Oct. 18, 1927. 1,646,351

F. DE MIER

FLOTATION MACHINE

Filed Dec. 29, 1925

Fig. 1.

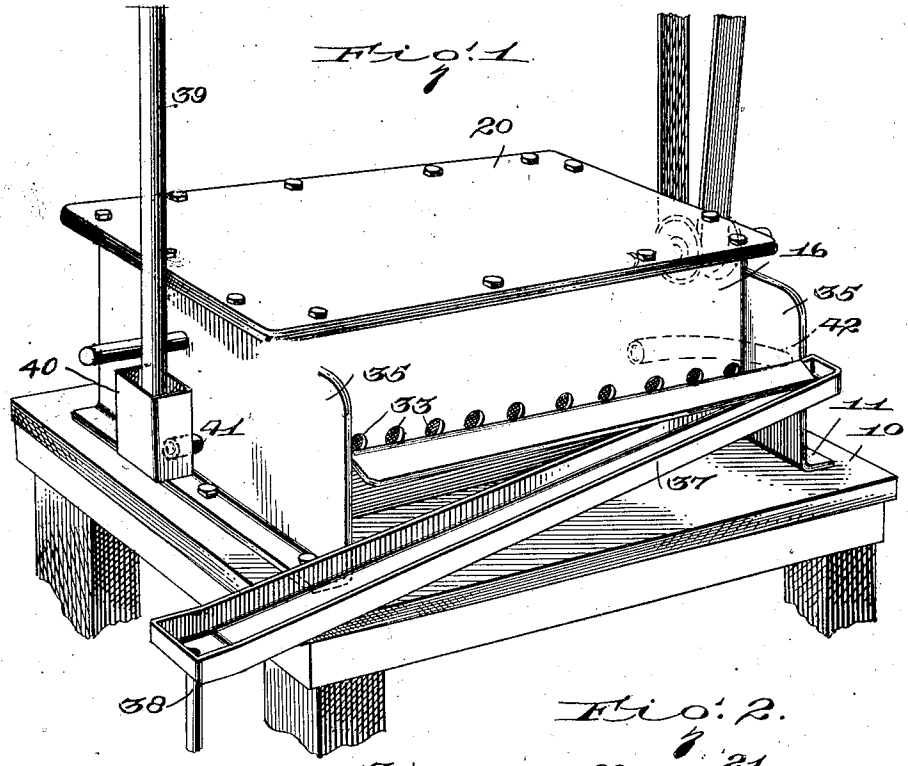


Fig. 2.

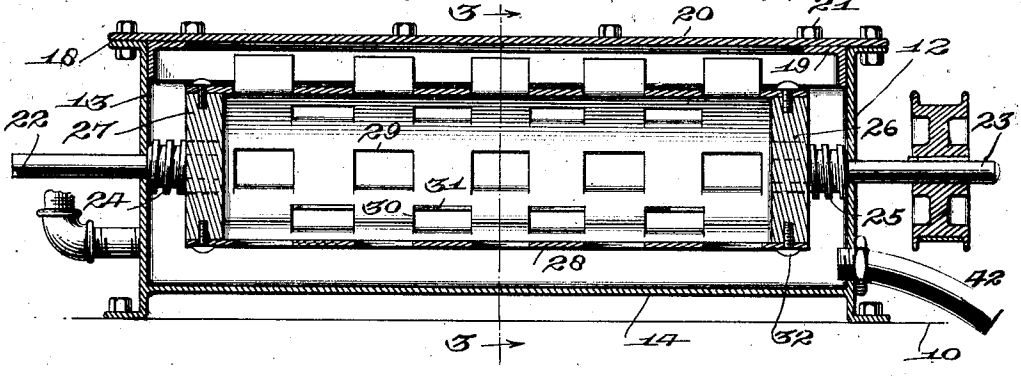
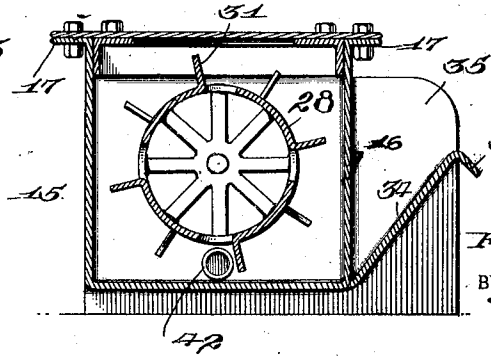


Fig. 3.



WITNESSES

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FLOTATION MACHINE.

Application filed December 29, 1925. Serial No. 78,198.

