No. 880,078.

J. G. EVANS.

ORE SEPARATOR.

APPLICATION FILED NOV. 7, 1907.

2 SHEETS—SHEET 1.

Fig. 3.

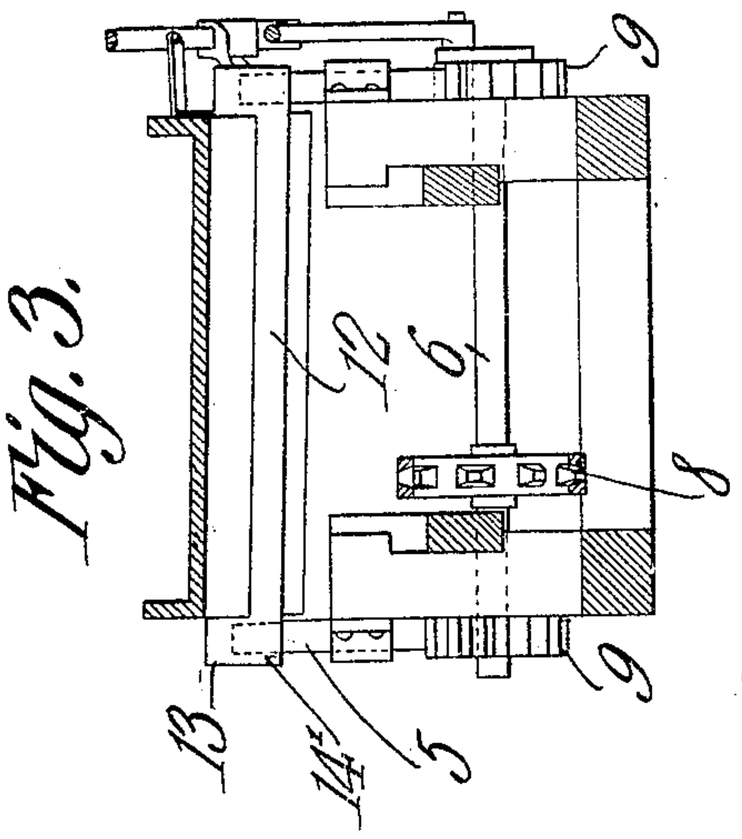

Fig. 1.

water spray when desired

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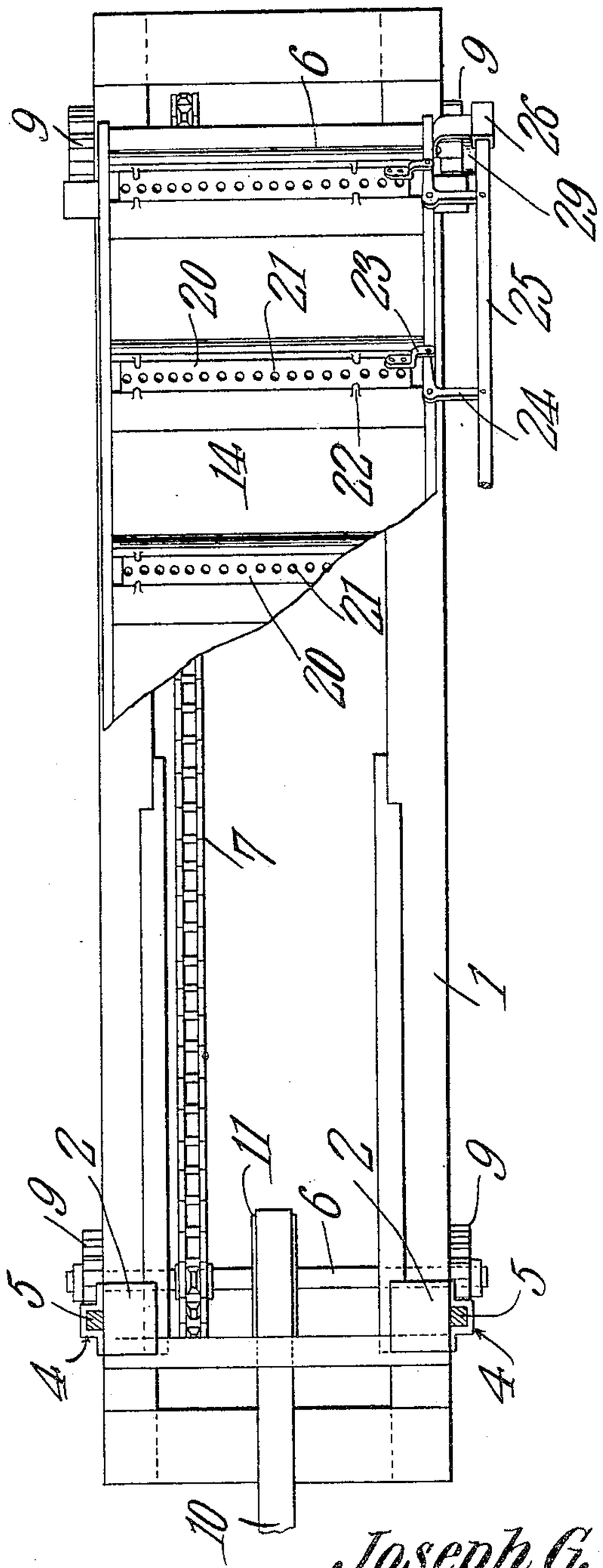
2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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ORE-SEPARATOR.

