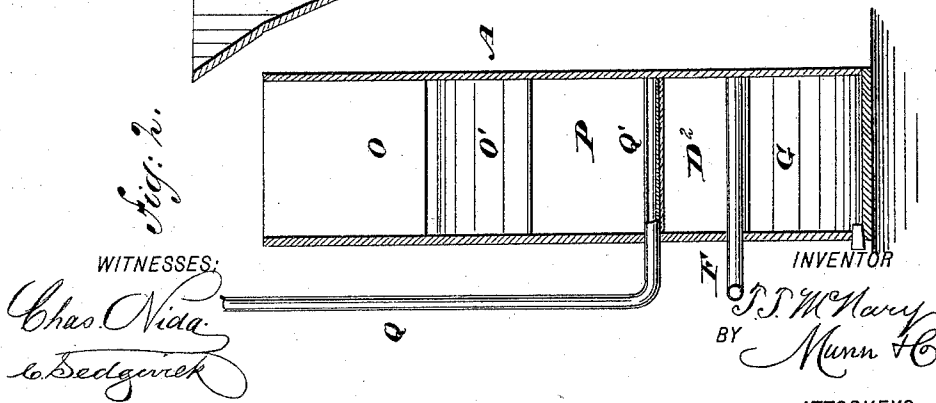
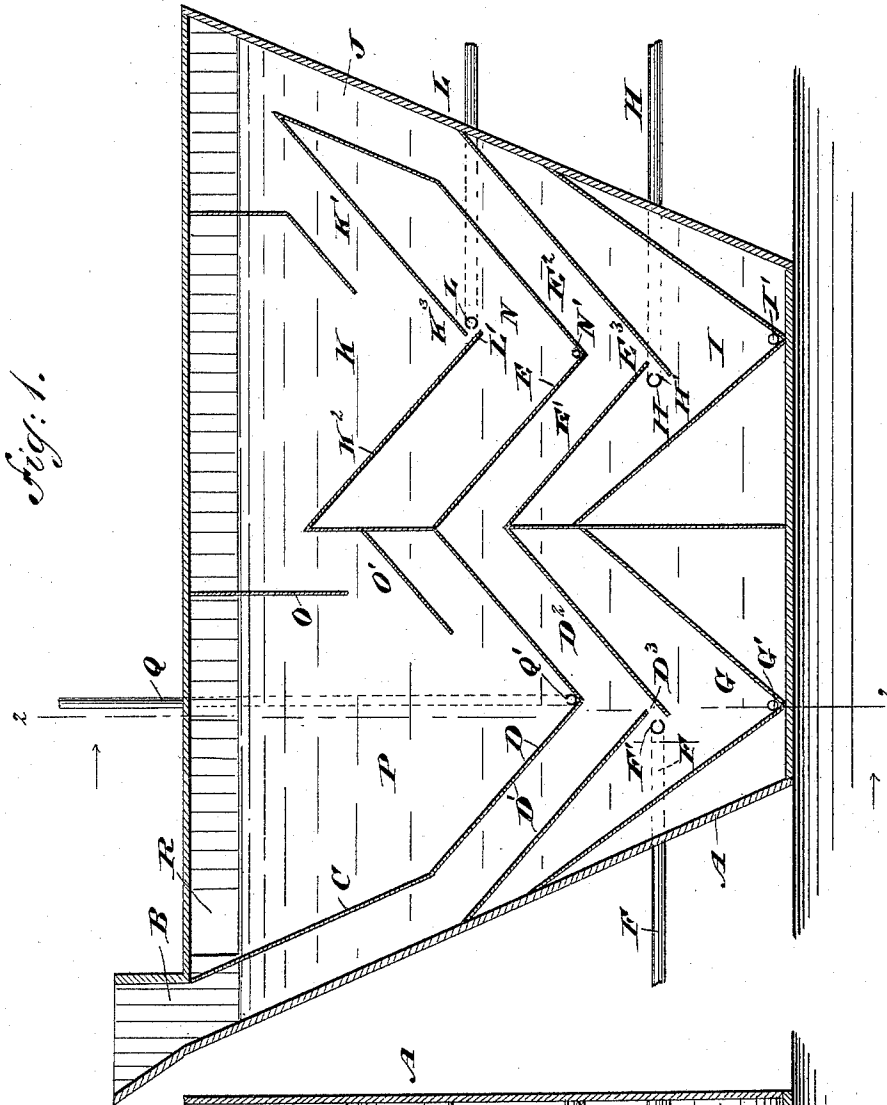


(No Model.)

T. T. McNARY.
ORE CONCENTRATOR.

No. 485,972.

Patented Nov. 8, 1892.



WITNESSES:

Chas. Vida.
S. Sedgwick

INVENTOR

T. T. McNary
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS T. McNARY, OF HAILEY, IDAHO.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 485,972, dated November 8, 1892.

Application filed May 31, 1892. Serial No. 434,974. (No model.)

To all whom it may concern:

Be it known that I, THOMAS T. McNARY, of Hailey, in the county of Alturas and State of Idaho, have invented a new and Improved Ore-Concentrator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved hydraulic ore-concentrator which is simple and durable in construction, very effective in operation, and more especially designed for separating the sand from the precious metals to prepare the ore for the jigs and tables.

The invention consists of a series of V-shaped connected channels, each formed at its apex with a transverse slot, and a pipe connected with a water-supply and discharging the water under pressure into the said slot.

