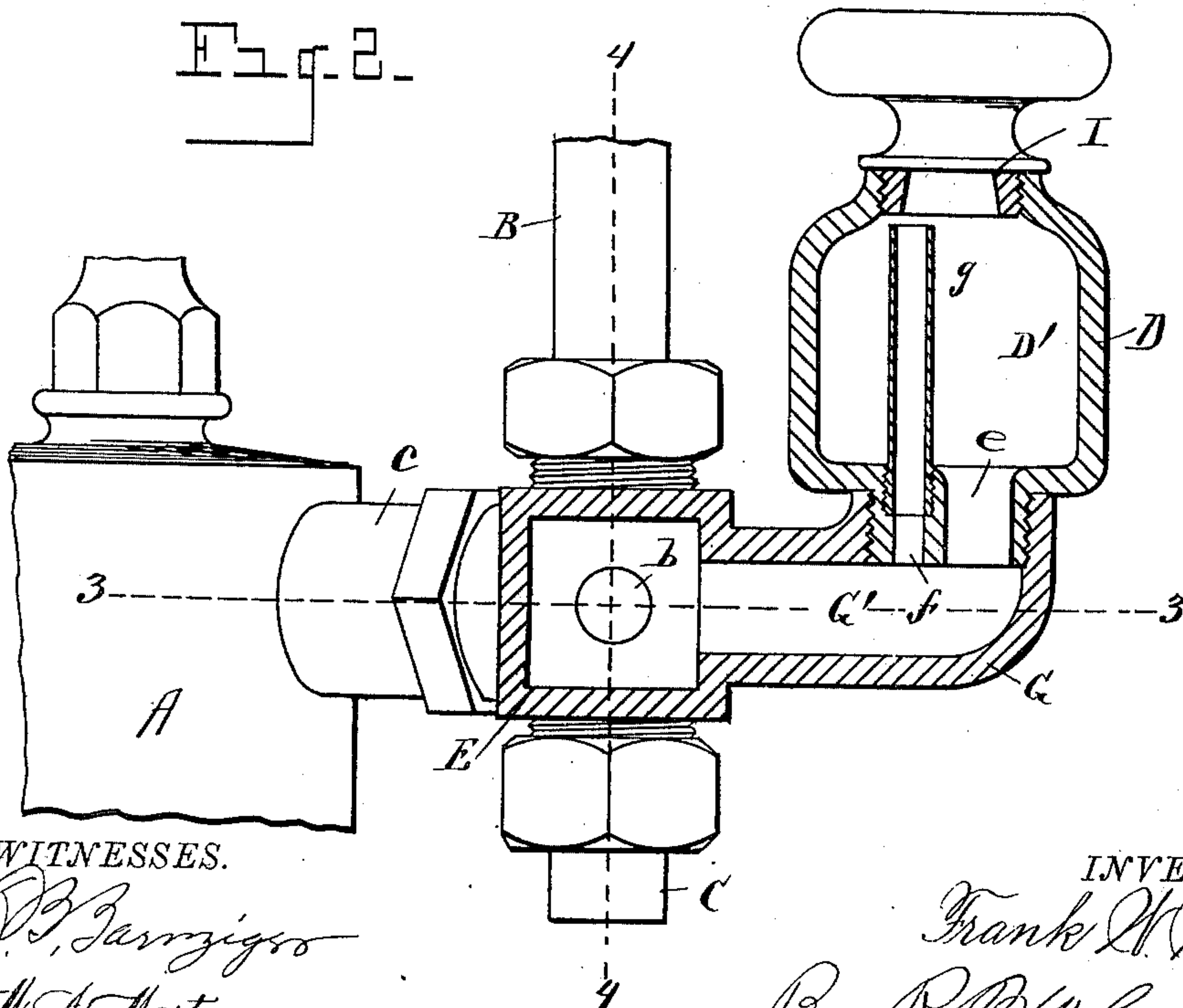
