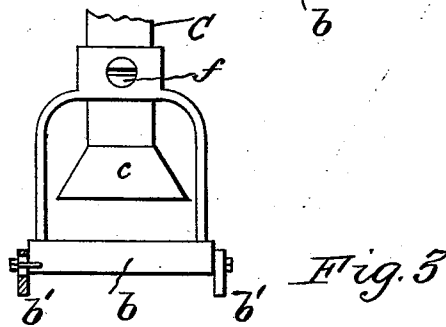
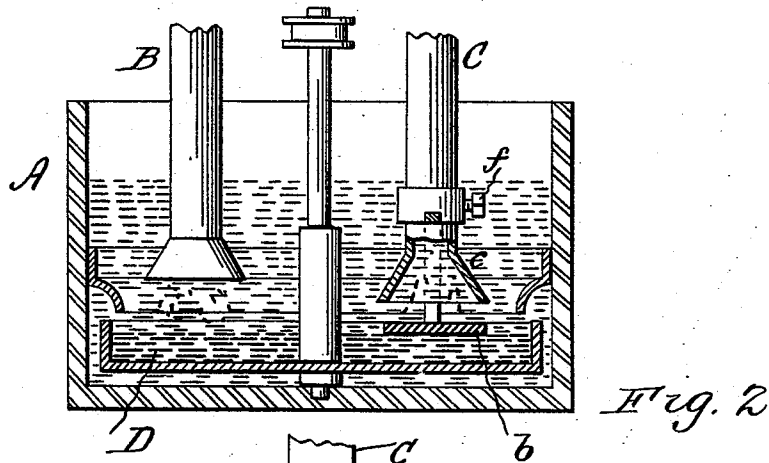
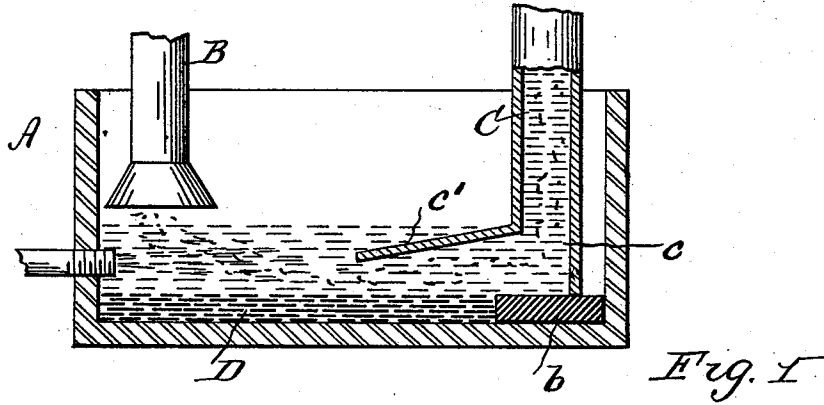


(No Model.)

C. F. PIKE.
ORE WASHER OR CONCENTRATOR.

No. 528,971.

Patented Nov. 13, 1894.



WITNESSES:

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CHARLES F. PIKE, OF PHILADELPHIA, PENNSYLVANIA.

ORE WASHER OR CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 528,971, dated November 13, 1894.

Application filed April 6, 1894. Serial No. 506,649. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. PIKE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ore Washers or Concentrators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation generally to ore-washers and concentrators of the type having a layer or body of mercury, a feed-device and a suction-discharge, and particularly to that type of the same wherein the inlet-end of the suction-pipe is adjustable to and from the surface of the mercury to meet the requirements of service.

My invention has for its object to prevent the mercury being raised and discharged by the suction-force at its line or place of greatest lifting force, particularly so when the discharge inlet-end is adjustable and such adjustment is made without exercising the due care to bring it to a proper distance from the level of the mercury as the requirements of service demand, or in other words, my invention admits of the discharge inlet-end of the suction device being adjusted close to the level of the mercury either designedly or accidentally so without liability of raising and discharging any of the mercury with the waste-matters of the ore.

My invention accordingly consists of the combinations, constructions, and arrangements of parts as hereinafter more fully described in the specification and pointed out in the claims.

Reference is had to the accompanying drawings, wherein—

Figure 1, is a longitudinal section of a form of ore-washer or concentrator embodying my improvements. Fig. 2, is a like view of another type of washer or concentrator showing another form of my improvements. Fig. 3, is a sectional elevation of the mercury-arresting plate with adjustable sides.

A represents the ore-washer or concentrator which may be of any suitable or desired type; B its feed-device and C the inlet end of the

suction-pump or other suction-discharge. The feed-device B and the discharge-device C may be constructed and arranged relatively to one another as desired.

