(No Model.)

3 Sheets—Sheet 1.

A. M. ROUSE.

ORE SEPARATOR.

No. 594,287. Patented Nov. 23, 1897.

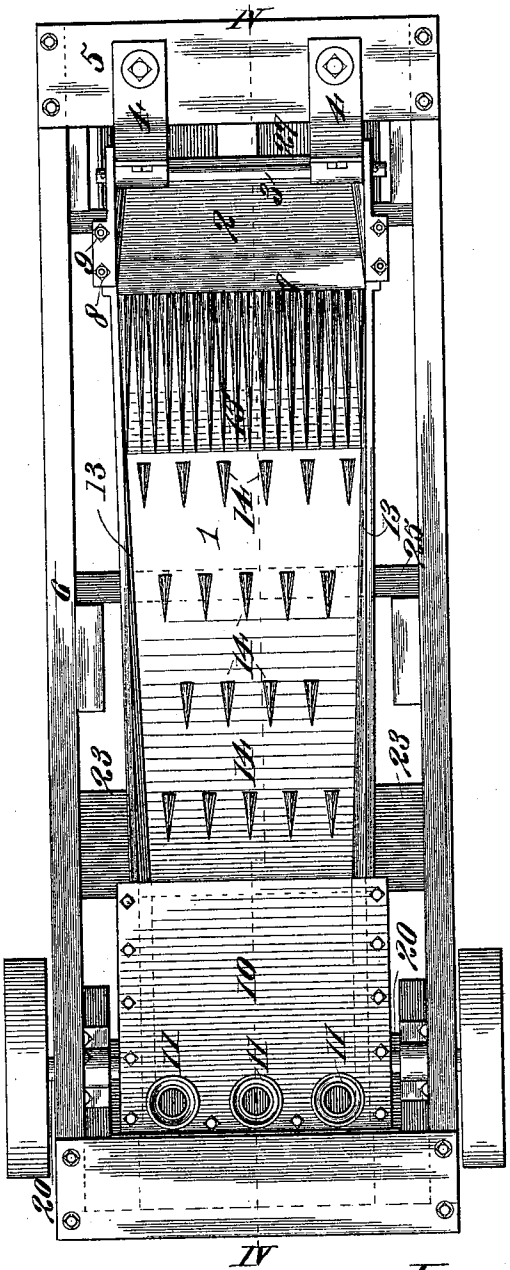


Fig. 1.

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Fig. II.

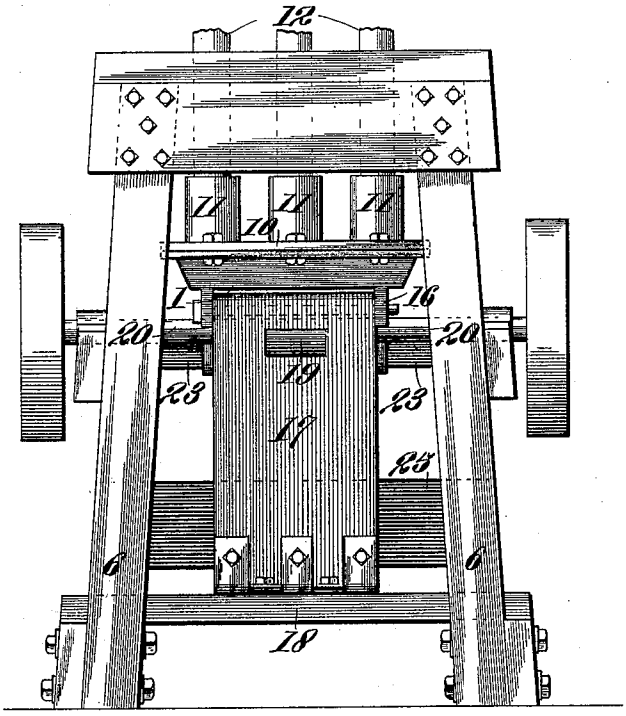
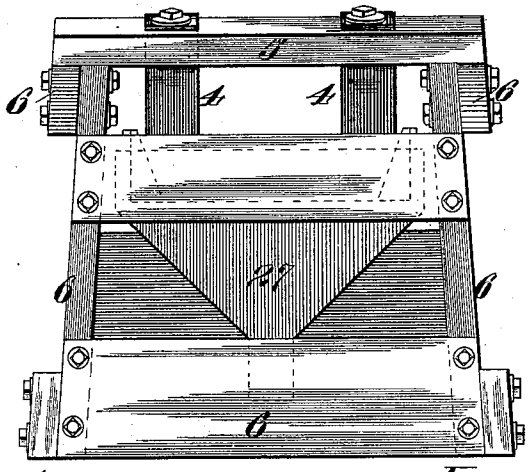


