

(No Model.)

L. C. SNELL.

# APPARATUS FOR STORING AND FEEDING OIL.

No. 519,439.

Patented May 8, 1894.

Fig. 1.

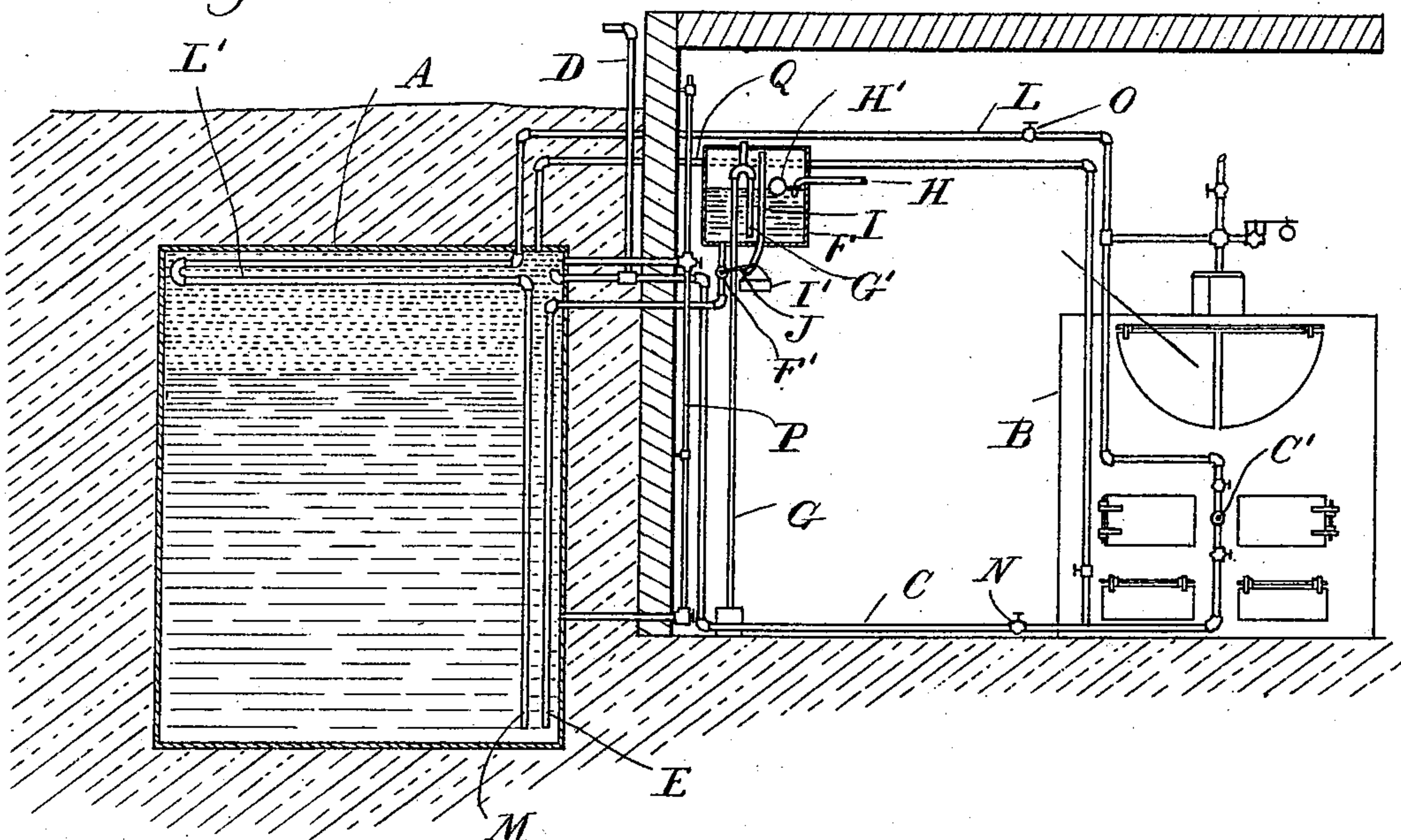
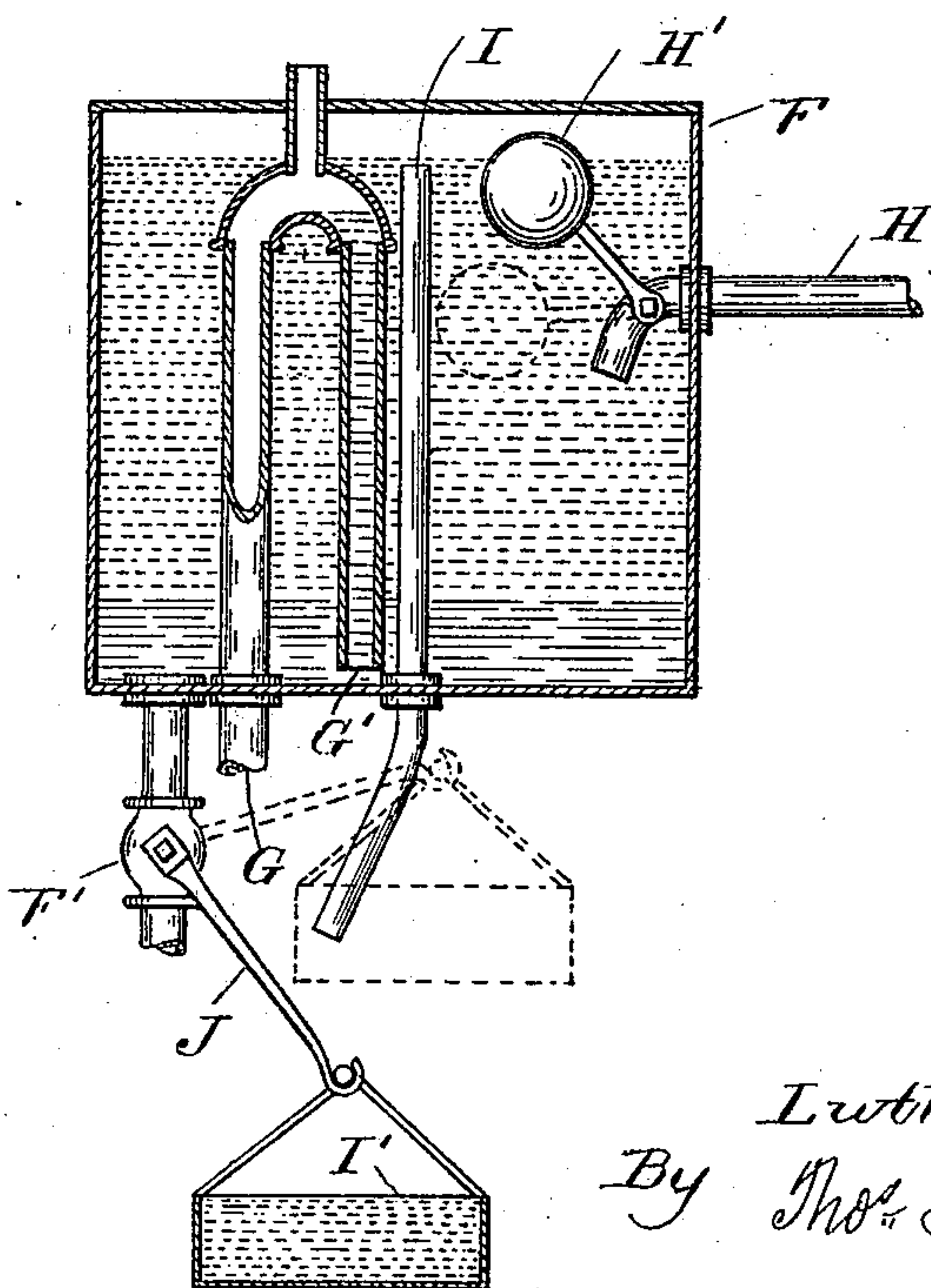


