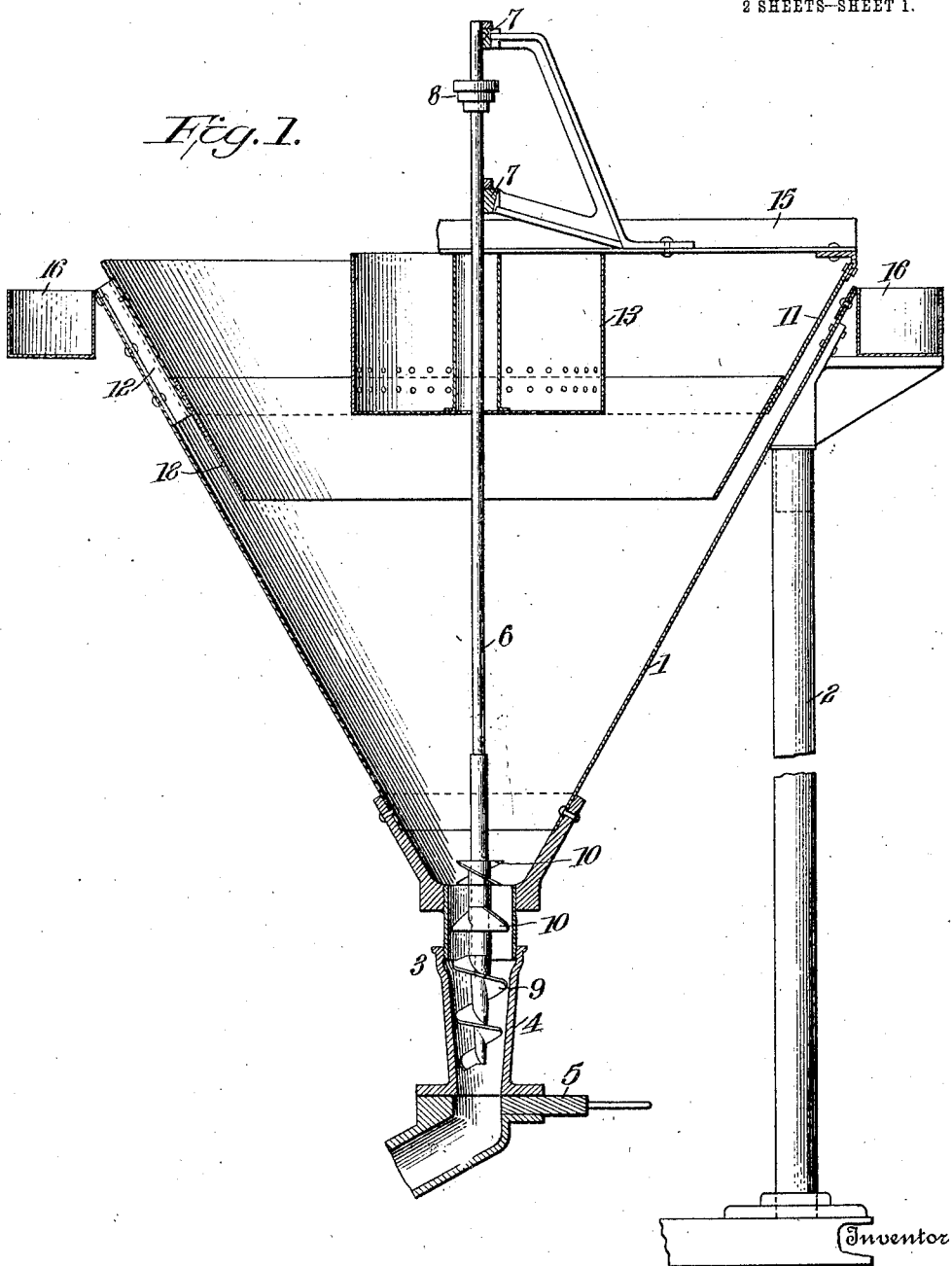


W. A. HENDRYX.
CLASSIFIER OR SEPARATOR.
APPLICATION FILED JULY 25, 1910.

1,053,171.

Patented Feb. 18, 1913.

