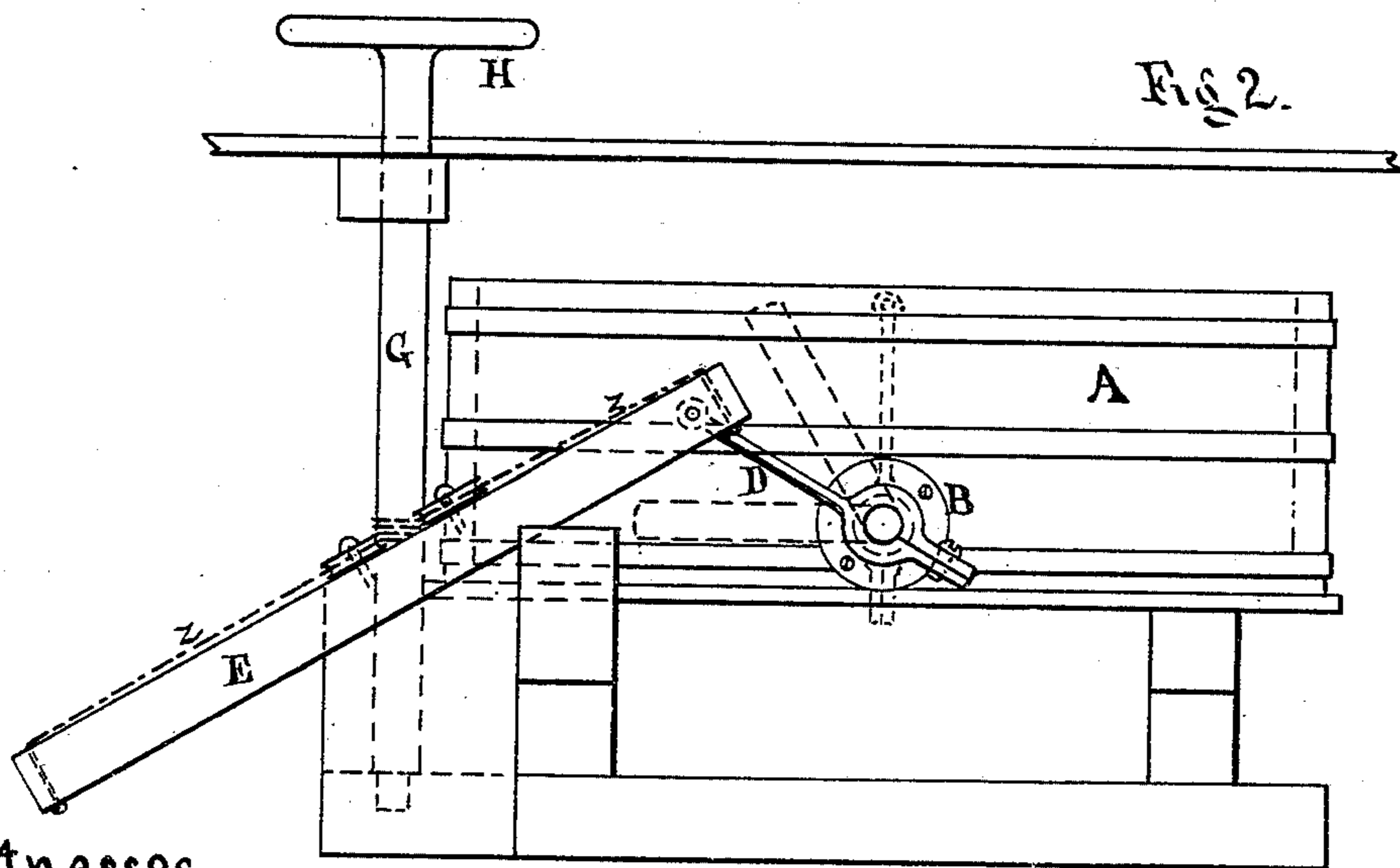
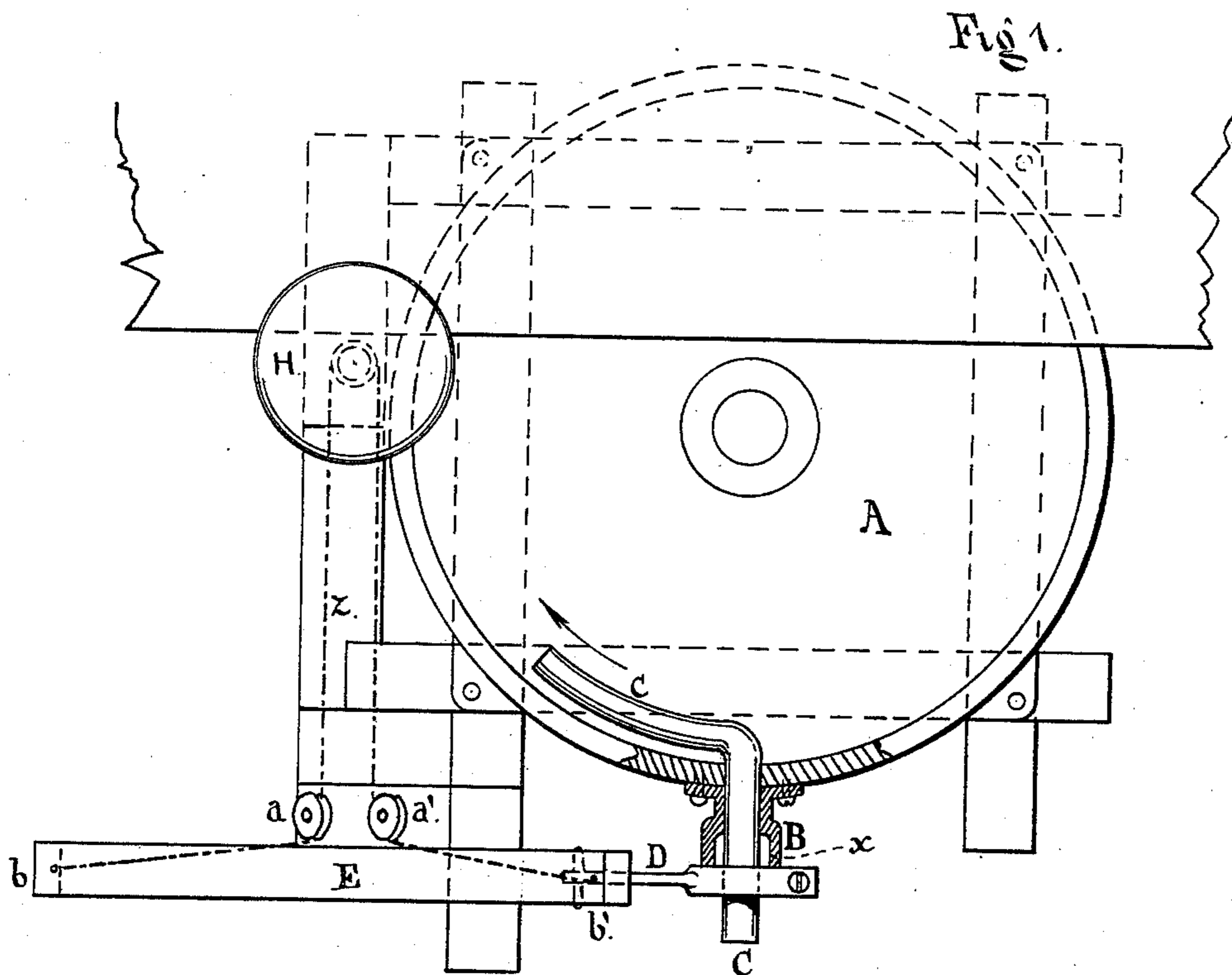


