

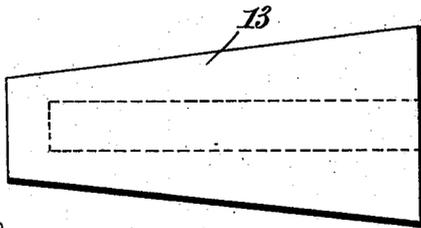
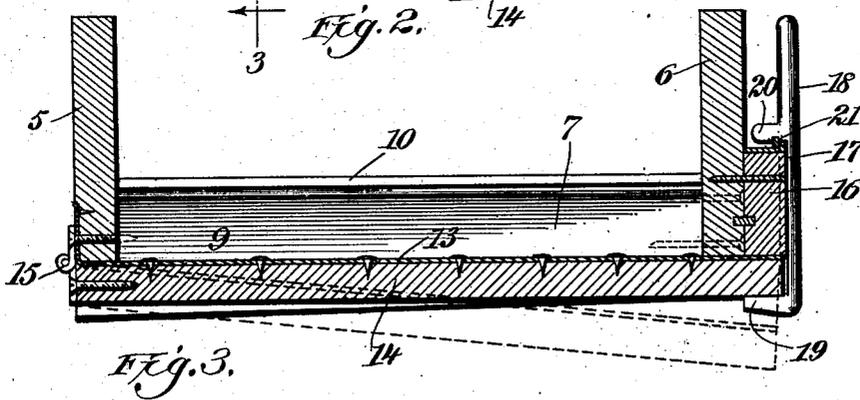
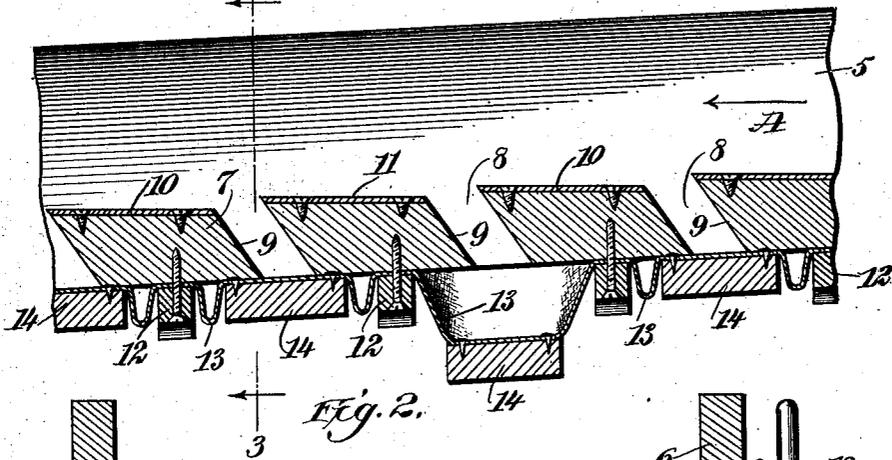
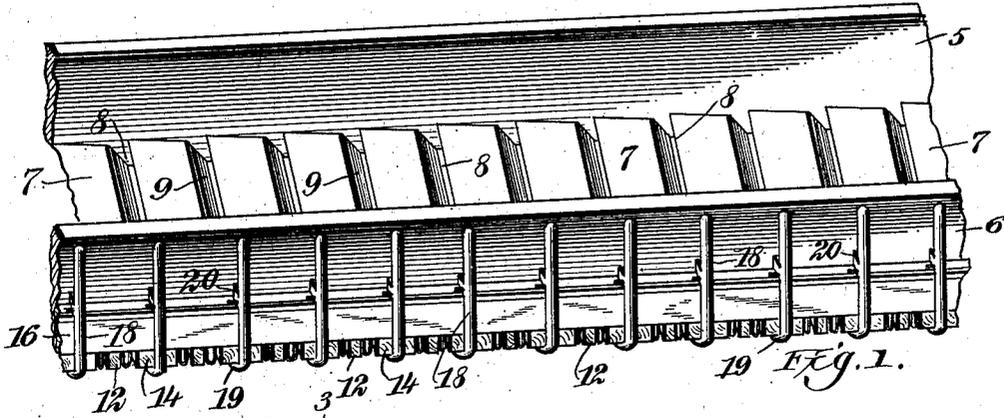
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C. M. CARTER.
CONCENTRATING SLUICE BOX.