Fig. 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR STORING AND FEEDING OIL.

SPECIFICATION forming part of Letters Patent No. 519,439, dated May 8, 1894.

Application filed October 17, 1893. Serial No. 488,404. (No model.)

*To all whom it may concern:*

Be it known that I, LUTHER C. SNELL, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Apparatus for Storing and Feeding Oil, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention consists in the construction of apparatus designed to feed oil to a burner, or to other points in properly regulated amounts, and comprises a storage tank having an oil pipe leading therein and communicating with the interior at the top, a water pipe  
15 leading therein and communicating with the interior near the bottom; means for supplying water under pressure through the water pipe to force the oil out through the oil pipe, and  
20 means to supply oil through the oil pipe to force the water out through the water pipe, when the tank is respectively emptied and filled. Further in the peculiar construction of an automatic valve controlling the water  
25 supply and designed to be closed upon the ingress of oil into the tank and a connection adapted to be made upon the closing of that valve with the waste pipe whereby the water is carried off therethrough. Further in the  
30 peculiar construction of an automatic shut off for the water pipe when the tank is filled with oil, and further in the peculiar arrangement, construction and combination of the various parts, as more fully hereinafter de-  
35 scribed.

In the drawings, Figure 1 is a section through the feed tank and part of a building, showing my apparatus applied as in use for feeding oil to the furnace, the pipe being  
40 shown in elevation. Fig. 2 is a section through the overflow tank, showing the parts in different position from that shown in Fig. 1.

A is the storage tank preferably located outside the building and B is a steam generator, to the furnace of which oil is designed to be carried for combustion.

C is the oil supply pipe communicating with the top of the oil tank and with the burner C' in the furnace, and provided with  
50 suitable valves to control the supply of oil.

