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DRAIN DEVICE

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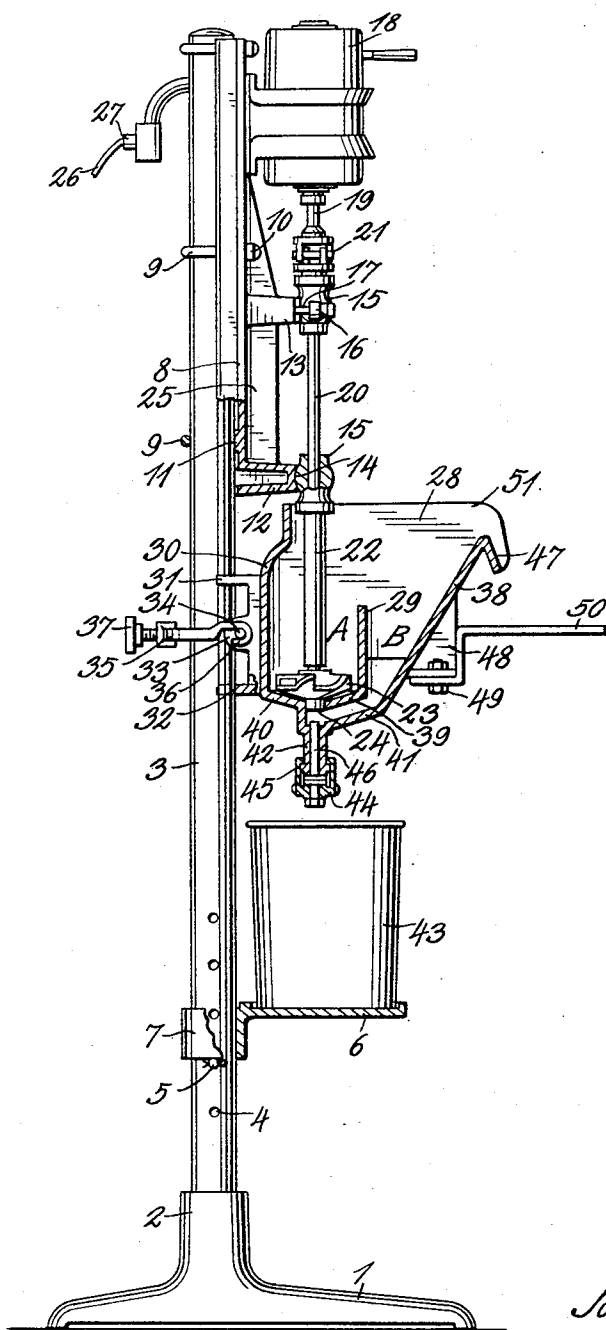


Fig. 1.

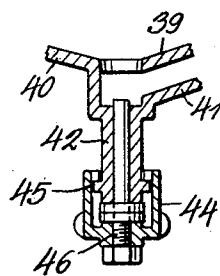


Fig. 2.

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DRAIN DEVICE

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This invention relates to improvements in the construction of flotation machines of the type employed in separating gold and other metals from pulp.

5 It is the object of this invention to produce a drain member for a flotation machine for use in laboratories for making tests and for other experimental uses.

10 In making careful tests of the values contained in samples of ore, it is necessary that great care should be taken to keep the different samples absolutely separate so as to prevent what is generally termed "salting". In machines of this type it is therefore necessary to thoroughly clean the machine between each test so as to prevent values from one test or sample being transferred to another so as to cause an error in the reading.

15 In flotation machines of the usual construction such as are employed in actual flotation operations the parts are permanently connected together and it is therefore practically impossible to clean the parts as thoroughly as is necessary for laboratory use.

20 Another object of this invention is to produce a novel drain and closure therefor which shall be so constructed that the drain opening can not clog but will be held in open position by the closure.

25 The above and other objects which may become apparent as the description proceeds are attained by means of a construction and an arrangement of parts which will now be described in detail, reference for this purpose being had to the accompanying drawing in which the preferred embodiment of the invention has been illustrated and in which:

30 Fig. 1 is a side elevation of a machine having my improved drain device, parts being shown in section to better disclose the construction and

35 Fig. 2 is a fragmentary section similar to that shown in Fig. 1 and shows the parts to an enlarged scale.

40 In the drawing numeral 1 represents the base on which the machine is supported. This base has an upwardly extending hub 2 provided with an opening for the reception of the lower end of the tubular support 3.