No. 896,978. Specification of Letters Patent. Patented Aug. 25, 1908.

Application filed November 7, 1907. Serial No. 401,124.

To all whom it may concern:

Be it known that I, JOSEPH G. EVANS, a citizen of the United States, residing at Baker City, in the county of Baker and State of Oregon, have invented a new and useful Ore-Separator, of which the following is a specification.

This invention relates to ore separators and is particularly designed for either the dry or wet separation of gold from sand and gravel.

The object of the invention is to provide riffles of novel form in which the values will be precipitated, mechanism being utilized for imparting a jumping and rocking movement to facilitate the separation.

Another object is to provide means whereby each of the riffles may be intermittently opened during the operation of the separator for the purpose of releasing the accumulated values from the riffles.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a side elevation of the machine, a portion of the table being shown in section. Fig. 2 is a plan view, a portion of the table being removed. Fig. 3 is a transverse section.

Referring to the figures by characters of reference, 1 designates a base having long standards 2 at one end and short standards 3 adjacent its other end, each standard being provided with guides 4 in which are slidably mounted a push bar 5. A shaft 6 is journaled upon each pair of standards near the bottom thereof, and the two shafts are designed to be operated in unison by a chain 7 mounted on sprockets 8 secured to the shafts. Mounted upon each end portion of each shaft is a cam 9 in the form of a ratchet wheel and the push bars are designed to rest upon the teeth of these cams. The cams are so positioned that while the bars 5 at one side of the machine are being moved upward the bars at the other side of the machine are dropping into position upon the adjoining teeth of the cams. Power may be transmitted to one of the shafts 6 through a belt 10 mounted on pulley 11.

Mounted on each set of push bars 5 is a cross bar 12 having heads 13 at its ends provided with sockets 14′ into which the bars 5 project. An inclined table 14 is secured at its ends to these cross bars and secured within the bottom at desired distances apart are transversely arranged riffle plates 15 the lower edges of which are curved upwardly and rearwardly as indicated at 16 to produce pockets 17 for retarding the passage of material along the table. Plate 15 has a series of openings 18 extending from side to side thereof and registering with similar openings 19 in the bottom of the table.

A slide 20 is mounted upon the upper portion of each plate 15 and is also provided with openings 21 designed to register with the openings 18. These slides may be retained in place in any preferred manner preferably by means of guides 22 lapping the upper face of the slide. An arm 23 extends from one end of each slide and is pivotally connected to a bell crank lever 24 mounted on the side of the table. All of the bell crank levers are pivoted to a rod 25 extending alongside the table and mounted in suitable guide brackets 26. A pitman 27 is pivotally connected to this rod 25 and also to a wrist pin 28 extending from a disk 29 secured preferably to the shaft 6 mounted on the short standards 3. A pipe 30 is preferably supported above the upper end of the table and is designed to spray water thereon whenever desired.

In using the machine the shafts 6 are set in motion by the mechanism described and the bars 5 at one side of the machine will be pushed upward by cams 9 while the bars 5 at the other side of the machine are dropping after being released by those of the teeth which pushed them upward. It will thus be seen that a lateral rocking movement is imparted to the table and the jolting produced will be sufficient to move the sand downward along the table and over the riffles to the lower or discharge end. The gold and black sand being of greater specific gravity than the other material on the table will settle within the pockets 17. These pockets will be opened twice during each rotation of the shafts 6 because longitudinal movement is imparted to rod 25 through pitman 27 thereby causing the bell crank levers 24 to swing downward and forward and reciprocate the slides 20. The openings in these slides will register with the openings 18 and 19 once during each movement of the slides. As soon as the openings register the sand con-

tained in the pockets will be free to fall downward into any receptacles which may be provided for them.

What is claimed is:

1. In an ore separator the combination with a table and means for rocking the same transversely; of transversely extending riffles upon the table and forming pockets having outlets in the bottoms thereof, parallel slidable closures for said outlets and extending transversely of the table, an oscillatory actuating element carried by the table, revoluble means for operating the same during the transverse rocking of the table, and a plurality of levers connecting said element and the respective closures for shifting said closures transversely of the table during said rocking movement.

2. In an ore separator the combination with a table and mechanism for rocking the same transversely; of transversely extending riffles upon the table and forming pockets having outlets in the bottoms thereof, slides mounted within the outlets and extending transversely of the table, said slides being flush with the upper face of the table, retaining means carried by the table and lapping the slides, and means for simultaneously reciprocating the slides during the transverse rocking movement of the table, said slides being proportioned to open the outlets during a fraction of each movement of the slides.

3. In an ore separator the combination with standards and guides thereon; of toothed tripping elements revolubly mounted adjacent the standards, vertically disposed push bars mounted within the guides and supported solely by the tripping elements, cross bars, heads at the ends thereof and having sockets constituting seats for the upper ends of the push bars, an inclined table secured upon the cross bars, and means for simultaneously actuating the tripping elements to simultaneously raise and lower opposite portions of the table to rock the same transversely.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH G. EVANS.

Witnesses:
GEO. H. FOSTER,
MAY KELLY.