No. 834,722. PATENTED OCT. 30, 1906.

T. GROESBECK.

PROCESS AND APPARATUS FOR SEPARATING METALS AND ORES.

APPLICATION FILED DEC. 26, 1905.

Fig. 1.

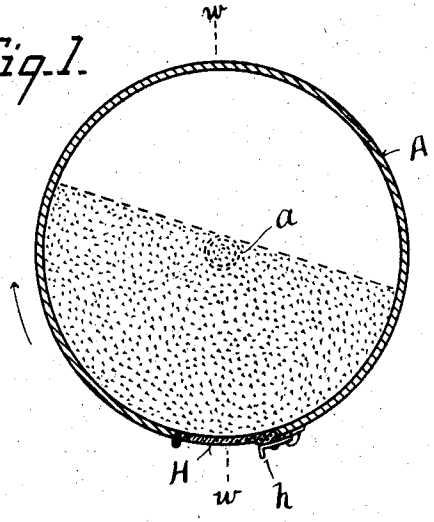
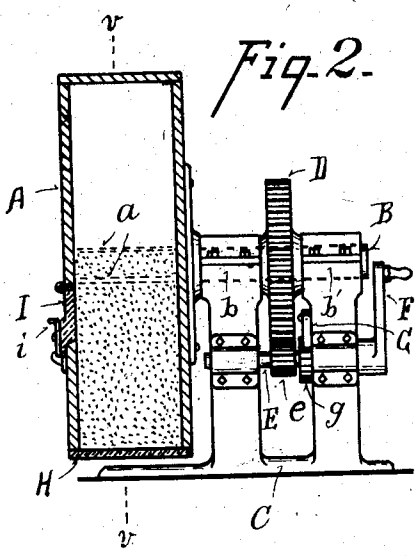


Fig. 2.



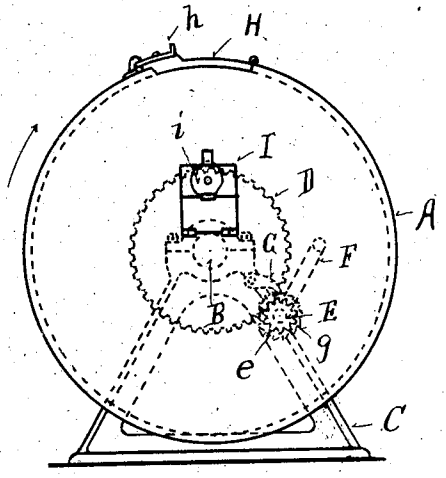


Fig. 3.

Inventor

Telford Groesbeck

Witnesses

A. McCormack.

H. E. Murray

By C. W. Mills.

By

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

TELFORD GROESBECK, OF CINCINNATI, OHIO.

PROCESS AND APPARATUS FOR SEPARATING METALS AND ORES.

No. 834,722. Specification of Letters Patent. Patented Oct. 30, 1906.

Application filed December 26, 1905. Serial No. 293,204.

To all whom it may concern:

Be it known that I, TELFORD GROESBECK, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Processes and Apparatus for Separating Metals and Ores, of which the following is a specification.

My invention relates to improved process and apparatus for separating gold and other metals and ores from sand and other gangue or waste materials. One of its objects is to provide an improved process for separating heavy metals and ores from waste material.

Another object is to provide suitable apparatus for carrying out such process.

Another object is to provide simple and efficient apparatus for such purpose which can be readily provided and erected at inaccessible mining localities.

It further consists in certain details of form, combination, and arrangement, all of which will be more fully set forth in the description of the drawings, in which—

Figure 1 is a central vertical section through my improved apparatus on line *v v* of Fig. 2. Fig. 2 is a central vertical section on line *w w* of Fig. 2. Fig. 3 is a front elevation of the same.

A represents a cylindrical chamber or receptacle adapted to be rotated slowly upon a horizontal axis.

B represents a shaft mounted in the bearings *b b'* in a base or frame C. The chamber A is mounted upon the end of shaft B and adapted to be carried and rotated by said shaft. The shaft B may be driven by power or by hand. If the apparatus be small, a hand-crank may be attached directly to shaft B. In the preferred form a gear D is mounted on shaft B, and a secondary shaft E, provided with a gear *e*, meshing with gear D, is turned by hand by means of crank F.

G represents a pawl engaging a ratchet-wheel *g* on shaft E and which is preferably employed to lock shaft E from turning in the reverse direction.

H represents a door held closed by a latch *h*. This door serves to admit the material to be treated and to discharge the waste material after treatment.

I represents a door in the face or end of the chamber or cylinder A, located near the axis thereof and held in its closed position by a latch *i*.

In practice the chamber is filled with material to be treated to a point a little above its axis, as indicated in Fig. 1. The material to be treated may be either wet or dry. I preferably, however, employ therewith sufficient water to cause the particles to move freely relative to each other. After a sufficient quantity of material has been admitted the doors H I are closed and latched and the cylinder or chamber given one or two complete revolutions, which causes the materials of different specific gravity to separate. Those of greater specific gravity, such as gold, &c., will accumulate in a circular layer or strata about the axis of revolution, as indicated at *a*, Fig. 1, while the material of less specific gravity will arrange itself nearer the periphery of the chamber. The revolution of chamber A being stopped with the door I above the axis, this door may be opened and the valuable concentrates removed with a suitable scoop or other means. The balance of the material is then discharged through the door H, which is opened and the cylinder turned to discharge the waste, whereupon the cylinder is ready to be recharged. Should more material be charged into chamber A than indicated in Fig. 1, the diameter of the layer of concentrates would be increased.

I believe I am the first to employ the principle and provide an apparatus in which the concentrates are gathered to a horizontal axis of rotation.

The mechanism herein shown is capable of considerable modification without departing from the principle of my invention.

Having described my invention, what I claim is—

1. The process of separating metals or ores of high specific gravity from waste material, which consists in charging a receptacle adapted to be rotated upon a substantially horizontal axis with the material to be treated to a point above the axis of rotation of said receptacle, rotating said receptacle slowly one or more complete revolutions, thereby causing the material of high specific gravity to concentrate about the axis of rotation, removing the concentrate so formed, and discharging the waste material.

2. The process of separating valuable metals and ores of high specific gravity which consists in slowly rotating a body of the material to be treated about a substan-

tially horizontal axis whereby the material of high specific gravity is caused to concentrate about the axis of rotation.

3. An apparatus for separating metals and ores of high specific gravity consisting of a receptacle adapted to be rotated slowly about a substantially horizontal axis, a charging-door adapted to be closed and latched, and a door near the axis of rotation of said receptacle adapted to be closed and latched and through which the concentrates can be reached and removed.

4. An apparatus for separating metals and ores of high specific gravity, a receptacle journaled and adapted to be rotated upon a substantially horizontal axis, a charging-door located near the periphery of said receptacle and adapted to be closed and latched, and a door for the removal of concentrates located at one side of the receptacle near the axis of rotation.

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

TELFORD GROESBECK.

Witnesses:
HERMAN J. GROESBECK,
C. W. MILES.