Nov. 14, 1933. S. J. DRYHURST 1,935,547

ORE SEPARATOR

Filed Sept. 7, 1932

FIG. 1.

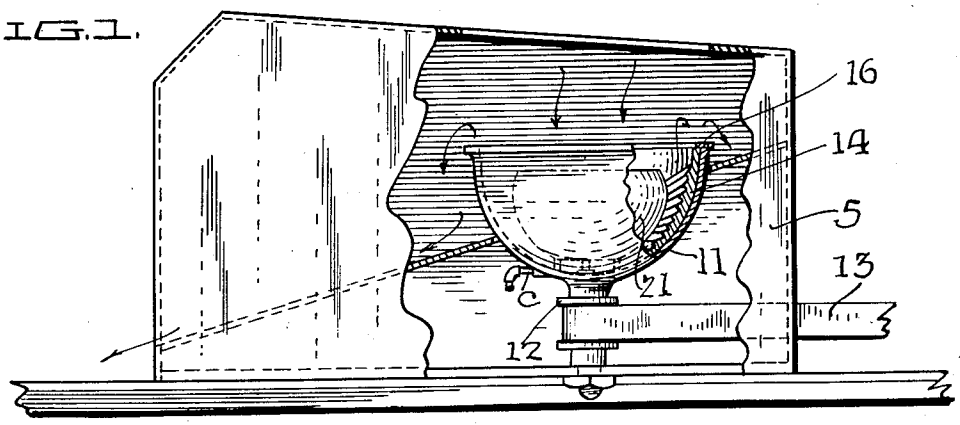


FIG. 2.

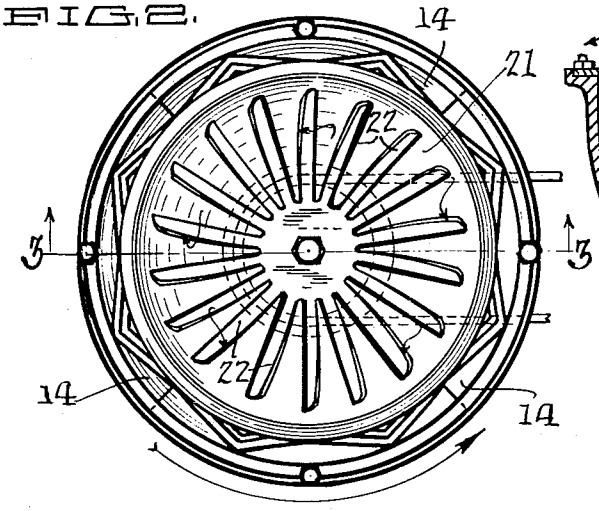
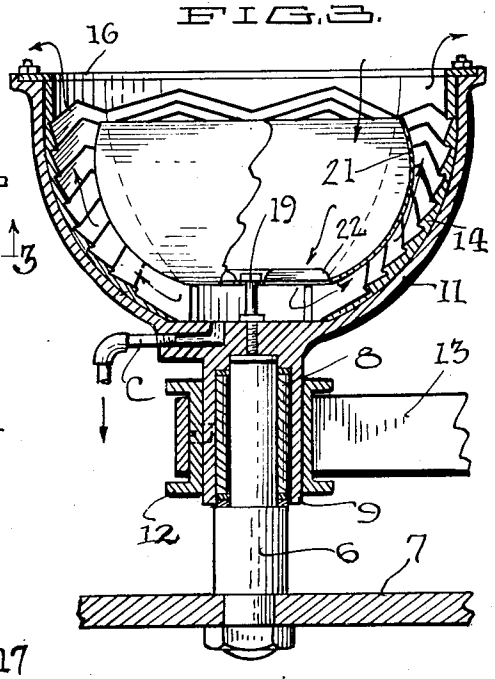


FIG. 3.



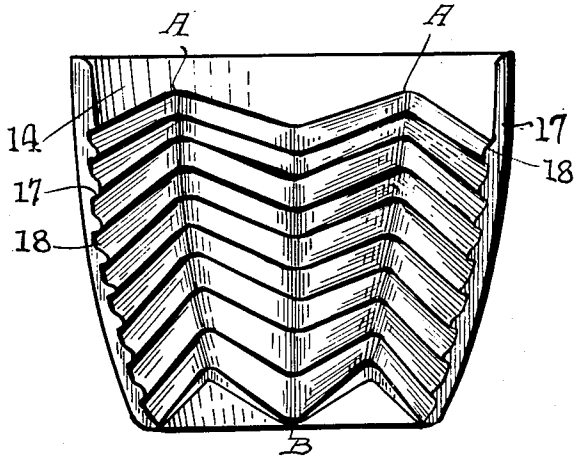
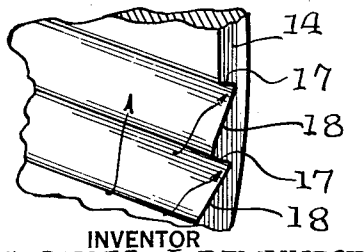


FIG. 4.