APPLICATION FILED JUNE 26, 1903.

NO MODEL.



WITNESSES:
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CONCENTRATING SLUICE-BOX.

SPECIFICATION forming part of Letters Patent No. 757,176, dated April 12, 1904.

Application filed June 26, 1903. Serial No. 163,204. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. CARTER, a citizen of the United States, and a resident of Sultan, in the county of Snohomish and State of Washington, have invented a new and Improved Concentrating Sluice-Box, of which the following is a full, clear, and exact description.

My invention relates to improvements in sluice-boxes for use singly or in series in the collection of precious metals; and the objects of the invention are, first, to insure the accumulation of the metallic particles in the riffles with a minimum agitation of water and without packing of the sand or gravel, and, second, to allow the collected minerals to be quickly removed or washed from the riffles without causing practically a cessation in the operation of the sluice-box.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the novelty will be defined by the annexed claims.

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

Figure 1 is a perspective view of a portion of a sluice-box constructed in accordance with my invention. Fig. 2 is a longitudinal sectional elevation, on an enlarged scale, of a portion of the sluice-box. Fig. 3 is a vertical cross-section on the line 3 3 of Fig. 2 looking in the direction of the arrows, and Fig. 4 is a detail plan view showing the form or pattern of the fabric adapted to make the discharge-chute at the bottom of one of the riffle-pockets.

The sluice-box of the present invention consists of side walls 5 6 and an interrupted or discontinuous bottom formed by a plurality of transverse strips or riffle-bars 7, the several parts being secured in any suitable way to produce a substantial structure. The riffle-bottom of the sluice-box has its members 7 secured in spaced relation one to the other in order to produce a plurality of transverse riffle-pockets 8, which are formed by and be-

tween the opposing edges of the series of strips or bars 7. (See Fig. 2.) Each strip or bar 7 is peculiarly fashioned or shaped to bring the upper faces of the series of bars in level positions and allow the current of water which traverses the sluice-box to have a "drop" into the riffle-pockets 8, thus insuring an agitation in the riffle and preventing the sand from packing in the pockets, whereby the material of the greatest specific gravity, such as the metallic particles of ore, is allowed to settle to the bottom of the riffle-pockets.

Each bar or member 7 is provided with beveled front and back edges, as at 9, and the upper or top face of the bar or member is also beveled at 10. It will be understood that the sluice-box is arranged in an inclined position, usually about three-fourths of an inch to the foot, and the bevel 10 of the bars or members 7 should be made on such an angle as to bring the upper faces of said bars or members in level positions when the sluice-box is tilted or canted. The bars or members 7 are three times as wide as the riffle-pockets 8, which are formed between the beveled faces 9 of said bars or members, and this is advantageous because the bars lessen the agitation in the water above the riffles, and thereby assist the gravitation of the metallic particles of ore. The riffle bars or members 7 are shod by the employment of metallic plates or shoes 11, which are secured in a suitable way to the upper beveled faces 10 of said bars or members, thus preventing injury to the riffle-bottom by the action of boulders, gravel, and other matter passing over the bottom of the sluice-box.

12 designates a series of cross-battens which are secured firmly to the under side of the members 7 of the riffle-bottom, each cross-batten 12 being of less width than the members 7 and arranged centrally with respect thereto. (See Fig. 2.) These cross-battens serve as the means for supporting or securing the pliable chutes 13 to the riffle-bottom and below the pockets 8 therein; but normally the chutes are closed across the bottoms of the pockets 8 by the employment of the false-bot-

tom strips 14. One of these false-bottom members 14 is arranged below the pocket 8 in position to have overlapping engagement with the riffle-bottom members 7, and each false-bottom member 14 is secured adjustably to the sluice-box, preferably by the employment of a hinge 15, one member of which is attached to an end portion of the bottom member 14, while the other leaf or member of the hinge is fastened to the side wall 5 of the sluice-box, substantially as shown by Fig. 3.

