H. H. SMITH.

DISPENSING APPARATUS.

APPLICATION FILED SEPT. 4, 1918.

1,314,987. Patented Sept. 2, 1919.

Fig. 1.

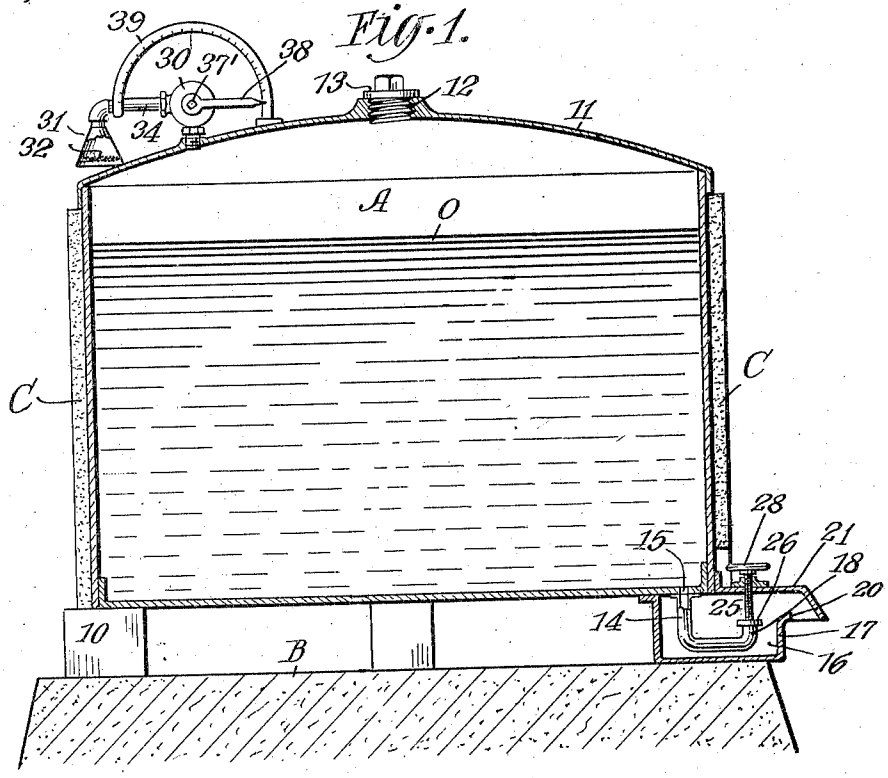


Fig. 2.

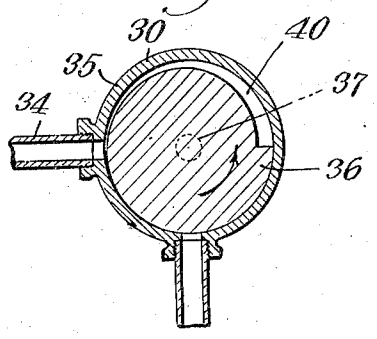
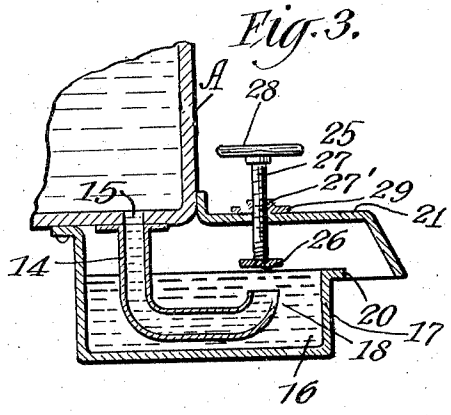


Fig. 3.



H. H. Smith INVENTOR

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UNITED STATES PATENT OFFICE.

HAROLD HARDY SMITH, OF HOLKOL, WHANG-HAI, CHOSEN, KOREA.

DISPENSING APPARATUS.

1,314,987. Specification of Letters Patent. Patented Sept. 2, 1919.

Application filed September 4, 1918. Serial No. 252,616.

To all whom it may concern:

Be it known that I, HAROLD HARDY SMITH, a subject of the King of Great Britain and Ireland, and now residing at Holkol, Whang-Hai Province, Chosen, Korea, have invented certain new and useful Improvements in Dispensing Apparatus, of which the following is a full, clear, and exact description.

This invention relates more particularly to an apparatus for feeding oils or other re-agents to flotation plants.

One of the objects of the invention is to so construct a device of this kind that it will feed evenly and continuously and in any quantity anything of this nature from the thinnest oils to the thickest tars.

Another object is to so construct the outlet so as to permit any foreign matter in the oil or re-agent to escape from the tank without choking the outlet and interfering with the normal flow, which object is of great importance in feeding cheap, heavy re-agents such as coal-tar, crude oils, acid-sludge, etc.

Other objects will appear from the following description and claims.

Referring to the drawings in which like reference characters indicate like parts;

Figure 1 is a vertical section through the apparatus showing the outlet pipe partly broken away, and the valves in elevation, the outlet valve being seated.

Fig. 2 is a section through the air valve.

Fig. 3 is a detail in section of the outlet, the valve being raised from its seat.

