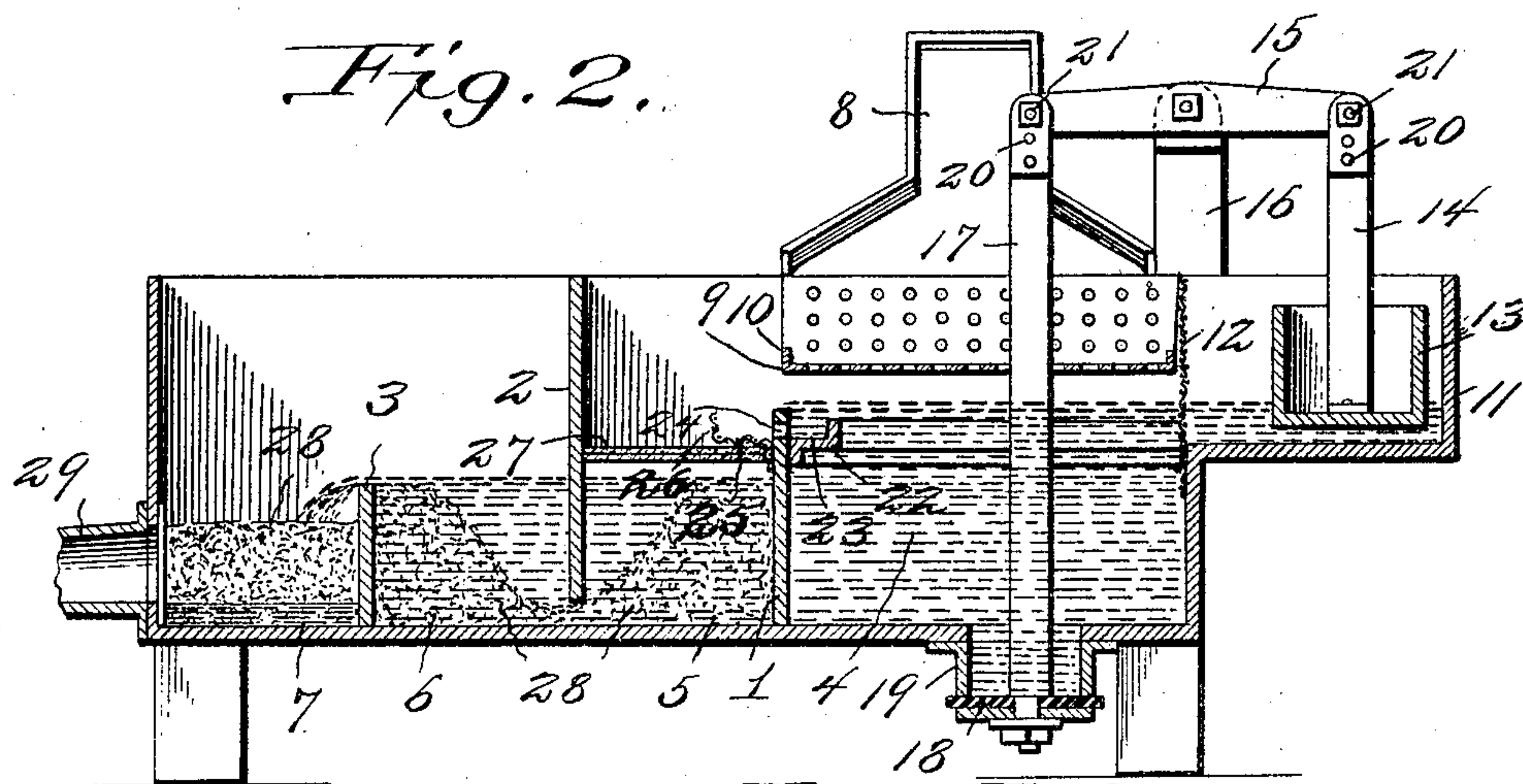
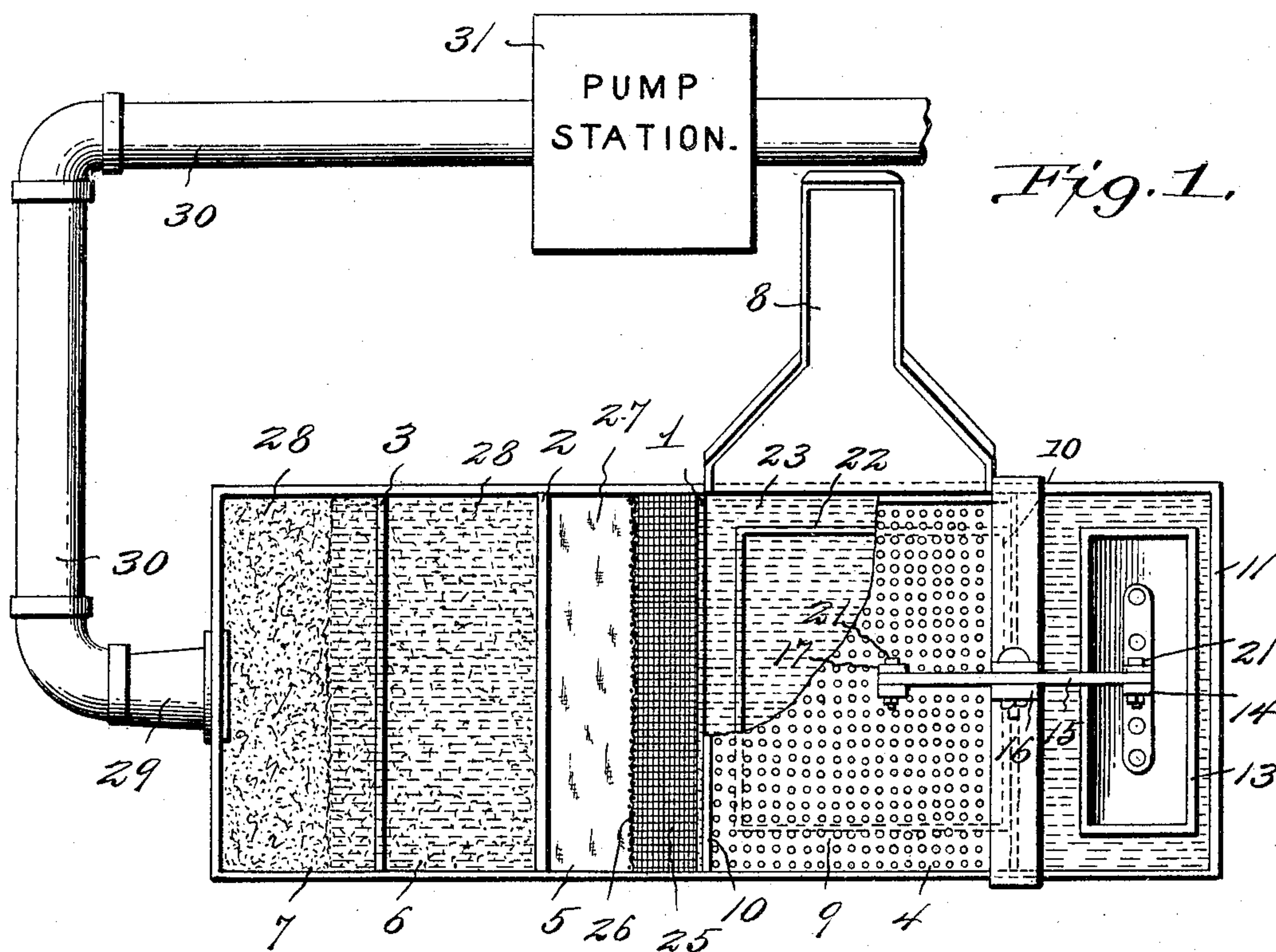


