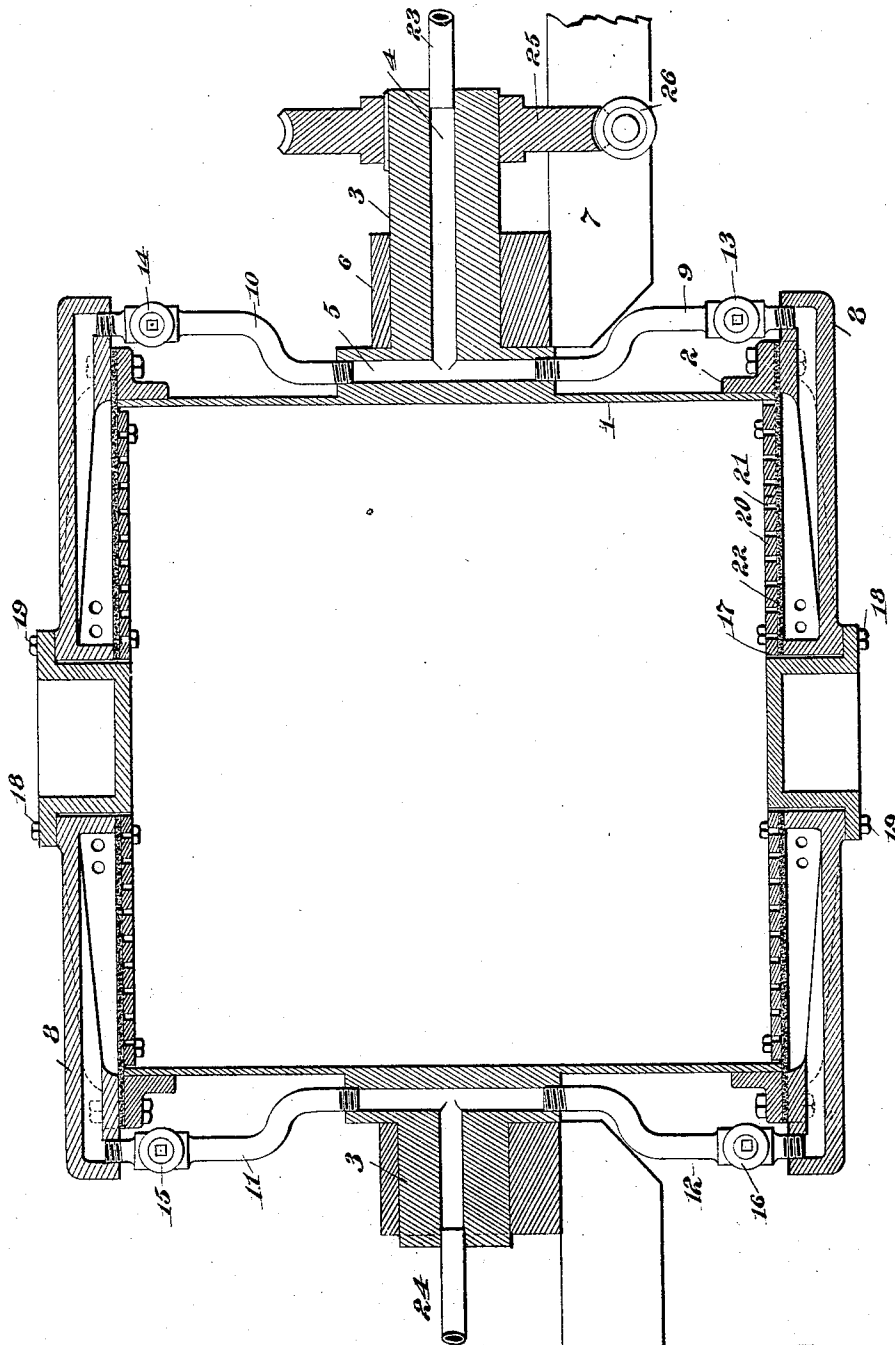


(No Model.)

J. ROGER.
FILTER.

No. 517,240.

Patented Mar. 27, 1894.



Witnesses.

J. F. Coleman
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Inventor

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Att'y.

UNITED STATES PATENT OFFICE.

JOHN ROGER, OF DENVER, COLORADO.

FILTER.

SPECIFICATION forming part of Letters Patent No. 517,240, dated March 27, 1894.

