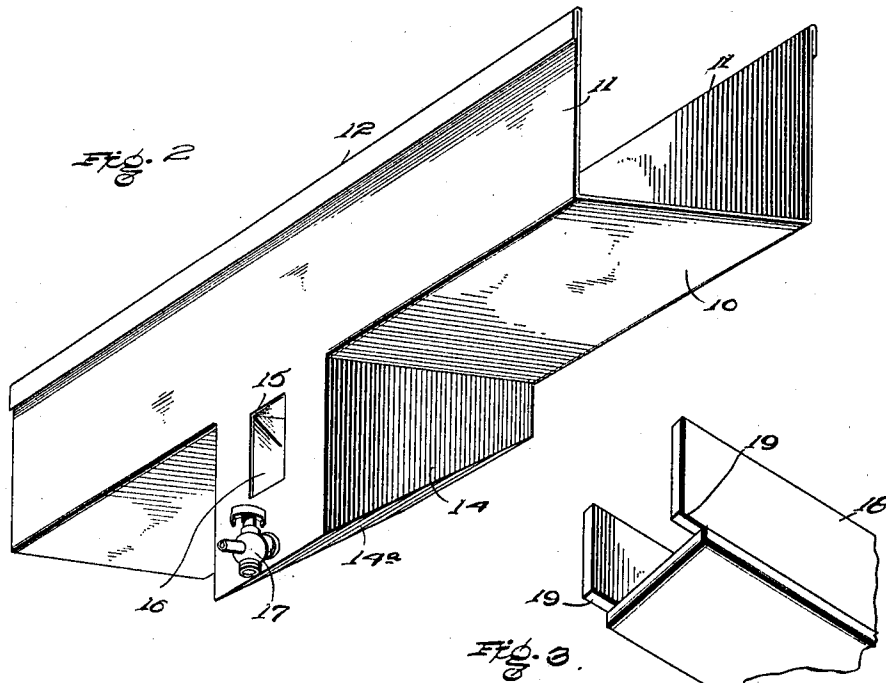
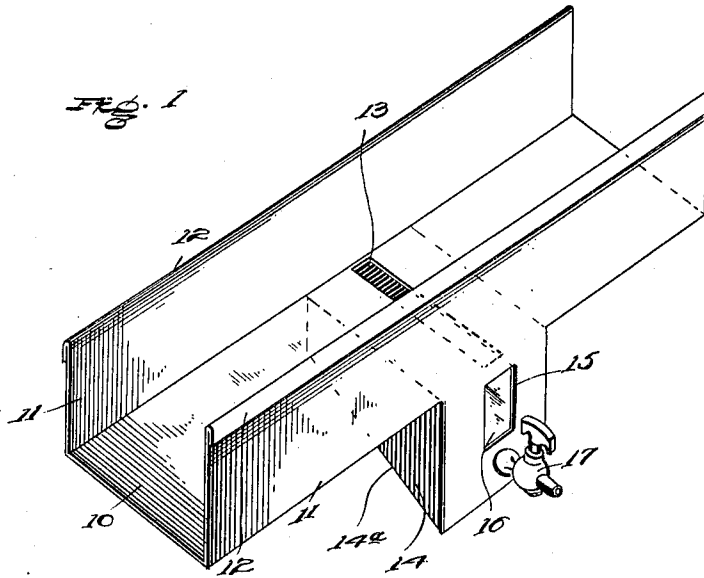


T. M. GILCHRIST.
ORE CONCENTRATOR.
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1,004,412.

Patented Sept. 26, 1911.

