H. W. FELLOWS.

COMBINATION JIG AND SLUICE BOX.

APPLICATION FILED AUG. 9, 1916.

1,243,395.

Patented Oct. 16, 1917.

2 SHEETS—SHEET 1.

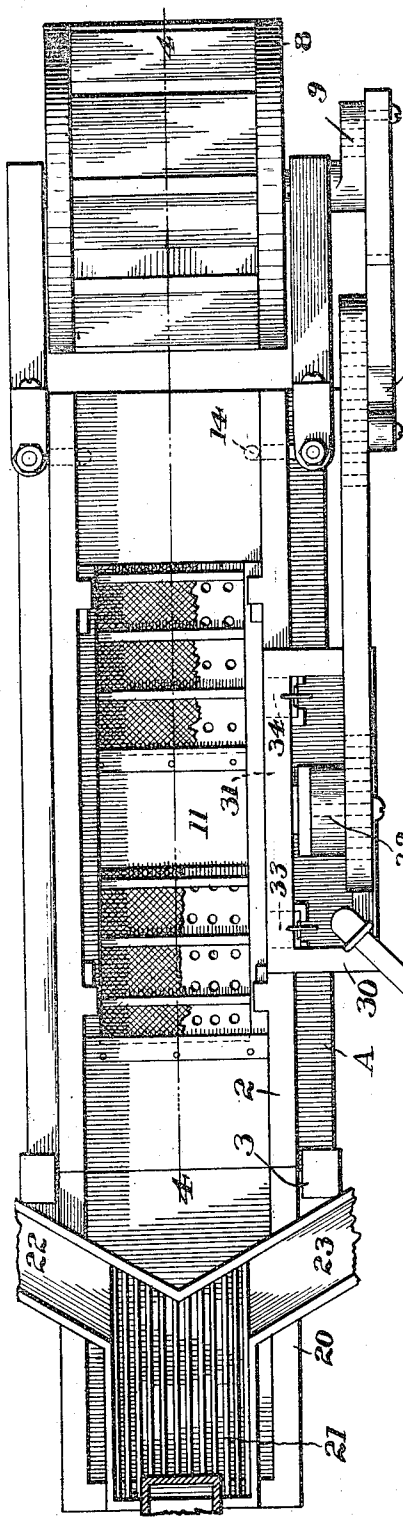


Fig. 1.

