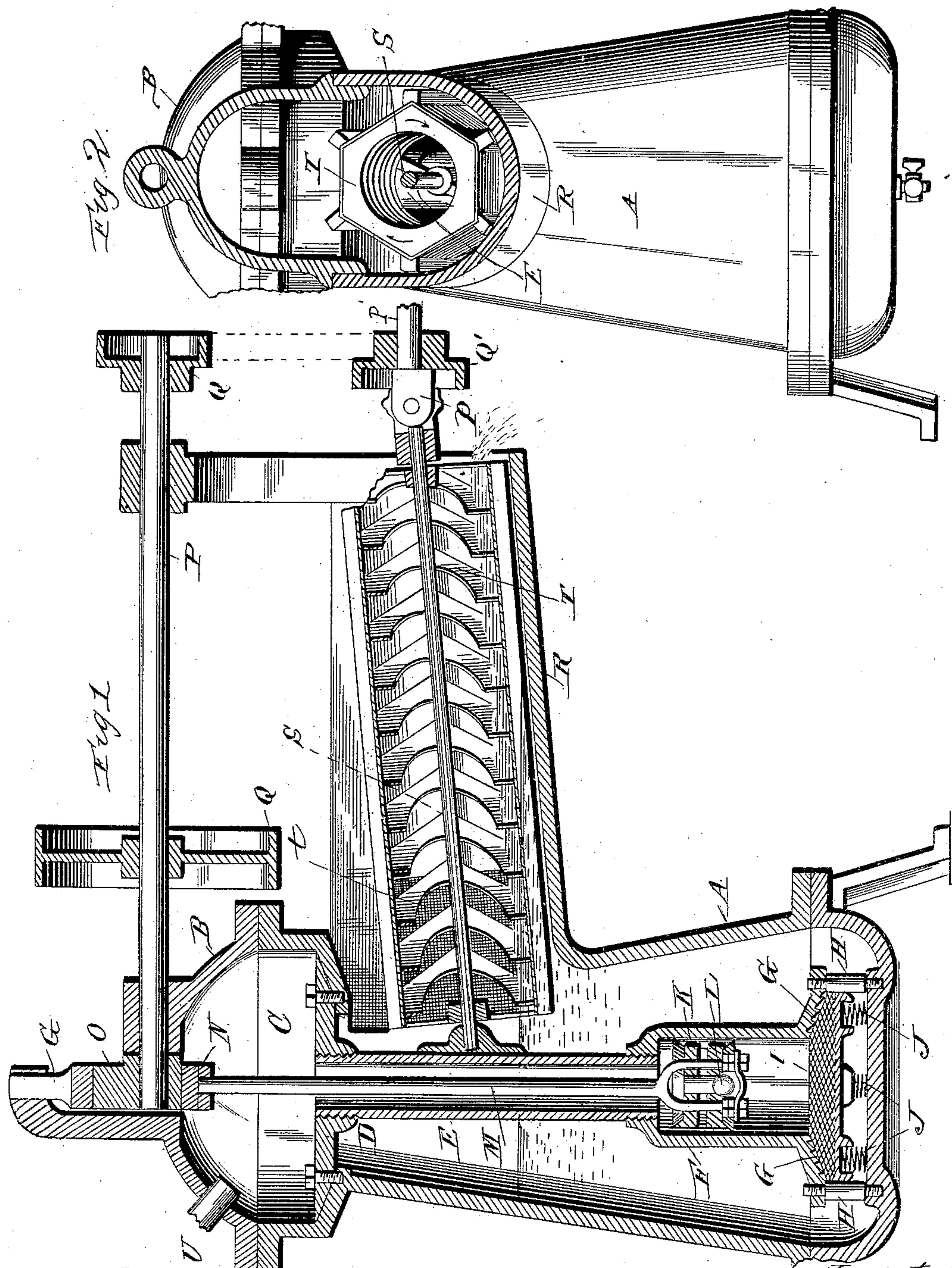


(No Model.)

C. W. TREMAIN.
AMALGAMATOR.

No. 429,823.

Patented June 10, 1890.



Witnesses
E. A. Rader
J. E. Robertson

Inventor
Charles W. Tremain
By
J. J. W. Robertson
Attorney

UNITED STATES PATENT OFFICE.

CHARLES W. TREMAIN, OF PORTLAND, OREGON, ASSIGNOR TO THE PROSPECTIVE MINING AND MACHINERY COMPANY, OF OREGON.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 429,823, dated June 10, 1890.

