(No. Model.)

S. G. ROLLINS.

ORE SEPARATOR.

No. 254,505. Patented Mar. 7, 1882.

Fig. 2.

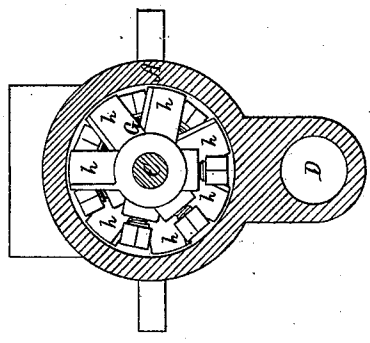
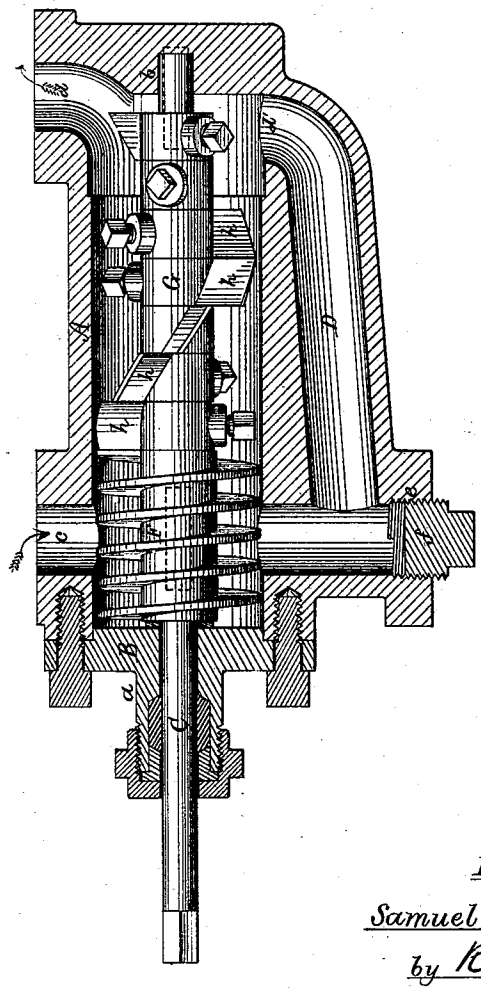


Fig. 1.



Witnesses.
S. N. Piper
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Inventor.
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by R. V. Eddy atty.

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UNITED STATES PATENT OFFICE.

SAMUEL G. ROLLINS, OF BOSTON, MASSACHUSETTS.

ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 254,505, dated March 7, 1882.

Application filed December 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL GEORGE ROLLINS, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Ore-Separators; and I do hereby declare the same to be described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a vertical and longitudinal section, and Fig. 2 a vertical and transverse section, of an ore-separator embracing my invention, the nature of which is duly set forth in the claim hereinafter presented.

The purpose of the apparatus described is to separate from an ore the gangue, and to gather the metal in a suitable receptacle. The ore in a crushed state is led with water into the cylinder, and is driven through such by a screw worm or propeller and agitator, the metal separating by gravity from the gangue and escaping into the receiving-chamber, while the gangue is driven out of the cylinder through the educt leading out of its top.

In the drawings, A denotes the cylinder, which, closed at its rear end, is open at its front end, and there provided with cover or head B, furnished with a box, *a*, to receive a shaft or spindle, C, which extends into the cylinder concentrically therewith. The said shaft, at its inner end, is sustained by a step or bearing, *b*, arranged as shown. The cylinder, near its front end, has an induct, *c*, and at its rear end an educt, *d*. Underneath the cylinder is the metal-receiving chamber D, which at its rear part opens into the cylinder by a passage, *d'*. At its front part the said chamber D has a discharge-opening, *e*, provided with a screw-plug, *f*. The bottom of the chamber D slopes or is inclined from its rear to its front, all being as represented.

The spindle C is provided with a worm or screw, F, and also with a series of radial arms, G, each of which terminates in an inclined deflector or paddle, *h*. While the spindle is in revolution these arms, with their paddles, serve to agitate and force along the material received within the cylinder, the screw or worm also answering to advance the said material in the cylinder. In some cases the worm may be dispensed with, the arms and paddles alone being used, and in other cases the worm may be employed without the arms and paddles; but I prefer to have both the worm and arms combined with the spindle, as the worm prevents clogging of the material at the front end of the cylinder.

In some cases it may be desirable to have the apparatus heated while in use. To effect this a furnace, suitably applied to it, may be employed.

The crushed ore carried into the cylinder with water will be agitated and driven rearward therein, the metal passing into the receptacle or chamber D, and the gangue out of the educt *d*.

In practice this ore-separator has been found to operate to great advantage, and with very economical results, comparatively speaking.

Mercury may be used within the cylinder and metal-intercepting chamber when an argentiferous ore is to be treated.

I am aware of the amalgamator described in the United States Patent No. 261,110, and also of the gas-purifier described in the United States Patent No. 156,351. Although each contains a barrel or cylinder provided with a rotary agitator and propeller, it does not, like my ore-separator, have extending along beneath the cylinder a separate chamber inclined at its bottom and opening at or near one end only into the cylinder, and at or near the other end having an opening of discharge. With the chamber D opening at one end only into the cylinder the metal separated from the gangue and received into the chamber cannot be driven or be caused to flow back into the cylinder, but remains in the chamber until discharged through that opening at its lower part. Therefore,

In the described improved ore-separator, I claim—

In combination with the barrel or cylinder A and its rotary propeller and agitator, arranged therein and to operate therewith as described, the separate chamber D, inclined and extended along beneath the cylinder, as represented, and opening out of such at or near one end only of it, (the said chamber D,) and having a discharge-opening at its lower part or opposite end, all substantially as set forth.

SAMUEL GEORGE ROLLINS.

Witnesses:
R. H. EDDY,
E. B. PRATT.