2 SHEETS—SHEET 1.



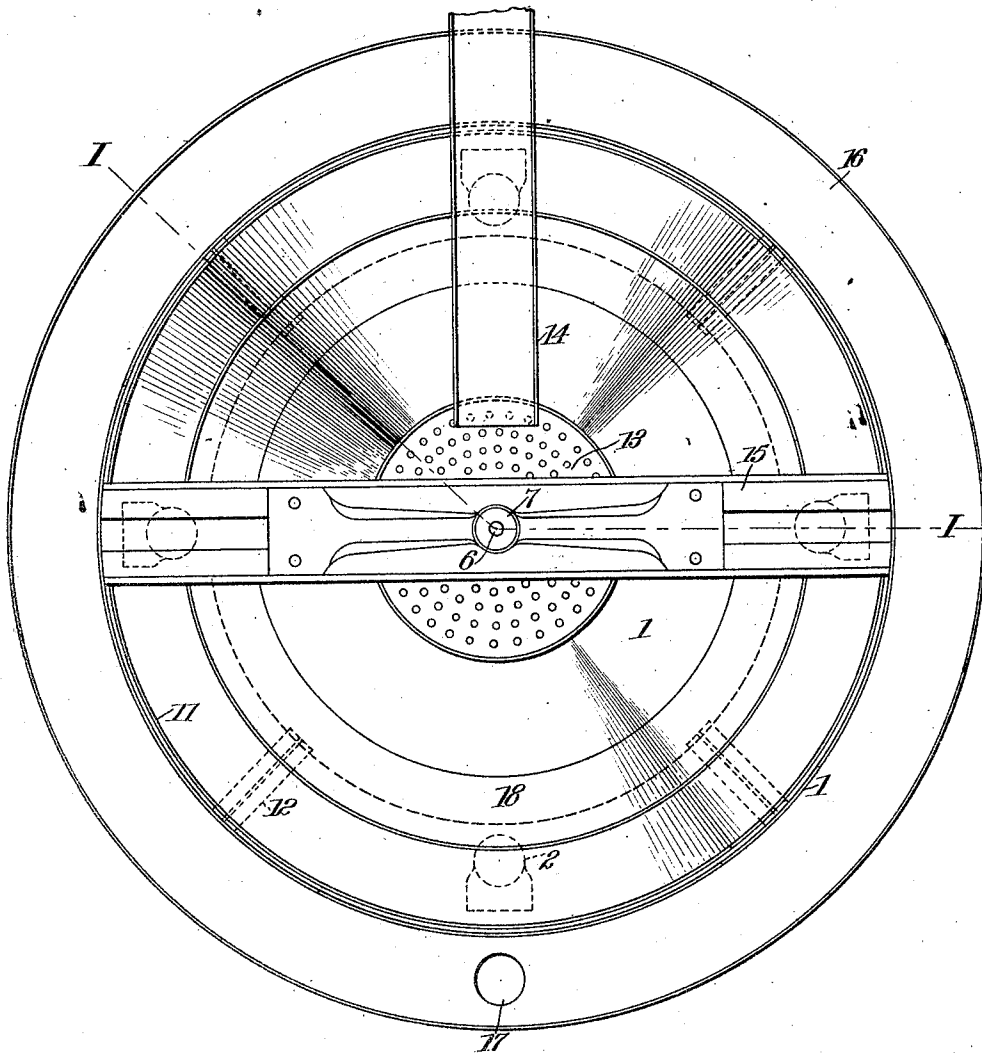
Witnesses
C. H. Walker.
E. Daniels

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1,053,171.

2 SHEETS—SHEET 2.

Fig. 2.



Wilbur A. Hendryx

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UNITED STATES PATENT OFFICE.

WILBUR ALSON HENDRYX, OF NEW YORK, N. Y., ASSIGNOR TO HENDRYX CYANIDE MACHINERY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF MAINE.

CLASSIFIER OR SEPARATOR.

1,053,171.

Specification of Letters Patent.

Patented Feb. 13, 1913.

Application filed July 25, 1910. Serial No. 573,663.

To all whom it may concern:

Be it known that I, WILBUR A. HENDRYX, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Classifiers or Separators, of which the following is a specification.

This invention is an apparatus intended primarily for use as a classifier for separating the fine particles or slimes from the coarser materials, sand, etc., in ore pulp.

