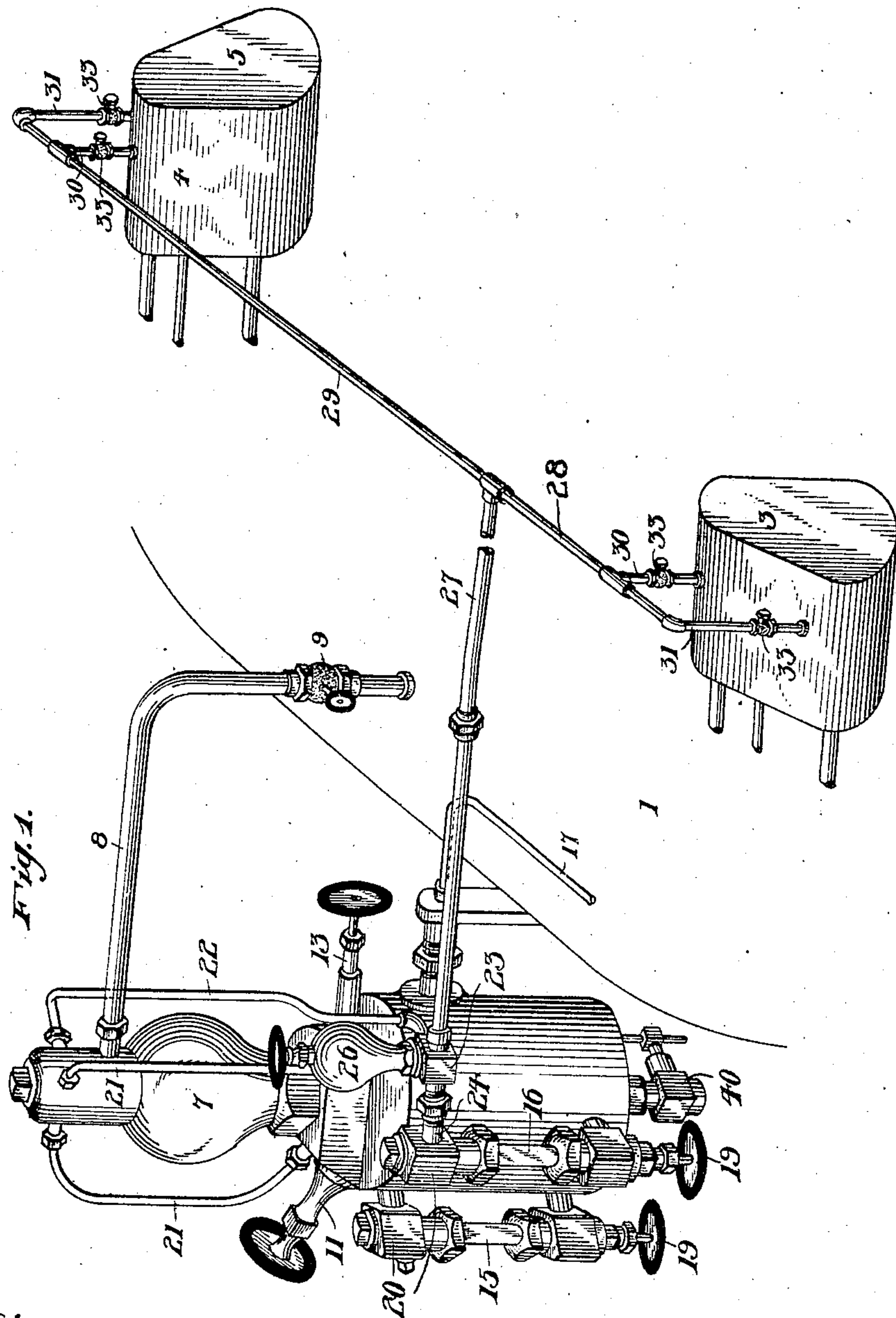


No. 843,856.

PATENTED FEB. 12, 1907.

P. WERTZ.  
SIGHT FEED LUBRICATOR.  
APPLICATION FILED JULY 3, 1906.

2 SHEETS—SHEET 1.



witnesses:

J. P. Spilman,  
W. A. Keller.

Inventor

Peter Wertz  
By Kay, Zetter & Hurley  
His Attys

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2 SHEETS—SHEET 2.

