

W. H. MERRITT.
 FLUSH SLUICE CONCENTRATOR.
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978,468.

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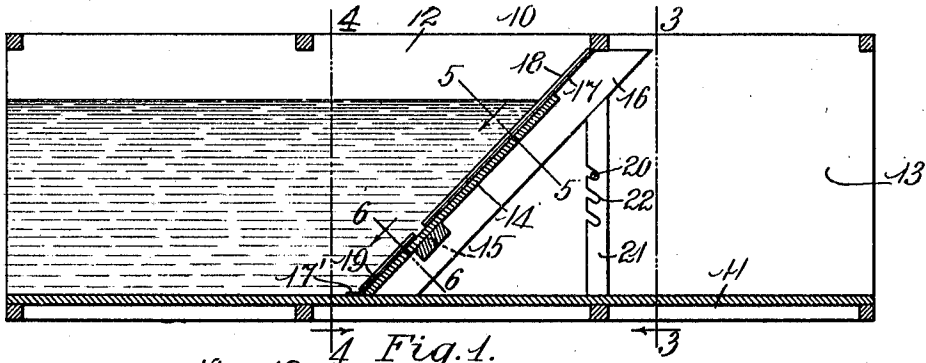


Fig. 1.

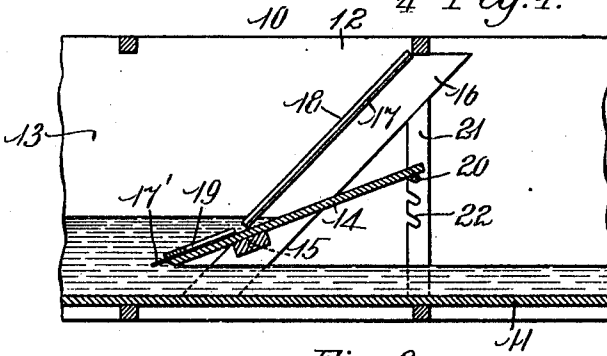


Fig. 2.

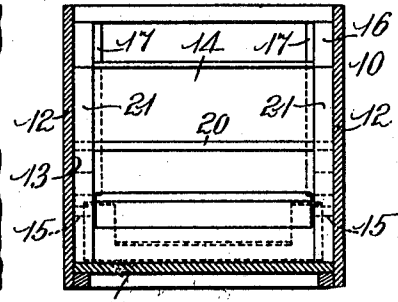


Fig. 3.

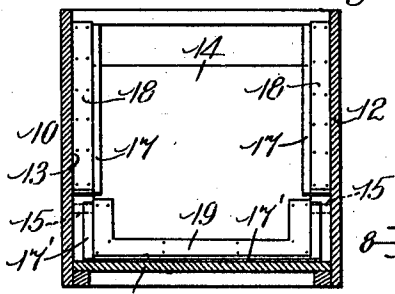


Fig. 4.

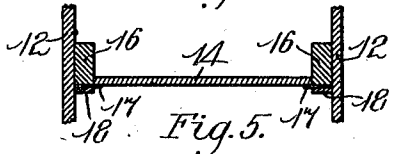


Fig. 5.

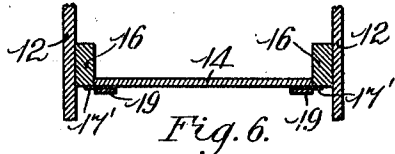


Fig. 6.

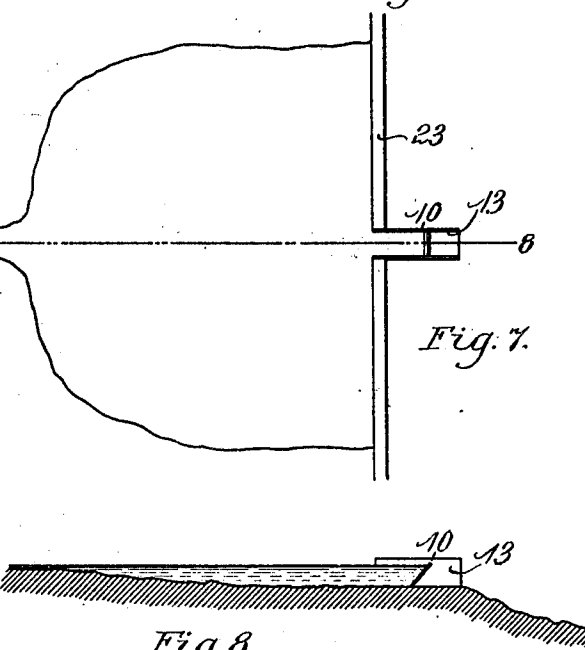


Fig. 7.