The invention also consists of certain parts and details and combinations of the same, as will be hereinafter described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement on the line 1 1, Fig. 1, and Fig. 2 is a transverse section of the same on line 2 2, Fig. 1.

The improved ore-concentrator is provided with a suitably-constructed casing A, on one end of which is arranged a hopper B, through which the material to be treated is discharged to pass into a downwardly-extending chute C, leading to the inlet-arm D' of a V-shaped channel D, arranged in the said casing and extending transversely therein from side to side, as will be readily understood by reference to the drawings. The other arm D² of the V-shaped channel D forms the outlet and is connected at its upper end with the inlet-arm E' of a second V-shaped channel E, also arranged in the said casing and extending from side to side therein, similar to the channel D.

At the apex of the bottom boards of the arms D' and D² of the channel D is arranged a transversely-extending slot D³, into which water under pressure is discharged, preferably in the direction of the outlet-arm D², by

means of a pipe F, extending transversely in the casing A under the bottom board of the arm D' and formed with a slot F', opening into the slot D³. The pipe F is connected with a suitable water-supply, so that water under pressure passes through the pipe F and out of its slot F' into the slot D³ to act on the material coming down the arm D' of the channel D, the pressure of the water being sufficient to carry the sand up the arm D² into the other V-shaped channel E, while the heavier precious metals pass through the slot D³ downward into the settling-chamber G, located below the channel D and having V-shaped sides, in the apex of which is an outlet G' for conveniently discharging the accumulating precious metal and water.

The channel E is constructed similarly to the channel D—that is, is provided at the bottom boards of the arms E' and E² with a transversely-extending slot E³, into which the water is discharged under pressure from a pipe H, connected with a water-supply, the said pipe being formed with a slot H', corresponding to the length of the slot E³. The sand and lighter metals, passing up the arm D² of the channel D, finally pass down the inlet-arm E' to be subjected to the action of the water entering the slot E³ by the pipe H, so that the heavier metals pass down into a settling-chamber I, located below the channel E, while the lighter material passes up the outlet-arm E² into a channel J, extending at one end of the casing A. The upper end of this channel J connects with a downwardly-extending channel K', forming part of a V-shaped hopper K, extending transversely in the casing A above the channel E. In this hopper K, at the apex thereof, is formed a slot K³, similar to the slots E³ and D³, and charged with water under pressure from a pipe L, formed with a slot L', in alignment with the slot K³. The lighter material is forced by the water under pressure up the side K² of the hopper K, while the heavier material passes through the slot K³ into a compartment N, formed between the hopper and the top boards of the channel E. The heavier material can be run off from this compartment N through an outlet N', a similar outlet I' being provided for the same purpose

in the chamber I. The lighter material passing up the side K² is thrown against a partition O, extending transversely and downwardly from the top of the casing A, this partition deflecting the material onto a chute O', extending downwardly into a settling-chamber P, the bottom of which is V-shaped and formed by the top boards of the V-shaped channel D. A fresh-water-supply pipe Q extends into the apex of the settling-chamber P, and is formed with a slot Q' to discharge the water into the settling-chamber to prevent the mud from accumulating in the bottom of the said chamber. At the upper end of this settling-chamber P is arranged an overflow R for discharging the surplus water. It will be seen that by this arrangement the material placed in the hopper B is first acted on by the water under pressure in the channel D, so that the heavier metals are separated from the lighter material, which latter passes into the second V-shaped channel E, to be again subjected to the water under pressure.

The heavy metals separated in the channel D accumulate in the chamber G, and in a like manner the metal separated in the channel E accumulates in the chamber I, while the lighter material is forced up into the hopper K, to be again treated for separating the remaining heavier metals, which accumulate in the compartment N. The lighter material forced over the side K² of the hopper K finally passes into the settling-chamber P, in which the material is kept in a state of agitation by the introduction of fresh water through the pipe Q. It will be seen that by this arrangement the precious metals are separated from the sand or other lighter material, the metals being graduated in the several chambers G I and compartment N, it being understood that the heavier metals are retained in the cham-

ber G, the next heavier in the compartment I, and the lighter metals in the compartment N.

I do not limit myself to the number of compartments used nor their special arrangement, as shown.

The device can also be used as a sizer for the ore for preparing the latter for jigs and tables without using the expensive revoluble screens now employed for the same purpose.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An ore-concentrator having two communicating V-shaped channels D E, having openings D³ E³, leading into settling-chambers G I, respectively, a channel J, leading upwardly from the arm E² of channel E, two settling-chambers over the channels D E, respectively, and the water-pipes F H in chambers G I opposite the respective openings D³ E³, substantially as set forth.

2. An ore-concentrator comprising upper and lower V-shaped settling-chambers P N G I, the V-shaped channels D E between the two pairs of chambers and having openings D³ E³, water-pipes F H in the lower settling-chambers opposite said openings, an inlet-passage C, leading into channel D, an outlet R in the chamber P, a channel J, leading from the arm E² of channel E into the channel K' of a V-shaped hopper K over the chamber N, said hopper having an opening K³, leading into chamber N, the pipe L in the chamber N opposite opening K³, and the passage O', connecting the chamber K with the chamber P, substantially as set forth.

THOMAS T. McNARY.

Witnesses:

W. H. WATT,
B. M. MALLORY.