The pliable chute 13 may be made from a continuous length of suitable material, such as canvas, which is clamped by the series of cross-battens 12 to the lower side of the riffle-bottom members 7; but I prefer to make each chute from a separate piece of canvas having the shape or pattern shown more particularly by Fig. 4, by reference to which it will be seen that the canvas or other pliable material tapers from one end toward the other. The narrow end of the canvas chute is secured below or to the side wall 5 of the sluice-box and at the hinged end of the false-bottom member 14. Each pliable chute has its side edges confined or clamped by two adjacent cross-battens 12 in order to extend across the bottom of the riffle-pocket 8, and this pliable chute is secured to the upper side of the false-bottom member 14 by any suitable fasteners, as represented by Figs. 2 and 3.

It will be understood that the chutes 13 may be brought into service by dropping the free end of the hinged false-bottom member 14, so as to allow the chute to unfold or expand and take the shape shown by the middle chute in Fig. 2 and by dotted lines in Fig. 3, thus allowing the material which accumulates in the riffle-pocket 8 to be discharged by the inclined pliable chute. Normally, however, the members 14 are raised so as to close the open lower side of the riffle-pockets 8, as represented in full lines in Figs. 2 and 3, and these hinged members 14 of the false bottom are adapted to be secured firmly in their raised positions by a suitable form of locking contrivance.

One style of locking contrivance is shown by Figs. 1 and 3 of the drawings, which I will now proceed to describe. A longitudinal rail 16 is secured firmly to the outside of the side wall 6 of the sluice-box, and this rail is provided in its outer or exposed face with a series of vertical grooves or channels 17. (Indicated by dotted lines in Fig. 3.) In each channel is fitted the vertical shank 18 of a clamp, the same having a jaw 19 and a lug 20. The jaw 19 of each clamp is adapted to be fitted below one end of a member 14 of the false bottom, while the lug 20 is adapted to rest on the top of the rail 16. A wedge or key 21 is thrust or inserted between the lug 20 and the top edge of the rail 16 for the purpose of lifting the stem 18 of the clamp and making the

jaw 19 press the member 14 of the false bottom into close engagement with the under side of the sluice-box, thus minimizing leakage of the water and allowing the clamp to be readily removed when the wedge or key 21 is withdrawn, whereupon the member 14 and the pliable chute may be dropped to their inclined operative positions, substantially as shown by the drawings and hereinbefore described.

The sluice-box herein shown and described may be used singly for the collection of the metallic particles of ore, and the ore with a proper quantity of water is fed to the upper end of the inclined sluice-box, so as to travel therethrough in the direction indicated by the arrow A in Fig. 2. The ore and water flowing over the riffle bottom is agitated by the construction of the members 7, which causes the heavy particles of ore to drop in the pockets 8, while the sand, gravel, and boulders are free to pass over the riffle members 7. The chutes 13 and the members 14 of the false bottom may be individually lowered by withdrawing the clamps of the proper bottom members 14 and the collected mineral may be readily discharged from each pocket 8 without interrupting the operation of the concentrator.

It is evident that a number of the sluice-boxes may be disposed one below the other for the purpose of reconcentrating the minerals collected by the operation of the individual boxes; but as the series of sluice-boxes are intended to be arranged in a way familiar to those skilled in the art I have not considered it necessary to illustrate and more particularly describe such arrangement.

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

1. A sluice-box having a series of bottomless riffles in its lower portion, a series of pliable chutes spanning the open lower sides of the riffles and adapted to be lowered to inclined positions, and false-bottom members attached individually to the pliable chutes and arranged to span the lower open sides of said riffles and thereby close the latter.

2. A sluice-box having a series of bottomless riffles, a series of pliable chutes, hinged members attached to said chutes and arranged to span the lower open sides of the riffles for closing them, and means for clamping the free ends of said hinged members individually in raised positions.

3. A sluice-box having a series of bottomless riffles, a series of members hinged to said sluice-box and disposed to span the riffles therein for closing the latter, a pliable chute attached to the sluice-box and to the hinged members, and clamps for individually holding said hinged members in closed positions.

4. A sluice-box having a series of spaced members arranged to form a plurality of bot-

5 bottomless rifles, a series of movable members adapted in one position to close the lower sides of said bottomless rifles, a series of chutes attached to said movable members and shiftable therewith, and means for holding said movable members in their closed and opened positions.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES M. CARTER.

Witnesses:

E. R. LEWIS,
H. C. WILLIAMS.