H. S. JACOBS.

Discharger for Amalgamating Pans.

No. 232,132.

Patented Sept. 14, 1880.



Witnesses.
Paul Jones.
Thos H. Judd.

Inventor.
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UNITED STATES PATENT OFFICE.

HIRAM S. JACOBS, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO ALBERT P. BRAYTON, OF SAME PLACE.

DISCHARGER FOR AMALGAMATING-PANS.

SPECIFICATION forming part of Letters Patent No. 232,132, dated September 14, 1880.

Application filed August 29, 1879.

To all whom it may concern:

Be it known that I, HIRAM SMITH JACOBS, of the city and county of San Francisco, and State of California, have invented certain Improvements in the Discharging Apparatus of Amalgamating-Settlers, of which the following is a specification.

The invention relates to that class of amalgamating apparatus called a "settler," used in the working of gold and silver ores, and more particularly to the appliances used in emptying out these settlers. As heretofore constructed settlers have on their outside surface a series of four, five, or more nozzles or spouts, each provided with a suitable plug to stop up the opening. These nozzles are arranged from the bottom of the settler-tank toward its top, thus forming a graduated but unalterable set of discharge-openings. These settlers, as is well known, have revolving arms, wings, or plates within the tank forming the settler, which agitate the amalgam and pulp in the process of settling it after it has been discharged from the amalgamators proper, generally styled "pans."

In emptying out the contents of the settlers it is of the utmost importance to do it gradually and from the surface downward to the lowest level, and this only as the material or pulp settles down and leaves the overcharge of water at the top, which latter is thus gradually drained off. This draining or emptying process has, as before said, been until now done by means of the already-described series of plugs, gradually starting at the upper one, opening them out until the bottom one is reached; but this is a very inefficient manner of doing it, as between one plug-hole and the other there is, and must be, an intervening space, which, when opening the plug next below the last one opened, the outcoming water will have a head or pressure in proportion to the distance between each plug-opening, thereby creating a disturbing current in the already revolving mass of the pulp within the settler-tank, which will cause a certain amount of quicksilver always floating in small globules or particles near the surface to be drawn off and lost, besides also drawing off the quicksilver which will accumulate in the inside

cavities of and around the plug-openings on the inside surface of the settler-tank. All of this, as can be seen, creates a continuous loss of quicksilver, besides a great loss of time in the manipulation of the plugs, as in a mill where any great number of settlers are used, the workman having both to open them and shut them to go from one to the other, repeating the operation in proportion to the number of plugs in each settler.