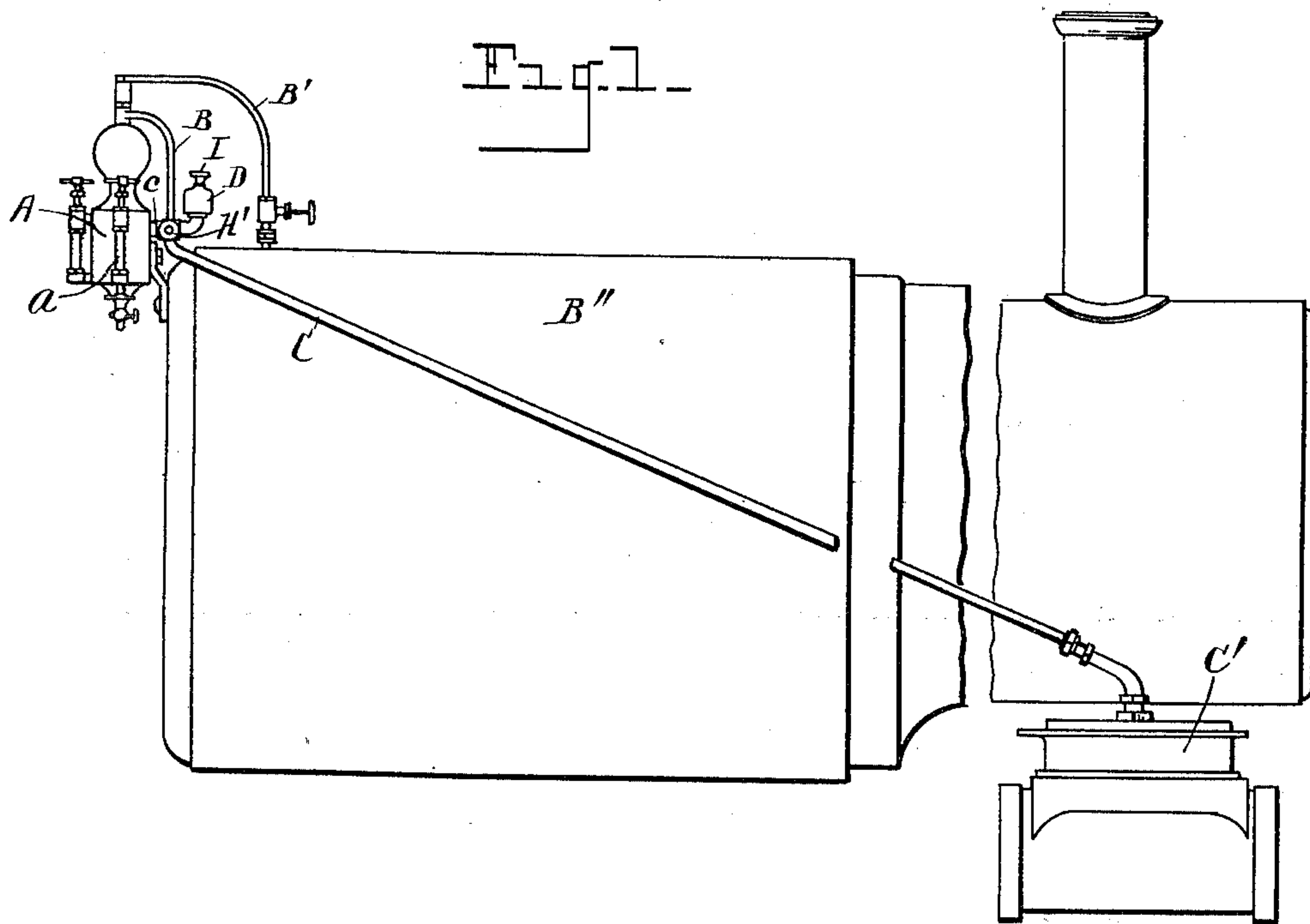
F. W. MARVIN.