Fig. 2.

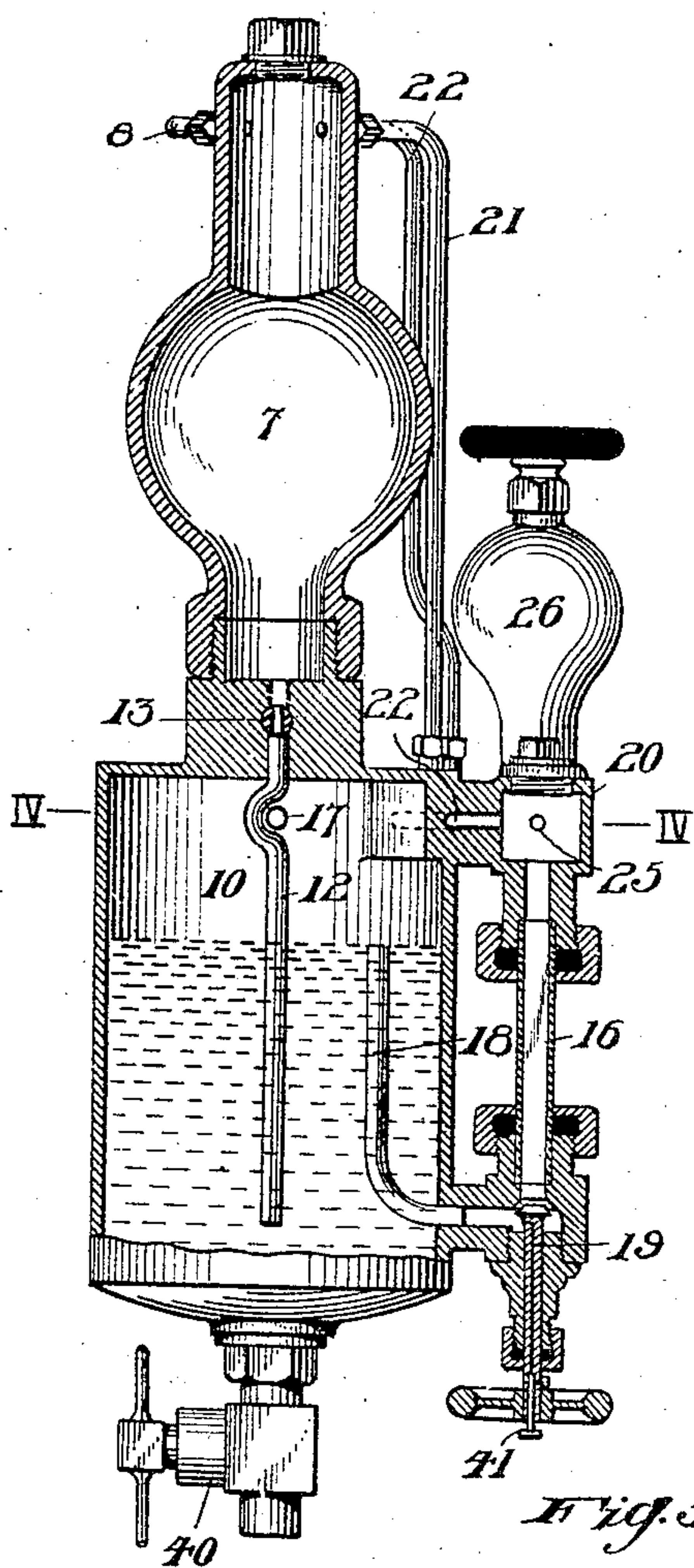


Fig. 5.

