

No. 865,301.

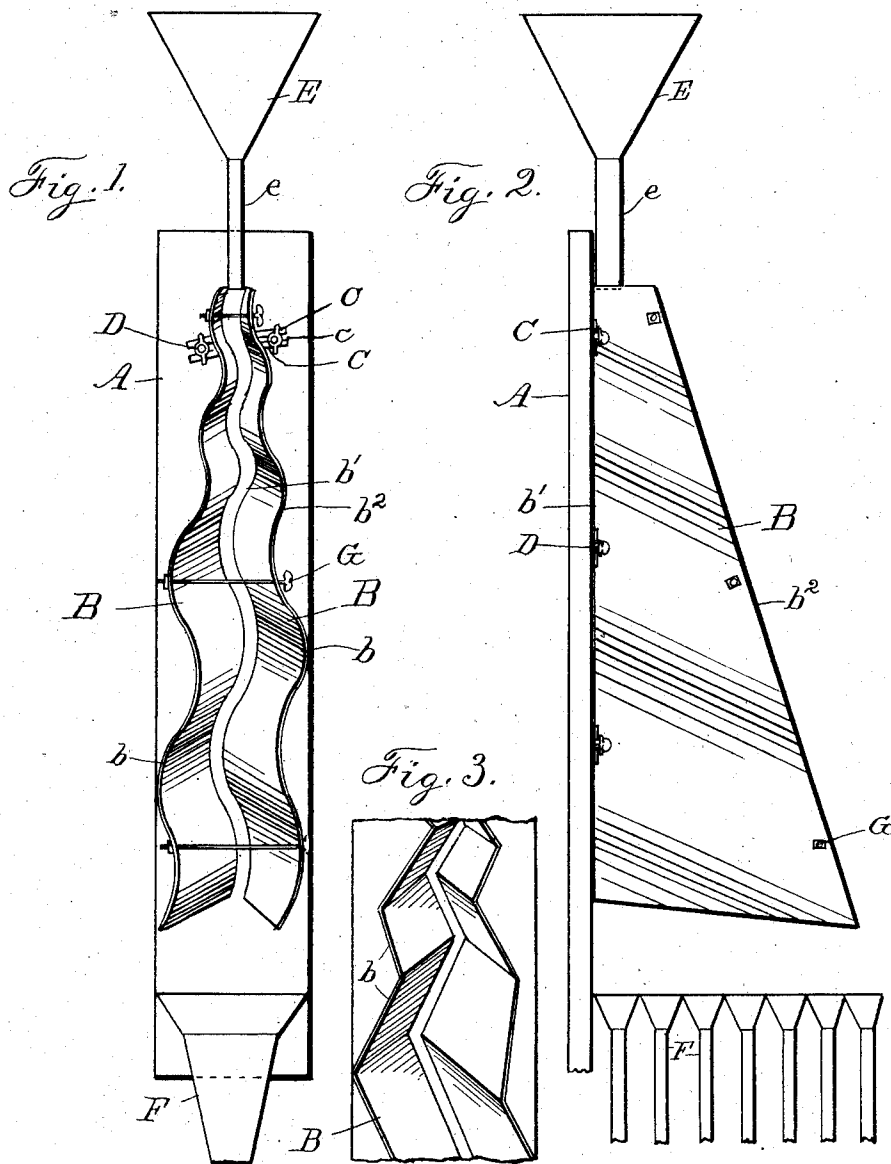
PATENTED SEPT. 3, 1907.

S. L. HAGUE, DEC'D.

W. IGLEHEART, SPECIAL ADMINISTRATOR.

CLASSIFIER.

APPLICATION FILED SEPT. 26, 1905.



Inventor

Snyder L. Hague.

By

Chas. D. Swift.

Attorney

Witnesses

C. P. Snett.

A. B. Cook.

UNITED STATES PATENT OFFICE.

SNYDER L. HAGUE, OF SALT LAKE CITY, UTAH; WILLIAM IGLEHEART SPECIAL ADMINISTRATOR OF SAID HAGUE, DECEASED.

CLASSIFIER.

No. 865,301.

Specification of Letters Patent.

Patented Sept. 3, 1907.

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To all whom it may concern:

Be it known that I, SNYDER L. HAGUE, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented new and useful Improvements in Classifiers, of which the following is a specification.