This invention relates to flotation machines and has for its object the provision of a device which will efficiently cause separation of mineral ore and foreign matter and which will discharge the froth without any tendency to throw the pulp as in those cases where continuous longitudinal blades are employed.

A further object of the invention is the provision of a device in which the rotatable member for causing removal of froth or a pulp is reversible with the elimination of the usual central longitudinal shaft passing through the hollow operating drum which is normally provided with blades for forcing the froth or pulp from the machine.

This invention will be best understood from a consideration of the following detailed description, in view of the accompanying drawings forming a part of the specification; nevertheless it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications which shall define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a view in perspective of a flotation machine constructed in accordance with the principles of my invention.

Figure 2 is a vertical longitudinal section.

Figure 3 is a transverse vertical section taken along the line 3—3 of Figure 2.

Referring more particularly to the drawings, 10 designates a table to which flanges 11 are bolted, the flanges projecting laterally from the opposite end walls 12 and 13 of the casing. A bottom wall 14 is provided which is formed integrally with the side walls or secured thereto in any approved manner and is held in spaced relation with the table 10 by means of the lower ends of the end walls since the bottom is connected to said end walls at points above the extreme ends.

The side walls 15 and 16 which are formed integrally with the end walls 12 and 13 are provided with lateral flanges 17 similar to the flanges 18 of the end walls. Welded or secured in any approved manner to the inner edges of the side and end walls is an angle iron 19 which extends around the upper edge of the casing and cooperates with the flanges 17 and 18 to provide a support for a closure top 20. This top is bolted to the flanges as shown at 21 so that the top may be readily removed when desired.

The end walls are provided with bearings for shafts 22 and 23. These shafts project through the bearings and into the interior of the casing and are provided respectively with left and right hand bushings 24 and 25. The inner end of the shaft 23 is secured to a head 26 while shaft 22 is secured to a head 27. The heads 26 and 27 are located within an operating cylinder 28 having a plurality of rows of perforations 29 and 30. The perforations 29 are staggered relative to the perforations 30. These perforations are formed, as shown more particularly in Figure 3, by cutting out a lip 31 which forms a paddle from the cylinder and bending the same in line with a radius passing through the longitudinal axis of the cylinder.

The staggering of the perforations in one row relative to the perforations in an adjacent row also provides for a staggering of the lips or paddles 31. The heads 26 and 27 are secured by means of bolts or screws 32 in the ends of the cylinder 28 and form closures. It will be seen that by the removal of the heads from the ends of the cylinder the shafts 22 and 23 may be reversed from either the left to the right or vice versa so that the cylinder may be driven in opposite directions as may be desired for a particular purpose. The heads 26 and 27 are in the form of webs to permit the passage of liquids.

The side wall 16 is provided with a plurality of perforations 33 arranged in a horizontal row and intermediate the upper and lower edges of the side wall. An apron 34 formed integrally with the lower edge of the side wall and also with the extensions 35 of the end walls has an outturned flange 36 disposed in line with an inclined trough 37 so that the materials which are beaten up and caused to float in a froth upon the top of the liquid will pass through the perforations 33 over the flange 36 and into the inclined trough 37. A down spout 38 provides a discharge from the trough 37.

An inlet pipe is shown at 39 which by means of a catch box 40 is connected to an inlet pipe 41 which terminates in an opening in the end wall 13. A discharge pipe 42 projecting slightly into a perforation in the

end wall 12 is adapted to carry off the materials so that a continuous feed and discharge will be had.

What I claim is:

1. In a flotation machine, a casing, a cylinder in the casing, the cylinder being provided with a plurality of openings disposed longitudinally of said cylinder, a blade located adjacent an end of each opening, the blades in one row being disposed in staggered relation to the blades in the adjacent rows.

2. In a flotation machine, a casing, a cylinder in the casing, shafts journaled in the casing and projecting exteriorly of said casing, a web connected with each shaft, the web being secured in the opposite ends of the cylinder, a bushing located on each shaft between the head and an end wall of the casing, the bushing at one end of the casing being provided with a left hand thread, the bushing at the other end of the casing being provided with a right hand thread whereby the liquids agitated in the casing upon rotation of the cylinder will be prevented from being forced past the journals for the shaft.

3. In a flotation machine comprising a casing having a plurality of discharge openings, a revolving hollow cylinder in the casing provided with a plurality of rows of openings, and blades located adjacent each opening, the openings in one row being staggered relative to the openings in adjacent rows, shafts journaled in the casing and supporting the opposite ends of the cylinder.

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