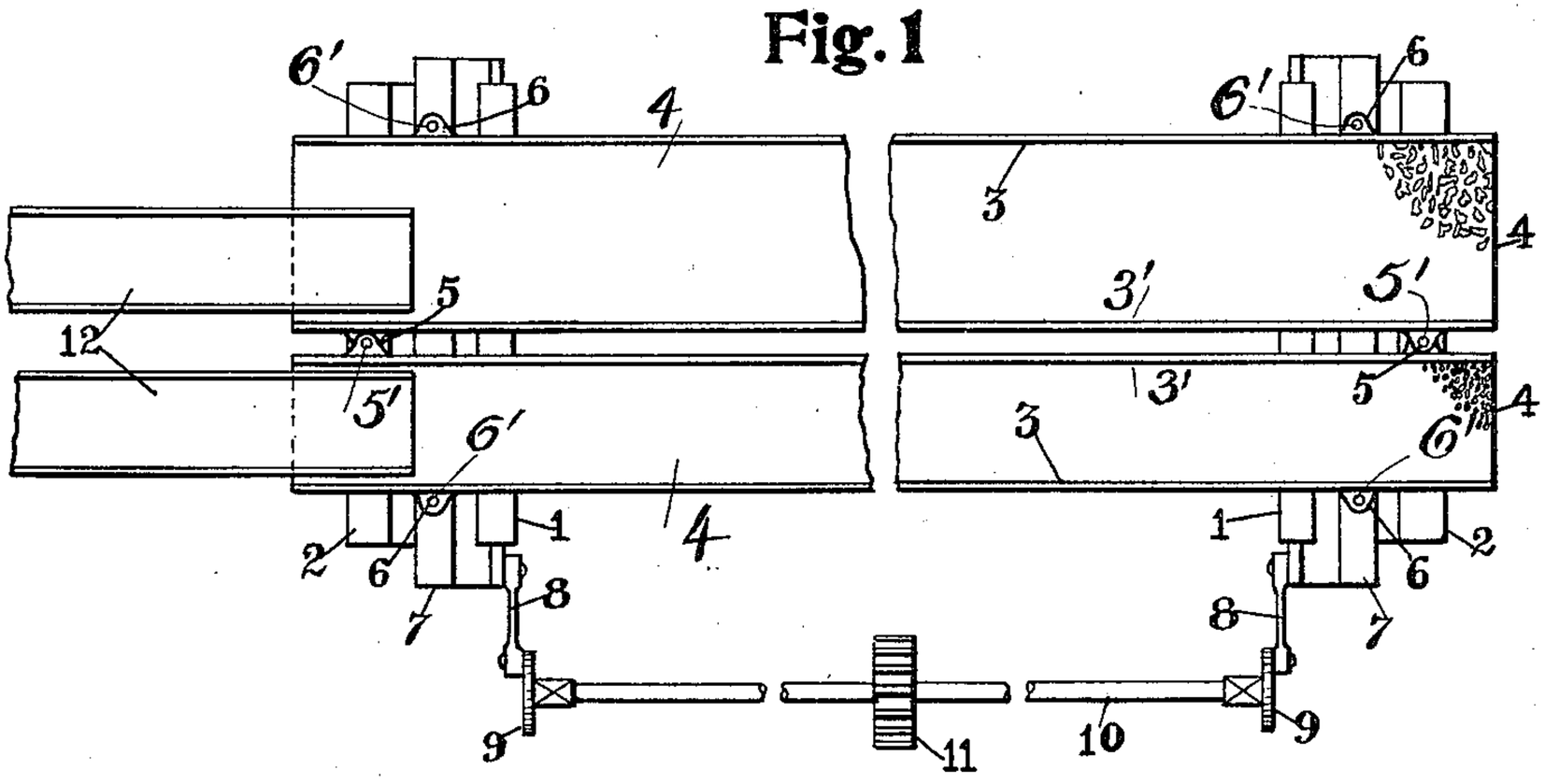
G. W. JONES.

ORE CONCENTRATOR.

APPLICATION FILED APR. 7, 1910.

999,456. Patented Aug. 1, 1911.

