

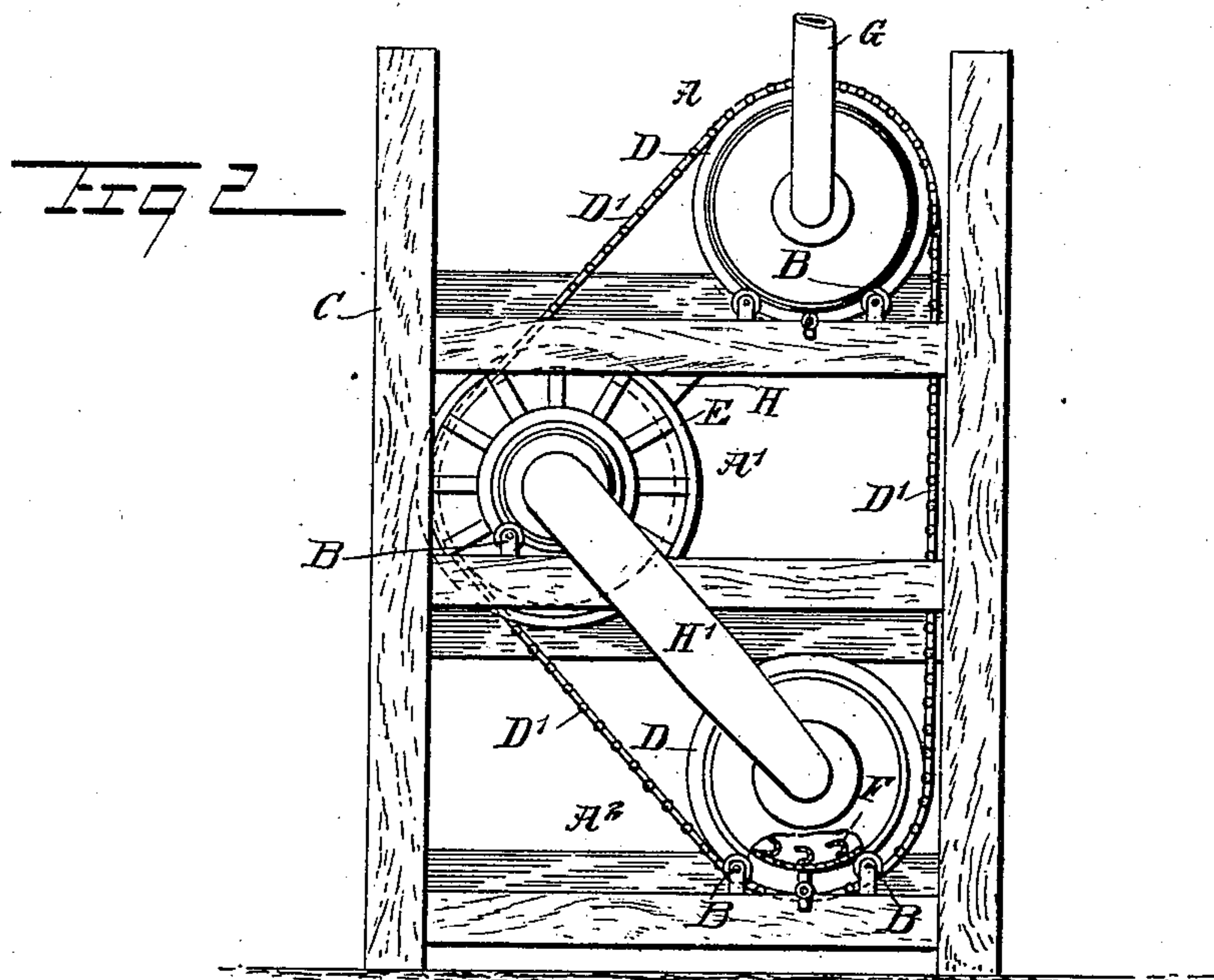