Fig. 8.
 Inventor:
 Warren H. Merritt,
 by his attorney,
 Charles S. Gooding.

Witnesses:
 Franklin E. Low,
 Leonard A. Powell

UNITED STATES PATENT OFFICE.

WARREN H. MERRITT, OF COPPER CENTER, DISTRICT OF ALASKA, ASSIGNOR TO
VALDEZ CREEK CONSOLIDATED MINING COMPANY, A CORPORATION OF MAINE.

FLUSH-SLUICE CONCENTRATOR.

978,468.

Specification of Letters Patent. Patented Dec. 13, 1910.

Application filed March 14, 1910. Serial No. 549,179.

To all whom it may concern:

Be it known that I, WARREN H. MERRITT, a citizen of the United States, residing at Copper Center, in Alaska, have invented 5 new and useful Improvements in Flush-Sluice Concentrators, of which the following is a specification.

This invention relates to improvements in apparatus for washing earth away to expose minerals, and the object is to provide 10 a device for use in controlling the flow of water from a stream in connection with a suitable dam, whereby a body of water is stored up in a reservoir back of the dam and 15 when the same has reached a predetermined level, said device shall automatically open and allow water to flow through the dam and when the body of water is lowered to a predetermined level, said device shall automati- 20 cally close to cause the water level in the reservoir to rise again, this opening and closing of the device taking place automatically at suitable intervals.

The object is further to provide means 25 whereby the amount of water released with each opening of the device may be varied at will and to this end I have provided adjustable means for limiting the movement of the gate of the device so that the same may 30 be caused to remain open the proper length of time.

By the use of the device of my invention, earth, stones and even comparatively large boulders may be washed away below the dam 35 to expose the minerals sought, the interval of time between each flushing being sufficient to allow the removal of the minerals exposed by the washing process.

The invention consists in the novel features of construction and in the combination and arrangement of parts set forth in the following specification and particularly 40 pointed out in the claims.

Referring to the drawing: Figure 1 is a 45 vertical longitudinal sectional view of an apparatus embodying my invention showing the gate in closed position. Fig. 2 is a vertical longitudinal section of the apparatus, partly broken away to save space, showing 50 the gate in its open position. Fig. 3 is a sectional view taken on line 3—3 of Fig. 1, looking toward the left. Fig. 4 is a sectional view taken on line 4—4 of Fig. 1, looking toward the right. Fig. 5 is a detail sectional

view taken on line 5—5 of Fig. 1. Fig. 6 55 is a detail sectional view taken on line 6—6 of Fig. 1. Fig. 7 is a plan showing a dam and reservoir with the apparatus in place in the dam. Fig. 8 is a sectional view taken on line 8—8 of Fig. 7.

Like numerals refer to like parts throughout the several views of the drawing.

In the drawing, 10 is a casing constituting a sluice box having a bottom 11 and two side walls 12, between which there is a pas- 65 sage 13 extending longitudinally through the casing. Located in this passage is a gate 14 preferably inclined, as shown, and mounted on suitable pivots 15 to swing about a horizontal axis extending transversely of 70 said passage, said axis being located between the upper and lower edges of said gate and preferably below its center.

Two abutments 16 are located in inclined position on opposite interior sides of said 75 casing, said abutments having, respectively, secured thereto strips of suitable packing material 17, which may be of leather, rubber or other suitable material, against which 80 that portion of the gate 14 which is above its axis is adapted to contact when said gate is in its closed position, as shown in Figs. 1, 3, 4, 5 and 6. This packing material may be held in place by any suitable 85 means such, for example, as two plates 18, respectively, secured to the abutments 16.