FIG. 5.



INVENTOR
SAMUEL J. DRYHURST.
BY Victor J. Evans & Co
ATTORNEYS.

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ORE SEPARATOR

Samuel J. Dryhurst, San Francisco, Calif.

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2 Claims. (Cl. 233—27)

This invention relates to improvements in ore separators and has particular reference to a device for separating ore through the effect of centrifugal action.

The principal object of the invention is to provide a simple device wherein ore or tailings may be run through the machine so as to extract fine particles of gold or mercury therefrom.

A further object is to produce a machine of this character which is simple in construction and one which may be employed in isolated districts, without the requirement of much power.

A further object is to produce a device which is readily transportable.

A still further object is to produce a device wherein a continual separation may be effective through the continual spilling of the waste material from the device.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawing forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevation of my machine having a portion thereof broken away,

Fig. 2 is an enlarged top plan view,

Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 2,

Fig. 4 is a side elevation of one of the concentrator shells, and

Fig. 5 is a fragmentary detail view showing the manner in which the riffles are formed.

In the separating of ore, advantage may be taken of the specific gravity of the ore, particularly this is true of both gold and mercury. Therefore, I have provided a machine wherein the crushed material is fed into the machine and through centrifugal action is caused to pass over a plurality of riffles and finally spilled out of the top of the machine.

In the accompanying drawing wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 5 designates a casing within which my device is positioned, which device consists of a bearing 6 mounted upon the base 7 of the casing 5. The bearing 6 carries rollers 8 which fit within a bore formed in the lower end 9 of a bowl shaped casting 11. A pulley 12 is secured to the end 9 so that a belt 13 may deliver power thereto for the purpose of rotating the bowl 11. Secured in the bowl are a plurality of shells 14 here shown as four in number, which shells are secured in the bowl by a ring 16. These shells have formed upon their surface riffles which riffles are provided with substantially horizontal undercut portions 17 and connecting inclined portion 18 (see Fig. 5). The riffles are further inclined as best illustrated in Fig. 4, so that they form upwardly extending apexes as shown at A and downwardly extending apexes as shown at B. Mounted within the bowl and supported therefrom by a stud 19, is a deflector 21. This deflector has a series of vanes 22 formed upon its lower surface, which vanes are so directed as to engage material placed within the deflector and causes it to pass through the bottom thereof into the bowl 11, whereafter the centrifugal force will perform the separating action.

The operation of my device is as follows:—

Assuming that the assembly has been completed as shown in Fig. 1, fine ore bearing material is placed in the deflector 21, power is applied to the belt 13 and the entire device will rotate upon the bearing 6. The dirt within the deflector 21 will be effected by the plates 22 and fed into the bottom of the cup 11. Here centrifugal action will cause the material to gradually climb the sides of the bowl where it will come into contact with the riffles, the heavier particles, such as gold or mercury, will be retained in the riffles while the dirt and other refuse will pass over and out of the top of the bowl as best illustrated in Fig. 1. After the device has been in operation a suitable length of time, the device is stopped, the concentrates contained therein are washed from the riffles and may be drained away through the pipe C. Therefore, it will be apparent that with my device I can secure a very rapid and effective concentration of what would be otherwise ore unprofitable to handle.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. In a device of the character described, a bearing, a rotatable cup-shaped member rotatably mounted on said bearing, means for rotating said cup-shaped member, a plurality of shell-like sections secured in said cup-shaped member, said sections having riffles formed thereon, said riffles being formed zig-zag circumferentially in order to form upwardly and downwardly apexed portions and a deflector for feeding ore to said riffles.

2. In a device of the character described, a bearing, a rotatable cup-shaped member rotatably mounted on said bearing, means for rotating said cup-shaped member, a shell positioned in said cup-shaped member, said shell having riffles formed upon its inner surface, said riffles having a horizontal face and an inclined face extending between each horizontal face, said riffles being formed zig-zag circumferentially in order to form upwardly and downwardly apexed portions.

SAMUEL J. DRYHURST.