

(No Model.)

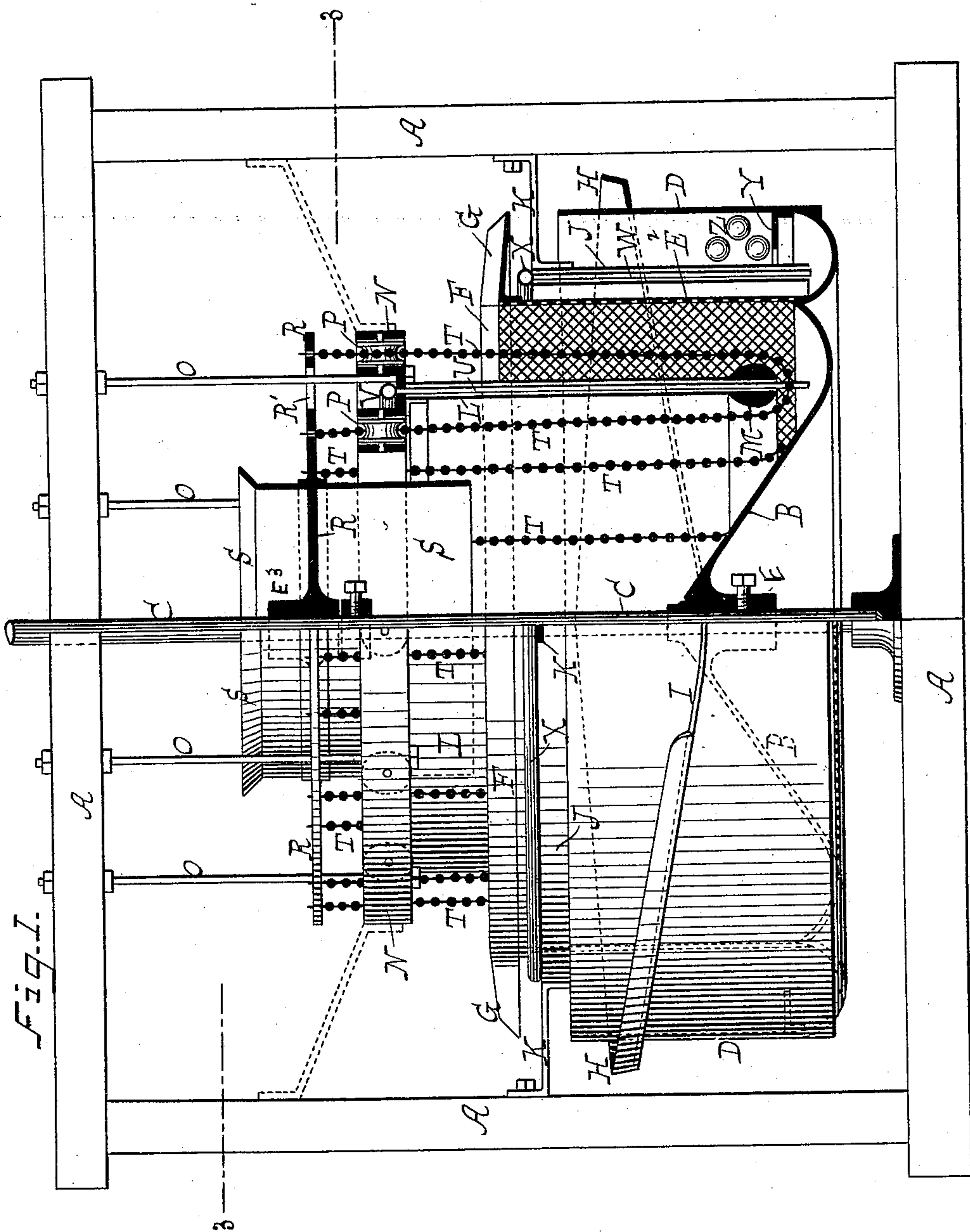
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G. L. CUDNER.

ORE TRITURATING AND AMALGAMATING APPARATUS.

No. 471,103.

Patented Mar. 22, 1892.



WITNESSES:

M. E. Lowell.
M. C. Lonsdale.

Gustavus Lorimer Cudner
INVENTOR

BY *Adam E. Schatz*
ATTORNEY.

