

(No Model.)

2 Sheets—Sheet 1.

S. R. RUCKEL.

Ore Washer.

No. 239,554.

Patented March 29, 1881.

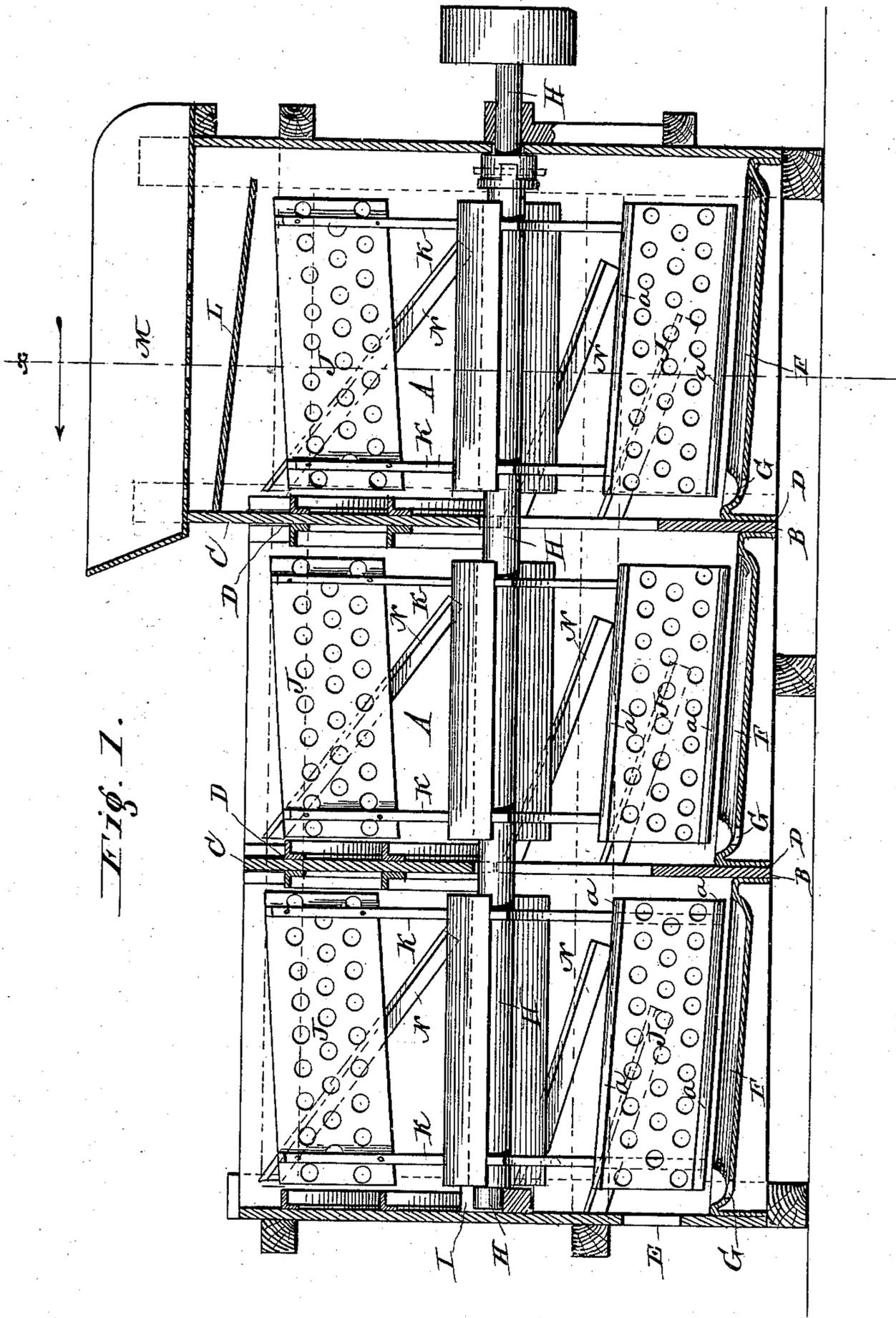


Fig. 1.

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Fig. 2.