Referring to the drawings:

A is a suitable containing vessel for the oil or re-agent, which is made of such material that its sides, bottom and top are unyielding and preferably of such dimensions that its height is less than its width. This containing vessel is preferably mounted upon blocks or legs 10, which latter rest upon a suitable base B. At any suitable point in the top or roof 11, I provide an opening or hole 12 which is stopped by a screw plug 13, so fitting that when closed it is rendered air-tight. At the bottom of the containing vessel, preferably at one edge is an outlet pipe 14 fitted to coincide with an outlet 15. 16 is a cup or basin fitted to the bottom of the container and of such dimensions that its sides 17 extend above and around the nozzle or outlet 18 of the pipe 14. It is therefore seen that when this cup or basin 16 is filled with liquid, an air seal is formed for the outlet. 20 is the overflow lip of the cup 16, and 21 is a hood or cover secured to the side of the container so as to completely cover the cup, and over-flow lip.

Mounted on the hood is a valve 25 constructed and arranged to be seated upon the outlet of the pipe 14 to completely close the same and to be raised therefrom to open the outlet. This valve is conventionally shown in Figs. 1 and 3 and is provided with a head 26 at one end and a screw-threaded stem 27 and an operating handle 28 at the other end thereof. The screw-threaded stem 27 passes through an opening fitted with screw-threads 27′ in the top of the hood 25 and so engages the screw-threads that upon turning the handle 28, the valve is either lifted from or lowered to its seat at the outlet of the pipe 14.

The screw-threaded shank engaging with suitable screw-threads in a block 29 secured to the cup of the hood is clearly shown.

30 is an air valve of special construction mounted on the top or roof of the container for controlling the air-leak into the top of the container A. 31 is an air-filter provided with a suitable screen shown at 32 for preventing dust from entering through the air valve 30, the filter being connected by a pipe 34 to the valve chamber 35. Within the valve chamber 35 is a rotatable plug valve mounted on the journals 37 and 37′ to one of which journals is secured a pointer 38 which indicates the position of the valve on the indicator scale 39. In the surface of the valve I provide a tapering groove 40 cut about three-quarters around the periphery of the valve plug, so as to pass centrally of the inlet and outlet ports which are situated at a suitable angle from one another as shown. It is obvious that the angle between the inlet and outlet ports is dependent upon the length of the tapering groove 40, and therefore the exact construction as shown in Fig. 2 is merely illustrative. As the valve plug is rotated the passage leading from the inlet to the outlet gradually increases in size. By tapering the groove out to a hair's thickness, a very small aperture can be obtained, and this aperture may be enlarged as desired. By moving the groove entirely past the inlet, the valve is completely closed.

I have found that in changeable weather

the oil feeder should be protected against large variations of temperature, especially if the oil vessel or tank is of large size. This is readily done by entirely covering the apparatus with some non-conducting material such as asbestos steam-pipe plaster or covering, or by placing the tank in a box filled with saw dust or clay. A suitable covering is illustrated as at C in Fig. 1.

The operation of the device is as follows:—

The valve 25 is shut down upon its seat at the orifice of the outlet pipe 14 and the stopper 13 is removed from the top of the tank. The tank is then filled with the material to be dispensed and the stopper plug 13 is replaced and screwed down into its seat air-tight. The air valve 30 is then shut and the outlet valve 25 is opened which will then cause a heavy flow of the material to take place over the lip 20 which is caught in a suitable vessel and reserved for future use. The flow of material will then fall off and finally cease because of the fact that no air is entering into the top of the tank as an effectual air seal is provided at the bottom of the tank by means of the liquid filling the cup or basin 16. The air valve 30 is then adjusted to admit the requisite amount of air until the required flow is obtained over the lip 20. The apparatus will then feed evenly and continuously and in any quantity so that the liquid contained therein will be evenly and continuously dispensed.

It is to be understood that I do not limit myself to the particular shape or form of any part herein shown, neither do I limit myself to the precise arrangement of the parts with respect to each other.

It is furthermore to be understood that the above description and drawings are merely illustrative and that the invention is not to be limited in any respect except as defined in the sub-joined claims.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A dispensing apparatus comprising a container for the material to be dispensed, provided at the bottom thereof with an air sealed outlet, and at the top with an air inlet, a valve for the said outlet and a valve for said inlet, the latter valve being constructed to control by uniform gradations the flow of air therethrough.

2. A dispensing apparatus comprising a container for the material to be dispensed, provided at the bottom thereof with an air sealed outlet, and at the top with an air inlet, a valve for the said outlet and a valve for said inlet, the latter valve being constructed to control by uniform gradations the flow of air by increments therethrough.

3. A dispensing apparatus comprising a container for the material to be dispensed, provided at the bottom thereof with an air sealed outlet, and at the top with an air inlet, a valve for the said outlet and a valve for said inlet, the latter valve being constructed to control by uniform gradations the flow of air by decrements therethrough.

4. A dispensing apparatus comprising an air-tight container for the material to be dispensed, said container being provided at the bottom with an outlet, a liquid seal and a permanent valve for said outlet, an air valve for admitting air to the top of the container, means for regulating the flow of air by uniform gradations past said valve and an indicating device therefor.

5. A dispensing apparatus comprising an air-tight container for the material to be dispensed, said container being provided at the bottom with an outlet, a liquid seal and a permanent valve for said outlet, an air valve for admitting air by uniform gradations to the top of the container, and means for regulating the flow of air past said valve.

6. A dispensing apparatus provided at its bottom with an outlet, a liquid seal and a permanent valve controlling said outlet, means at the top of the container for supplying the material to be dispensed thereto, means for closing the same air-tight, an air valve also at the top of the container constructed to control the flow of air by increments past said valve and means for indicating the positions of said valve.

In witness whereof I have hereunto set my hand at Seoul, Chosen, in the Empire of Japan, this 3rd day of August, 1918.

HAROLD HARDY SMITH.

In presence of—
RAYMOND S. CURTICE,
J. D. ATKINSON.