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PATENTED MAY 30, 1905.

H. L. ORR & F. B. FINLEY.
MINERAL RECLAIMER AND SAVER.

APPLICATION FILED OCT. 30, 1903.



Witnesses:

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UNITED STATES PATENT OFFICE.

HOMER L. ORR AND FRED B. FINLEY, OF FORT COLLINS, COLORADO.

MINERAL RECLAIMER AND SAVER.

SPECIFICATION forming part of Letters Patent No. 790,913, dated May 30, 1905.

Application filed October 30, 1903. Serial No. 179,255.

To all whom it may concern:

Be it known that we, HOMER L. ORR and FRED B. FINLEY, citizens of the United States, residing at Fort Collins, in the county of Larimer and State of Colorado, have invented a new and useful Mineral Reclaimer and Saver, of which the following is a specification.

This invention relates to mineral reclaimers and savers.

The object of the invention is in a ready, rapid, and comparatively inexpensive manner to reclaim and save virgin metals contained in pulverized earth and to conserve the medium employed in treating the earth.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a mineral reclaimer and saver, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in plan of a machine constructed in accordance with the present invention. Fig. 2 is a view in vertical longitudinal section.

The machine embodies a tank, which may be made of any suitable material and of any size and divided by partitions 1, 2, and 3 into a series of compartments 4, 5, 6, and 7. The machine of this invention is adapted to be used in connection with oils, such as crude or refined petroleum, mineral or virgin oils, or any other crude or refined oil adapted for the purpose of extracting and saving flour and other gold in a free condition and any other free minerals in a fine or flour condition from dumps, tailings, sands, and other loose deposits.

The materials to be operated upon are supplied to the compartment 4 down an inclined

chute 8, whence they are deposited upon a screen 9, which operates to prevent passage of large lumps or masses of the earth through the apparatus and also effect even distribution. The sides of the screen are preferably upturned to form flanges 10, which operate to prevent escape of the earth at the sides thereof.

