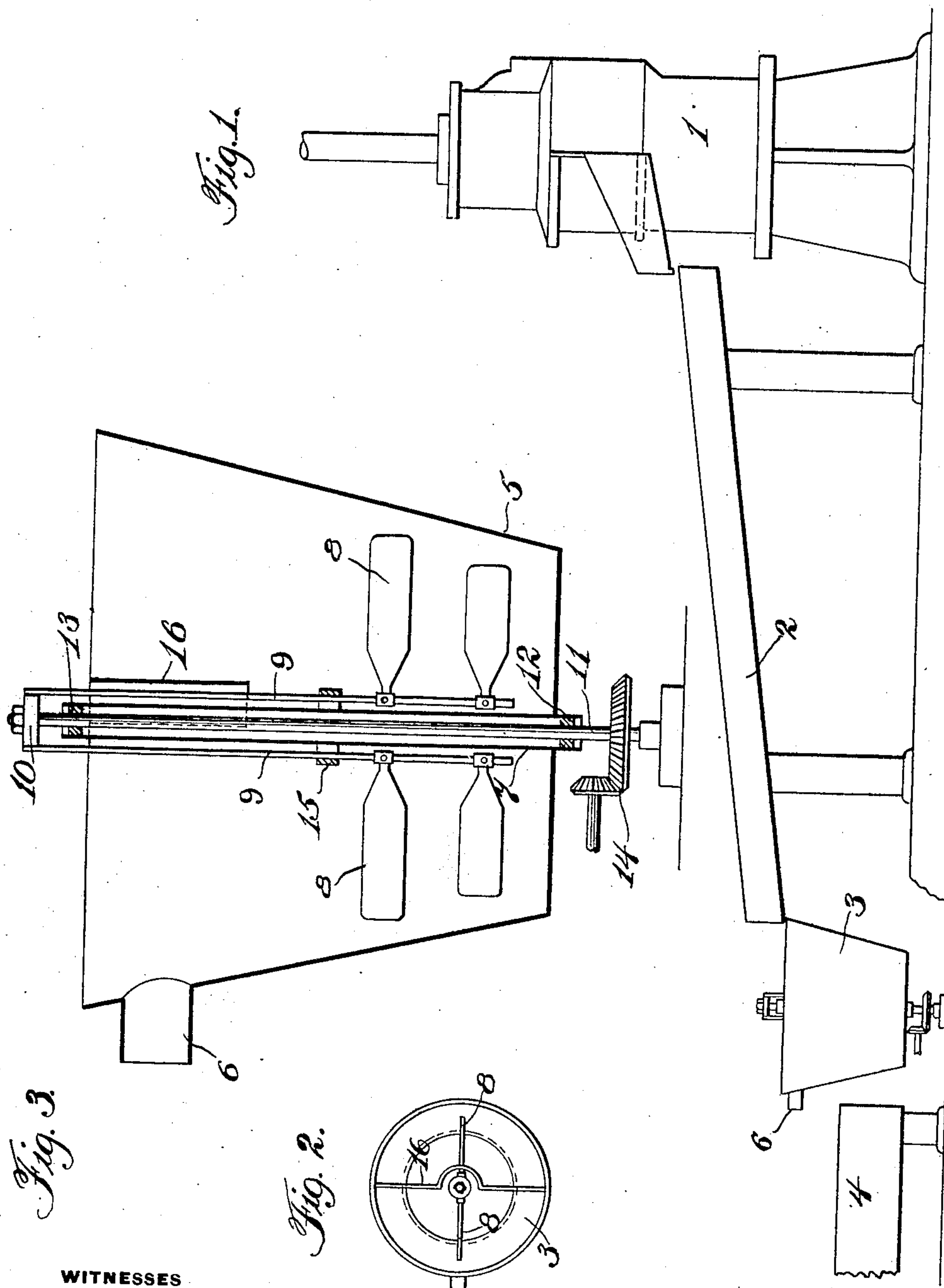


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PATENTED MAR. 17, 1908.

H. J. SISTY.
SEPARATOR.

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WITNESSES
Harvey L. Lechner
J. C. Bradley

INVENTOR
H. J. Sisty
by atty
Paul Synnestvedt

UNITED STATES PATENT OFFICE.