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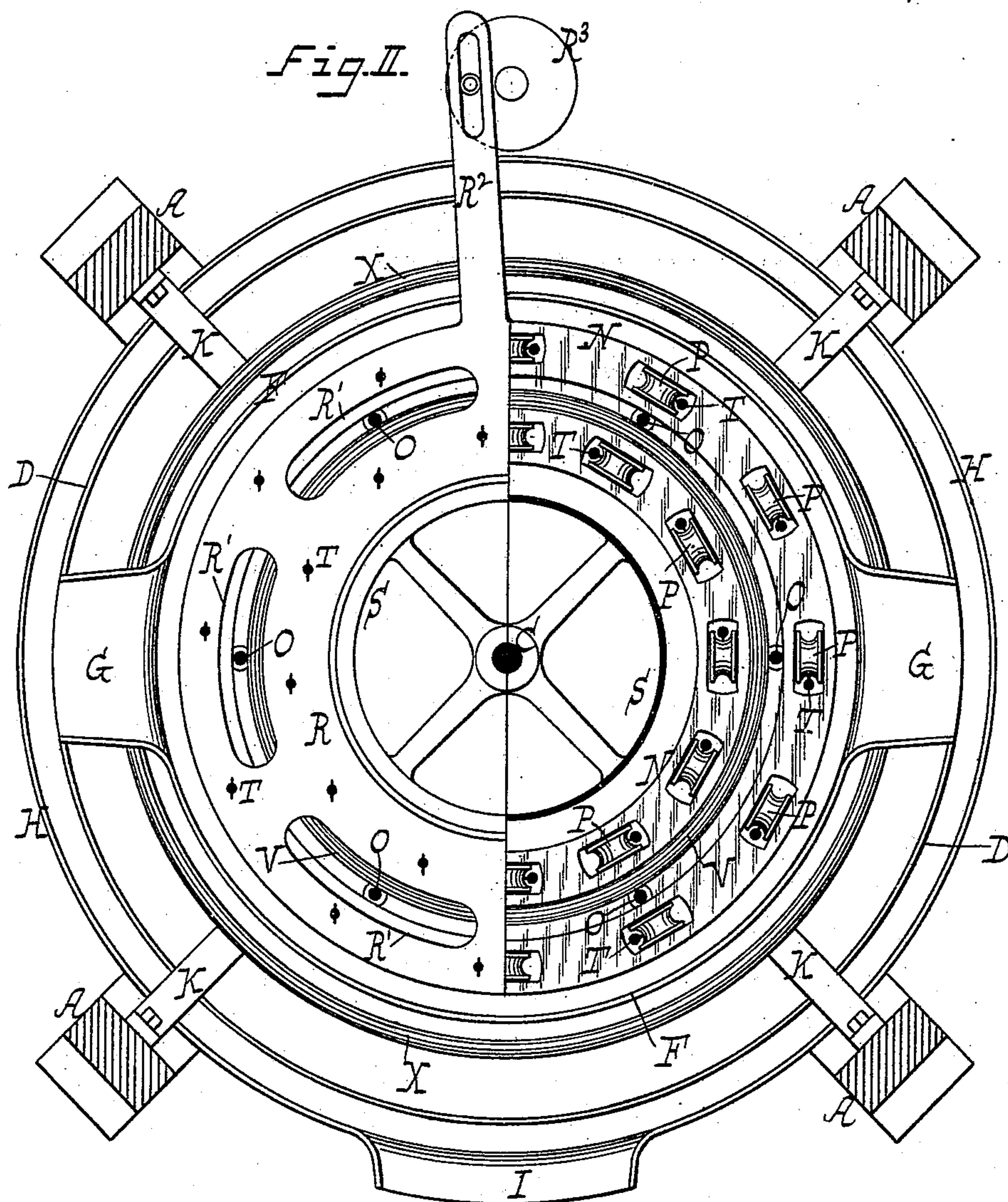
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UNITED STATES PATENT OFFICE.

GUSTAVIS LORRIMER CUDNER, OF NEW YORK, N. Y., ASSIGNOR OF FOUR-FIFTHS TO JACOB RUPPERT, JR., GEORGE E. METZ, AND ADAM E. SCHATZ, OF SAME PLACE.

ORE TRITURATING AND AMALGAMATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 471,103, dated March 22, 1892.

Application filed January 8, 1891. Serial No. 377,078. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVIS LORRIMER CUDNER, a citizen of the United States, and a resident of New York city, county, and State, have invented a new and useful Improvement in Ore Triturating and Amalgamating Apparatus, of which the following is a specification.

My invention relates to an apparatus designed to triturate or separate precious metals from their ores, clays, sands, or slimes, thus bringing them in contact with mercury, where they are seized and retained and form an amalgam, from which the metals are subsequently secured by well-known means.

The form of my machine is preferably cylindrical, and the machine has a number of partitions and a peculiarly-formed bottom and a covering-disk, which is fixed on a central shaft, so that it may be oscillated by suitable means. To the under side of said disk, at regular intervals, metal chains are attached, which pass under a collar provided at the lower edge of the cylindrical partitions M. These chains and their operation are the salient features of my invention and are provided for the following reasons.

In the drawings, Figure I is a view in side elevation of a machine embodying the improvement of my invention, parts being shown in section; and Fig. II is a plan view of the machine, showing a portion of the oscillating disk removed.

Referring by letter to the accompanying drawings, A represents a frame-work of wood or iron. The machine contains a vertical cylinder or cylinders forming cells or a compartment-cylinder. This compartment-cylinder has a bottom of peculiar shape, (marked B in Fig. I,) which is properly fastened on vertical shaft C. This bottom is formed with a cone-shaped central portion surrounded by inner and outer annular troughs. Around the edge is a cylinder or curb D, riveted, bolted, or otherwise secured thereto. On the bottom B is a collar, (marked E.) Another cylinder E², made of perforated metal or bars, forming a screen or net-work, is placed thereon. Around the top of cylinder E² is a trough F, with dis-

charge-spouts on each side, (marked G.) Around the outside of the cylinder D is a trough H, which is provided with a discharge-spout I.