At the end of the tank at which the compartment 4 is disposed and communicating therewith is a float-box 11, which is separated from the compartment 4 by a screen 12, of reticulated or foraminous material, the object of which is to prevent passage into the box of earthy matter, but to permit free entry thereto of the water from the compartment 4. This box contains a float 13, which is a box-like structure and is adapted to contain water, sand, or any other material which will weight it to cause the liquid in the compartment 4 always to maintain a predetermined level. Connecting with the bottom of the float is a rod 14, to the upper end of which is connected one end of a walking-beam 15, supported upon brackets 16 on the tank, the opposite end of the walking-beam having connected with it a rod 17, which projects through the bottom of the compartment 4 and carries a valve 18 to engage with a seat 19, bolted to the under side of the compartment 4. In order to vary the throw of the rods 14 and 17, the upper end of each is provided with a series of orifices 20 to be engaged by bolts 21 to hold the rods combined with the walking-beam, and it will be seen that by lengthening the rods by moving the bolts toward the upper end of the series of openings the level of the water in the compartment 4 will be lowered and by a reverse adjustment its level will be raised. As will be obvious, when the float 13 has been set at a certain level this level will always be retained in compartment 4, any excess of water or oil passing through the compartment 4 causing the float to lift, and thus open the valve 18, which will permit the surplus liquid to escape automatically, and thus restore the liquid in the compartment 4 to its normal level.

Surrounding three sides of the compart-

ment 4 is a trough or gutter 22, the gutter being omitted on the side of the compartment opposite the screen 12, thus to prevent any interference with the passage of liquid to the float-box. The object of this trough or gutter is to catch any minerals or metals that might pass down the sides of the compartment 4, and in order to permit discharge of the liquid which passes to the trough the upper side of the bottom 23 of the latter is disposed in alinement with the lower wall of a transverse slot 24 in the partition 1.

Projecting from the partition 1 below the slot 24 is a screen 25, having an upturned edge 26, constituting a flange, the function of this screen being to separate from the oil and water passing from the compartment 4 any minerals or metals carried over. Arranged under the screen 25 and suitably secured to the sides of the compartment 5 are woolen or cotton blankets 27, which subserve the function of filters for purifying the oil and catching and retaining any flour-gold or any finely-divided mineral therein. Each of the compartments 5, 6, and 7 has a filling of charcoal 28, which operates still further to filter the oil and eliminate therefrom any impurities, the oil being drawn from the compartment 7 through a discharge-spout 29, which connects with a pipe-line 30, leading to a suitable pump, (designated 31,) whence the oil is forced back to the machine and the various operations again repeated as described.

It will be noted by reference to Fig. 2 that the partitions 1 and 3 extend from the floor upward, but that the partition 2 terminates some distance above the floor. The object of this arrangement is to cause the liquid to traverse a tortuous path before finally escaping, the repeated filterings to which the liquid is subjected resulting in a still further purification of the oil and the retention of any minerals present therein.

The float is so adjusted as to cause the level of the oil in the compartment 4 always to be slightly above the upper edge of the partition 1, thus securing a constant flow of the oil to the compartment 5, and so on to the escape.

In operation the compartment 4 is nearly filled with water and a stream of oil is supplied thereto from the pump, and at the same time the sands, tailings, &c., from which extraction is to be made are poured or washed down the chute 8. The oil occludes the minerals present by attraction and carries them over and deposits them upon the blankets 27, whence they are removed in the usual manner, the oil passing on downward through the charcoal filter in the compartment 5, thence

upward through the charcoal in the compartment 6, thence downward through the charcoal in the compartment 7, and thence out through the pipe 30. The earthy matter, which is of no value, sinks to the bottom of the tank 4, and as the valve 18 is opened by the movement of the float 13 this useless material escapes along with the water to a suitable place of deposit.

Owing to the manner in which the oil is treated it is conserved and may be used repeatedly, thereby cheapening the procedure and expediting the extraction of minerals.

Having thus described the invention, what is claimed is—

1. In an apparatus of the class described, a tank divided into a plurality of compartments of different sizes, a screen arranged in the larger compartment, a trough arranged below the screen, a plurality of compartments each containing a filtering medium and means for supplying oil and water to the compartments, and means for causing the liquids to traverse a tortuous path therethrough.

2. In an apparatus of the class described, a tank divided into a plurality of compartments of different sizes, a screen arranged in the larger compartment, a trough arranged below the screen, a filtering medium arranged in the adjacent compartment, and a communication between the trough and the latter compartment.

3. In an apparatus of the class described, a tank divided into a plurality of compartments of different sizes, each containing a filtering medium, a screen arranged in the larger compartment, a trough arranged below the screen, blankets arranged within the compartment adjacent to the screen, and a communication between the trough and the last-named compartment above the blankets.

4. In an apparatus of the class described, a tank divided into a plurality of compartments of different sizes, each containing a filtering medium, a screen arranged in the larger compartment, automatically-operating means for maintaining the level of liquid within the tank, a trough arranged below the screen, a filtering medium arranged adjacent to the larger compartment, and a communication between the trough and the latter compartment.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HOMER L. ORR.
FRED B. FINLEY.

Witnesses:

C. MACKAY SMITH,
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