

No. 652,376.

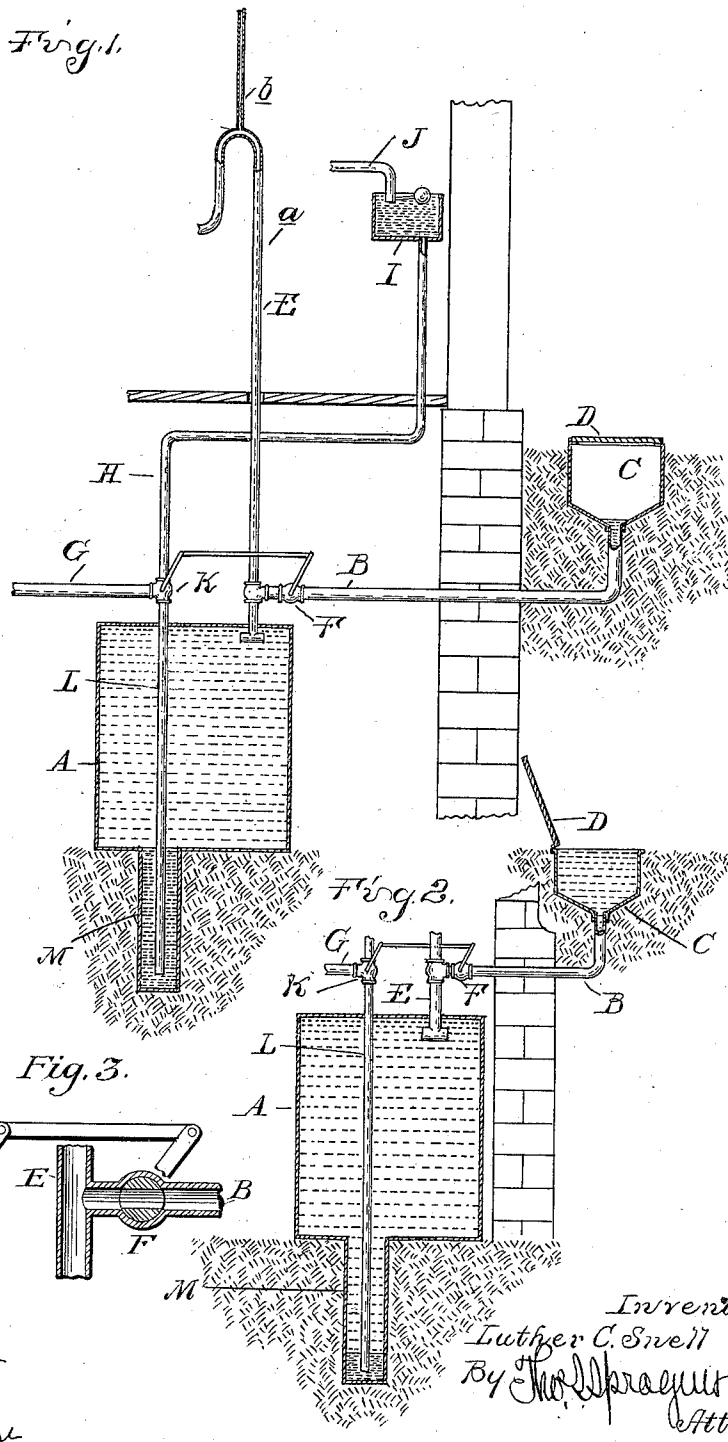
Patented June 26, 1900.

L. C. SNELL.

APPARATUS FOR STORING AND FEEDING OIL.

(Application filed July 31, 1899.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

LUTHER C. SNELL, OF DETROIT, MICHIGAN, ASSIGNOR TO THE HYDRAULIC OIL DISTRIBUTION COMPANY, OF SAME PLACE.

APPARATUS FOR STORING AND FEEDING OIL.

SPECIFICATION forming part of Letters Patent No. 652,376, dated June 26, 1900.

Application filed July 31, 1899. Serial No. 725,631. (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 My invention relates to apparatus for the storage and feeding of oil by what is known as the "hydraulic method." In this the oil is first introduced into the storage-tank by the displacement of water contained therein
15 and is subsequently fed from said tank by water-pressure. As heretofore constructed difficulty has been experienced in preventing the escape of oil with the water during the filling of the tank. This is due to the fact
20 that as the water-pipe is usually connected to the lower portion of the tank whenever the tank is entirely filled with oil the mouth of this outlet will be covered, and consequently more or less of the oil will escape therefrom.
25 This not only occasions loss of oil, but is also a source of nuisance, for the reason that the outlet-pipe is usually connected to the sewer, and thus the escaping oil will form a vapor which will rise at the catch-basins and cause
30 a disagreeable odor.