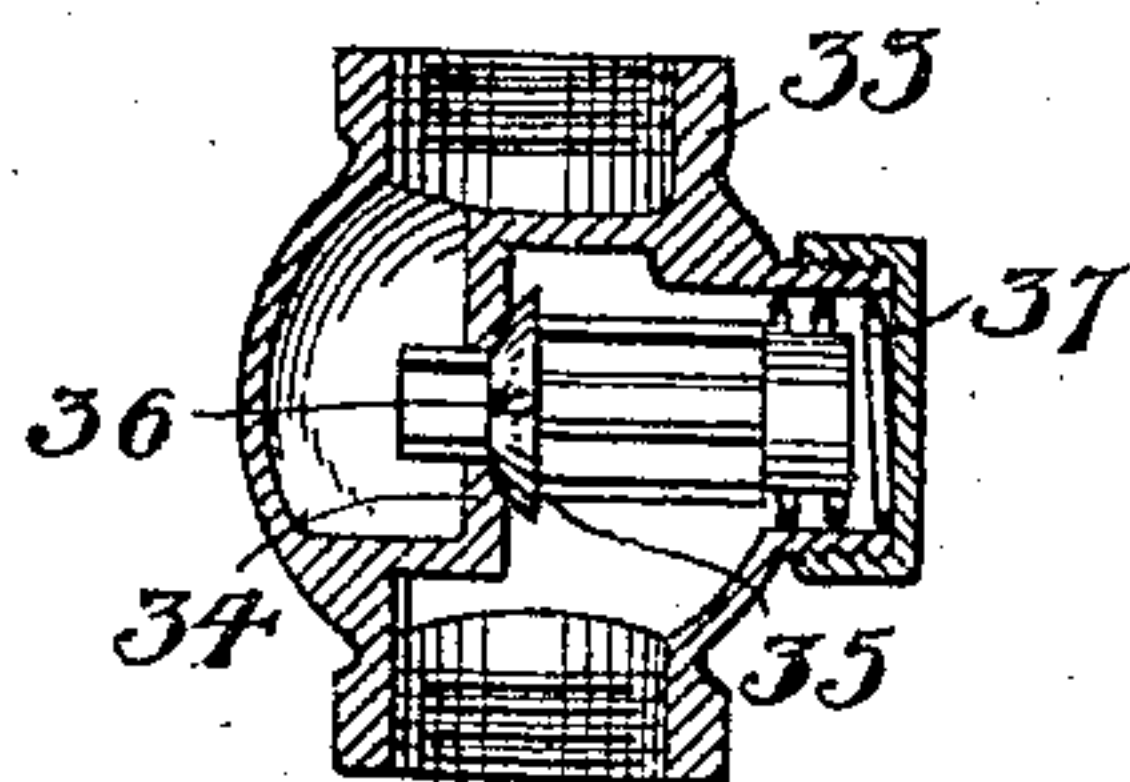


Fig. 3.

