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CENTRIFUGAL CONCENTRATOR

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1 Claim. (Cl. 233—27)

The present invention relates to new and useful improvements in centrifugal concentrators for use particularly in recovering gold, platinum, iridium, etc., and has for one of its important objects to provide, in a manner as hereinafter set forth, a device of this character embodying riffles of a novel construction and arrangement.

Other objects of the invention are to provide a concentrator of the aforementioned character which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawing wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a top plan view of a concentrator constructed in accordance with the present invention, the power shaft and material chute being shown in horizontal section.

Figure 2 is a view in vertical section through the invention, taken substantially on the line 2—2 of Fig. 1.

Referring now to the drawing in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a bowl 1 of suitable dimensions and material. The bowl 1 is fixed on the lower end portion of a vertical power shaft 2. Of course, the shaft 2 may be driven from any suitable source of power. The material enters the lower portion of the bowl 1 through a chute or tube 3 which enclosed the shaft 2 in spaced, concentric relation thereto, the lower end of said tube being spaced from the bottom of the bowl 1, as illustrated to advantage in Fig. 2 of the drawing.

Fixed in the bowl 1 is a plurality of spaced riffles 4. As also shown to advantage in Fig. 2 of the drawing, the riffles 4 are substantially of S-shape in cross section with one curved portion connected with the wall of the bowl and having its concave face uppermost and the other curved portion, which is a free portion, having its concave face lowermost so that these riffles act to effectually hold the precious metals from escaping by the riffles. Of course, any desired number of riffles 4 may be used.

In operation, the fines enter the bowl 1 from the tube 3. The bowl 1 is, of course, rotating with the power shaft 2. The fines entering the bowl are held in suspension by a ratio of approximately 80 percent water and approximately 20 percent fines. The light materials are drawn to the center around the tube 3 by centripetal force, their place being taken by the heavier materials according to the specific weight. The force of gravity is overcome by centrifugal force. The precious metals are thrown against the bowl 1 and into the riffles 4 where they remain until removed. The waste materials are discharged over the top of the bowl 1.

It is believed that the many advantages of a concentrator constructed in accordance with the present invention will be readily understood and although a preferred embodiment of the device is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

A concentrator of the class described comprising a bowl of substantially semi-spherical shape, means for rotating said bowl, a plurality of annular riffles connected in vertically spaced relation to the internal walls of the bowl, said riffles gradually increasing in diameter from the lowermost one and said lowermost one being spaced from the bottom of the bowl, each riffle being formed of a strip bent into substantially S-shape in cross section to form a double curve, one curved portion having an edge connected to the internal wall of the bowl with its concave face uppermost and the other curved portion having its concave face lowermost, said riffles being substantially horizontally arranged and means for introducing the material to be treated into the center of the bowl below the lowermost riffle, the interior of the bowl being smooth.

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Fig. 1.

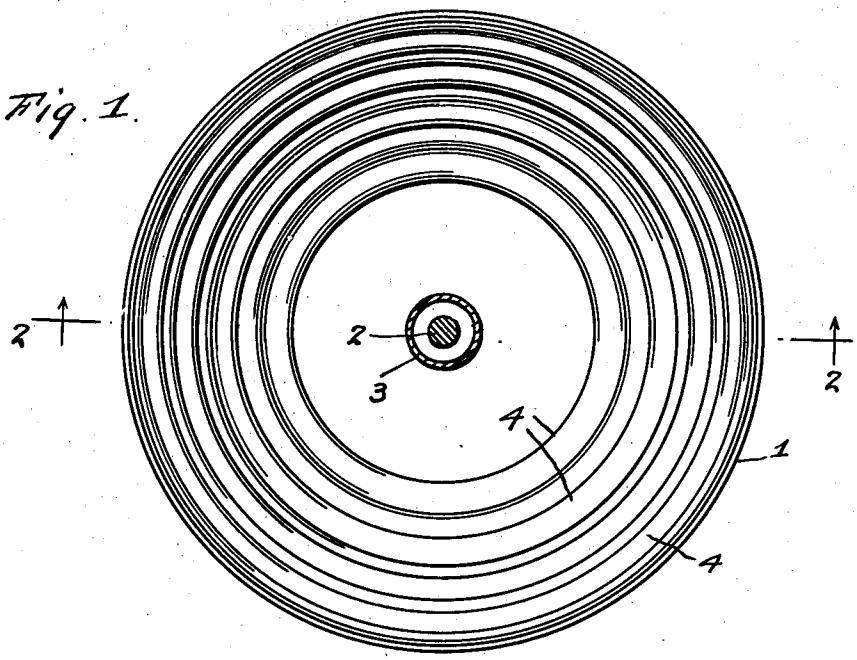
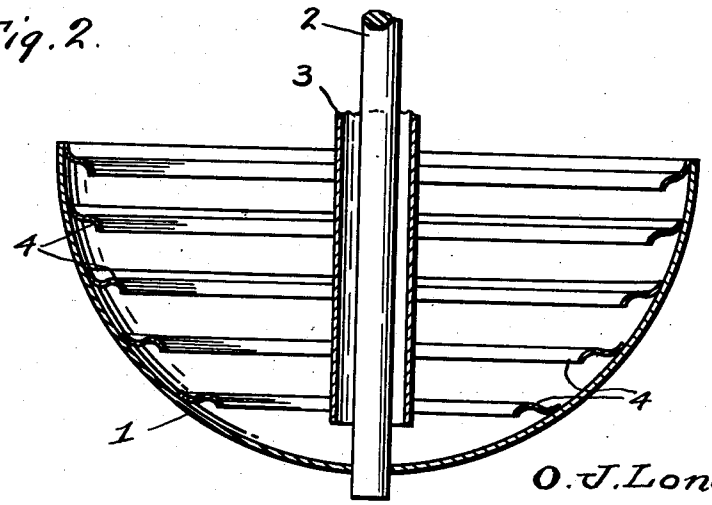


Fig. 2.



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