Fig. 1



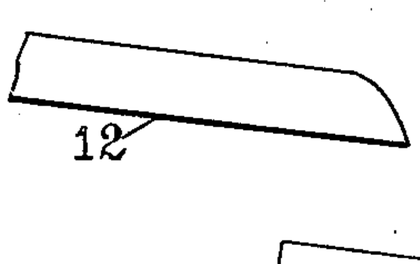


Fig. 2

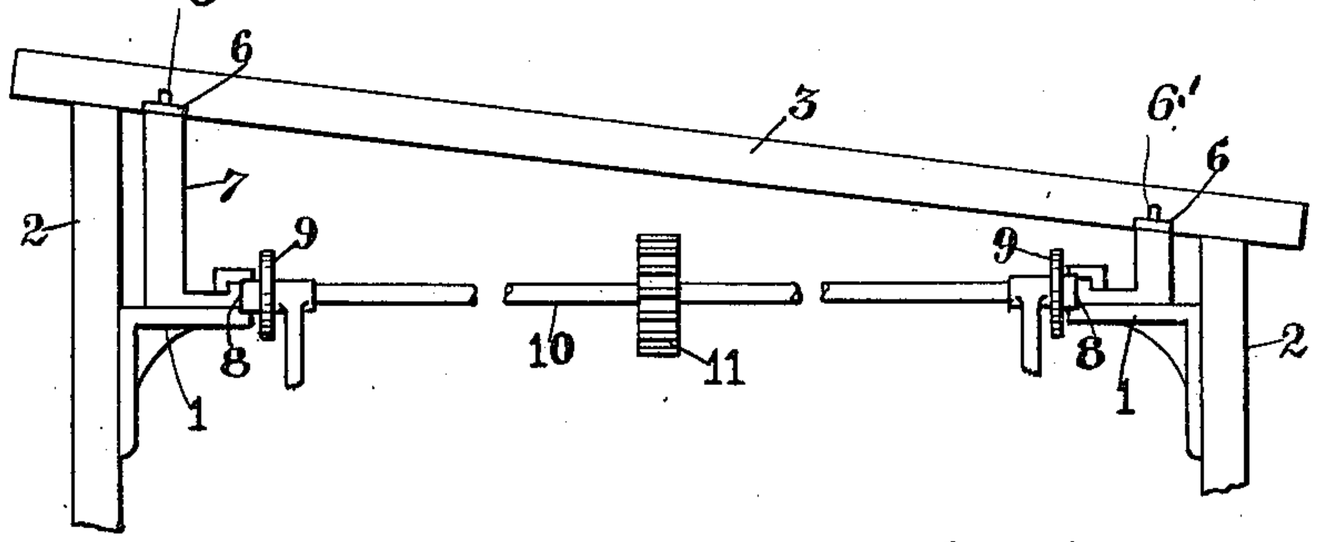


Fig. 3

Fig. 4

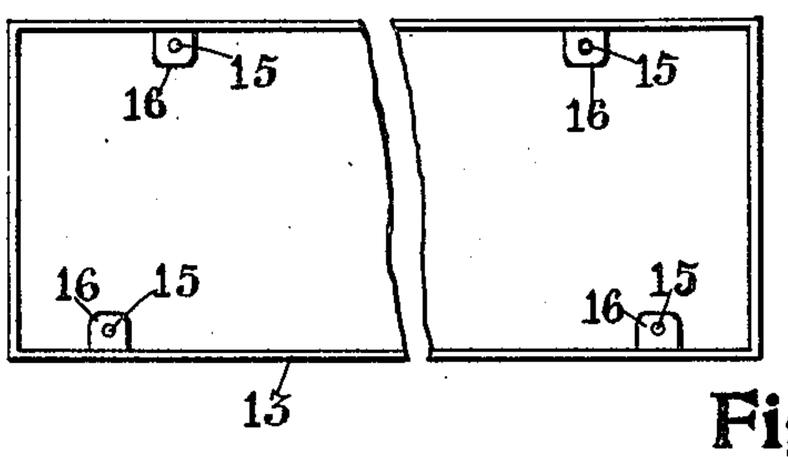
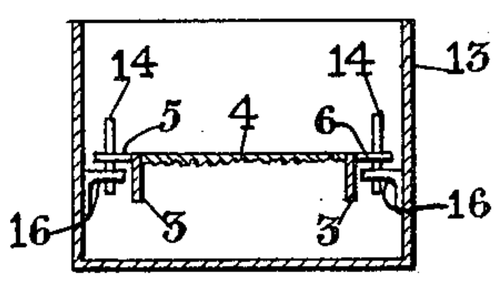


Fig. 5



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE W. JONES, OF DETROIT, MICHIGAN.

ORE-CONCENTRATOR.

999,456. Specification of Letters Patent. **Patented Aug. 1, 1911.**

Application filed April 7, 1910. Serial No. 553,964.

To all whom it may concern:

Be it known that I, GEORGE W. JONES, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Ore-Concentrators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to ore-concentrators, and more particularly to means therein particularly adapted for arresting the lesser values in the ore.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a plan view of a machine that embodies the invention; Fig. 2 is a view in side elevation thereof; Fig. 3 is a view in detail of a washing pan; and Fig. 4 is a view in transverse section of the pan, showing method of clearing a concentrating bed or section; Fig. 5 is a view in section of a section bottom strip.

