No. 632,338. Patented Sept. 5, 1899.

R. E. CLARK.

ORE CONCENTRATOR.

(Application filed May 5, 1898.)

(No Model.)

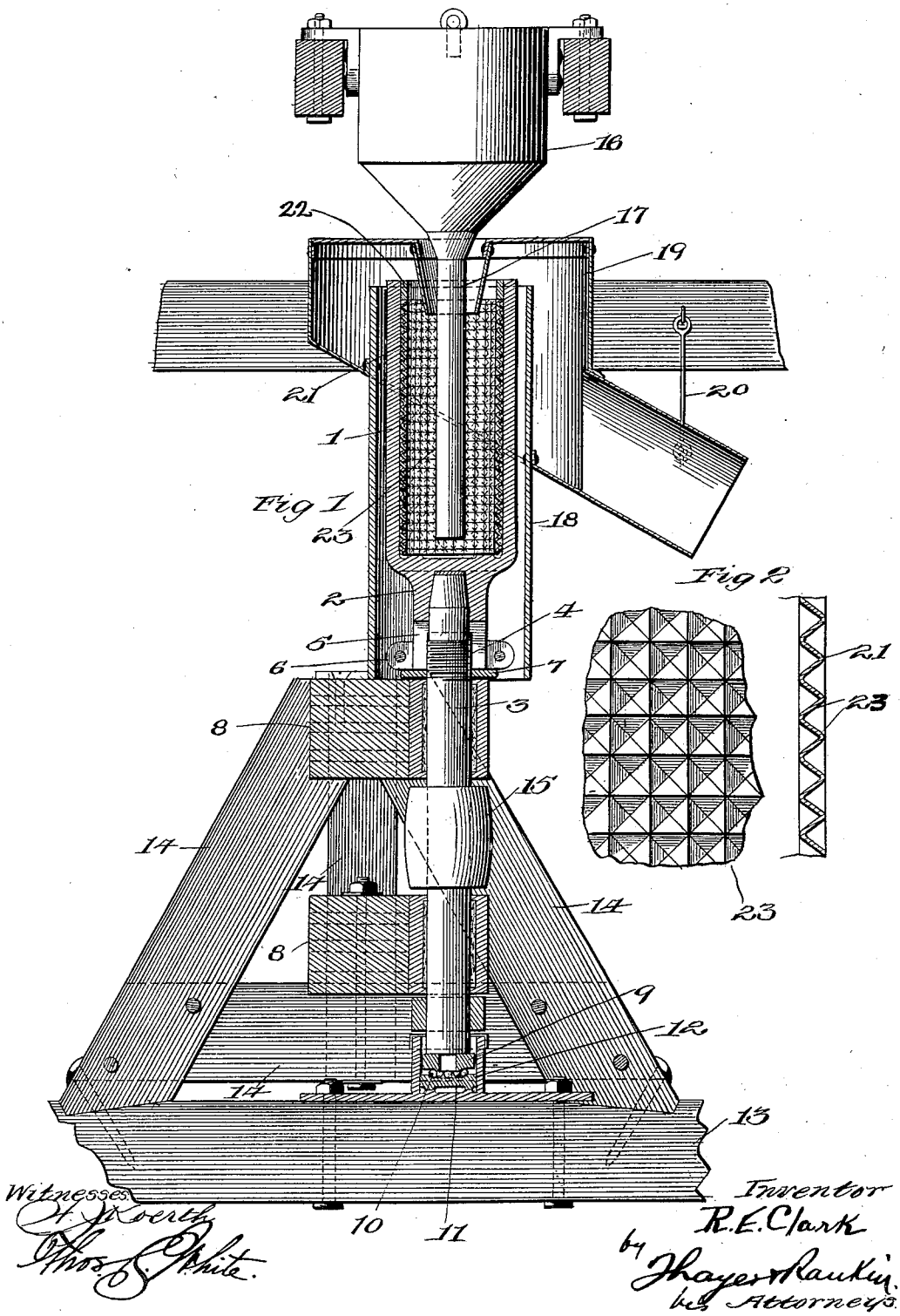


Fig 1

Fig 2

Witnesses:
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UNITED STATES PATENT OFFICE.

ROBERT E. CLARK, OF DENVER, COLORADO.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 632,338, dated September 5, 1899.

Application filed May 5, 1898. Serial No. 679,805. (No model.)

To all whom it may concern:

Be it known that I, ROBERT E. CLARK, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Ore-Concentrators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in centrifugal ore-concentrators.

It has for its object to insure the collection and retention of the particles of ore thrown to the side of a vessel by centrifugal action.

To this end the improvement consists, essentially, in providing a removable lining-shell having a series of pockets in successive layers, with adjunctive devices intended to insure rapidity and ease of operation.

In the drawings, Figure 1 is a side elevation, partly in section, of the apparatus; and Fig. 2 is a detail showing the pyramidal pockets.

1 represents the concentrating-chamber—a cylinder of strong metal having a hollow base 2, secured to an upright shaft 3 by means of a thread 4. The hollow base 2 is split, as shown at 5, and is embraced by a clamp-collar 6, so as to form a lock. An additional nut 7 may be placed beneath the collar. The shaft 3 turns in bearings 8 and rests in a collar 9, supported by ball-bearings 10, lying upon a facing 11 of hard metal, the whole contained in a box 12, secured to the bed-plank 13.

14 are braces, and 15 is the pulley to which power is applied.

A feed-hopper 16, supported above the concentrating-chamber 1, has its spout 17 extending into the chamber. The chamber is surrounded by a safety-jacket 18, which may be attached to the framework of the apparatus and which carries the tailings-chute 19, the spout of which may be supported as shown at 20.

The chamber 1 has an inner removable lining—a shell 21, of any suitable material, preferably of lighter metal than the chamber 1 and secured by a removable collar 22, preferably of brass. The lining 21 bears a series of pyramidal pockets 23 in a succession of rings of pockets.

In operation I place mercury in the bottom of the chamber 1 and then feed screened ore and water from the feed-hopper into the cylinder, which is being rapidly revolved. The water carries the mercury and metal to the side of the chamber, and step by step the heavier particles of metal or the amalgam are deposited in the pockets from the bottom up, the superfluous water and the lighter particles being thrown off from the top of the concentrating-chamber into the tailings-chute. The pyramidal pockets 23 are peculiarly adapted to receive and retain the particles of metal. The open mouths insure the reception of the particles, while the inclined sides serve to throw out any water that may enter. When the pockets are sufficiently loaded in the judgment of the operator, the collar 22 is removed, and the lining 21, with its load, is taken out and cleaned by coating with wax, clay, or similar material, the amalgam being treated in the customary manner thereafter.

Having fully described my invention, what I desire to secure by Letters Patent is—

1. A lining for the walls of an ore-concentrating chamber, having series of pyramidal pockets extending into the lining at right angles to the axis, substantially as described.

2. The combination of an ore-concentrating chamber and a lining corrugated to form pyramidal pockets with their apexes at the outer periphery of the lining, substantially as described.

3. The combination of a centrifugal ore-concentrating chamber and a removable lining having pyramidal pockets extending from the face of the lining to the wall of the chamber, substantially as described.

4. The combination of a vertical centrifugal ore-concentrating chamber and a vertical removable lining having pyramidal pockets extending from the face of the lining to the wall of the chamber, substantially as described.

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

ROBERT E. CLARK.

Witnesses:
EMIL EHNBOM,
A. V. WILDER.