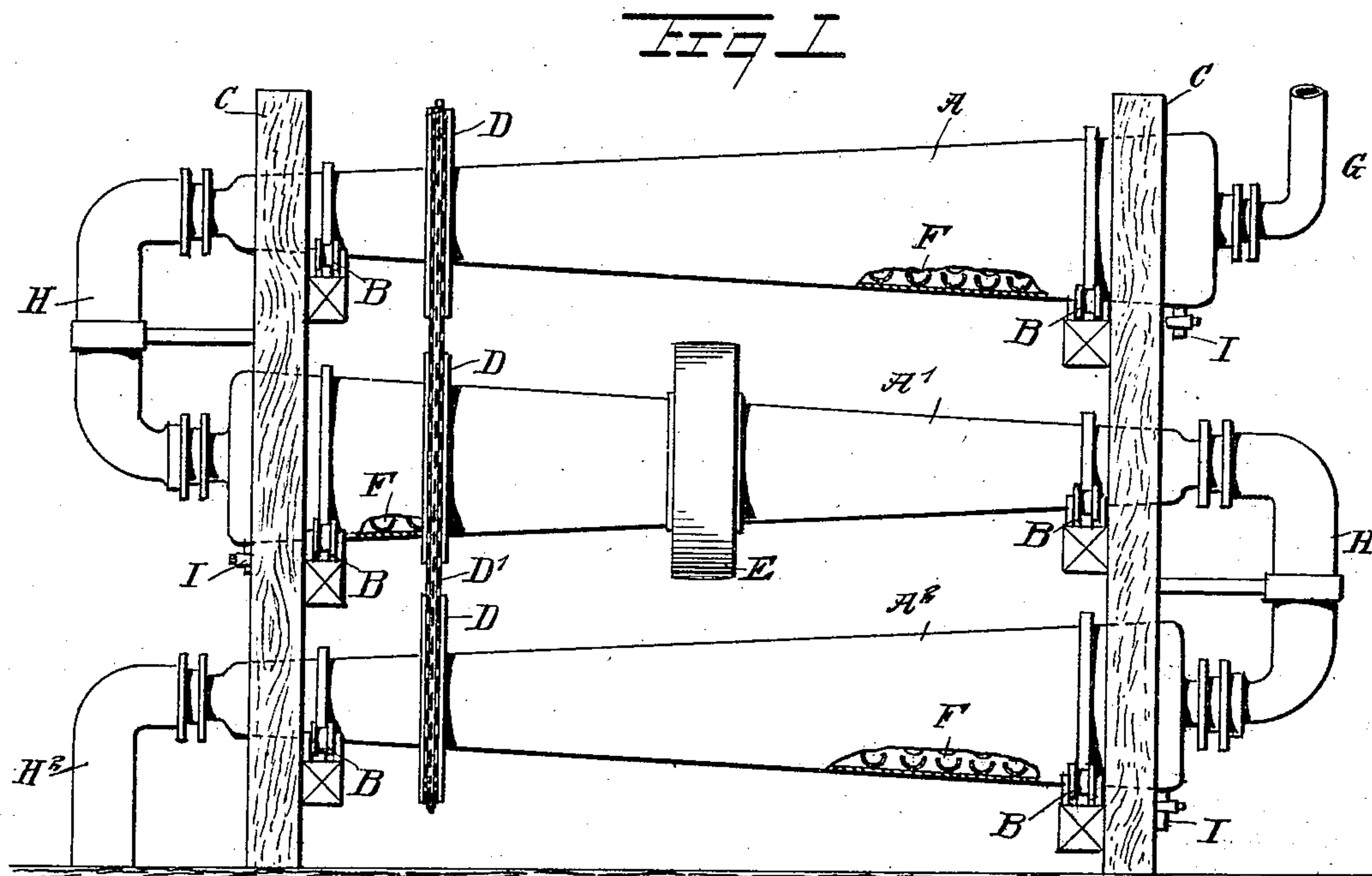
No. 694,201.