LUBRICATOR.

(Application filed Apr. 15, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

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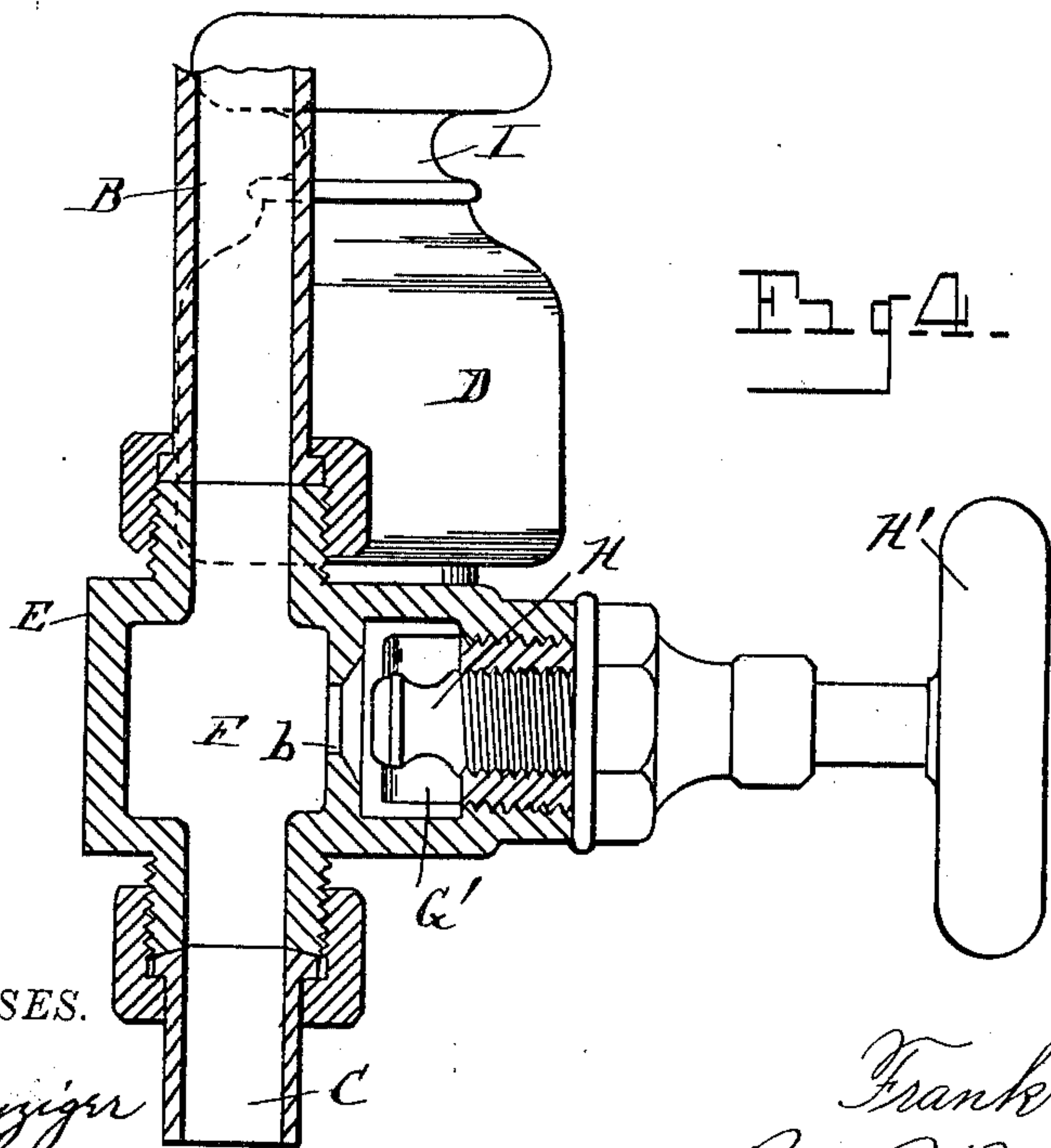
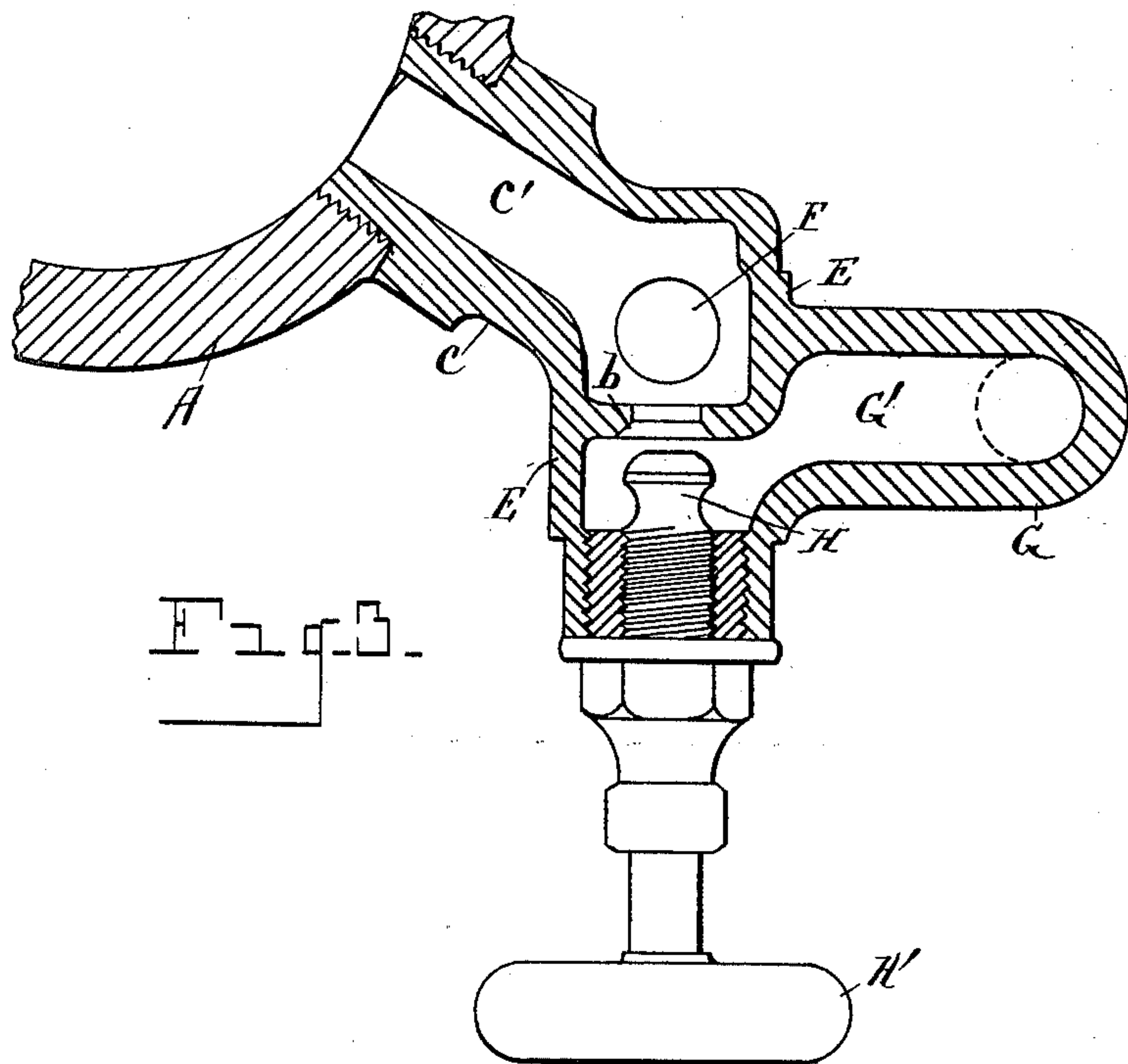
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# UNITED STATES PATENT OFFICE.