J is a cylindrical partition, which is made of two cylinder plates, which are provided for the purpose of breaking the force of the water which runs between them.

K are lugs or brackets riveted or otherwise fastened to cylinder J. This cylinder J, with brackets K, is bolted to frame-work A.

L is a cylinder partition with an oval collar M at its bottom. On the top of the cylinder partition L is a circular mortised plate, (marked N,) and these parts are held together with rods O and are fastened to the frame-work A by brackets. There is a number of shafts mounted in openings in the circular plate N, having pulleys thereon, (marked P,) these openings and pulleys being in two annular series. Near the top of the shaft C is a disk R, fastened to the shaft. The disk R has curbs or cylinders S above and below it, and also has a number of holes R' through it. The chains T are fastened to the rim of the disk R, passing down and around the collar M of partition L. There is a number of pipes U connected to a pipe V. The pipes U stand vertically, and, running down close to the partitions L, pass through the collar M nearly to the bottom of the machine. The double cylinder J has several vertical pipes W passed down between the two portions thereof nearly to the bottom of the machine.

Around the inside of the cylinder D near the bottom is a shelf or projection, (marked Y,) containing hollow metal balls, (marked Z.) A number of these balls are placed between the cylinder D and partition J, lodging on the shelf Y. On the disk R is an arm, (marked R²), said arm having a slot which receives a pin projecting upward from a horizontal pulley R³. Rotation of the pulley R³ causes the disk R and the chains to be oscillated in an obvious manner.

The cylinder or partition J is stationary, being bolted or fastened to the frame-work of the machine. The cylinder L, with top N and bottom M, is also stationary and properly fast-

ened to the frame of the machine. By the oscillating motion of the disk R the chains T are caused to saw up and down either side of the partition L.

5 This machine is operated as follows, and is for the purpose of saving fine or coarse gold at the same time: The pipes marked V and X in the drawings must be furnished with a water-supply with a pressure equal to about
10 seven pounds to the square inch. Water being let on, the machine is started and an oscillating motion is imparted thereto, the pulley R³ revolving about sixty times a minute. Then pulp or ore is fed into the top of the
15 machine down through a cylinder S, where it comes in contact with the chains T, and by their motion the gold is brightened and released from other matter. The fine particles of sand, clay, &c., with the water, work through
20 the oscillating perforated cylinder E², passing down under the stationary partition of cylinder J and up through balls Z and over the edge of the cylinder D into the trough H, where it is discharged by the spout I. The
25 pebbles and coarse matter work up over the edge of the perforated cylinder E², dropping into the trough F, where they are discharged by the spouts G.

Quicksilver is used in proper quantities
30 when the machine is used as an amalgamator, and by means of the chains and the oscillating motion of the machine the gold is settled to the bottom and brought in contact with the quicksilver. The amalgam remains
35 at the bottom, while the foreign matter passes off, as before described.

It is obvious that the use of mercury in direct connection with the machine for the separation or trituration of the precious-metal-
40 containing matter is not essential, as it may form a future step in the precious-metal-obtaining process.

As above stated, the use of mercury not being essential for all purposes, I do not represent it in the drawings. When it is used, it
45 will have such depth in the bottom of the machine as the experienced user may decide to best suit his purposes, according to the amount of the concentrates to be operated upon be-

fore the removal of the amalgam and the percentage of gold known to be in the concentrates. 50

What I claim as new, and desire to secure by Letters Patent, is—

1. In an ore-triturating apparatus, the combination, with a cylindrical vessel, of a horizontal disk mounted on a shaft over said vessel, chains depending from said disk, and means for oscillating the disk, substantially as described. 55

2. In an ore-triturating apparatus, the combination, with a cylindrical vessel, of the plate N, having pulley P in a fixed position over the vessel, the oscillating disk R above the plate and having chains extending down over the pulleys into the vessel, and means for oscillating said disk, substantially as described. 60 65

3. In a tritulating, separating, and amalgamating machine, the combination, with the vertical shaft C, supported in a frame A, of the cylinder or curb D, provided with the internal bottom E, having a collar secured to the shaft C, the screen-cylinder E² inside the curb D, the trough F around the top thereof, the cylinder J, secured by brackets to the frame-work A, the trough H outside the curb D and provided with discharge-spouts I, the shelf Y between the partition J and the curb D, the hollow balls Z, the cylinder partition having an oval collar M at its bottom and a circular mortised plate N at its top, provided with pulleys P, the securing-rods O, connecting the plate N to the top of the frame A, the disk R, secured to the shaft C and provided with holes R', the tritulating-chains T, passing under the collar M and connected at their
80 ends to the disk R on opposite sides to the opening R' therein, the water-pipe V on the plate N and having the pipes U, and the central feed-cylinder S, substantially as described. 85 90

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 23d day of December, 1890.

GUSTAVIS LORRIMER CUDNER.

Witnesses:

RICHARD LIPS,
GEORGE E. METZ.