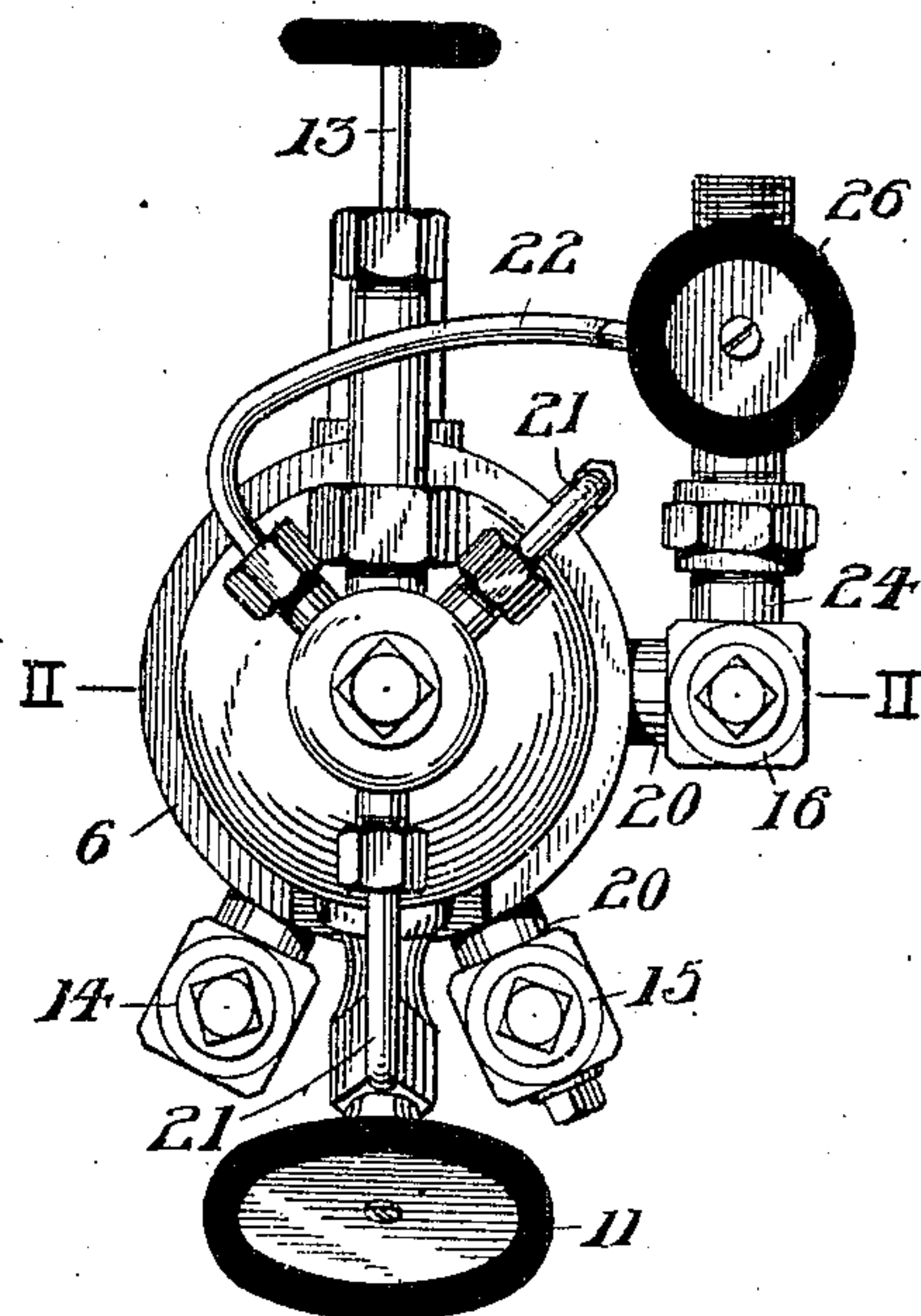
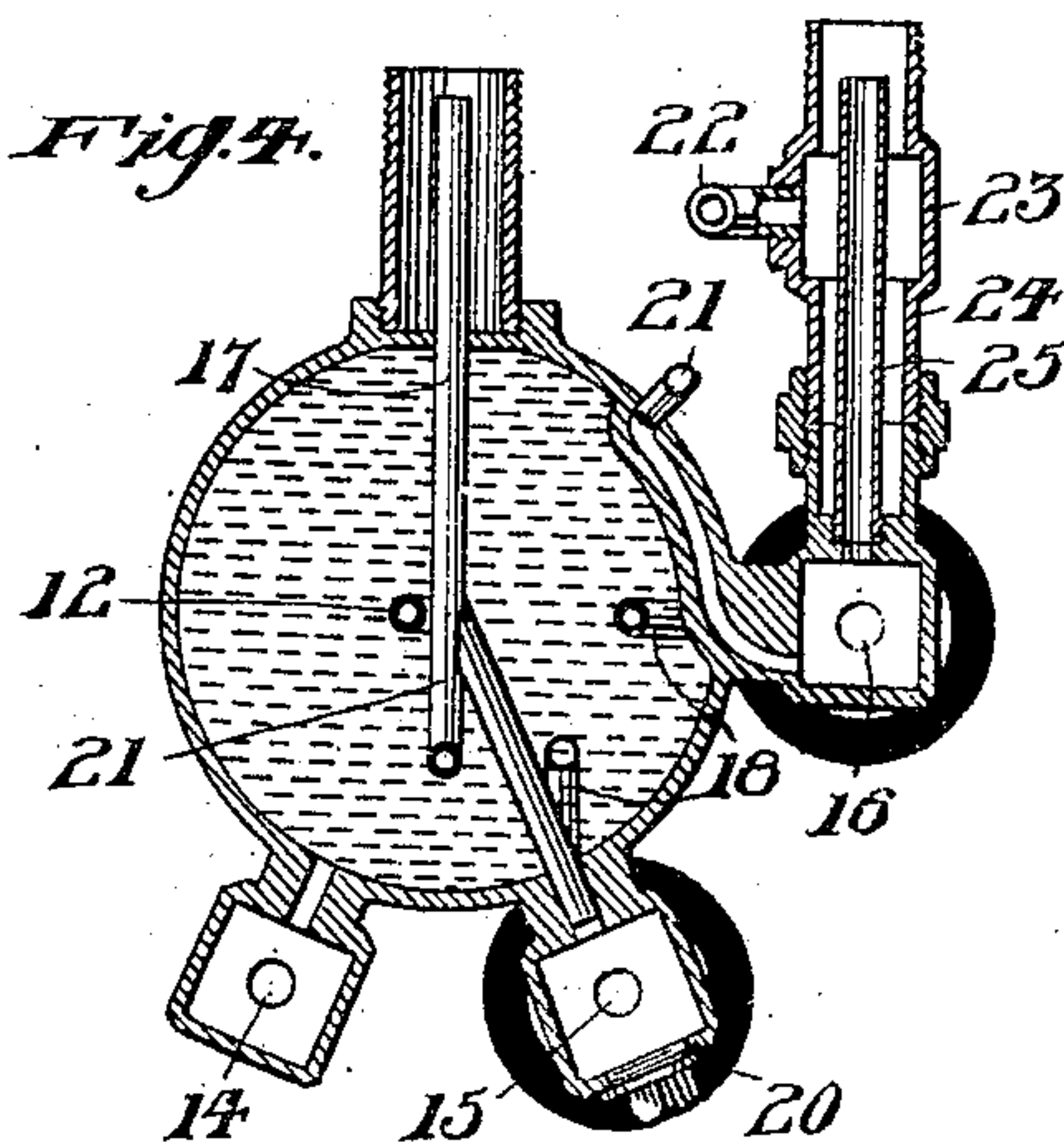