FRANK W. MARVIN, OF DETROIT, MICHIGAN.

## LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 630,065, dated August 1, 1899.

Application filed April 15, 1899. Serial No. 713,090. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK W. MARVIN, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Lubricators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to lubricators, and especially to auxiliary oilers for locomotive lubrication; and the invention consists in the construction and arrangement of parts hereinafter set forth, and pointed out particularly in the claims.

The object of the invention is to provide an auxiliary oiler having communication with the tallow-pipe leading to the steam-chest of the locomotive, in which the arrangement is such as to enable the contents of the auxiliary oiler to be discharged into the tallow-pipe whether the throttle is open or closed or without regard to the pressure which may be present within the tallow-pipe, enabling the engineer to flush with oil the valves of the steam-chest while the throttle is open and oil is being regularly fed to the steam-chest by means of the ordinary hydrostatic lubricator, or to oil through the auxiliary oiler while the engine is in operation, if necessary, should accident occur to the lubricator through the breaking of the sight-feed glass or from other cause, the oiling by means of the auxiliary being accomplished without disturbing the adjustment of the feed of the lubricator or in any way interfering with its operation, if so desired. This object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a general view showing a locomotive-boiler and steam-chest, a lubricator and auxiliary oiler attached to the boiler, and the tallow-pipe leading from the lubricator to the steam-chest. Fig. 2 is an enlarged vertical section through the auxiliary oiler and the communicating passage connecting said oiler with the tallow-pipe. Fig. 3 is an enlarged horizontal section through a portion

of the lubricator-body, the feed-arm leading therefrom, and the valve-controlled passage communicating with the auxiliary oiler. Fig. 4 is a vertical section as on line 4 4 of Fig. 3.

Referring to the letters of reference, A designates a lubricator of the hydrostatic sight-feed class, in which *a* designates the sight-feed glass; *c*, the oil-discharge arm leading from the lubricator; B, the equalizing-tube communicating with said discharge-arm, the upper end of said equalizing-tube being connected to the steam-induction pipe B', leading from the boiler B''; C, the tallow-pipe communicating with said discharge-arm and equalizing-tube, and D the auxiliary oiler or oil-receptacle, also communicating with the tallow-pipe. The lower end of the tallow-pipe communicates with the steam-chest C' of the cylinder, as is well understood.

In the operation of a locomotive-lubricator under ordinary conditions the oil is displaced in the oil-receptacle by the accumulated water of condensation and fed upward through the sight-feed glass *a* and thence through the oil-discharge arm *c* to the tallow-pipe C, down which it passes through the steam-chest to the cylinder of the engine. Should the sight-feed glass become broken or if for other reason the feeding of the oil from the lubricator into the tallow-pipe should become interrupted, the engine must either run dry or be oiled through the medium of the auxiliary oiler until the repair of the lubricator proper can be made. Most auxiliary oilers are open at the top to the atmosphere, and as the tallow-pipe communicates with the auxiliary oiler the oiling of the valves of the steam-chest and the piston through said oiler can only be accomplished when the throttle is closed, for the reason that when the throttle is open the pressure of steam within the tallow-pipe will prevent the passage of any oil from the auxiliary oiler into said tallow-pipe upon the opening of the communicating valve, necessitating the closing of the throttle when oiling through the auxiliary oiler. In my improved auxiliary oiler the arrangement is such as to enable the contents of the auxiliary oiler to be discharged into the tallow-pipe at any and all times without regard to whether the throttle is open or closed, enabling the engine to be freely oiled through said auxiliary oiler



should the lubricator by some accident become inoperative or enabling the engine to be oiled through the auxiliary oiler in addition to the lubricator when for some reason an extra quantity of oil is desirable. To accomplish this desired result, I employ a coupling E, attached to the oil-discharge arm of the lubricator, having a vertical passage F there-through, with which the equalizing-tube B communicates and from which the tallow-pipe leads. Also communicating with said passage F is the discharge-opening *c'* in the arm *c*, through which the oil from the lubricator passes into said tallow-pipe. The auxiliary oil-cup D is supported upon an arm G, leading from the coupling E, through which there is a passage-way G', leading to the valve-controlled opening *b*, communicating with the passage F. This valve-opening *b* is adapted to be closed by the valve H, mounted in said coupling and adapted to be operated by the hand-wheel H'. The oil-chamber D' within the auxiliary oiler is of such size as to contain the requisite quantity of oil and is provided in the bottom thereof with two openings *e* and *f*, respectively, which communicate with the passage G'. Seated in the opening *f* and extending vertically into the oil-chamber is a tube *g*, whose upper end terminates at the top of said chamber.

I designates a screw-cap adapted to tightly close the top of the oil-chamber, but afford access to said chamber when it is desired to fill it with oil.

