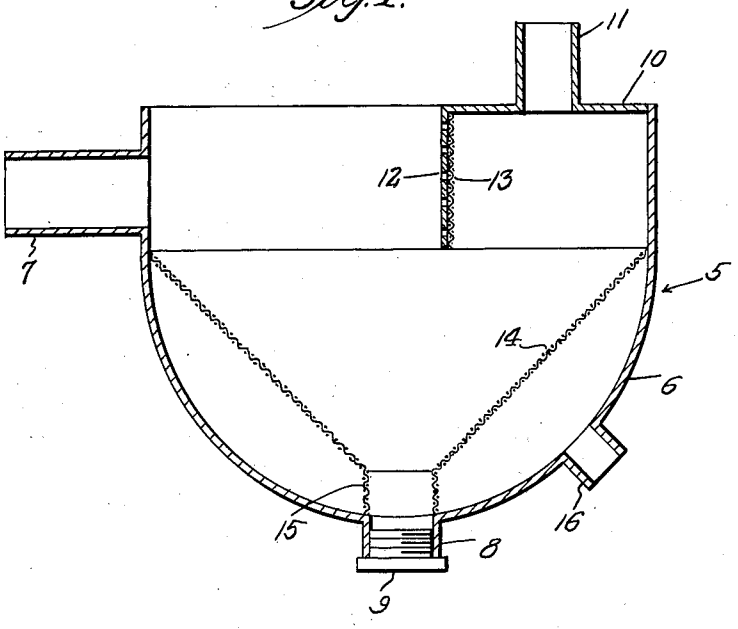
July 10, 1934. W. J. BURKE ET AL 1,966,001

GOLD SEPARATOR

Filed June 17, 1932

Fig. 1.



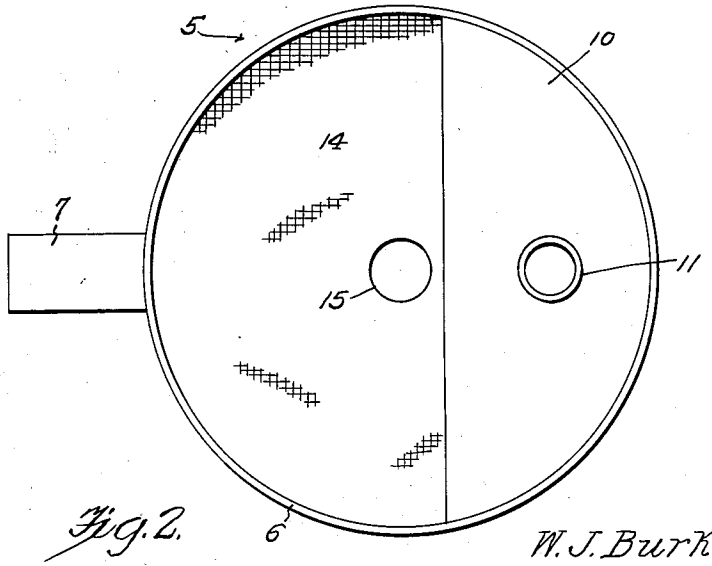


Fig. 2.

Inventor

W. J. Burke,
L. D. Stower,

By Clarence A. O'Brien
Attorney

Patented July 10, 1934 1,966,001

UNITED STATES PATENT OFFICE

1,966,001

GOLD SEPARATOR

William J. Burke and Lester D. Stower, Deer Lodge, Mont.

Application June 17, 1932, Serial No. 617,898

2 Claims. (Cl. 209—158)

Our invention relates generally to ore separating apparatus, and particularly to an improved device for separating gold and other similar precious metals from sand, dirt, and other débris.

It is an important object of our invention to provide a simple and compact device of this character which is inexpensive to manufacture, and is extraordinarily efficient.

It is also an important object of our invention to provide special structure in a device of this kind and use water under pressure for accomplishing in a novel and efficient manner the separation of the unwanted materials from the gold particles or the like.

Other objects and advantages of our invention will be apparent from a reading of the following description of the drawing, wherein for purposes of illustration, we have shown a preferred embodiment of the invention.

In the drawing:—

Figure 1 is a transverse vertical sectional view through the embodiment.

Figure 2 is a top plan view thereof.

Referring in detail to the drawing, wherein like numerals refer to like parts throughout the same, the numeral 5 generally designates a container of suitable metal or other material which is preferably of vertical cylindrical form provided with a hemispherical lower portion 6.