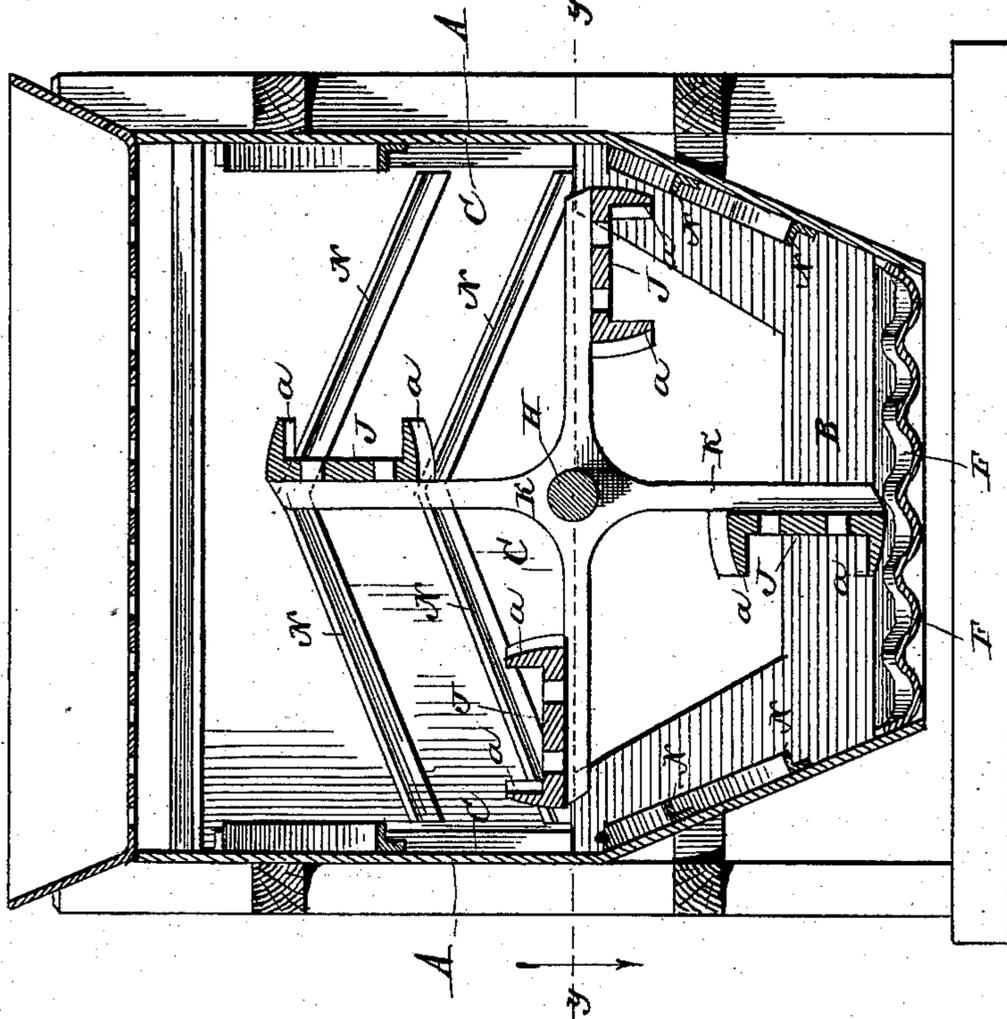
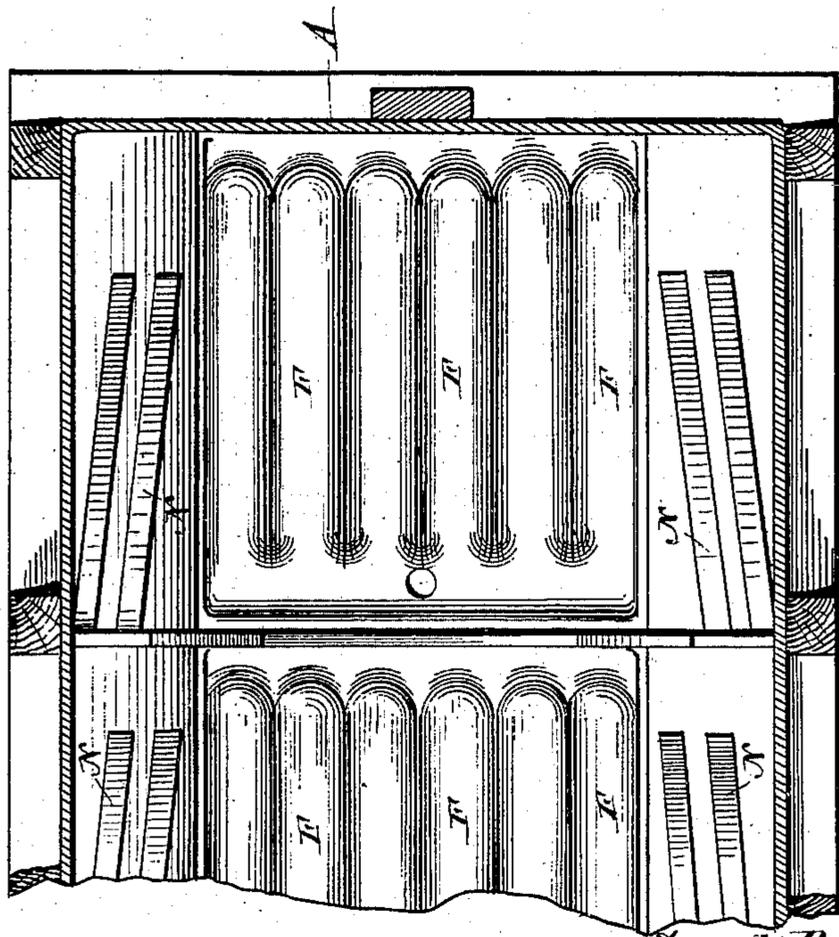


Fig. 3.