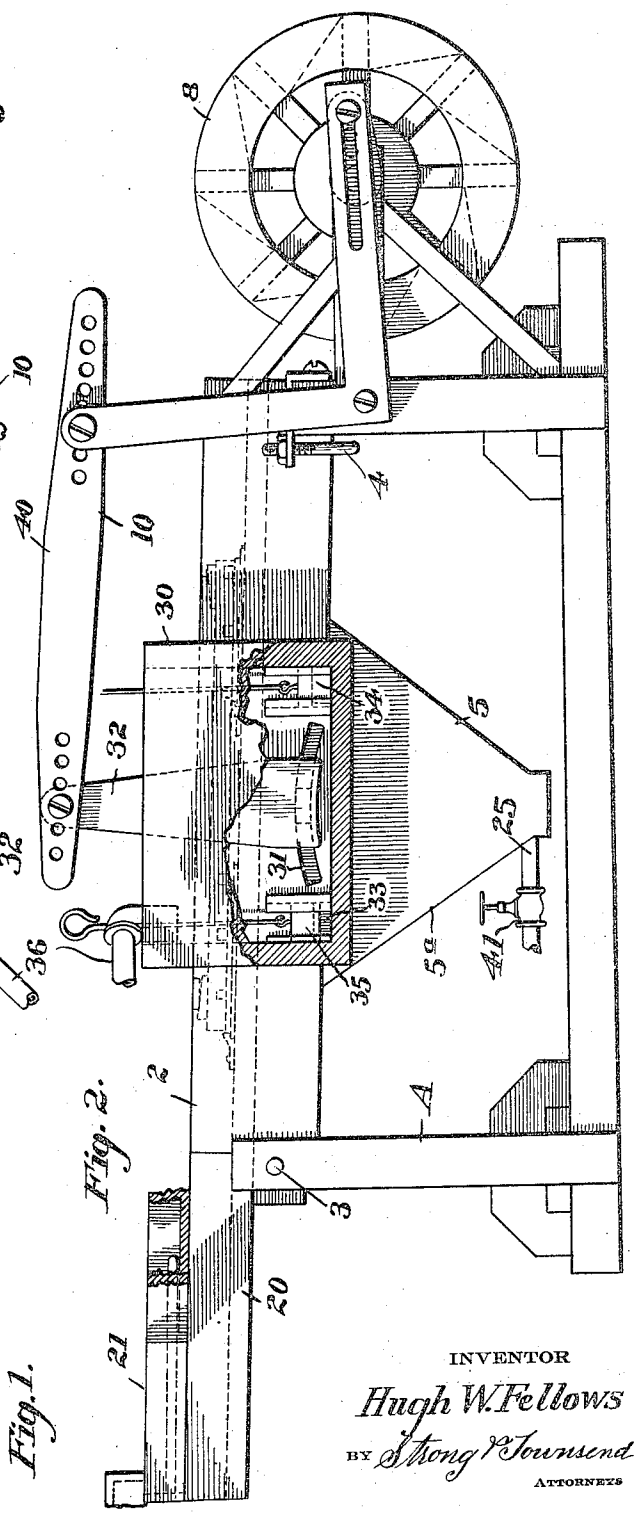


Fig. 2.

INVENTOR

Hugh W. Fellows

BY Strong & Townsend

ATTORNEYS

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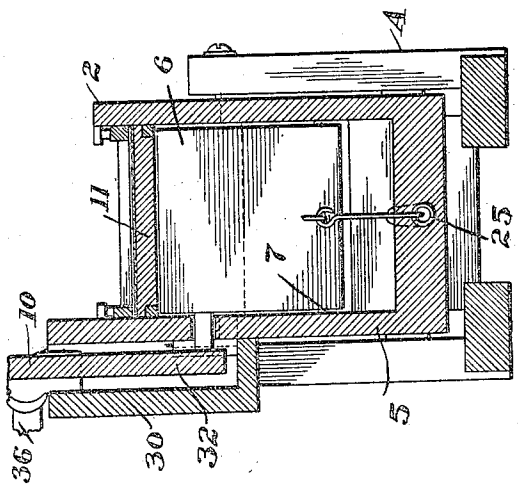


Fig. 3.

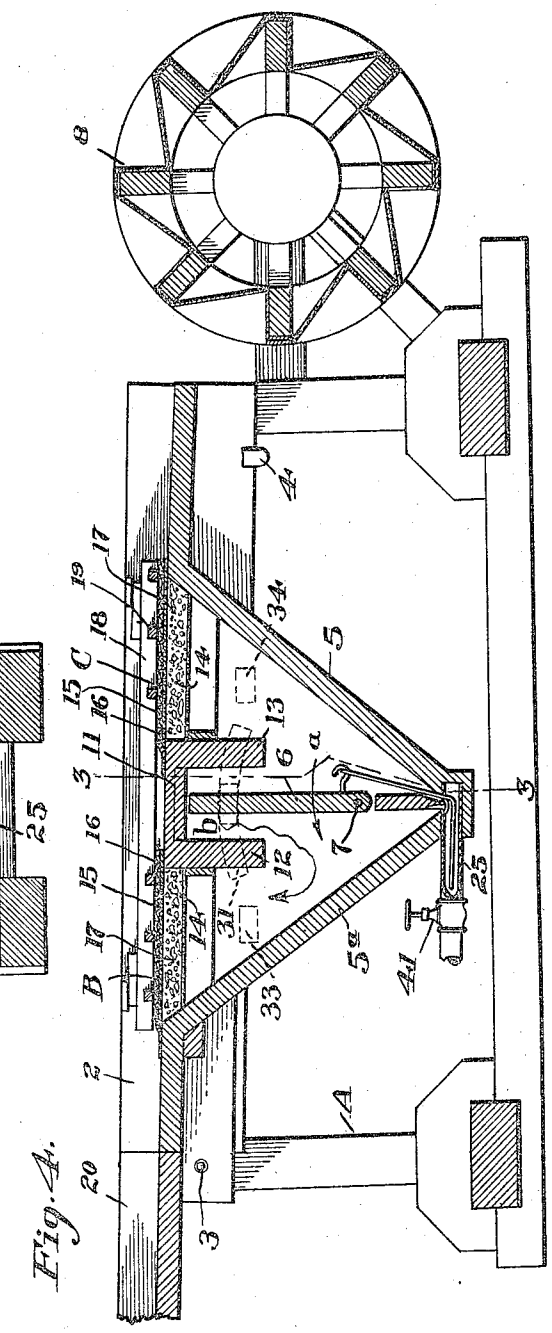


Fig. 4.