Fig. 4.



witnesses:

J. C. Appleman,  
M. A. Keller

Inventor

Peter Wertz  
By Kay. Dutton Shutes  
His Atty



# UNITED STATES PATENT OFFICE.

PETER WERTZ, OF McKEES ROCKS, PENNSYLVANIA.

## SIGHT-FEED LUBRICATOR.

No. 843,856.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed July 3, 1906. Serial No. 324,667.

*To all whom it may concern:*

Be it known that I, PETER WERTZ, a resident of McKees Rocks, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Sight-Feed Lubricators; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to sight-feed lubricators for locomotives and the like; and its object is to simplify the construction of devices of this character, and especially to adapt a single oil-pipe and feed-glass for a plurality of engines or devices, so that only a single lubricator and a single tallow-pipe need be employed, even with a compound locomotive.

Sight-feed lubricators as at present constructed are provided with an oil-pipe, feed-glass, and tallow-pipe for each steam-chest, air-pump, or other device to be lubricated. The standard sight-feed lubricators in use at the present time are what are known as "triple feed," having three feed-glasses—one connected to the air-pump, another connected to the right-hand steam-chest, and the other to the left-hand steam-chest. In case the locomotive has compound engines a second lubricator is necessary, leading by two tallow-pipes to, for instance, the low-pressure steam-chests. In all cases, however, a tallow-pipe is necessary for each steam-chest, whether single or compound pressure engines are employed, and as these are approximately sixteen feet long and are of copper it adds considerably to the expense of the equipment, and especially on compound-pressure engines.

My invention comprises a sight-feed lubricator so constructed that a single feed-glass is sufficient to supply any number of engines—such, for instance, as all four steam-chests of a compound locomotive—thus necessitating, if desired, only a single tallow-pipe extending to the forward end of the locomotive with branches therefrom leading to the several steam-chests. This one feed-glass might also supply the air-pump; but since the pump is frequently running when the engine is standing still, and vice versa, it is preferred to use a separate feed-glass for the pump, so as to avoid an unnecessary use of oil.

To the accomplishment of the foregoing objects the invention consists of the arrangement of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a diagrammatic perspective view showing my lubricator applied to a compound locomotive. Fig. 2 is a vertical section through the lubricator on the line 2 2, Fig. 3. Fig. 3 is a plan view of the same. Fig. 4 is a horizontal section on the line 4 4, Fig. 2; and Fig. 5 is a section through the automatic steam-chest plug.