Fig. III.



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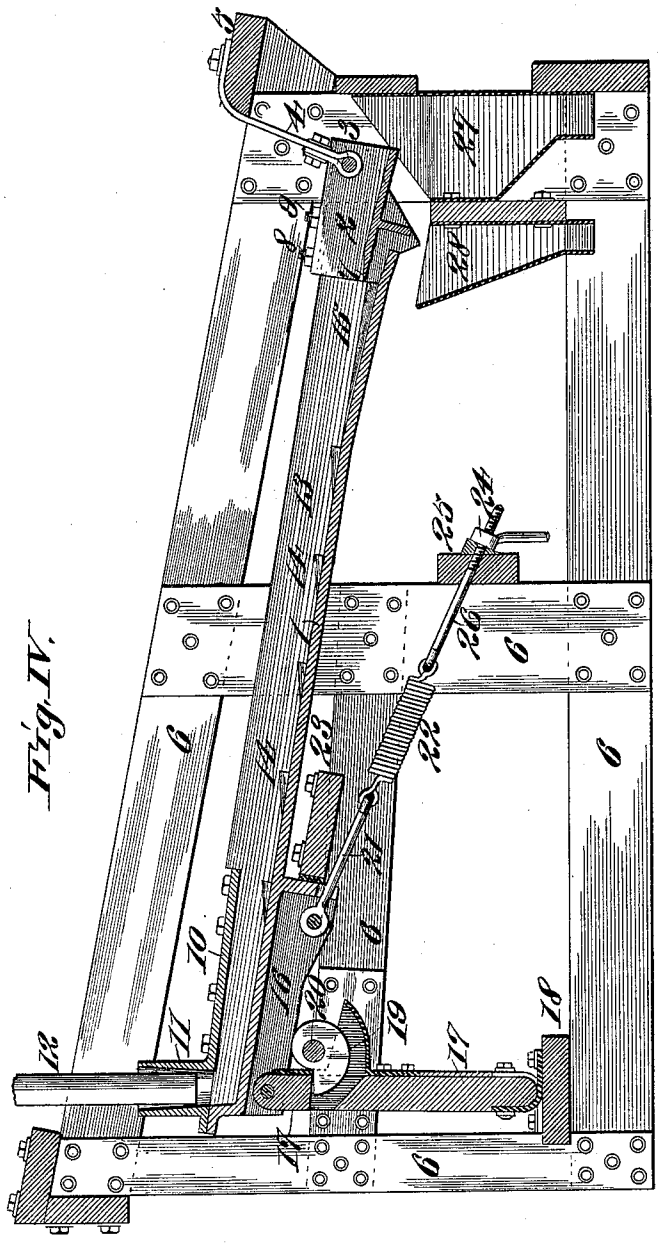
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(No Model.) 3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

ALBION M. ROUSE, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO H. M. WILLIAMSON, OF SAME PLACE.

ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 594,287, dated November 23, 1897.

Application filed June 30, 1897. Serial No. 643,002. (No model.)

To all whom it may concern:

Be it known that I, ALBION M. ROUSE, a citizen of the United States, residing at Denver, Arapahoe county, in the State of Colorado, have invented a certain new and useful Improvement in Ore-Separators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The object of my invention is to provide a machine for sorting broken ore into classes by stratifying the mass into layers, employing for the purpose the force of gravitation, which is allowed to exert itself through mechanical vibration.

