

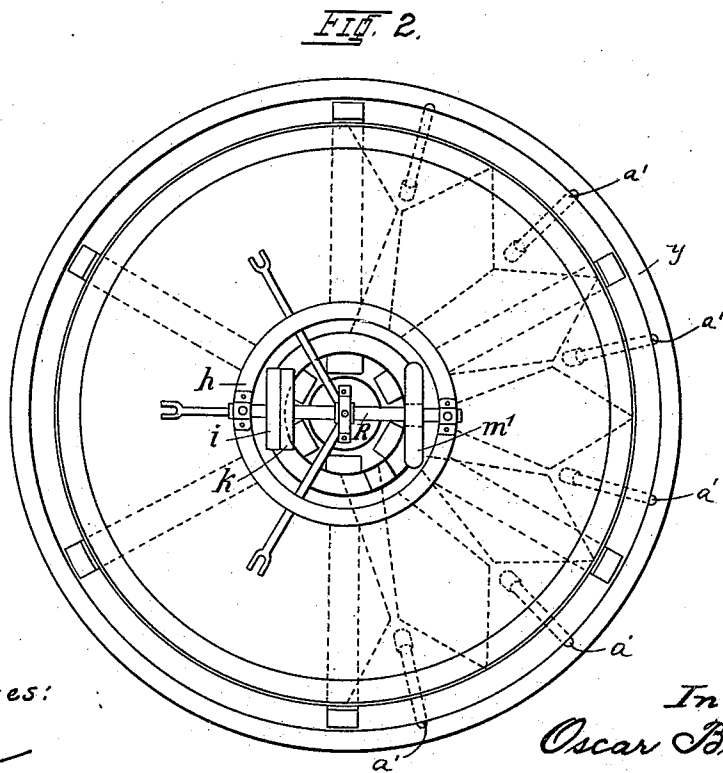
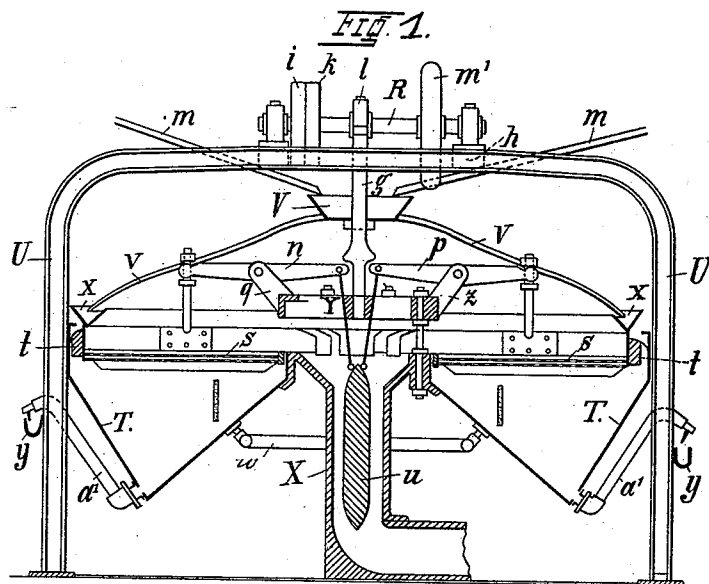
(No Model.)

2 Sheets—Sheet 1.

O. BILHARZ.
JIGGER FOR TREATING ORES.

No. 427,251.

Patented May 6, 1890.



Witnesses:

H. de Vos
C. L. Richard

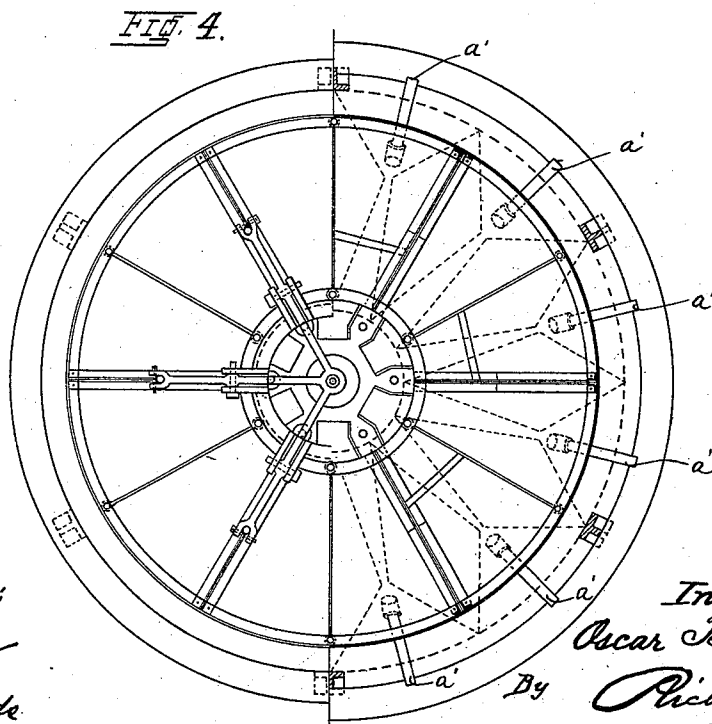
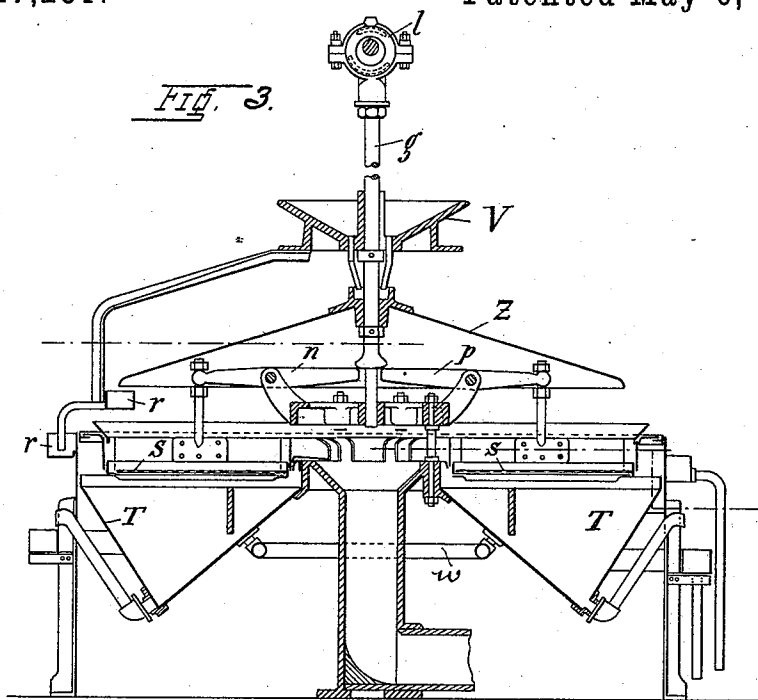
Inventor:

Oscar Bilharz,
By *Richardson*
Attorneys.

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UNITED STATES PATENT OFFICE.

OSCAR BILHARZ, OF FREIBERG, SAXONY, GERMANY.

JIGGER FOR TREATING ORES.

SPECIFICATION forming part of Letters Patent No. 427,251, dated May 6, 1890.

Application filed June 15, 1889. Serial No. 314,444. (No model.)

To all whom it may concern:

Be it known that I, OSCAR BILHARZ, a subject of the King of Saxony, residing at Freiberg, Saxony, Germany, have invented a new and Improved Hydraulic Jigger for Dressing Ores, of which the following is a full, clear, and exact description.

The object of this invention is a hydraulic jigger of a cylindric shape with an annular sieve, over which the ore-stuff, which is fed in the center, is divided in a suitable manner.

In the annexed drawings, which form a part of this specification, Figure 1 shows a vertical section of the new hydraulic jigger. Fig. 2 shows a top view of the same; and Figs. 3 and 4 show a modified construction of the apparatus in side view, partly in section, and top view.

The hydraulic jigger, which might be called in view of its use and construction a "hydraulic circular jigger," consists of a vessel T, preferably formed of iron plates, circular in shape at its upper part, and its bottom part sloping from the circumference or outer wall toward the center, then rising again also toward the center, thus forming an annular channel or gutter in the form of an inverted cone. By this arrangement is formed in the lower part of the vessel T a V-shaped channel, wherein are arranged at suitable distances the discharge-pipes a' .

The vessel T is supported by a suitable number of arched standards U, connected above the vessel and in the center by means of a ring or annular plate h , supporting the driving apparatus for the hydraulic jigger. This driving apparatus consists of the two pulleys i and k —one fixed and one loose on the shaft R—the eccentric l , with the eccentric-rod g , and the fly-wheel m' . The eccentric-rod runs through a collecting funnel or hopper V, which receives the ore water, and terminates in the ring or annular plate Y, which is bolted to the columnar waste-pipe X. It furthermore carries the levers n and p , pivoted to the supports q and z of the ring Y. To the outside ends of the levers n and p the annular sieve S is suspended, which, guided in a closing ring t , is moved up and down by the levers n and p .