2 SHEETS—SHEET 1.

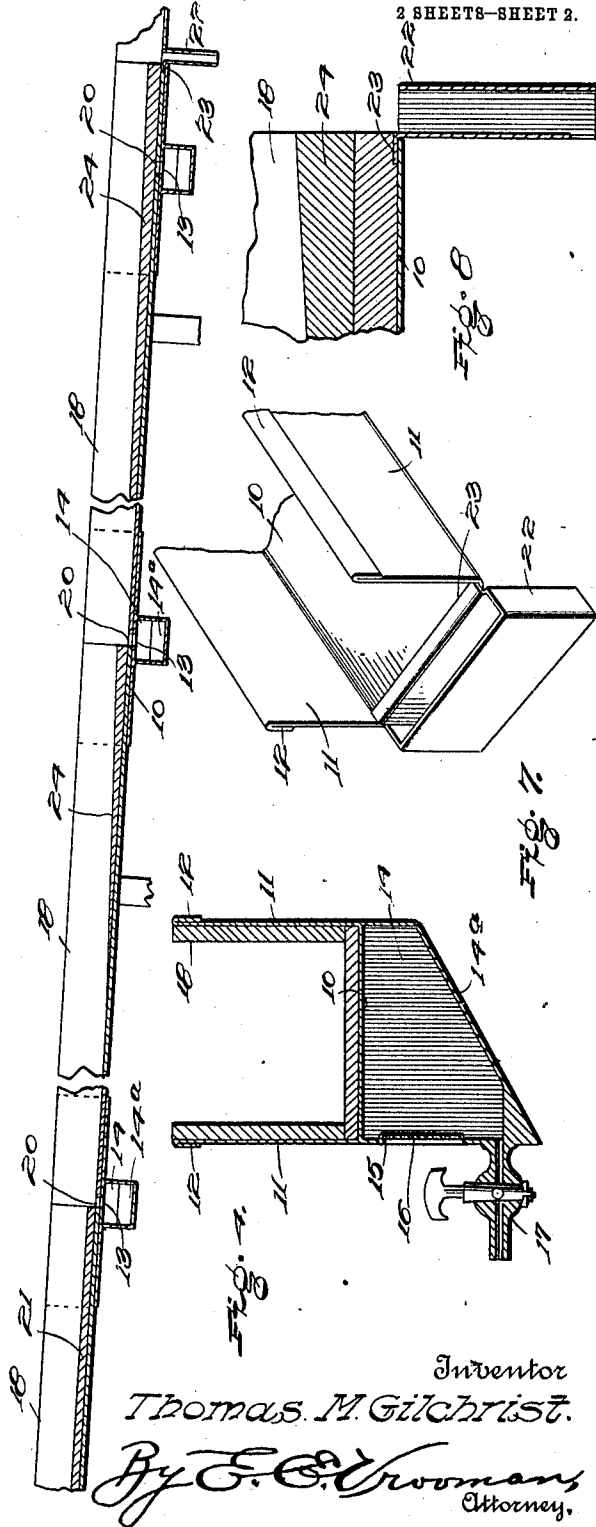


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UNITED STATES PATENT OFFICE.

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ORE-CONCENTRATOR.

1,004,412.

Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed January 31, 1911. Serial No. 605,715.

To all whom it may concern:

Be it known that I, THOMAS M. GILCHRIST, a citizen of the United States, residing at White Bird, in the county of Idaho and State of Idaho, have invented certain new and useful Improvements in Ore-Concentrators, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to the subject of mining, and the principal object of the same is to provide a novel concentrator that can be readily used in connection with sluice boxes or flumes so that the valuable minerals will be separated from the base ores and conveyed to a closed receptacle.

With the above generally stated objects of the invention in view, the same contemplates a novel concentrator that can be used in connection with any type of sluice boxes, so that the valuable minerals will be concentrated and in which a plurality of the concentrators can be used with a plurality, or "string" of boxes, one or more of the boxes being equipped with a novel chute so that the coarse minerals and black sand can also be concentrated.

In carrying out the objects of the invention generally stated above it will be understood, of course, that the essential features thereof are necessarily susceptible of changes in details and structural arrangements, one preferred and practical embodiment of which is shown in the accompanying drawings, wherein:—

Figure 1 is a perspective view of the improved concentrator. Fig. 2 is a similar view, as it appears from another angle. Fig. 3 is a fragmentary detail perspective view of one end of a sluice box adapted for use in connection with the improved concentrator. Fig. 4 is a central vertical transverse sectional view of the concentrator. Fig. 5 is a vertical longitudinal sectional view showing the concentrator used with a sluice box. Fig. 6 is a view similar to Fig. 5 showing a plurality of the concentrators used with a string of sluice boxes, and also showing the use of the discharge chute. Fig. 7 is a fragmentary detail perspective view of one end of a concentrator from which a discharge chute is suspended. Fig. 8 is a fragmentary vertical longitudinal sectional view of the concentrator and chute shown in Fig. 7.