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UNITED STATES PATENT OFFICE.

HUGH W. FELLOWS, OF COLFAX, CALIFORNIA.

COMBINATION JIG AND SLUICE BOX.

1,243,395. Specification of Letters Patent. Patented Oct. 16, 1917.

Application filed August 9, 1916. Serial No. 113,900.

To all whom it may concern:

Be it known that I, HUGH W. FELLOWS, a citizen of the United States, residing at Colfax, in the county of Placer and State of California, have invented new and useful Improvements in Combination Jig and Sluice Boxes, of which the following is a specification.

This invention relates to a combination jig and sluice box for separating gold, platinum and other precious metals from black sands and gravel.

One of the objects of the present invention is to provide a simple, substantial, easily operated machine of the character described, which may be placed at the tailing end of an ordinary sluice box and which is particularly adapted for saving gold, platinum or other precious metals too fine to settle in the riffles of the sluice box and which are generally lost.

Another object of the invention is to provide a novel form of jigging box adapted to coöperate with a sluice; to provide a combination riffle and screening surface adapted to form a bottom for the sluice, and to provide means for establishing counter currents between the jigging box and sluice, as will hereinafter be described.

Further objects will hereinafter appear.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings in which—

Figure 1 is a plan view of the combination jig and sluice box.

Fig. 2 is a side elevation of same, partly in section.

Fig. 3 is a cross section on line 3—3, Fig. 4.

Fig. 4 is a central, vertical, longitudinal section on line 4—4, Fig. 1.

Referring to the drawings in detail, A indicates a suitable form of supporting frame in which is supported a sluice box 2. The upper end of the box is pivotally supported in the frame A, as at 3, while the lower or tailing end is adjustably hung from a pair of brackets 4 to permit the pitch or slope of the box to be increased or decreased, as conditions demanded. Built integral with the sluice box 2, or suitably secured to same, is a jigging box 5, in which is mounted a paddle 6. This paddle is pivotally mounted in the lower end of the box as at 7 and is adapted to be oscillated by means of power obtained from a water wheel 8 driven by the discharging water and tailings from the sluice 2, the rotating movement of the wheel being transmitted through a crank 9 and the links and levers generally indicated at 10. Forming a bottom for a portion of the sluice box and at the same time a partial covering for the jigging box 5, is a section 11, to which is secured a pair of downwardly extending baffle plates 12 and 13. The section 11, positioned as shown, forms two openings to the jigging box 5, which are covered by means of a pair of interspaced screens 14 and 15, on top of which is placed a fabric covering 16, such as burlap or the like. Forming a filler between the screens 14 and 15 is a layer of coarse gravel 17, and adapted to secure the screens and fabric coverings in the position shown, is a rectangular shaped frame 18 carrying a plurality of riffles 19.

The machine constructed as here shown, is particularly adapted to be attached to the tailing end of a sluice box, such as shown at 20, and is particularly provided for the purpose of saving values, such as gold, platinum and other precious metals which are too fine to settle behind the riffles in an ordinary sluice box. In the present instance, a grizzly 21 has been provided, which receives the discharge from the tailing end of an ordinary sluice box. This grizzly permits the finer sands to pass through while all rocks and coarser gravel are discharged at the points indicated at 22 and 23. The water and sand thus separated from the coarser materials are passed through the sluice box 2 and across the fabric covered screens 14 and 15 shown, before they are finally permitted to discharge at the lower end where they impinge upon, and drive, the water wheel 8 as previously described. The constant rotating movement of the wheel 8 transmits sufficient power through the cranks and levers shown, to impart an oscillating movement to the paddle 6. This movement of the paddle causes the water in the jigging box to move bodily in one direction or another, consequently causing more or less of a suction through the combined screens and fabrics indicated at