HAL J. SISTY, OF CABORCA, MEXICO, ASSIGNOR OF ONE-FOURTH TO GEORGE F. SMITH, OF PITTSBURG, PENNSYLVANIA.

SEPARATOR.

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To all whom it may concern:

Be it known that I, HAL J. SISTY, a citizen of the United States, residing at Caborca, in the State of Sonora and Republic of Mexico, have invented certain new and useful Improvements in Separators, of which the following is a specification.

My invention relates to separating mechanism for use with stamp mills or other reducing machinery, and has for its objects; to provide a means for recovering the amalgam and precious metal which passes the amalgamating tables on its way to the concentrating tables; to provide a simple means for recovering the precious metals at a very small expense; and finally to provide an effective and practically indestructible separating means which requires little attention. The foregoing and other advantages are accomplished by my invention, one embodiment of which is clearly illustrated in the accompanying drawing in which—

Figure 1 is a diagrammatic side elevation showing the assembled arrangements of the parts;

Figure 2 is a plan view of the separator, and

Figure 3 is an enlarged sectional transverse section through the separator.

It has been found in the use of the usual amalgamating and concentrating tables in connection with a stamp mill that a certain amount of the quicksilver amalgam and precious metal carried by the pulp or liquid from the mill was not retained by the tables, and it is for the recovery of this amalgam and precious metal that my device has been designed.

Referring to Figure 1 of the drawing, 1 is the stamp mill which may be of any desired construction, 2 is the amalgamating table for receiving the pulp or liquid mass from the mill and recovering the amalgam and precious metal therefrom, 3 is my improved separating means adapted to receive the overflow from the amalgamating table, the construction of which will be more particularly described hereafter, and 4 is the concentrating table which may be of any approved type.

The separating means to which my invention particularly relates, is shown in detail in Figures 2 and 3, and as there shown comprises a tank 5 of copper adapted to receive the overflow from the amalgamating table at

one side and discharge such overflow through the spout 6 at the other side of the tank, and is provided with a central tube 7 which is adapted to receive the operating shaft for revolving the agitating members or paddles 8 which are adjustably secured to downwardly projecting arms 9 secured to a cross-head 10 at the top, which cross-head is in turn carried by the operating shaft 11. The shaft 11 is supported in the tube 7 by means of bearings 12 and 13, and carries at its end the gear 14 which may be operated from any convenient source of power as desired. A collar 15 is also provided about the arms 9—9, whereby they may be steadied and supported from each other. In order that the liquid as it comes in at the right hand side of the tank may be directed downward toward the bottom of the tank, a transverse partition 16 is provided, which partition extends down a certain distance from the top of the tank as illustrated in Figure 2, and is curved at its center to provide for the passage of the tube 7.

In operation, the ore is crushed in the mill 1, and in the usual way passes over the amalgamating table 2 where the major portion of the amalgam is retained, and thence flows into the tank 5. The fluid mass as it passes into the tank strikes the partition 16 which serves to direct such fluid downwardly past the paddles 8, and to the bottom of the tank, after which the lighter portions overflow to the spout 6 and pass to the concentrating tables 4. Owing to the downward directing by the partition 16 and to the action of the paddles 8, which tend to separate the heavy particles of the liquid from the lighter ones, the heavy amalgam quicksilver and precious metal settle to the bottom of the tank 5, and because the tank is of copper, unite with and stick to it. When a sufficient amount of amalgam has been deposited on the bottom and the sides of the tank 5 the operation is suspended and the deposit is scraped out, after which the tank or separator is again ready for use. It will be noted that by the use of the tube 7, which by the way is also composed of copper and brazed into the tank, the drive shaft 11 is protected from contact with the fluid, and there are no bearings to which the fluid has access, as would be the case if shaft 11 were merely set into the tank from the top and provided with a bearing for supporting its lower end.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is the following:

5 In combination in separating apparatus, a tank of a metal adapted to unite with and hold an amalgam, a vertical directing partition extending across the upper portion of the tank and having its central portion
10 curved outwardly to receive a drive means,

and a drive means provided with horizontally extending paddles beneath the partition.

In testimony whereof I have hereunto signed my name in the presence of the two 15 subscribed witnesses.

HAL J. SISTY.

Witnesses:

J. C. BRADLEY,

F. E. GAITHER.