

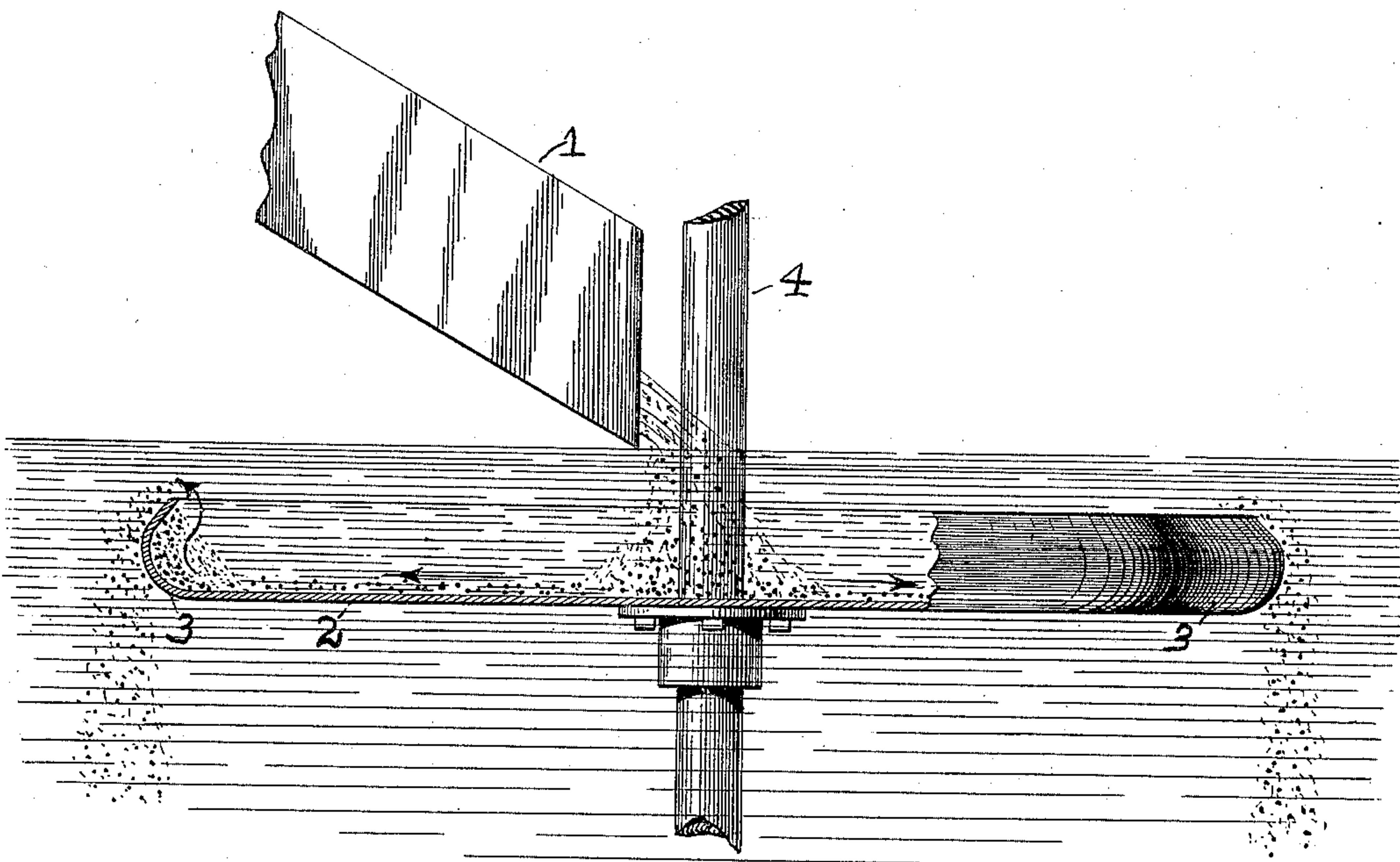
No. 656,728.

