C. W. REILY.

Ore-Separator.

No. 168,416. Patented Oct. 5, 1875.

FIG. 1.

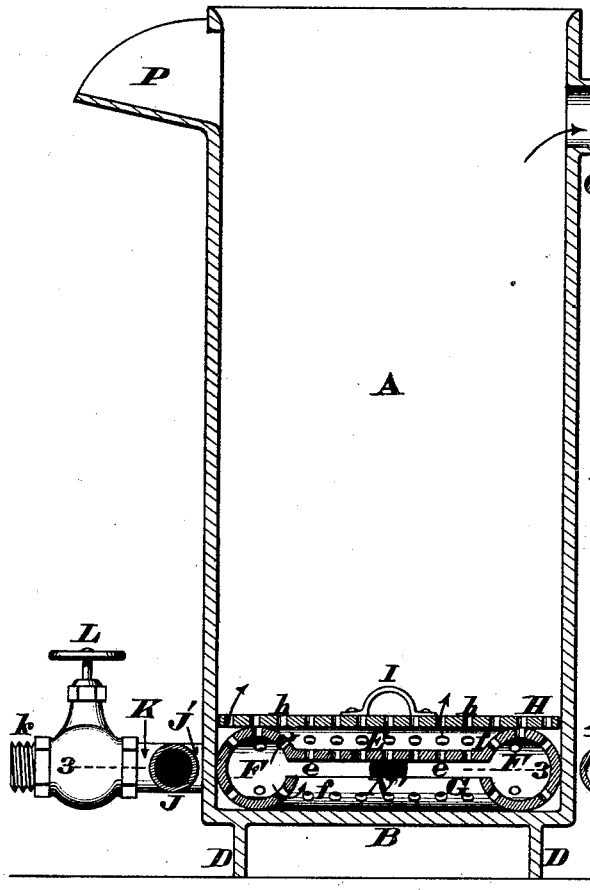


FIG. 2.

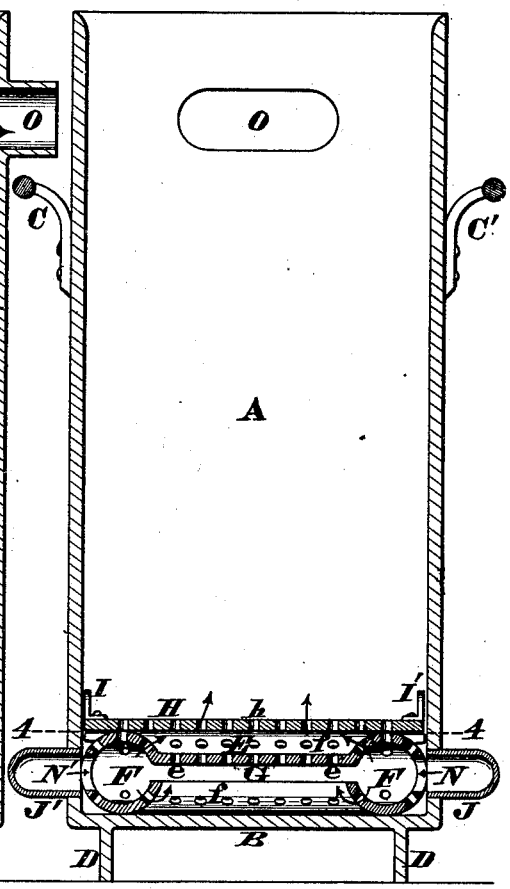


FIG. 3.

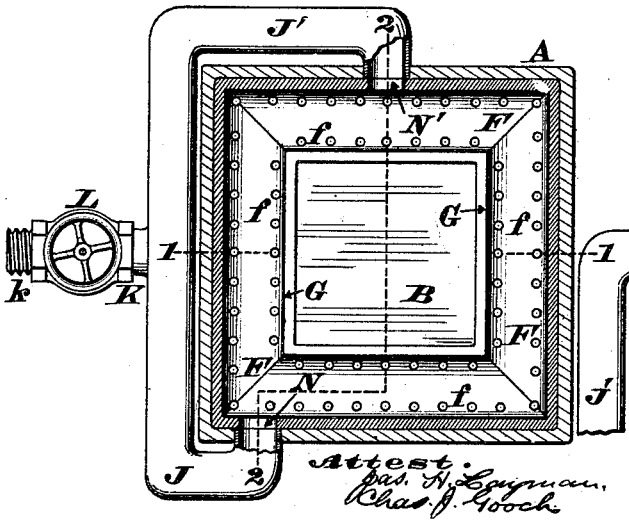
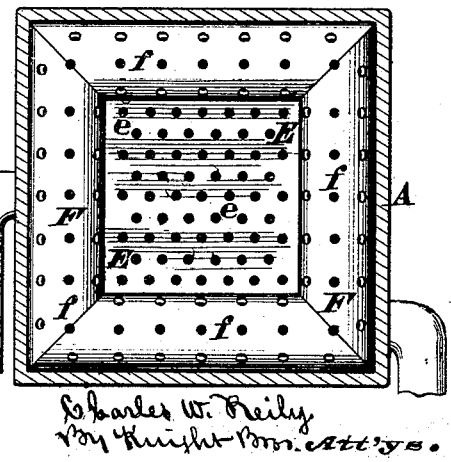


FIG. 4.