D is a riser extending from the pipe C and provided with suitable coupling means above

ground for connecting the tank wagon or tank car, the contents of which are to be emptied into the tank A.

E is a water pipe communicating with the tank A near the bottom thereof and at its other end connecting into the bottom of an overflow tank F, which is arranged preferably on a level slightly above the top of the  
55 tank A.

F' is a valve controlling the pipe E.

G is an overflow pipe for the tank F, extending to near the top and having the downwardly extending arm G' communicating with  
65 the interior thereof near the bottom and through which the water of overflow must enter and pass out through the pipe G which connects with a suitable sewer or other waste  
70 pipe.

H is a water supply pipe connected into the tank F and controlled by means of a float valve H'.

I is an auxiliary overflow having its upper end located at a point slightly above the out-  
75 flow point of the over-flow pipe G, the overflow I discharging into a bucket I' supported on the end of the lever J of the valve F'.

L is a steam supply pipe extending from the steam space of the generator into the  
80 tank A, where after passing into the condensing coil L' at the top it discharges through the pipe M into the bottom of the tank. The pipe C is provided with a suitable controlling valve N and the pipe L with a valve O.

P is a gage to indicate the height of oil in the tank.

Q is a pipe leading out of the top of the oil tank and connected preferably with the oil supply pipe C near the burner and controlled  
90 by suitable valves, this pipe being intended to form a vent pipe for such gases as may accumulate in the top of the tank at any time.

The parts being thus constructed their operation is as follows: The tank is first filled  
95 with water; the valves H' and F' being open water will flow from the supply pipe H into the tank F through the pipe E into the tank, forcing the air out through the oil pipe D or the vent pipe Q as desired. When the tank  
100 is filled with water the continued supply of water thereto will raise the float and shut off the water supply valve. Now if the tank is to be filled with oil the oil pipe B is connected



with a suitable tank or car and the oil being fed therein the pressure will be sufficient to force the water out through the pipe E into the tank F and rising therein will pass through the overflow pipe G to any desired waste point. If the operator being outside the building and the tank being underground so that he could not observe the condition of the tank should continue to fill oil into the tank after it was full, the oil would rise through the pipe E into the tank F and float on top the water therein. As the oil accumulated in the tank F it would force the water out through the overflow pipe, but the specific gravity of the oil is less than that of the water, and as the leg G' of the overflow pipe would remain filled with water until the tank was filled with oil the continued inflow of oil therein would raise the level of the fluid in the tank F above the level of the overflow pipe G and in this case the oil finds exit through the overflow pipe I, entering the bucket I' on the lever J, the weight of which would cause that lever to be turned and shut off the valve F', thereby preventing the further feeding of oil. Thus it will be seen that upon the ingress of oil into the tank at any time the water will be forced out, the water supply shut off and communication effected with the waste pipe until the tank is filled with oil, and upon the filling of the tank with oil, the exit pipe is automatically closed. By arranging the steam coil L' in the tank at the top, the oil, if crude petroleum which is usually used, is kept at the proper temperature to feed well, and by discharging the water of condensation in the bottom of the tank, the necessity of the drip pipe is avoided and the amount of water supplied through the pipe H for feeding the oil is lessened.

What I claim as my invention is—

1. In an oil feed apparatus, the combination of an oil tank, a steam generator, a heating pipe leading from the generator to the top of the tank and having a coil located in the top of the tank, and a discharge pipe from the coil for the water of condensation leading to

and discharging at the bottom of the tank, substantially as described.

2. In an oil feed apparatus, the combination of an oil tank, an oil pipe and a water pipe leading therein, an automatic valve for controlling the water supply, a tank in which said valve is located, an overflow pipe leading therefrom above the level of the supply pipe, and means for supplying oil under pressure into the tank to force the water out through the overflow pipe, substantially as described.

3. In an oil feed apparatus, the combination of an oil tank, an oil supply pipe, a water supply pipe, a source of water supply under pressure connected with the water supply pipe, an automatic valve controlling the connection, means for closing said valve upon the ingress of oil into the tank, an overflow, and means actuated by the liquid from the overflow, for controlling the water pipe valve, a valve in the water pipe, substantially as described.

4. In an oil feed apparatus, the combination of an oil tank, an oil pipe, a water pipe, a tank into which said water pipe leads, a water supply pipe leading into the tank, an automatic valve controlling said water supply pipe, an overflow pipe having a branch leading from near the bottom to a point above the water supply, an auxiliary overflow above the top of the primary overflow, a valve in the water pipe between the two tanks, and means for closing that valve when the secondary overflow takes place, substantially as described.

5. In an oil feed apparatus, the combination of a tank having oil and water pipes leading thereto, the water adapted to be forced out upon the ingress of oil, and automatic means for closing the out-flowing pipe when the tank is filled with oil, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LUTHER C. SNELL.

Witnesses:

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