Patented Aug. 28, 1900.

H. C. ROBINSON.
PROCESS OF SEPARATING ORES.

(Application filed Feb. 3, 1900.)

(No Model.)



Witnesses:
Arthur Kline
Norval C. Vaughan

Invented
Harry C. Robinson
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UNITED STATES PATENT OFFICE.

HARRY C. ROBINSON, OF CINCINNATI, OHIO.

PROCESS OF SEPARATING ORES.

SPECIFICATION forming part of Letters Patent No. 656,728, dated August 28, 1900.

Application filed February 3, 1900. Serial No. 3,784. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. ROBINSON, a citizen of the United States, and a resident of Cincinnati, Hamilton county, State of Ohio, have invented a certain new and useful Process of Separating Ore; and I do declare the following to be a description of the invention sufficiently clear, full, and exact to enable others skilled in the art to which it appertains to practice and use the same, attention being called to the accompanying drawing, with the reference-numerals marked thereon, which forms also a part of this specification.

This invention relates to a process to be used in the separation of a mixed or conglomerate matter consisting of particles of different specific gravity while suspended in water. Processes of this kind are found in various lines of manufacture, but more particularly in connection with mining, where they are used to separate metal-bearing ore and native metals from the sand, quartz, gravel, &c., in which they are found. My invention is particularly intended for use in this latter connection—that is, to separate native metals and metal-bearing ores from their accompanying mineral mixtures, which I accomplish by subjecting the mixed or conglomerate mass to the action of a submerged horizontally-disposed slowly-rotating surface at the periphery of which a soft bank of sand is maintained. The entire process is performed under water, thereby obtaining the coöperative action of this latter in facilitating the disintegration of material of different specific gravity, also increasing the difference in the relative weights of the lighter and heavier materials, and also maintaining in soft consistency the material held at the periphery, so as to permit the finest particles of gold to embed themselves and find lodgment therein.

This process is accomplished as follows: The mass to be treated is fed, by means of a chute or other convenient mode, into the center of a submerged horizontally-disposed slowly-rotating surface at the periphery of which a soft bank of sand or other suitable material is maintained for the purpose of arresting heavier matter. The conglomerate fed into the center of this surface is rotated at a speed sufficient only to develop centrifugal force slightly in excess of that necessary to overcome the inertia of the heavier material resting on the support, and as such material is slowly driven from the center to the

periphery of the surface it is kept in a prolonged disintegrating action of the comparatively-still water, whereby the lighter and heavier materials are effectively separated from each other, the lighter being gently lifted and carried over the periphery, while the heavier is slowly driven beneath the bank of material at the periphery maintained in such manner thereat as to be in a soft and yielding condition, thereby insuring the arrest of all materials heavier than that of which the bank is formed and protecting the same from the currents that have a tendency to lift it off the support.

In the accompanying drawing the numeral 1 indicates the chute through which the material is fed into the water near the center of the flat bottom 2 of a pan, which at its outer edge is provided with an annular pocket 3, in which the aforementioned bank is maintained.

4 is a vertically-supported shaft, to which the pan is connected and by which it is rotated.

A similar device is illustrated in another application, filed by me on July 15, 1899, Serial No. 723,894, and any matter shown and described therein is herein disclaimed.

Having described my invention, I claim as new—

The process of separating the heavier from the lighter materials of a conglomerate and consisting in rotating the materials on a submerged horizontally-rotating surface at a speed sufficient to develop centrifugal force only slightly in excess of that necessary to overcome the inertia of the heavier material resting on the support whereby the conglomerate is subjected to a prolonged, but gentle disintegrating action by the comparatively-still water by which the lighter is lifted and carried off the support and the heavier is gradually driven toward the periphery of the rotating support, a soft bank of sand being maintained at said periphery under which the heavier material sinks and is then protected from currents tending to lift it off of the support, substantially as described.

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

HARRY C. ROBINSON.

Witnesses:

C. SPENGEL,
ARTHUR KLINE.