Now, to obviate this unnecessary waste of valuable material and time, I have invented the improved discharging apparatus, which consists of an L-shaped pipe passing through a stuffing-box at the lowest point through settler or tank nearest the bottom. This pipe has a lever attached to the end projecting outside of tank, and to this is attached a sliding bar, having the ends of a rope or chain attached at each of its extremities, and passing through guide-pulleys set on a stationary frame on one side of sliding bar to, and taking two or more turns around, an upright shaft set at a convenient place near the tank or settler, and which is operated by means of a hand wheel or crank on one end. By turning this shaft in one direction it will wind the rope from one end toward the other, and vice versa, which will cause the sliding bar aforesaid to slide up or down, thereby pulling with it the lever attached to the discharging L-pipe, and thus regulating the height of same within the tank, as also the amount of discharge from same.

Referring to accompanying drawings, forming part of this specification, like letters denote like parts.

Figure 1 is plan, in part section, of my improved discharger. Fig. 2 is a front elevation of same.

A is the settler-tank, made of wood, cast or wrought iron. My device can be attached to any kind of settler.

B is a nozzle bolted or riveted to the outside surface of the tank at a suitable point near its bottom level, about four to four and a half inches from the latter. This nozzle has a recess, *x*, in its front part, so that when the discharge-pipe C passes through this nozzle and plays within it it allows of packing around

it, to prevent thereby any leakage from the inside of tank.

D is a lever, of metal or wood, which is slipped over the projecting outside end of discharge-pipe C and fastened tightly to it immediately in front of and against the outside face of nozzle B, thus keeping the packing in recess *x* from slipping off.

The discharge-pipe C, after entering the tank through nozzle B, is bent at a right angle, or, which is preferable, bent to a curve conforming with the circle of the inside of settler-tank. This pipe lies with its open end toward the direction to which the current of the pulp in the tank flows, as shown by the arrow. By this it will be seen that in drawing off through the pipe the liquid will not be forced through, as would be the case if its open end lay against the current or had a head of water over it, but merely flows evenly out by its mere gravity, thereby not disturbing the revolving and gradually-settling mass of the pulp.

The end of lever D is set into a wooden or iron bar, E, and fastened to it by a pin running through both lever and bar, making a swinging joint. This bar E rests in a slanting position either directly upon the floor of the mill through a slot made for the purpose or upon a suitable support expressly placed for its reception. On the floor or suitable stand placed against the inside face of bar E, and immediately on each side of its longitudinal center, are fastened two small rope sheaves or pulleys, *a a'*, which receive the rope *z*, fast at each end of the bar at *b b'*. This rope, starting from the end—say *b*—passes along the length of the bar, thence around pulley or sheave *a*, thence at right angle to and winding four, five, or more times around the upright shaft G, back to and around the pulley *a'*, thence along the bar E, and fastened to the opposite end from the starting one, at *b'*.

The upright shaft G, with hand-wheel H at its top, is made either of wood or iron, and has a bearing near its top, and a suitable step-support at bottom to allow of its being turned.

Now, to operate my device, where, as before stated, the workman would have to go from

one floor-level of the mill to the other, and this as many times as the number of plugs in each tank, in a mill with my improved discharger he stands in front and immediately overlooking the condition of the pulp in the tank, and can, by the mere turning of the hand-wheel H on shaft G, so raise or lower the discharge-pipe C that at all times the discharge takes place directly from the surface, following the continually-dropping level of the water or pulp by gradually lowering the discharge-pipe until the lowest point is reached, thus, by always keeping continually nearest the surface, allowing full opportunity for the entire settling of the finer particles of quicksilver, thereby incurring no waste, this being the main point of interest in the process, as by the old method already described a great quantity was always lost, besides the time and labor saved in the facility with which the workman can, without going off the same floor, attend and observe the working of his full line of tanks.

The device here described for the raising and lowering of the discharge-pipe has proved very efficient, it being also cheap and simple; but any other suitable mechanical device can easily be substituted for the same to accomplish the same object without either detracting or materially changing the discharging apparatus proper.

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

1. In an apparatus for settling and concentrating valuable and precious metals, the tub or tank A, discharge-pipe C, packing-sleeve B, and operating-lever D, in combination with bar E, pulleys *a a'*, rope or chain *z*, and upright shaft G, operating as and for the purposes herein described.

2. The bar E, pulleys *a a'*, the upright shaft G, having the hand-wheel H, rope or chain *z*, in combination with lever D of the discharging apparatus, as hereinbefore described.

H. S. JACOBS.

Witnesses:

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