It is the object of my invention to provide means whereby the escape of oil through the water-outlet pipe is absolutely prevented; and to this end the invention consists in the peculiar construction of an apparatus, as hereinafter described and claimed.

In the drawings, Figure 1 is a vertical longitudinal section of my apparatus. Fig. 2 is a similar section showing the manner in
40 which the escape of oil is prevented. Fig. 3 is a diagrammatic view illustrating the relation of ports of the controlling-valves.

A is the storage-tank, which may be of any suitable construction and located in any convenient place. It is usual to place such tanks
45 in basements or to bury them in the ground some distance below the level of the ground outside the building. To fill the tank, a pipe or other connection, such as B, extends therefrom out from the building and is usually
50 provided with a coupling for connecting it to

the supply-tank. In my construction instead of employing such a coupling I provide a receptacle C, preferably buried in the earth and provided with a lid D, which may
55 be raised to permit of filling the receptacle, or an apertured cover provided with a screw-cap.

E is the feed or outlet pipe from the tank A, which I have shown connected with the
60 pipe B, and F is a valve in said pipe B, by means of which communication with the receptacle may be shut off.

G is the water-escape pipe, and H is the water-inlet pipe, the latter being preferably
65 connected with a water-tank I, having a float-controlled supply connection J, which maintains water at a constant level. The pipes G and H preferably connect to a common
70 pipe L, entering the tank, and are also provided with a three-way valve K for alternatively opening said pipes.

As shown in the drawings, the tank A is provided with a downwardly-extending water-leg M, and the pipe L passes downward through
75 said leg and communicates with the lower portion thereof. The object of this construction is to form a hydrostatic water-column in the pipe L, which is of sufficient length to overbalance a column of oil extending from
80 the bottom of the leg M to the level of the top of the tank C. At the same time the height of said water-column is such as to permit of the displacement of water in the tank by oil in the receptacle C until the tank A has been
85 entirely filled. It will be readily understood that with an apparatus thus constructed it is absolutely impossible to force the oil into the pipe L by the hydrostatic pressure of the oil in the tank C, and if by any cause an oversupply of oil is fed to the receptacle C it will
90 overflow said receptacle before the oil-column has been forced down to the lower end of the leg M. If only sufficient oil to fill the tank A is fed to the receptacle C, it will pass through
95 the pipe B into the tank and the hydrostatic pressure will be only sufficient to maintain the level of the oil at the bottom of the receptacle C. Although I have shown and described the tank A as provided with the downward extension or water-leg M, it is obvious
100 that the same effect might be produced where

said water-leg is omitted by adjusting the relative heights of the water-outlet connection and the receptacle C. Such an arrangement would, however, be open to the objection that in the normal working of the apparatus a considerable portion of the tank A could not be utilized for the storage of oil, while with the apparatus shown in the drawings the entire tank may be filled with perfect safety and with equal safety the filled tank may be entirely emptied. I also desire to provide means for preventing the forcing of water into the oil-feed pipe in case the oil in the tank A should be entirely exhausted. This I accomplish by providing a portion *a* of said pipe, which extends to an elevation above the water-level in the tank I, and inasmuch as the oil-level in the feed-pipe will be considerably higher than the water-level the feeding of the oil is not interfered with by this arrangement. To prevent the siphoning of oil over the elevated portion of the pipe E, I provide a vent-pipe *b*, extending out sufficiently to prevent the escape of oil and which also serves as a siphon-breaker.

What I claim as my invention is—

1. In an apparatus for storing and feeding liquids of lesser specific gravity than water, the combination with a storage-tank of an external fill-receptacle therefor, and a water-outlet for said tank having an upwardly-extending portion forming a hydrostatic column adapted to overbalance an oil-column to the height of said receptacle.

2. In an apparatus for storing and feeding liquids of lesser specific gravity than water, the combination with the storage-tank, of a

downwardly-extending water-leg therefor and a water-outlet pipe communicating with the lower portion of said water-leg and extending upward to form a hydrostatic column for the purpose described.

3. In an apparatus for storing and feeding liquids of lesser specific gravity than water, the combination with a storage-tank of a fill-receptacle above the level thereof, a water-leg extending downward from the tank, and a water-outlet communicating with the lower portion of said water-leg and extending upward therefrom for the purpose described.

4. In an apparatus for storing and feeding liquids of lesser specific gravity than water, the combination with the storage-tank, of a water-pressure-inlet connection therefor and an outlet connection for the lighter liquid rising to above the hydrostatic level of said water-inlet.

5. In an apparatus for storing and feeding liquids of lesser specific gravity than water, the combination with the storage-tank, of a water-pressure-inlet connection therefor, an outlet connection for the lighter liquid having a portion rising to above the hydrostatic level of the water-inlet, and a vent-pipe or siphon-breaker connected to said highest portion of the connection and extending up above the corresponding hydrostatic oil-level.

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

LUTHER C. SNELL.

Witnesses:

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