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# UNITED STATES PATENT OFFICE.

SAMUEL R. RUCKEL, OF KANSAS CITY, MISSOURI.

## ORE-WASHER.

SPECIFICATION forming part of Letters Patent No. 239,554, dated March 29, 1881.

Application filed August 28, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL R. RUCKEL, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Ore-Washers; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to ore-washers for separating gold and other precious metals from the earth or sand in which it is found, or from the crushed rock as it comes from the stamp-mill; and it consists in the means hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal vertical section. Fig. 2 is a vertical cross-section taken on the line *x x* of Fig. 1, and Fig. 3 is a longitudinal cross-section taken upon the line *y y* of Fig. 2.

A indicates the body of the washer, supported by any suitable frame, which is divided into a series of sections, longitudinally, by means partially of transverse riffle-bars B and by partition C, which slide in ways D formed on the inside of the body. The partition C, however, may be stationary instead of removable, and rest on the top of the riffle-bars, so as to leave an opening between each section for the passage from one section to the other of the material being washed; and in the end of the body next to the last section and at the lower part thereof, there is an opening, E, for the final discharge of the earth and water.

The bottom of the machine is made with a series of cells, F, running preferably with the length of the washer, and are designed to hold the mercury used in the separation of the precious metal from the earth or sand. These cells and the washers are inclined, so as to retard the passage of the earth and ore from one section or chamber to the other. The riffle-bars B keep the mercury within its respective chamber or section, but the mercury and separated metal may be removed through the openings G formed in the bottom of each section.

A shaft, H, is passed longitudinally through the washers, from one end to the other, through each section, one end being journaled in the box I, connected detachably, if desired, to the inside of one end of the body, and the other end journaled into the opposite end of the body and projecting beyond the same, so that a crank or pulley may be attached thereto for the application of the motive power. The shaft at or near this last end is divided transversely, so that it is sectional, one section being grooved endwise and the other tongued endwise; so that when the tongue is inserted in the groove and a pin passed through the two they will be held securely together. The object in thus making the shaft sectional is the easy removal of the shaft and paddle when desired. The shaft carries one or more (preferably four) paddles, J, for each section or chamber of the washer. The paddle-blades J are perforated, and provided on one or both edges with a flange, *a*. These blades are bolted or otherwise secured to the ends of arms K, which by their centers are keyed or otherwise secured to the shaft H. The back arms, being the longest, cause the blades to hang at an incline, as shown in Fig. 1 of the drawings, being made so in order that the blade may extend evenly over the cellular bottom, which, as hereinbefore stated, is constructed so that it will preserve a horizontalism while the body of the washer is at an incline.

At one end of the machine, at the top of it, and inside of the body, there is placed an inclined apron, L, which is located so that it will direct the water, together with the earth containing the precious metal, into the first of the series of receiving chambers or sections. Above this apron there is placed the trough M, which has a perforated bottom that permits small gravel and the earth containing the precious metal to pass through to the inclined apron. The trough is detachable, and is held to the body of the washer by hooks and staples.

To the inside of each chamber or section, on one or more sides thereof, there are fastened inclined ribs N, which are to catch and direct back any material that may by chance be thrown out by the velocity of the revolving paddles.

The operation is quite apparent from the foregoing description of the construction and

function of the several parts, and therefore need not be gone over in detail. It is sufficient to state that mercury is in the bottom of the washer in the cells there formed; that the  
 5 precious metal, with the earth and water, passes from the trough M onto the incline apron L, from whence it passes into the first section or chamber of the washer, where it is agitated by the paddles and thoroughly mixed  
 10 with the mercury; that it passes from this chamber to the next one, where it is further agitated and mixed as in the first section, and so it passes from the first to the last section, some of the metal and mercury being depos-  
 15 ited in each section, so that by the time the earth and water have passed through the several sections to the exit of the last, the precious metal has been very thoroughly separated therefrom.

20 In the construction of my device I may use any suitable materials. At present, however, I prefer to construct the body of iron or glass, the shaft and arms of iron, the paddles of iron or glass, and the screen and apron of iron.

25 Having described my invention, what I claim is—

1. In an ore-washer consisting of a vessel divided into a series of communicating sections or chambers, each section being provided

with a paddle, and the several paddles operated 30 by a single shaft, the combination therewith of a feed-trough provided with a perforated bottom, and an inclined apron located under the trough and over the first of the series of sections, substantially as described, for the 35 purposes set forth.

2. An ore-washer consisting of a vessel divided into a series of communicating sections or chambers, each section being provided with a cellular bottom constructed with the top plane 40 thereof horizontal, or substantially so, while the vessel is inclined, in combination with a series of paddles having one end wider than the other, and operated by a single shaft, substantially as and for the purpose set forth. 45

3. In an ore-washer consisting of a vessel divided into a series of sections or chambers, and removable paddles therefor, the combination of the raffle-bar B and sliding partition C, substantially as described, for the purposes 50 set forth.

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

S. R. RUCKEL.

Witnesses:

S. BAKER,

J. J. MCCALLIE.