The engine-boiler is indicated at 1, the compound cylinders and their steam-chests at 2, 3, 4, and 5.

The lubricator is shown at 6, and this, as shown, is of a well-known type of sight-feed lubricators. This type has been selected largely for purposes of illustration, and it will be understood that my invention applies to any lubricator of this general character.

The lubricator shown comprises a suitable casing, in which is the condensing-chamber 7, which is connected by a pipe 8 to the boiler or steam-dome, this pipe having the usual cut-off valve 9. Below the condensing-chamber is the oil-reservoir 10, provided with the usual filling plug or valve 11. Extending from the condensing-chamber down into the oil-reservoir is the usual pipe 12, provided with a water-valve 13, this pipe serving to admit the water of condensation from the chamber 7 to the oil-reservoir and also to admit steam-pressure to the oil-reservoir in the usual manner of devices of this character. The lubricator is also preferably provided with a gage-glass 14 of the usual type.

My lubricator is shown as provided with two feed-glasses 15 and 16, the former being connected to the air-pump and the latter to the steam-chests. The feed-glass 15 is connected to the air-pump by a pipe 17, extending through the oil-reservoir. Each of these feed-glasses has connected at its lower end an oil-pipe 18, extending up into the oil-reservoir in the usual way and adapted to receive oil into its upper end. The usual regulating-valve 19 is provided at the bottom of the feed-glasses. The upper ends of the feed-glasses project into the usual upper brackets 20. Equalizing-pipes 21, having the usual function, lead from the condensing-chamber 7 to the oil-outlets from the feed-glasses, those shown being located outside of the casing. The equalizing-pipe for the feed-glass 16 leads to the upper bracket 20, while that for the glass 15 is connected to the outlet-pipe 17 by a Y connection. (Shown in Fig. 4.)

All of the parts so far described are, or



may be, of the usual construction, the only difference being that a lesser number of oil-pipes, feed-glasses, and equalizing-pipes are used. Since my feed-glass 16 is to supply a plurality of steam chests or engines, I provide an auxiliary equalizing-pipe 22, leading from the condensing-chamber 7 to a fitting 23, which is connected to the upper feed-bracket 20 by a pipe-section 24. Connected to the supply-opening of the feed-bracket 20 is a pipe 25, which projects through the pipe 24 and into the fitting 23, with its end extending beyond the inlet of the auxiliary equalizing-pipe 22, so that the pressure coming through the equalizing-pipe 22 acts in connection with this pipe on the principle of an injector to draw the oil from the feed-glass and force it toward the steam-chests. A hand-lubricator 26 is connected to the fitting 23.

The fitting 23 is connected to the plurality of steam chests or engines employed. If necessary, a Y may be placed in the fitting and two tallow-pipes—one on the right hand and one on the left hand—lead therefrom to the steam-chests, or a single tallow-pipe may extend to the forward end of the locomotive and there be provided with branches, the arrangement selected depending upon the convenience of application to the particular locomotive.

The drawings show a single tallow-pipe 27, extending from the fitting to the forward end of the locomotive, and is there provided with branches 28 and 29—one extending to the right-hand side of the engine and the other underneath the boiler to the left-hand side thereof—each of said branches in turn being provided with branches 30 and 31, one leading to the high-pressure steam-chest and the other to the low-pressure steam-chest. By this arrangement a very large saving in copper piping is effected, and the lubricator itself is much simplified.

In the tallow-pipe, close to its connection to each steam-chest, I provide a suitable automatic steam-chest plug 33, and preferably one of the type shown in Fig. 5 and such as is described and claimed in my Patent No. 798,470, granted August 29, 1905. This plug comprises a casing having the tallow-pipe connected to its upper end and having its lower end in direct communication with the valve-chest by any suitable fitting. This valve-casing is provided with a partition 34, having an opening therethrough, with a valve-seat surrounding said opening. Coöperating with this seat is the choke valve or plug 35, which is provided with a feed-duct 36, extending therethrough and affording, when the valve is seated, a communication from one side of the partition to the other. A spring 37 is arranged to hold the valve normally on its seat, this spring being of sufficient strength to hold the valve seated against