D represents the layer or body of mercury which as shown is located at the bottom of the washer with the feed inlet and discharge devices above the same.

In Fig. 1 the inlet end *c* of the discharge-device is shown non-adjustable and has a forwardly projecting extension *c'* leading or directed forward or approaching to the feed-device B.

Beneath the vertically located part of the discharge B is located a plate *b* which may extend toward the feed-device for a greater or less distance as desired, and as it is located below the greatest lifting force of the suction-discharge it prevents such force from acting upon the mercury to raise and discharge it from the washer or concentrator. The mercury in advance of such plate in the line of movement of the ore is not subject to the full force of the discharge and is not therefore liable to be lifted and discharged, or in other words, there is mercury in the path of movement of the ore from the feed device to the suction discharge but at the latter or at or near the point whereat the horizontal movement of the ore or its waste-matters is converted into a vertical discharge movement the plate *b* intervenes between the mercury and the inlet end of the suction discharge and hence all actual discharge or tendency to discharge of the mercury by the vertical lift of the suction discharge is avoided. Such being the case, it follows, that when the discharge inlet-pipe C is adjustable to and from the level of the mercury such adjustment need not be so accurately made to avoid discharge of the mercury as would be required if the plate *b* were not used. The latter may be affixed to the bottom or to the side of the amalgamator, see Fig. 1, or it may be secured to the pipe C itself as indicated in Fig. 2.

If desired, the plate *b* may be immersed in the mercury to displace it below the line of the vertical lift of the suction-discharge as shown in Fig. 1, in which case, said plate will have a thickness equal to or approximating the depth of the layer of mercury used, and

if desired it may be provided with adjustable sides b' for varying its thickness to suit different depths of mercury in the receiving vessel. A form of plate b with such adjustable sides is shown in Fig. 3. On the other hand said plate b may rest on or be held in position above the mercury as illustrated in Fig. 2, in which case it does not displace the mercury but covers or arrests it against the action of the vertical lift of the suction discharge. Hence said plate b may be either a displacing or an arresting plate for the mercury below the suction discharge inlet-end. So too when the plate b is affixed to the pipe C said plate may be adjustable thereon by a set screw f as indicated in Fig. 2.

From the foregoing it will be noted that I do not limit my invention to any particular form or size of plate b , nor to the way in which it is secured in position apart from its relative location with the greatest suction force of the discharge pipe, as the form of such plate and its securement in position will depend both upon the demands of service and the type of washer used.

What I claim is—

1. In an ore-washer or concentrator, the combination of a vessel adapted to contain mercury, a suction discharge-pipe for said vessel, and a mercury cover or arresting plate located adjacent to the inlet end of the suction discharge-pipe, substantially as set forth.

2. In an ore washer or concentrator, the combination of a vessel adapted to contain mercury, a suction discharge-pipe for said vessel, and a shield or arresting plate interposed between the inlet end of said discharge-pipe and the mercury in said vessel in the line of greatest force of suction in said discharge-pipe, substantially as set forth.

3. In an ore washer or concentrator, the combination of a vessel adapted to contain mercury, a suction discharge-pipe for said vessel, and a plate or shield at the inlet end

of said discharge-pipe in the line of the greatest lifting force of the suction in said pipe, substantially as set forth.

4. In an ore washer or concentrator, the combination of a vessel adapted to contain mercury, a suction discharge-pipe for said vessel, and an arresting plate b at the inlet end of said pipe, substantially as set forth.

5. In an ore washer or concentrating vessel adapted to contain mercury, the combination of a suction discharge-pipe for said vessel, and arresting plate b at the inlet end of said pipe provided with extensible sides for varying the thickness or depth of said plate, substantially as set forth.

6. In an ore washer or concentrator vessel adapted to contain mercury, the combination of a suction discharge-pipe for said vessel, and an adjustable mercury arresting or covering plate at the inlet end of said pipe, substantially as set forth.

7. In an ore washer or concentrator, the combination of a receiving vessel, a feed-device, a suction-discharge, a layer of mercury in said vessel and a plate interposed between the mercury and the inlet-end of the suction discharge in line with its vertical lift to prevent the force of such lift discharging mercury with the waste-matter of the ore, substantially as set forth.

8. In an ore-washer or concentrator, the combination of a receiving vessel, a feed device, a suction discharge, a layer of mercury in said vessel, and an arresting plate between the mercury and the line of vertical lift of the suction discharge for preventing discharge of the mercury with the waste-matters of the ore, substantially as set forth.

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

CHARLES F. PIKE.

Witnesses:

JOHN RODGERS,
S. J. VAN STAVOREN.