Secured to that portion of the gate 14 which is below its axis, is a suitable flexible packing 17' extending along the sides of 90 the lower edge of said gate and secured thereto by any suitable means such, for example, as a plate 19, this packing being adapted to contact with the abutments 16 on sides and with the bottom 11 of the casing. 95 All of the packing strips just described serve to prevent leakage of water past the gate when the same is closed.

In order to limit the swinging movement of the gate so that its upper edge shall 100 always be located above its axis and its lower edge below its axis, I provide suitable means such, for example, as a rod 20 mounted on suitable supports 21 located on opposite sides of the casing 10, each of said supports being preferably provided with a series of inclined 105 notches 22 located one above another, whereby said rod may be placed at different heights so that the angle through which the

gate 14 may swing may be determined by the placing of said rod for a purpose which will appear hereinafter.

The apparatus is placed in the path of a suitable water course and a suitable dam 23 is built, thus forming a reservoir, whereby a body of water is stored up. When this water has raised to a certain predetermined level, that is, approximately at the top of the gate 14, said gate is automatically opened by the pressure and flow of the water and moves into the position shown in Fig. 2, thus allowing the water in the reservoir to flow both above and below said gate. This flowing of the water continues until the level of the reservoir is lowered to approximately the height of the axis of the gate, whereupon the water acting upon that portion of the gate which is below its axis acts to return said gate to its original position where it will remain until the water in the reservoir has again reached its former level when a recurrence of the foregoing operation will take place. In this way, a large body of water is released at intervals and allowed to flush the land below the dam, thus washing away the earth, stones and even comparatively large boulders, the amount of material washed away being determined by the amount of water released.

For determining the amount of water which shall be released at each operation of the gate, the rod 20 is provided to limit the swinging movement of the gate, it being evident that if the angular movement of the gate is slight, the amount of water discharged each time will be slight and the interval of time between the flushings will be correspondingly slight.

By the use of the device, the earth and stones may be washed away below the dam to expose the minerals sought, the interval of time between each flushing being utilized to remove the minerals so exposed.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. A device of the class described having, in combination, a casing having a passage extending therethrough, a gate disposed in inclined position in said passage and pivoted to swing about a horizontal axis extending transversely of said passage, said axis being located between the top and bottom of said gate, inclined abutments for said gate located on opposite interior sides of said casing above and below said axis, packing material projecting laterally from said abutments and engaging the upper inclined face of said gate above its axis, and packing material projecting laterally from said gate and engaging an upper inclined face of said abutment below said axis.

2. A device of the class described having,

in combination, a casing having a passage extending therethrough, a gate disposed in inclined position in said passage and pivoted to swing about a horizontal axis extending transversely of said passage, said axis being located between the top and bottom of said gate, and vertically adjustable means to limit the swinging movement of said gate so that its upper edge shall always be located above said axis and its lower edge below said axis.

3. A device of the class described having, in combination, a casing having a passage extending therethrough, a gate disposed in inclined position in said passage and pivoted to swing about a horizontal axis extending transversely of said passage, said axis being located between the top and bottom of said gate, a rod extending transversely of and supported upon opposite sides of said casing in position to be engaged by said gate in swinging from its normal position toward a horizontal plane, and a plurality of supports for said rod arranged at different heights.

4. A device of the class described having, in combination, a casing having a passage extending therethrough, a gate disposed in inclined position in said passage and pivoted to swing about a horizontal axis extending transversely of said passage, said axis being located between the top and bottom of said gate, inclined abutments for said gate located on opposite interior sides of said casing above and below said axis, packing material carried by the lower edge of said gate to engage the bottom of said casing, and packing material for the bottom surface of said gate and said abutments.

5. A device of the class described having, in combination, a casing having a passage extending therethrough, a gate disposed in inclined position in said passage and pivoted to swing about a horizontal axis extending transversely of said passage, said axis being located between the top and bottom of said gate, inclined abutments for said gate located on opposite interior sides of said casing above and below said axis, sheet packing material projecting laterally from said abutments and engaging the upper inclined face of said gate above its axis, means to attach said material to said abutments, packing material projecting laterally from said gate and engaging the bottom of said casing and the upper inclined face of said abutments below said axis, and means to attach the last-mentioned packing material to said gate.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WARREN H. MERRITT.

Witnesses:

BEATRICE M. ROBERTS,
LOUIS A. JONES.