Patented Feb. 25, 1902.

J. R. SAWYER.
AMALGAMATOR.

(Application filed Apr. 18, 1900.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN RUFUS SAWYER, OF ARROYOSECO, TERRITORY OF NEW MEXICO.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 694,201, dated February 25, 1902.

Application filed April 18, 1900. Serial No. 13,327. (No model.)

To all whom it may concern:

Be it known that I, JOHN RUFUS SAWYER, a citizen of the United States, and a resident of Arroyoseco, in the county of Taos and Territory of New Mexico, have invented a new and Improved Amalgamator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved amalgamator which is simple and durable in construction, very effective in operation, and arranged to permit a ready and quick amalgamation of the precious metal by the mercury without loss of the latter and to allow a continuous operation and discharge of the tailings.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a side elevation of the improvement with parts broken out, and Fig. 2 is an end view of the same with parts broken out.

The improved amalgamator consists, essentially, of a plurality of conical drums $A A' A^2$, mounted to turn in suitable bearings B , carried by a framework C of any approved construction. The several drums are connected with each other by sprocket-wheels D and a sprocket-chain D' , and one of the drums, preferably the drum A' , is provided with a pulley E , connected by belt with other machinery, so as to rotate said drum A' , and by the sprocket-wheels D and the sprocket-chain D' impart a rotary motion to the other drums $A A^2$, so that all the drums $A A' A^2$ rotate in unison one above the other, as will be readily understood by reference to the drawings. The axes of the several drums $A A' A^2$ are arranged horizontally, so that the bottom portions of the several drums are inclined downward from the apex end toward the base end. Each of the drums $A A' A^2$ is provided at its under side with cups F , adapted to contain mercury for amalgamating the precious metal contained in the material to be treated and traveling through said drums, as hereinafter more fully described.

Into the base end of the uppermost drum A discharges a feed-pipe G , through which the material to be treated is passed into the base end of the uppermost drum. The apex end of this drum is connected by a pipe H with the base end of the next-following drum A' , and the apex end of the drum A' is connected by a similar pipe H' with the base end of the lowermost drum A^2 , and said drum A^2 is provided at its apex end with a discharge-pipe H^2 . It is understood that the several pipes $G H H' H^2$ are stationary and are connected by suitable unions with the drums, so that the latter can rotate freely.

The operation is as follows: When the several drums $A A' A^2$ are rotating and the material to be treated is fed through the pipe G into the base end of the uppermost drum A , it is evident that the material will work forward in the drum A and will be treated by the mercury contained in the cups F and dropping out of the same as the cups reach an uppermost position during the revolving of the drum. Thus as a cup is emptied of its mercury said mercury is splashed over the material in the drum, and owing to its nature it readily takes up the precious metal and flows through the material back into the cups in the bottom of the drum at the time, to be again taken up during the rotation of the drum and again discharged upon the material for the purpose above described. As additional material is fed into the drum A said material works forward in the drum to such an extent that it finally discharges through the pipe H and is passed by the same into the base end of the next following drum A' , in which the material is again subjected to the action of the mercury in the same manner as above described in reference to the drum A . The material works toward the apex end of the drum A' and is finally discharged from said drum by the pipe H' , which delivers the material into the base end of the last drum A^2 . Again the material is treated in the manner above described in reference to the drum A' by the quicksilver contained in the cups F , and by the time the material has worked to the apex end of said drum A^2 all the precious metal has been taken up by the mercury and the tailings only discharged through the pipe H^2 to a suitable place of discharge.

By arranging the drums A A' A² in the manner above described it is evident that the quicksilver or mercury remains in the drums and is not liable to work through the material toward the apex ends of the drums, owing to the specific gravity and fluid form of the mercury.

Each of the drums A A' A² is preferably provided at the base end with a suitable 10 valved discharge-pipe I for withdrawing the amalgam from the drums whenever the operation is finished and a certain amount of material has been treated.

From the foregoing it is evident that no attention is required from the operator during the amalgamating process, and, furthermore, no mercury is lost or is liable to be stolen, as the mercury remains in the drums, the outlet-pipes I of which can be suitably locked if 20 deemed necessary.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An amalgamator, comprising a frame, a 25 plurality of conical revoluble drums mounted one above the other in the frame with their ends projecting beyond the same, the axes of the drums being in horizontal planes and the said drums being arranged with the base end of one opposite the apex of the drum below, 30 means for revolving the drums in unison, cups on the inside of the drums and adapted to contain mercury and arranged to discharge the mercury upon the material as the drums

revolve, means for feeding the material into 35 the projecting base end of the uppermost drum, and stationary pipes connecting the ends of the drums outside of the frame, each pipe leading from the apex of one drum to the base of the drum next below, as set forth. 40

2. An amalgamator, consisting of a frame, three conical drums mounted in the frame to revolve with their axes in horizontal planes and having their ends projecting beyond the 45 said frame, the drums being arranged one above the other with the base of one opposite the apex of the one next below, the upper and lower drums being in the same vertical plane and the intermediate one in a different vertical plane, a feed-pipe leading into the 50 projecting base end of the uppermost drum, inclined stationary pipes connecting the drums outside of the frame, each pipe leading from the apex of one drum to the base of the drum next below, cups on the inside of each 55 of the drums, a sprocket-wheel on each drum, a chain passing around the sprocket-wheels, and a pulley on the intermediate drum and by means of which it may be driven, substantially as herein shown and described. 60

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN RUFUS SAWYER.

Witnesses:

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L. S. ORTON.