As shown in the drawings, a pair of horizontal guides or tracks 1 are disposed and maintained in any preferred manner, in parallel spaced relation. Riffle sections are supported in inclined position on bolsters 2 extending upwardly from the tracks 1. Each riffle consists of a pair of parallel side members 3, 3′, which are connected near their lower margins by strips 4 of elastic material, preferably rubber, so as to form a water tight chute. The upper surface of each strip is closely and irregularly pitted. The inner or adjacent side members 3′ are each provided with apertured lugs or dowel plates 5, by which they may be detachably secured to and held against displacement on dowel-pins 5′ stationary in the bolsters 2. Any other means for firmly holding the adjacent sides 3′ in fixed relation to each other may be used, if preferred. Similar lugs or dowel plates 6 on the outer side members are detachably connected, as by pins 6′, to shake bars 7, supported for reciprocatory movement on the tracks 1, and each operatively connected by a pitman rod 8 with a crank disk 9, both disks being secured on a shaft 10 substantially parallel to the side members and driven through a gear 11 or the like from any convenient source of power. The pitman rods and shaker bars are so disposed that one riffle section will be fully distended laterally, and the other contracted, when the pitman is at one end of its stroke, the riffle-conditions being reversed at the other end of its stroke.

Troughs 12 are arranged to discharge the treated ore or pulp onto the upper ends of the riffles. To clean the latter, they are suspended in inverted position (see Fig. 4) in washing pans 13 on pins 14 extending through the section dowels and entering sockets 15 in internal ears 16 on the pan sides. By manipulating the pins, the bottom fabric may be stretched and contracted until all particles of ore are dislodged from the pits and cavities of its surface.

In operation the alternate expansion and contraction throws the current passing through the trough from side to side, and causes the various ore "values" to come in contact with and be trapped in the roughened face of the section bottom. Furthermore when the fabric is distended, the pockets therein tend to contract longitudinally and grip any pieces or particles therein, thus precluding the possibility of dislodgment, and likewise insuring the retention of the lesser or lighter "values."

While the irregularly disposed, and sized pits or cavities are preferable, the surface of the bottom fabric may be regularly honeycombed. In either construction the alternate contraction and expansion of the pockets positively arrests and holds the ore, while the same motion of the inverted fabric in the washing pan as readily releases them all.

By operating two sections side by side, the tension of one is largely balanced by the contractile force of the other, thereby reducing the power necessary to move the device.

Obviously, changes in details of construction may be made without departing from the spirit of the invention, and I do not care to limit myself to any particular form or arrangement of parts.

What I claim as my invention is:—

1. In an ore concentrator, a riffling section having sides connected by elastic strip provided with pitted upper surface, and means for expanding and contracting the section laterally.

2. In an ore concentrator, a pair of riffling sections disposed side by side, each section consisting of side members connected by an elastic strip forming the section-bottom, and

a single device for extending one section and simultaneously contracting the other section.

3. In an ore concentrator, a riffling section consisting of side members connected by an elastic strip provided with pitted upper face forming the section bottom, the section being arranged to induce flow of material therethrough longitudinally, and means for alternately extending and contracting the section, transversely to the direction of flow.

4. In an ore concentrator, a riffling section having a bottom of elastic waterproof fabric provided with pitted upper surface, the section being adapted to be extended and contracted transversely to the direction of flow across the fabric.

5. In an ore concentrator, a pair of horizontal spaced guides, a pair of riffling sections arranged side by side thereon, each consisting of a pair of side members disposed transversely to the track and connected by an elastic, waterproof bottom fabric having a pitted upper face, means for detachably securing the adjacent side members of the sections to the guides, and means for reciprocating the outer side members toward and from the other members.

6. In an ore concentrator, a pair of horizontal spaced guides, a pair of riffling sections arranged side by side thereon, each consisting of a pair of side members disposed transversely to the track and connected by an elastic, waterproof bottom fabric having a pitted upper face, dowel plates on the side members, dowel pins on the guides engaging the dowel plates of the adjacent side members of the sections, and means for reciprocating the outer side members toward and from the other members.

7. In an ore concentrator, a pair of horizontal spaced guides, a pair of riffling sections arranged side by side thereon, each consisting of a pair of side members disposed transversely to the track and connected by an elastic, waterproof bottom fabric having a pitted upper face, means for detachably securing the adjacent side members of the sections to the guides, longitudinally reciprocable shake bars parallel to the guides, each connected to the outer side members of the pair of sections, a rotatable pitman shaft parallel to the side members, and pitman rods coupling the shake bars and shaft.

8. In an ore concentrator, a pair of horizontal spaced guides, a pair of riffling sections arranged side by side thereon, each consisting of a pair of side members disposed transversely to the track and connected by an elastic, waterproof bottom fabric having a pitted upper face, dowel plates on the side members, dowel pins on the guides engaging the dowel plates of the adjacent side members of the sections, longitudinally reciprocable shake bars parallel to the guides pins thereon connecting the shake bars to the dowel plates of the outer side members of the section, a rotatable pitman shaft adjacent the sections, and pitman rods coupling the shake bars and shaft.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. JONES.

Witnesses:
OTTO F. BARTHEL,
ANNA M. DORR.