The upper cylindrical portion of the container is provided with a waste outlet which may be in the form of the radial pipe or neck 7. The lower hemispherical portion of the container is provided with an axial depending short neck 8 provided with a preferably threaded plug 9, the neck 8 being communicated with the interior of the container for receiving therein the gold or the like particles which collect at this point. The upper cylindrical portion of the container is provided at one side thereof opposite the waste outlet 7 with a cover member 10 from which projects upwardly a nipple or neck 11 communicated therethrough. From the inward edges of the cover member 10 there depends a perforated partition 12 which has on its inward side a fine mesh screen 13. Though the cover member 10 is shown in the drawing as covering less than half of the top opening of the container, it may be provided to cover a greater or a less extent thereof. If desired the cover member 10 may be dispensed with so that the upper part of the container is entirely open. On the level just below the lower edge of the partition 12 there is disposed the upper end of an inverted conical screen or funnel 14 which has the dependent neck portion 15 registered with the opening in the bottom of the container which communicates with the nipple 8. The conical screen 14 is constructed of fine metal mesh, and the upper edge thereof is secured to the interior of the container in such a manner that a fluid-tight joint exists between the upper edge of the screen and the interior of the container. This connection may be achieved in any suitable manner.

At one side of the hemispherical portion of the container, preferably opposite the location of the waste outlet 7, there is provided a radial water pressure inlet 16. This is preferably located somewhat higher than the neck 8 so that the incoming water under pressure enters the container at a point slightly above the lower end of the screen 14 but below the top thereof. This location of the inlet 16 is chosen also so that the incoming water under pressure will impinge upon gold laden material which is introduced into the material inlet 11 as the cold laden material falls. The water pressure inlet 16 it will be observed, is located underneath the material inlet 12 so that the incoming stream of water under pressure will directly meet the gold laden material introduced into the container as the material falls into the screen 14, whereby the incoming material will be acted upon with great vigor, and the separation of the gold or other similar particles from the dirt and débris accomplished with expedition and completeness.

The operation of the device is as follows:—

The ore bearing dirt or sand is first screened to remove large lumps and foreign substances, and is then passed into the material inlet 11 through which it falls into the screen 14. A source of water under pressure, preferably clean water, having been connected to the water inlet 16, the incoming ore bearing material will be acted upon by the resulting under-shot circulation of water in the container, so that the metal, such as gold or the like, will be freed and permitted to fall to the bottom of the container and collect in the clean-out neck 8, while the dirt and débris will be passed upwardly and from the container by way of the waste outlet 7. The partition 12 is provided to cause the incoming ore bearing material to drop directly to the bottom of the screen 14 where the agitation caused by the incoming water under pressure is greatest. The separation of the ore from the dirt and débris is in this manner completed before the dirt and débris is moved toward and is conveyed out of the container through the outlet 7. The clean water coming through the cone screen

14 from the water pressure inlet 16 passes through the screen 14 and thoroughly washes the ore bearing material. The ore, such as gold or the like, being heavier than the material separated therefrom, readily sinks to the bottom of the cone and collects at this point. The accumulated gold or the like particles may be easily removed by removing the clean-out plug 9.

The cover 10 acts to prevent the splashing out or overflowing of the ore bearing material as it is introduced into the container, while the open portion of the top of the container enables the operator to watch the separation process and to know how to regulate the pressure of the incoming water, and regulate the volume of ore bearing material being introduced. The mesh 13 on the partition 12 acts to permit dirty water to pass through the partition without permitting the passage of ore bearing material being introduced into the container through the neck 11.

It will be observed that there are no movable parts in our invention and that it may be attached to any standard screen or flume, or to a dredge, and that the device may be made in any suitable size or capacity. The under-shot current produced in the device of the invention washes the gold from the dirt by a circulation similar to that which obtains in a "spring", by which the clarity of the spring is maintained.

Though we have shown and described herein a preferred embodiment of the invention, it is to be definitely understood that we do not desire to limit the application of the invention thereto, and any change or changes may be made in material and structure and in arrangement of parts, within the spirit of the invention and the scope of the subjoined claims.

What is claimed is:—

1. A gold separator of the type described comprising a container having an open top, a gold clean-out in the bottom of the container, an inlet for admitting water under pressure located in one side of the lower part of the container, a waste material outlet located in one side of the upper part of the container opposite said inlet, an inverted conical screen in the container communicating with said clean-out, and baffle means located in the upper part of the container near one side thereof for confining gold laden material introduced into the container between itself and the said one side of the container so as to enable said material to fall to the bottom of the screen, said inlet being adapted to project water under pressure against the falling material, whereby to separate the gold from said material and wash the material to the outlet, while permitting the gold to settle gravitationally in the said clean-out, said baffle means being perforated, and a screen covering the perforations in the baffle and permitting passage of water therethrough while detaining the gold laden material.

2. A gold separator of the type described comprising a container having an open top, a gold clean-out in the bottom of the container, an inlet for admitting water under pressure located in one side of the lower part of the container, a waste material outlet located in one side of the upper part of the container opposite said inlet, an inverted conical screen in the container communicating with said clean-out, and baffle means located in the upper part of the container near one side thereof for confining gold laden material introduced into the container between itself and the said one side of the container so as to enable said material to fall to the bottom of the screen, said inlet being adapted to project water under pressure against the falling material, whereby to separate the gold from said material and wash the material to the outlet, while permitting the gold to settle gravitationally in the said clean-out, said baffle means being perforated, the lower end of the baffle means being located above the inverted conical screen.

WILLIAM J. BURKE.
LESTER D. STOWER.