The improved concentrator comprises a

body that is preferably formed of metal having an elongated flat bottom 10 and up-standing longitudinal sides 11, said sides preferably having their longitudinal upper edges 12 downturned to prevent the said edges cutting or otherwise damaging the attendant or attendants. Said body is open at the top and both ends, and at its central portion, the flat bottom 10 is provided with a transverse slot 13 which preferably extends entirely across said bottom. A transversely arranged receptacle 14 is suspended from the bottom 10 beneath slot 13, and its bottom 14^a is inclined so that the contents of the receptacle will gravitate to the front end thereof. Said front end of the receptacle is provided with an opening 15 that is sealed by a transparent closure 16 to permit the contents of the receptacle to be inspected. A discharge valve 17 projects from the front of the receptacle and obviously facilitates the removal of the contents of said receptacle.

The improved concentrator is interposed between two sluice boxes 18, the adjacent ends of said boxes being placed within the body of the concentrator with their sides abutting. One of the boxes has the ends of its sides projecting beyond the forward transverse edge of its bottom, as indicated at 19 to provide an entrance 20 to the slot 13 in the concentrator. When assembled, the meeting ends of the boxes 18 are to one side of slot 13 and the entrance 20 is over and in alinement with said slot, as is clearly shown in Fig. 5 of the accompanying drawings. The box 18 that conveys the material to the concentrator is equipped with a false bottom 21 that extends to the forward edge of the slot 13 so that the material will have a fall at that point which will cause the water and base material to "jump" across said slot, and the valuable minerals to gravitate through the slot and be caught by the receptacle 14.

A discharge chute 22 is provided for the rear end of the concentrator so that coarse minerals and black sand can be conveyed to an amalgamating pan or other suitable receptacle. Said chute is preferably rectangular in shape and formed of metal and is of substantially the same width as the bottom of the concentrator. A flange 23 projects laterally from one upper edge of the chute and is rested on the rear end of the bottom of the concentrator beneath one of the sluice

boxes 18, so that the weight of said box will retain said chute in position. The discharge chute is of especial value when a plurality of the concentrators are used in connection with
5 a "string" of boxes as is shown in Fig. 6. In such uses some of the boxes having their false bottoms 24 tapering in thickness and arranged so that their thicker ends are at the chute and the slots of the concentrators
10 and will cause the minerals and black sand to gravitate into said concentrators and chute.

It will be seen from the foregoing that this invention provides simple means whereby
15 valuable minerals can be readily concentrated without manual labor, and that the parts of the invention are of such a nature that they can be quickly and economically produced.

20 What I claim as my invention is:—

1. An ore concentrator comprising a body provided with a transverse slot, a receptacle suspended beneath said body and adapted to receive material through said slot, a sluice
25 box fitted in one end of said body, a false bottom therefor arranged to form a drop for the material delivered to body at said slot, and a second sluice box fitted in the other end of said body, the bottom of said
30 box being in a plane lower than that of the top of said false bottom and abutting the

first-mentioned box, one of said boxes being provided with an entrance for said slot.

2. An ore concentrator comprising a trough shaped body provided with a central
35 transverse slot in its bottom, a receptacle carried by the bottom of said body beneath said slot, sluice boxes in said body, and an inclined false bottom of varying thickness in one of said boxes, the thickest portion
40 thereof terminating adjacent said slot, and in a plane above the sluice bottom on the other side of the slot, the false bottom being adapted to provide a drop for the pulp
45 adjacent the slot.

3. An ore concentrator comprising a body provided with a transverse slot, a receptacle suspended beneath said body and adapted to receive material through said slot, a sluice
50 box fitted within one end of said body, a false bottom therefor, and a second sluice box fitted in the other end of said body and abutting the first mentioned box, the bottom of the second sluice box being in a plane
55 lower than that of the top of said false bottom.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

THOMAS M. GILCHRIST.

Witnesses:

CARL BENSON,

IRA N. GILCHRIST.