Attest:
Jas. A. Layman.
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by Knight Bros. Att'ys.

UNITED STATES PATENT OFFICE.

CHARLES W. REILY, OF CINCINNATI, OHIO.

IMPROVEMENT IN ORE-SEPARATORS.

Specification forming part of Letters Patent No. **168,416**, dated October 5, 1875; application filed July 24, 1875.

To all whom it may concern:

Be it known that I, CHARLES W. REILY, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Ore-Separator, of which the following is a specification:

This invention relates to that class of devices in which clay and other comparatively light particles are disengaged from the ore by the upward flow of a current of water within a suitable receptacle that contains the ore.

My improvement comprises a peculiar form of sieve or screen, located near the bottom of the receptacle, and upon which the ore is placed. This screen is capable of being readily removed when required.

In the accompanying drawing, Figure 1 a vertical section of my improved separator at the line 1 1. Fig. 2 is another vertical section at the line 2 2. Figs. 3 and 4 are horizontal sections taken, respectively, at the lines 3 3 and 4 4.

The principal member of the separator consists of a tube or vessel, A, forming a receptacle for the ore, and composed of galvanized iron, or any material that will hold water and not be subject to oxidation. The vessel A is open at top and closed at bottom B, and is provided on opposite sides with handles C C′, wherewith it can be readily removed from place to place, or be inverted for dumping the contents when required. D represents legs, feet, or flanges, for supporting the receptacle at a proper distance above the ground. Fitting within the receptacle A, and located a little above its bottom, is a removable sieve or screen, E, which is provided with numerous small perforations, *e*. This sieve has, cast with it, or otherwise secured to its margin, a tubular member, F, which fits snugly within the receptacle A, and rests upon the bottom B, thereby maintaining the sieve E a suitable distance above said imperforate floor B. This frame of the sieve is perforated at *f*, and slotted at G, so as to allow a complete circulation of water through the lower portion of the receptacle. Resting upon, or supported a short distance above, the crowning-surface of the frame F is a flat screen, H, perforated at *h*, and furnished with handles I I′ to enable its ready removal. As the screen H is to receive the charge of ore, and support its weight, said screen must be strong and rigid enough to sustain the resulting pressure; and with this object in view may consist of a plate of boiler-iron, or a grid or grating of either cast or wrought iron, or it may be a sieve of stout woven wire. Entering opposite sides of vessel A are the discharging ends of branch pipes J J′, which communicate with a common inlet, K, the latter being provided with a stop-cock, valve, or faucet, L, and a screw-threaded portion, *k*, for attachment of a hose or other supply-tube. The exits of pipes J J′ are not in the same vertical plane, the object of which arrangement is to insure a thorough circulation within the hollow frame or channel F; but, if preferred, the discharging ends of said pipes may be located at diagonally-opposite corners of the vessel. Enlarged openings N N′ are made in the frame F directly opposite the exits of pipes J J′, so as to allow the unobstructed entrance of water beneath the sieve E. O is an overflow-pipe, which allows the impure water and the lighter particles that are washed off from the ore to escape from receptacle A. P is a chute, through which ore is fed into the vessel.

The operation of my separator is as follows: The sieve E *e* F *f* G is first fitted within the receptacle A in such a manner as to bring the openings N N′ opposite the discharging ends of pipes J J′, after which the screen H *h* is placed in position upon the frame F, in the manner shown. The receptacle A is then charged with a proper quantity of crude ore, and a hose attached to the coupling *k*. The stop-cock L is now opened, so as to allow water to rush in through the branch pipe J J′, openings N N′, apertures *e*, slot G, and perforations *f h*, said openings, apertures, slots, and perforations serving to divide and direct the currents of water into numerous minute eddies, which ascend and circulate freely through the entire charge of ore within the receptacle A, as indicated by arrows. As a result of these numerous ascending currents, the ore is washed completely free of dirt and other comparatively light particles. When it is found that no more dirt or impure water escapes through the overflow O the cock L is closed, the hose is detached from the coupling *k*, the screen H, with its now cleansed superincum-

bent charge of ore, is then lifted out of the receptacle by means of hooked rods inserted in the handles I, and the sieve F may also be removed, if necessary. Any sediment that may have accumulated in the bottom of the vessel is then removed, the sieve and screen are returned to their proper positions, the receptacle charged with ore, and the operation repeated.

I am aware that it has been proposed to remove adventitious matters from ore by means of water flowing upward through one or more sieves in a suitable receptacle; such, therefore, I do not, broadly, claim.

I claim as my invention—

An ore-separator, consisting essentially of the receptacle A B, removable perforated and slotted sieve E *e* F *f* G, and detachable screen H *h*, having one or more handles, I I′, in combination with the branch pipes J J′, inlet K N N′, and controlling device L, the whole being combined and adapted to operate as set forth.

In testimony of which invention I hereunto set my hand.

C. W. REILY.

Attest:

GEO. H. KNIGHT,

JOHN C. HEALY.