B and a discharge through the combined screens and fabric covering indicated at C or vice versa. It also creates a sufficient agitation in the jigging chamber proper to prevent settling of finer materials, which may have entered through either screen covered opening. This agitating movement is in the present instance more or less beneficially increased by the provision of the downwardly extending baffles 12 and 13. For instance, if the paddle is moving in the direction of the arrow *a* it will be seen that a portion of the water will be more or less entrapped between the paddle face and the baffle 12, causing it to discharge in the direction of arrow *b*, before it can possibly discharge upwardly through the screens B. The counter-current as indicated by the arrow *b*, first passes downwardly and is then deflected in an upward direction by the inclined bottom section 5^a of the jigging box, which is of great importance as it agitates the whole contents of the jigging box, thus preventing lighter materials from settling and discharging through the spout indicated at 25 and as they are kept in a suspended condition, it can readily be seen that they are given an opportunity to work outwardly through the screens just as readily as they are admitted. A comparatively cleaner concentrate can in this manner be obtained than would otherwise be possible. The provision of the riffles 19 is also an important feature as these serve as traps to prevent a free passage of values across the screen surfaces, forming the covering of the jigging box and at the same time form eddies which direct the values down against the fabric surface, where they finally work through, then through the screens 15, the gravel beds 17 and the lower screens 14. Another important feature is the provision of a water supplying box, such as indicated at 30. This is positioned on one side of the sluice and jigging box and is provided with an arcuated port 31 through which a connection is made between the jigging paddle 6 and the exterior lever 32. The box is also provided with two ports 33 and 34, the size of which may be increased or decreased by gate valves 35, such as shown. Water is admitted to the box 30 from any suitable source through a pipe 36 and its admission to the jigging box is entirely controlled by the position of the gate valves 35. It is therefore possible to admit more water on one side of the paddle than on the other, this being important as it is often necessary, particularly where considerable pitch is given to the sluice 2. The machine as a whole is simple in construction and easy to operate. The adjustable link 40 provided, permits the stroke of the paddle 6 to be increased or decreased, as conditions demand, thereby increasing or decreasing the violence of agitation maintained within the jigging box. This agitating movement produced by the paddle, together with the volume of water admitted through the ports 33 and 34 entirely controls the grade of concentrate secured, as a decrease of either will lessen the action of the counter-currents through the screens to such an extent that comparatively light weight particles may pass through, while an increase of the action of the counter-currents by a greater movement to the paddle and a greater volume of water admitted, will force the lighter particles out and only admit particles of certain specific gravities. Practically any grade of concentrate may in this manner be obtained and as a valve 41 is employed in connection with a discharge 25, it will readily be seen that a continuous discharge and operation is possible. While a water wheel and a specific arrangement of connecting levers is here shown for the purpose of transmitting an oscillating movement to the paddle 6, it is obvious that any other form of motive power may be employed and that I do not wish to limit myself to this specific structure here shown.

The materials and finish of the several parts of the invention may be such as the judgment and experience of the manufacturer may dictate.

I wish it understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims, and that I do not wish to limit myself to the specific design and construction here shown.

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

1. The combination with a jigging box, of a screen forming a cover for the jig, a paddle pivoted at its lower end in the jig and a U-shaped baffle member inclosing the upper swinging end of the paddle and spaced from the ends and bottom of the box.

2. In combination with a jigging box, a horizontal member arranged at the center of the top of the box and spaced from the respective box ends, screens disposed in the space between the ends of the member and the ends of the box, and a riffled frame common to said member and each screen and clamped on top of each of the screens to hold the screens in position.

3. In combination with a jigging box, a horizontal member arranged at the top of said box between and spaced from the ends of the latter, spaced downwardly extending baffle plates connected to said member and spaced at their lower ends from the box bottom, a paddle pivoted at its lower end to the box and having its upper end movable in the space between said baffle plates,

means to oscillate the paddle, and screens disposed in the space between the ends of the member and the ends of the box.

4. In combination with a jigging box, and a swingable paddle therein, a water supplying box at one side of the jigging box, having ports communicating with opposite sides of the paddle, valves in said water supplying box controlling the ports, said water supplying box having an arcuate slot, and means to operate the paddle including an element arranged in the water supplying box and having a connection with the paddle which connection extends through said arcuate slot.

5. In combination with a jigging box, and a swingable paddle therein, a water supplying box at one side of the jigging box, having ports communicating with opposite sides of the paddle, valves in said water supplying box controlling the ports, and means arranged in the water supplying box to actuate the paddle.

6. In combination with a jigging box having a permeable ore supporting bed, a pair of spaced baffles in said box in depending relation to the top of the box and having their lower ends spaced from the box bottom to allow water to pass beneath the lower ends of the baffles, and a paddle in the box pivoted at its lower end and having its upper end movable in the space between the baffles.

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

HUGH W. FELLOWS.

Witnesses:
D. FALCONER COLFAX,
S. G. WATTS COLFAX.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."