The primary object of this invention is the classification of pulverized, metallic ores. Under certain conditions it can be used as a concentrator. It is also a "slimer", that is, it will separate from gangue, too fine to be handled by screens, the metallic contents and coarser particles, which can then be subjected to the process of concentration. In performing any of these functions, the material to be treated, must be dry. The chief operating parts of this device are two corrugated plates, preferably metal, attached in an almost vertical position to a vertical plane. These plates are approximately parallel, but diverge from each other in a horizontal direction. For economy I make these plates narrow at their tops, and gradually widening towards their bottoms. The inner edge attached to its support is nearly or exactly vertical, while the other edge forms an incline. The corrugations also in each plate incline slightly downwards from their inner to their outer edges. The basic principle in the operation of this device is that of "momentum" overcoming "gravity".

The accompanying drawing illustrates the device, in which

Figure 1 is a front elevation, and Fig. 2 a side elevation. Fig. 3 is a fragmentary front view of a modification of the corrugated plates.

Like letters of reference denote corresponding parts in the several views.

The letter A designates the support for my invention. This may be set precisely vertical or inclined backwards or forwards.

B, B are vertical plates having the corrugations b , b , vertical edges b^1 , b^1 , and inclined edges b^2 , b^2 . C, C are ears on the vertical edges of said plates and are disposed outwardly from said edges and provided with longitudinal slots c , c , to receive set screws D, D, which secure the plates to the support and permit lateral adjustment thereon. The plates B, are approximately parallel to each other and set so that the projections on one are opposite the depressions on the other, at the same time they are mutually divergent from their inner to their outer edges. The outer edges of these plates are provided with thumb screws d , d , to maintain the plates at the desired angle.

E is a hopper to receive the material and e is a pipe, leading from said hopper to the space between the plates B, B, at their upper ends.

F, F are pipes to receive the classified material and conduct it into separate receptacles.

In operating this device, the material to be treated is dropped between the plates B, B at their upper ends and near their vertical edges. As the material descends it strikes alternately the corrugations of each plate. The divergence of the plates and the incline of the corrugations cause the heavier particles, which have the greater velocity, to be deflected from a vertical course toward the outer edges of the plates, while the lighter particles, having less velocity, describe a course more nearly vertical. This spreads the material as it descends and classifies it into grades from fine to coarse, in which condition it falls from the plates into the receiving pipes F, F, and is conducted to separate bins. These grades of material thus separated, are as varied, theoretically, as there are various sizes and weights of material. It will be seen that as to any material of uniform specific gravity, it is a sizing device, but its effect upon the gangue and the metallic contents together, is that of classification.

The corrugations of the plates may be either curved or, as shown in Fig. 3, angular. It should be noticed also that the spaces between the corrugations increase from the top toward the bottom of the plates. This increase in distance between these points causes the velocity of the falling material to increase as it progresses downwards; the object of which is to allow the particles to get farther apart, and to reduce interference, so that each particle will take its proper course in the classification.

It is evident that this device may be used in classifying ores of any size, and also coal and other material, the classification or sizing of which is desired.

It should be observed that the operation of this device is automatic; the classification being effected by gravity, modified by the formation and adjustment of the parts of the device as described.

What I claim and desire to secure is—

1. A classifier comprising approximately vertically supported corrugated plates, mutually divergent from their supported edges, as herein set forth.
2. A classifier comprising vertical corrugated plates mutually divergent from their inner edges, each of said corrugations being wider than the one above it, as described.
3. A classifier comprising a vertical support, vertical corrugated plates adjustably secured to said support, and means to maintain the unattached edges of said plates, in the desired position, as described.
4. A classifier comprising approximately parallel, mutually divergent and vertically disposed corrugated plates said corrugations inclining downwardly in the direction of their divergence and means to receive and convey away the classified material, as herein set forth.
5. A pulverized metallic ore classifier composed of a vertical support, corrugated plates having lateral, slotted ears, set screws adapted to secure said plates to said support through said slots, thumb screws adapted to maintain the unattached edges of said plates in operative position.

tion, said corrugations being angular or curved and inclined downward from their inner edges, the projections on each plate being opposite the depressions on the other plate, as herein set forth.

- 5 6. In a classifier a series of adjustable smooth surfaces, in two rows approaching the vertical, diverging from the common axis of convergence and slanting downward as the distance increases horizontally from said axis of convergence; said surfaces being so arranged that material

dropped between the two rows and upon the upper of said 10 surfaces will strike each of said surfaces going from one row to the other alternately, as it passes downward.

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

SNYDER L. HAGUE.

Witnesses:

EUGENE B. PALMER,
GLENN G. GWINN.