The object of the invention is to provide a simple apparatus capable of continuous operation at high capacity.

In its preferred form the apparatus is adjustable to control the character or degree of fineness of the slimes delivered to the launder, and also the character of the tailings or heavier particles, as well as the proportion of moisture delivered with the latter.

A preferred form of apparatus embodying my invention is illustrated in the accompanying drawings wherein:

Figure 1 is a vertical sectional view on the line I—I of Fig. 2; and Fig. 2 is a plan view.

The classifier illustrated comprises a conical tank 1 provided with suitable supports 2 and having at its bottom a tubular discharge 3 for sand and coarse materials. As indicated at 4, this discharge pipe tapers downwardly, and the discharge therefrom is controllable by a gate valve 5 or equivalent device. A vertical shaft 6 is disposed axially on the tank 1 supported in guiding bearings 7, and may be revolved at the desired rate, as by application of power to the step-pulley 8. The shaft 6 is provided at its lower end with a tapering helical blade 9 revoluble in the tapering discharge section 4 and capable of compressing the tailings therein to a degree controlled by the position of the gate valve 5. I preferably arrange on the shaft above the blade 9, one or more short helical blades 10, the purpose of which is to maintain a positive downward feed of the material collecting at the bottom of the tank 1.

In the upper part of the tank I arrange a frusto-conical apron 11, supported in the tank and spaced therefrom by a series of webs 12. Within this apron and illustrated as encircling the shaft 6 is a perforated dis-

tributer 13 into which the pulp is discharged, for example through a launder 14. As shown, the distributor 13, as well as the bracket carrying the bearings 7, is supported by a cross-frame 15 of wood or metal. The upper periphery of the tank 1 is encircled by an annular launder 16 having a discharge 17 for the slimes and excess of water.

The operation of the parts above described is as follows: The pulp to be subjected to classification, accompanied by the proper proportion of water, which may in some instances amount to five or six tons of water per ton of ore, is fed to the distributor 13, and thence discharged into the tank 1. The sand and heavier particles settle to the bottom and are continuously or intermittently discharged. According to the adjustment of the gate 5, the heavier particles may be discharged with a greater or less content of water as desired, to be further treated in any desired or appropriate manner. The water with the suspended slimes flows upwardly through the contracted passage between the tank 1 and the conical apron 11, overflowing into the annular launder 16.

In order that the proportion and character of slimes conveyed from the apparatus by the overflow of water may be controlled, it is desirable to provide means for increasing to any desired extent the depth of the contracted overflow passage between the wall of the tank and the conical apron. Preferably this is accomplished by the provision of any desired number of additional frusto-conical aprons of successively smaller diameter, each adapted to overlap the apron next above and to be supported thereby. One such apron is illustrated in place at 18. It is to be noted that the effect of these supplementary aprons is not to vary the cross-section of the overflow column, and thereby the velocity of flow through this column, but merely to control the height of the column and therefore its sorting effect. It is found in practice that by the addition or removal of these apron sections the apparatus may be controlled to deliver any desired proportion and character of slimes to the launder 16, or in case it be so desired, to effect a practically complete separation of the solid matter from the liquid. The several conical aprons may be made in sections for convenience of insertion and removal, or

they may be supported when not in use in the upper portion of the tank between the distributor 13 and the fixed apron 11.

I claim:

5 1. In a classifier or separator, the combination of a conical tank, an apron composed of detachable nested sections concentrically disposed within the tank and having walls substantially parallel to the walls of the tank, thereby forming a sorting column,
10 and means for delivering pulp at the base of said sorting column.

2. In a classifier or separator, the combination of a tank having downwardly converging walls, an apron composed of detachable nested sections having walls substantially parallel to the walls of the tank, thereby forming a sorting column, and means for

delivering pulp at the base of said sorting column.

3. In a classifier or separator, the combination of a tank having downwardly converging walls and a bottom outlet, an apron composed of detachable nested sections having walls substantially parallel to the walls of the tank, thereby forming a sorting column, means for delivering pulp at the base of said sorting column, and means arranged in connection with said outlet for compressing and discharging the settled solids.

In testimony whereof, I affix my signature in presence of two witnesses.

WILBUR ALSON HENDRYX.

Witnesses:

J. DUNCAN TANSILL,
ARTHUR C. BLADEN.