the normal difference of pressure on the opposite faces of the valve. When the engine is running, the steam-pressure in the valve-chest acts upon one face of the valve 35, while the opposite face thereof is subjected to full boiler-pressure coming through the tallow-pipe. The latter is higher than the steam-chest pressure, there being usually a difference of twenty pounds. The spring 37 is of sufficient strength to compensate for this difference of pressure, so that during the running of the engine the valve 35 is held on its seat, and the oil is supplied through the duct 36. Consequently said valve acts as a choke-plug to prevent the pressure in the steam-chest backing into the tallow-pipe. Hence the oil is fed through the tallow-pipe by full boiler-pressure to said plugs, so that a single pipe is possible. Whenever the engine drifts or stops or when from any other cause the pressure in the steam-chest drops abnormally, the boiler-pressure overcomes the strength of the spring 37, causing the valve to open, and any dirt which has accumulated on the upper face of said valve is blown out of the same. In this way the accumulation of dirt in front of the duct 36 is prevented.

The operation of my lubricator is not materially different from that of present sight-feed lubricators. The regulating-valves 19 are of course set to supply the requisite number of drops of oil per minute. The oil floats on top of the water in the oil-reservoir and passes down the oil-pipes 18 past the regulating-valves into the feed-glasses, from which it is drawn by the steam-pressure coming through the equalizing-tubes 21. The oil is further drawn from the feed-glass 16, connected to the plurality of engines by the injector action of the auxiliary equalizing-pipe 22, and is forced under full boiler-pressure through the tallow-pipe and past the choke-plugs into the steam-chests. Some form of automatic choke-plug located adjacent to the steam-chest is required in order that a single oil-pipe may supply a plurality of engines, as otherwise the oil would merely accumulate in the long tallow-pipe and its branches and would be blown into the steam-chests only when the pressure in the steam-chests drops abnormally.

In order to clean the lubricator, it is provided with the usual drain-valve 40, and each of the feed-glasses is also provided with a drain-valve 41, the latter being located entirely below the end of the glass and below the seat of the regulating-valve 19, preferably in the stem of the valve 19, so that dirt, which is likely to accumulate at this point, can be removed.

My lubricator is simpler of construction than prior devices of this character, due principally to the reduction in the number of feed-glasses and the corresponding oil-pipes, equalizing-pipes, regulating-valves, and the



like. Furthermore, a single lubricator is sufficient to supply even a compound engine, so that one of the lubricators now found necessary on locomotives of this character can be dispensed with. There is also a very material saving in the amount of copper tubing necessary for tallow-pipes.

What I claim is—

1. In a sight-feed lubricator, the combination of an oil-reservoir, means for supplying steam-pressure thereto, an oil-pipe including a regulating-valve leading therefrom, a plurality of tallow-pipes connected to said oil-pipe, and a choke-plug in each tallow-pipe adjacent to its outer end.

2. In a sight-feed lubricator, the combination of an oil-reservoir, an oil-pipe leading therefrom, an equalizing-pipe connected to the oil-pipe for feeding the oil, and an auxiliary equalizing-pipe constantly open to steam-pressure and connected to the outlet of the oil-pipe and acting as an injector.

3. In a sight-feed lubricator, the combination of an oil-reservoir, means for supplying steam-pressure thereto, an oil-feed pipe lead-

ing from the reservoir, an equalizing-pipe connected to the outlet end of the oil-pipe, a pipe connected to the exit-opening of the oil-feed pipe, a fitting into which said pipe projects, and an auxiliary equalizing-pipe connected to said fitting and acting as an injector.

4. In a sight-feed lubricator, the combination of an oil-reservoir, an oil-pipe leading therefrom and provided with a regulating-valve, an equalizing-pipe connected to said oil-pipe and acting to draw the oil therefrom, a pipe leading from the outlet of said equalizing and oil-feed pipes, a fitting into which said pipe projects, an auxiliary equalizing-pipe connected to said fitting to the rear of the end of said pipe, and connections for a plurality of tallow-pipes from said fitting.

In testimony whereof I, the said PETER WERTZ, have hereunto set my hand.

PETER WERTZ.

Witnesses:

F. W. WINTER,  
P. F. BRENNAN.