This support is provided with a plurality of diametrical openings 4 for the reception of a pin 5. A bracket 6 has a hub portion 7 provided with an opening of the proper size to receive the tubular support 3 and this bracket is held in place by means of the pin 5. Secured to the upper end of the tubular support is a supporting casting 8. This is held in place by means of U-bolts 9 which serve to clamp it securely against the side of member 3. The U-bolts are provided with nuts 10 in the manner shown. The side of member 8 which is nearest to the supporting member 3 is provided at spaced points with inwardly extending flanges 11 whose inner edges are curved to correspond to the curvature of the supporting member 3. These flanges are located in the plane of the clamping bolts 9 so that they will resist the pressure exerted by these bolts. The outer surface of member 8 is provided with two outwardly extending projections 12 and 13 whose outer surfaces have a recess 14 for the reception of the convexly curved central portion of the bearings 15 in the manner shown in Figs. 3 and 4. These bearings have oppositely located lugs 16 which are perforated for the reception of the bolts 17 by means of which the bearings are secured to the outer ends of the projections 12 and 13. A motor 18 is secured to the upper end of member 8 and is so mounted that its drive shaft 19 is axially aligned with the shaft 20 which is rotatable in bearings 15. Shafts 19 and 20 are connected by means of a flexible coupling 21 which may be of any well known construction and which will therefore not be described in detail. Secured to the lower end of the lowermost bearing 15 is a tubular sleeve 22 that projects downwardly over the lower end of the shaft 20. Secured to the lower end of shaft 20 is an impeller 23. This impeller is of the ordinary construction and will therefore not be described in detail. Central hub portion 24 projects downwardly from the lower side of the impeller in the manner shown in Fig. 1. For the purpose of strengthening the member 8, a vertical reinforcing rib 25 has been provided. This rib extends between projections 12 and 13

and extends above the latter to the base of the motor. Current for the electric motor is conducted to the latter by means of conductors 26 which terminate in a removable plug 27 as shown in Fig. 1. It is apparent that when the motor rotates, the shaft 25 and the impeller 23 will also be rotated as these are directly connected to the motor shaft. Secured to the standard 3 is a casing which has been indicated as a whole by reference numeral 28. This casing is divided into two compartments A and B by means of a transverse partition 29. Compartment A will be referred to hereinafter as the agitating compartment and compartment B as the settling compartment. The wall 30 that is nearest to the supporting member 3 is provided with rearwardly extending spaced flanges 31, which have curved notches 32 that fit against the outer surface of the supporting member 3. Located intermediate the flanges 31 are lugs 33 provided with outwardly extending pins 34. A U-shaped clamping member 35 has its end provided with hooks 36 which engage the pins 34 in the manner shown in Fig. 1. This clamping member is provided with a screw 37 which can be forced against the opposite side of the supporting member 3 for the purpose of securing the casing 28 in place. The side of the casing opposite from wall 30 has been indicated by numeral 38 and is outwardly inclined, so as to form with the partition member 29 a triangular compartment which has been indicated by letter B. The lower end of the partition wall 29 is bent inwardly so as to form the inclined section 39 of the bottom of the agitating compartment A. The other part of this bottom is formed by section 40. The bottom of the agitating compartment A is provided with an opening for the reception of the hub 24. Wall 28 terminates in an inclined portion 41 which is parallel with and spaced from the bottom portion 39, in the manner shown in Fig. 1. A downwardly projecting tubular member 42 forms an outlet for the purpose of draining the contents of the casing 28 into the pail 43, which rests upon the shelf 6.

For the purpose of closing the opening in tubular member 42, I have provided a cap or cup-like member 44 which is connected to the tubular member 42 by means of a bayonet joint connection 45. A bolt or plug 46 is secured to the bottom of cap 44 and extends upwardly through the member 42 in the manner shown. When the cap and bolt are in the position shown, the outlet through member 42 is closed and since bolt 46 extends through the entire length of member 42, it prevents material from accumulating in the inside of member 42. The upper edge of inclined wall 38 is bent downwardly in the manner indicated by reference numeral 47 so as to form a spout. A bracket 48 is

formed on the outer surface of wall 38 and secured to this bracket by means of bolts 49 is a shelf 50 which is adapted to support a container into which the froth overflows. When the machine is in operation the pulp to be tested is placed in the casing and the motor 18 started. The impeller will then rotate and agitate the pulp in compartment A, thereby causing the production of froth which finally flows out through the spout 47. The gang passes over the partition wall 29 and accumulates in the bottom of the settling chamber B. After the machine has been operated for the necessary length of time, the motor is stopped and casing 28 is detached from the support 3 by loosening screw 37 and removing the clamping member 35. It is now possible to thoroughly clean the parts so as to get them in proper condition for conducting a test with other samples.

I have indicated above the importance of being able to thoroughly clean the inside of the casing and the impeller so as to assure accurate results and this can only be accomplished when the casing is removed as with the construction employed, it is impossible to get access to the different parts of the casing when it occupies the position shown in Fig. 1.

Having described my invention what I claim as new is:

A drain for the settling compartment of a flotation machine comprising an elongated tubular member extending downwardly from the bottom of the compartment, the opening in the tubular member being in communication with the interior of the compartment, the lower end of the tubular member having a plurality of spaced lugs on its outside, said lugs forming a portion of a bayonet joint, and a closure for said member, said closure comprising a plug extending entirely through the opening in the member and a cup-like member attached to the lower end of the plug, the sides of the cup projecting over the lower end of the tubular member, the cup having internal slots for cooperating with the lugs on the tubular member for holding the parts in position.

In testimony whereof I affix my signature.
JOSEPH P. RUTH, Jr.