Application filed July 30, 1889. Serial No. 319,224. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. TREMAIN, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Amalgamators, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in amalgamators; and the object of the invention is the provision of an inexpensive apparatus of this character which will separate the gold and residue in a rapid and thorough manner.

To attain the desired object the invention consists in certain features of construction and combination of parts, illustrated, described, and specifically claimed herein.

In the accompanying drawings I have illustrated an apparatus for effecting the desired end, although I do not limit myself to the exact arrangement of parts and details of construction herein shown, and in which drawings—

Figure 1 represents a vertical longitudinal section of the apparatus; and Fig. 2 represents an end elevation, partly in section, thereof.

Referring by letter to the drawings, A designates a vessel, receptacle, or pot, which is of conical configuration, the bottom being longer than the mouth or top thereof, which, in connection with the cap B, forms a chamber C.

Secured in the mouth of the vessel A is a disk D, provided with a central opening, in which the upper end of a barrel or tube E is received, and the lower end is secured to the pump-cylinder F. The pump-cylinder F has its lower end flaring, and on the under face thereof is provided with teeth G, and the pump-cylinder is secured to the bottom of the vessel A by bolts, bars, or rods H, and in the chamber thus formed is placed the valve I, having seats on the under side for springs J, which serve to press the valve normally upward against the pump-cylinder.

K designates the pump-piston, fitting loosely in the pump-cylinder and carrying a valve L, and the rod M of the piston has a

yoke N on its upper end encircling an eccentric O on the driving-shaft P, which carries pulleys Q. One side of the vessel A is open, and communicating with said opening is a case or barrel R, in which is mounted a shaft S, carrying the conveyer T, and the conveyer-shaft is rotated from the driving-shaft by means of a belt (shown in dotted lines) which passes around the cone-pulleys Q and Q', the last of which is on a shaft P' and is connected with shaft S by a universal joint p. The conveyer E, which is shown in section, is of the inside or hollow variety, and may be round or hexagon, the metal case of which is perforated or made of wire screen, as shown at t, for about one-fourth of the length of the conveyer, the perforations being not larger than those of the battery-screens.

U designates the supply-pipe entering the chamber C for supplying the pulp.

This being the construction, the consequent operation is: The pot or vessel is partially filled with quicksilver—that is, to the lower edge of the barrel or case R—and the pulp is fed. The motion is transmitted to the pump and conveyer, and the pulp passes into the pump-cylinder, and on the upstroke of the piston passes below it and on the downstroke is forced out between the flaring mouth of the pump-cylinder into the quicksilver in the vessel, and the pure gold or ore settles to the bottom and the residue or impurities pass through the quicksilver to the surface thereof, when it enters the barrel R and is carried off by the conveyer. Thus the gold is quickly and perfectly separated from the sediment, as is evident. Any quicksilver that may be carried into the conveyer will be sifted out through the perforations in the case of the conveyer.

I claim—

1. An amalgamator consisting of the conical pot or vessel, the barrel or hollow extension leading from said pot above the enlarged bottom thereof, the conveyer in said barrel, the pump in the said pot having the cylinder thereof communicating with the enlarged bottom of the pot, and a valve below the said cylinder operated by the pump.

2. An amalgamator consisting of the pot or vessel having a hollow extension, a pump-

barrel in said pot, a piston having a yoke in the rod thereof, an eccentric for operating upon said yoke, a spring-actuated valve below the pump-cylinder actuated by the action
5 of the piston, and a conveyer in the hollow extension of the pot, substantially as described.

3. An amalgamator consisting of a pot or vessel, a pump in said pot having its cylinder communicating with the pot, a valve arranged
10 below the cylinder, and rods or bolts connecting the cylinder and pot and forming guides for the valve, substantially as described.

4. In an amalgamator, the combination of the pot or vessel, the pump barrel or cylinder
15 therein having its lower edge flaring, a valve arranged below the flaring end of the said pump-cylinder, and the piston in said pump-cylinder having a valve, all arranged and adapted to operate in the manner described.

5. An amalgamator consisting of the pot or 20 vessel, the barrel or bottom extension leading from the pot and having a conveyer therein, the pump-cylinder in the pot having its lower end communicating with the pot, the aper-
25 tured disk supported in the pot and from which the pump-cylinder depends, the piston having the valve, and the spring-actuated valve below the lower end of the pump-cylinder, all arranged and adapted to serve in
30 the manner and for the purpose described.

In testimony whereof I affix my signature, in presence of two witnesses, this 17th day of July, 1889.

CHARLES W. TREMAIN.

Witnesses:

A. OHLHOFF,
WM. E. POPE.