For the purpose of facilitating the move-

ment of the sieve it is balanced by the counter-weight u , suspended to the inside arms of the levers n and p . The ore water flows through the gutters m into the funnel V, which is provided around its bottom end with the pipes v , which convey the ore water to the periphery of the sieve into the annular channel x , from where it is fed onto the sieve. On this sieve is placed in the usual manner a bedding or layer of clean ore, and as the vessel T is always full of water this bedding will be agitated at every plunge of the sieve, and thus allows the heavy grains of ore to sink to the V-shaped bottom of the vessel T. From here these grains are discharged through the pipes a' into the collecting-gutter y , while the slime on the sieve S is pushed by the continually-admitted flow or stream of ore water toward the center of the vessel T, and is discharged in the columnar waste-pipe X, and is thus removed. The water lost partly at the upper part of the jigger (through the bedding on the sieve which closes tightly against the side walls of the vessel) and partly at the lower end (through the discharge-pipes a') is continually replaced by the feed-water pipes w , suitably arranged in the vessel.

My jigger is eminently fit for work in mountains hardly accessible and far from industrial centers, as it constitutes a complete whole, and is easily transported and requires for its operation very little power, and consequently can be mounted directly in the open air.

Where the questions of transportation and power are not of the first importance, and when the jigger is to be used in localities where power may be readily obtained, the apparatus may with advantage be constructed in the manner shown by Figs. 3 and 4. In this case the eccentric l is mounted on a power-transmission shaft, and a series of these jiggers may be operated from the same shaft. The eccentric-rod g also goes through the collecting-funnel V for the ore water, and then is carried through a circular distributing-disk Z. It also carries in the same manner the levers n and p , whereto the sieve S is suspended.

The collecting-funnel V is carried by special supporting-arms, and around its bottom discharge-openings are arranged, admitting

the ore water onto the distributing-disk Z, whereon it spreads in all directions, and thus is conveyed in a uniform manner into the dividing-gutters *r*, from which it is fed on the sieve S.

5 Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hydraulic jigger, the combination
10 of a vertically-movable sieve, a collecting-vessel below the same, levers connected with and suspending the sieve, a rod adapted to engage the other ends of said levers in one direction, but independent thereof, and means
15 for forcing said rod suddenly against the levers, substantially as set forth.

2. In a hydraulic jigger, the combination of a vertically-movable sieve, a collecting-vessel below the same, a series of levers circularly arranged and connected with and suspending the sieve, a central rod adapted to engage the other ends of all of said levers in one direction, but independent thereof, and means for forcing said rod suddenly against
25 the levers, substantially as set forth.

3. In a hydraulic jigger, the combination, with the sieve and means for moving the same, of external or peripherally-arranged feed devices for the ore water, a central
30 waste-water pipe opening through the bottom of the sieve, and a circular collecting-vessel below the sieve, V-shaped in cross-section, substantially as set forth.

4. In a hydraulic jigger, the combination,
35 with the sieve and means for moving the same, of external or peripherally-arranged feed devices for the ore water, a central waste-water pipe opening through the bottom of the sieve, and a circular collecting-vessel
40 below the sieve, V-shaped in cross-section, having the discharge-pipes *a'* leading upward

from its bottom angle, and a peripheral receiving-gutter *y*, substantially as set forth.

5. In a hydraulic jigger, the combination of a vertically-movable sieve, a collecting-
45 vessel below the same, levers connected with and suspending the sieve, a rod adapted to engage the other ends of said levers in one direction, but independent thereof, means for forcing said rod suddenly against the levers,
50 and a central counter-weight connected with the inner or free ends of the levers, substantially as set forth.

6. In a hydraulic jigger, the combination, with a sieve having a central opening and
55 suspending-levers arranged oppositely to each other, and having their outer ends connected with the sieve, of a central counter-weight connected with the inner ends of said levers and means for actuating the levers, substan-
60 tially as set forth.

7. In a hydraulic jigger, the combination, with shaft R, fly-wheel *m'*, rod *g*, and eccentric *l*, mounted on said shaft, of arms *q z*, levers *n p*, pivoted to said arms, respectively,
65 and a weight suspended from the ends of said levers for keeping in balance the screen S, substantially as set forth.

8. In a hydraulic jigger, the combination, with the annular vessel T, eccentric *l*, rod *g*,
70 levers *n p*, and sieve S, suspended from said levers, of upwardly-extending discharge-pipes *a'*, and gutter *y*, for receiving said discharge, and the waste-pipe *x*, for carrying off the slime,
75 substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

OSCAR BILHARZ.

Witnesses:

P. SPRECKELS,
PAUL DRUCKMÜLLER.