Application filed September 16, 1893. Serial No. 485,670. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROGER, a subject of the Queen of Great Britain, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Filters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the figures of reference marked thereon, which forms a part of this specification.

My invention relates to improvements in filtration or leaching tanks.

In the chlorination of gold ores, it is necessary first to crush the ores fine before undertaking the leaching and chlorination process. The comminuted mineral is then placed in the filtration tank and the metal, being in a soluble condition, is washed or leached out.

The object of my invention is to produce a tank specially adapted for this purpose, and it consists of such features, details and combinations of parts as will first be described in connection with the accompanying drawing and then particularly pointed out in the claims.

The drawing is a transverse sectional view of a tank embodying my improvements.

In the drawing 1 is a shell preferably cylindrical and provided with angle iron flanges 2 secured to the shell in any suitable way, as by riveting. The shell is also provided on each side with a trunnion 3, each trunnion having an axial water-channel 4 and a transverse water-channel 5, the latter intercepting the axial channel, as shown in the drawing. Each trunnion is mounted in a bearing 6, these bearings being carried on any suitable frame or support, as the timbers shown at 7.

To the angle-iron flanges 2 are movably attached the heads 8, whose edges extend beyond the shell, and are provided with openings in which are inserted the pipes 9, 10, 11 and 12, each provided with a stop-cock or valve 13, 14, 15 and 16, the other end of these pipes being connected with the transverse channels 5, whereby a communication is established between the interior of the tank and the axial channel. Each head has a man-hole 17 in which is inserted a man-head 18,

held in place by bolts 19. To the inside of the heads are bolted partitions 20 having perforations 21, and between the perforated partitions and the heads are placed the filter cloths 22, held in place as shown. The outer end of each axial channel is provided with a pipe 23 and 24, one communicating with the water supply and the other with the receiving tank, it being immaterial as to how these connections are made. One of the trunnions is extended some distance beyond its bearing and is provided with a worm-wheel 25 into which meshes a worm-gear 26, which may be revolved by any suitable means, not shown.

The operation of my apparatus is as follows: The ore to be leached is inserted in the tank through either of the man-holes, which is then closed. Water under pressure is supplied to the trunnion by, say, the pipe 23. The valves 14 and 16 are closed and valves 13 and 15 opened. The water will flow through pipe 9 into the space beneath the head then through the filtering material 22 and perforations 21 into the tank through the ore and out through the other side of the tank by way of pipe 11 to the receiving tank. As a matter of course the filtering material at the end of the tank when the water passes out, will soon become clogged with slime or sediment, whereupon valves 13 and 15 may be closed and valves 14 and 16 opened, thus reversing the action of the water and causing it to clean the clogged filtering material. By this arrangement the flow may be up or down through the tank, but if it is desired to maintain the flow always up or always down the tank may be reversed on its trunnions by the worm-gear and wheel, at the same time that the course of the water is altered.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a filter, a shell, a head at each end of the shell, perforated partitions inside the shell, a layer of filtering material between each head and its partition, a water inlet pipe for each head, a water-outlet pipe for each head, and a valve in each pipe, substantially as described.

2. In a filter, a shell, a trunnion secured to each side of the shell, each trunnion having an axial and a transverse water channel, a

head secured to each end of the shell, a pair of perforated partitions inside the shell, a layer of filtering material between each head and its partition, a water-inlet pipe for each head, in communication with the transverse channels at its respective ends, a water outlet pipe for each head, also in communication with one of the transverse channels, a valve in each pipe, and means for rotating the shell on its trunnions, substantially as described.

3. In a leaching tank, a shell, a pair of trunnions on which the shell is mounted, each trunnion provided with an axial channel and a transverse channel in communication with the axial channel, a head for each end of the shell, each provided with a man-hole, a water-inlet and a water-outlet, a pair of perforated partitions within the shell below the head, a layer of filtering material between each head

and its respective partition, a pipe connecting the water-inlet of each head with one transverse channel, a pipe connecting the water-outlets of each head with the other transverse channel, a valve in each pipe, means for supplying water to one axial channel, means for conveying away water from the other axial channel, a man-head movably secured in each man-hole, a worm-wheel fixed on one of the trunnions, and a worm-gear engaging the worm-wheel, substantially as described.

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

JOHN ROGER.

Witnesses:

JAMES HENDERSON,
W. W. SLITER.