Referring to the drawings, which illustrate this machine and which form a part of this specification, Figure I shows a top plan view of my device. Fig. II is an elevation of the upper end thereof. Fig. III is a similar elevation of the lower end. Fig. IV is a vertical section taken along the line IV IV of Fig. I.

1 is a long pan placed on an incline, constructed of a suitable and durable material, and may be of different sizes, adapted for different capacities. At its lower end is an affix 2, which is pivotally hung or hinged to a rod 3, said rod being supported by straps 4, which in turn are attached to the cross-piece 5 of the main framework 6. The front of this affix opens into the pan 1 and is provided with a knife-edge 7. It is adjusted to regulate the opening between said pan and knife-edge by means of the bolts 8 and 9. The pan extends a short distance under the knife-edge 7. The upper end of the pan is capped over with a curtain 10, which is provided with a plurality of necks 11, in which hang rubber hose 12, which serve as conduits to introduce the broken ore into the pan. 13 are the side walls of the said pan, and 14 are forwardly-pointed quincuncially-arranged dividers cast or otherwise secured on the bottom thereof, which facilitate the motion and stratification of the ore as it passes down the incline, separating the metals from the lighter part of the broken or cleft ore. The extreme lower end of the pan is provided with a series of long forwardly-pointed dividers provided with rearwardly-deepening channels 15, which serve to contract the thin or shallow stratum of mineral to approximately a half its cross-section when under the knife-edge 7 and cut off the upper coarse particles of ore.

On the upper bottom part of the pan 1 are cast web-flanges 16, to which is pivoted a standard 17, hinged at the bottom to bar 18. 19 is a cam hung on shaft 20, which shaft receives motion from any proper source of power. A cut-out in the standard 17, so placed that the said cam strikes the top thereof, will give the pan a vibrating movement as the said cam revolves.

21 is a rod pivoted to the flange 16, and attached thereto is a strong spiral spring 22, which tends to keep the pan 1 normally drawn against the cross-bar 23. The force of this spring is regulated by a nut 24, bearing against a second cross-bar 25 and securing-rod 26, attached to the other end of the spring 22.

27 and 28 are hoppers situated, respectively, at the open lower end of the affix 2 and at the open lower end of the pan 1. The upper end of the pan 1 is supported by the standard 17 and the lower end by the straps 4. The incline is regulated by the length of the said straps. A rapid vibrating motion ranging from one hundred and twenty to one hundred and eighty vibrations per minute is given to said pan 1 by means of the cam 19, as already described.

Ore which has been previously passed through open rolls and crushed is introduced through the hose 12, and, by means of the force of gravitation and the rapid vibration, passes down the inclined pan. On its way it becomes stratified, and when it reaches the knife-edge 7 the upper and coarser stratum passes over the same and into hopper 27, the lower (principally metallic) and finer of the strata into the hopper 28. By gaging the height of the knife-edge 7 a given quantity will pass to hopper 28 and the remainder to hopper 27. From the number of vibrations, the force of the blow, and the pitch of the pan the results may be varied.

The device prepares ores to a convenient

form for concentration in other machines. It is especially adapted for treating low-grade smelting ores.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An ore-separator comprising an inclined flat-bottom pan provided with forwardly-pointed dividers in the body portion and a close series of long forwardly-pointed dividers providing a compact series of rearwardly-deepening channels at the rear portion having a plurality of exits therefrom, an affix having a knife-edge located over the exits and means for supporting and vibrating the pan and exits; substantially as described.

2. An ore-separator comprising an inclined flat-bottom pan provided with forwardly-pointed dividers in the body portion and a close series of long forwardly-pointed dividers providing a compact series of rearwardly-deepening channels at the rear portion having a plurality of exits therefrom, an adjustable affix having a knife-edge located over the exits, the supporting-straps at the lower end of the pan, the rod whereby the affix is supported on the straps, the hopper beneath the lower end of the pan, the hopper beneath the lower end of the affix, and means for vibrating the pan; substantially as described.

ALBION M. ROUSE.

Witnesses:
NATHAN ROTHSCHILD,
WM. CALDWELL.