Under ordinary conditions the valve H is closed, and the oil-chamber D', if desired, may be kept filled with oil, which stands in said chamber at a level slightly below the top of the tube *g*, the engine in its operation being supplied by oil from the lubricator in the ordinary manner. Should accident of any kind disable the lubricator so as to interfere with its operation, the oil contained in the auxiliary oil-chamber may be discharged into the tallow-pipe even while the engine is running by simply opening the valve H. Upon the opening of said valve the pressure in the tallow-pipe is immediately transmitted to the passage G' and through the tube *g* to the top of the oil-chamber D', above the lubricant therein, thereby equalizing the pressure in the chamber D' and causing the oil in said chamber by force of gravity to flow outward through the passage G', the valve-opening *b*, and into the tallow-pipe, through which it passes to the steam-chest. It will be evident that were it not for the vertical tube *g* within the auxiliary oil-chamber D the contents of said chamber would not be discharged upon the opening of the valve H were there any pressure in the tallow-pipe, so that while the throttle is open and the tallow-pipe is filled with back pressure from the steam-chest no oil would be discharged from the oil-chamber D through the discharge-opening. The presence of the equalizing-tube *g*, however, overcomes the difficulty of oiling from the auxil-

iary oiler against pressure by equalizing the pressure in said auxiliary chamber, so that the contents of said chamber may be again and again discharged into the tallow-pipe while the throttle is open and the engine laboring. This arrangement is of great utility, for it not only enables the oiling of the engine through the medium of the auxiliary oiler when accident happens to the lubricator proper, but it also enables additional oil to be supplied to the engine under conditions where the amount commonly fed is insufficient, as when starting out of a station with a heavy train or when ascending a grade.

Having thus fully set forth this invention, what I claim is—

1. In a lubricator, the combination of the tallow-pipe communicating with the oil-reservoir, the boiler and with the steam-chest, the auxiliary oiler having an oil-chamber closed to the atmosphere and communicating with the tallow-pipe, and means for supplying to said oil-chamber above the lubricant therein a pressure not below that carried in the communicating tallow-pipe.

2. In a locomotive-lubricator, the combination of the tallow-pipe communicating with the oil-reservoir the boiler and with the steam-chest, the auxiliary oiler closed to the atmosphere a passage connecting the chamber of said oiler with the tallow-pipe, a tube within the chamber of said auxiliary oiler, its lower end opening into the passage between the chamber of said oiler and the tallow-pipe.

3. In a locomotive-lubricator, the combination of the tallow-pipe communicating with the oil-reservoir the boiler and with the steam-chest, the auxiliary oiler having an oil-chamber closed to the atmosphere a passage connecting the chamber of said oiler with said tallow-pipe, a valve to control the communicating passage between said tallow-pipe and said oil-chamber, and means for supplying to the interior of said oil-chamber a pressure not below that carried in the communicating tallow-pipe.

4. In a lubricator, the combination of the tallow-pipe communicating with the oil-reservoir the boiler and with the steam-chest, the auxiliary oiler having an oil-chamber closed to the atmosphere, a passage connecting said oil-chamber with the tallow-pipe, a valve to control the communicating passage between said oil-chamber and said tallow-pipe, a tube within the oil-chamber whose lower end communicates with the passage connecting the tallow-pipe with said oil-chamber at a point remote from the entrance of said passage into said chamber.

5. In a locomotive-lubricator, the combination of the tallow-pipe communicating with the steam-chest, the equalizing-tube communicating with the oil-reservoir the boiler and with said tallow-pipe, the auxiliary oiler having a chamber closed to the atmosphere and connected with the tallow-pipe by a passage, the valve to control said passage, and



means for supplying to the interior of said oil-chamber a pressure equal to that in the passage communicating therewith.

5 6. In a locomotive-lubricator, the combination of the tallow-pipe communicating with the oil-reservoir the boiler and with the steam-chest, the auxiliary oiler having an oil-chamber therein, a passage connecting said oil-chamber with said tallow-pipe adjacent the

oil-reservoir, and a second passage communicating with the top of said chamber and with a source of pressure.

In testimony whereof I sign this specification in the presence of two witnesses.

FRANK W. MARVIN.

Witnesses:

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M. A. MARTIN.