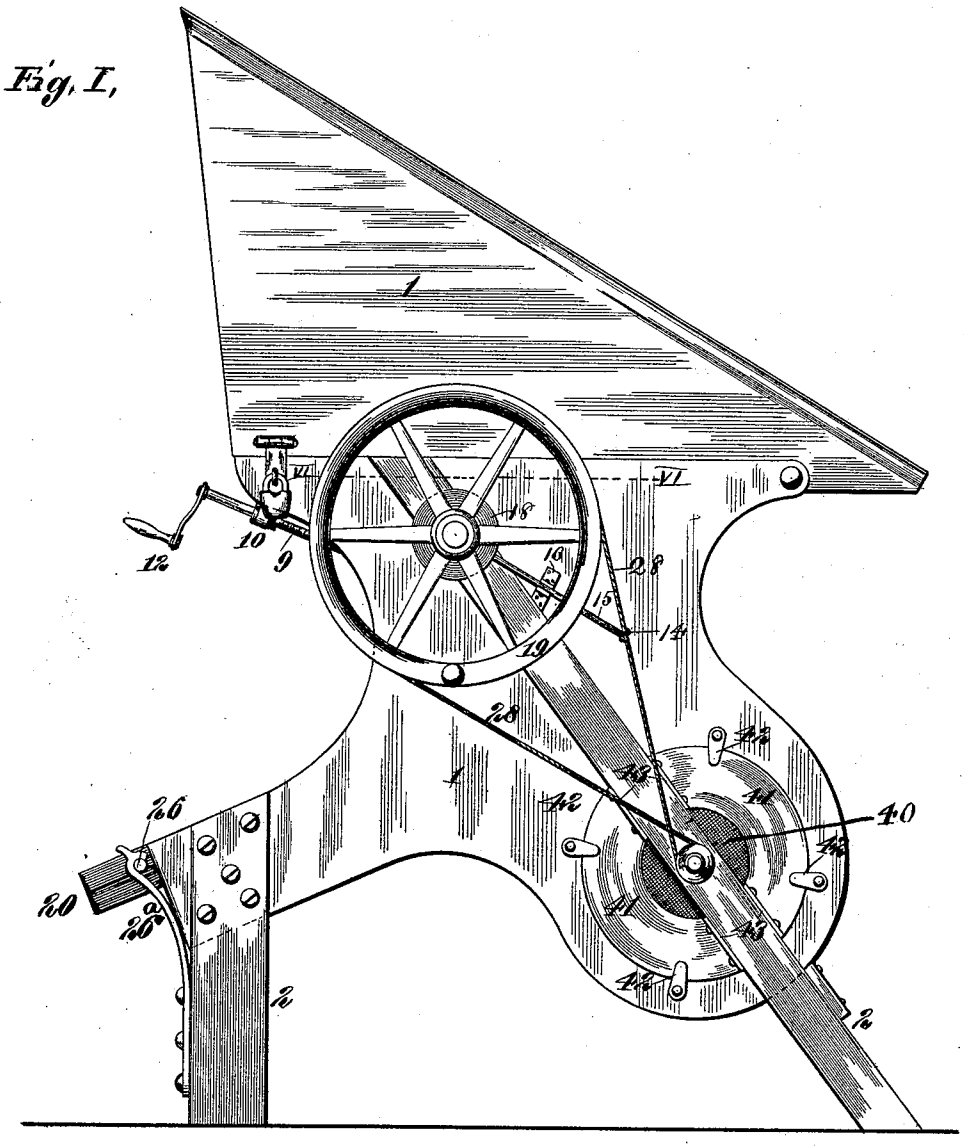
(No Model.) 3 Sheets—Sheet 1.

G. T. CHAUDEFOSSE.

DRY ORE CONCENTRATOR.

No. 406,335. Patented July 2, 1889.

Fig. I,



Attest;
E. Arthur
Geo. H. Wheelock

Inventor;
Gustave T. Chaudefosse
By Knight Bros
Attys

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

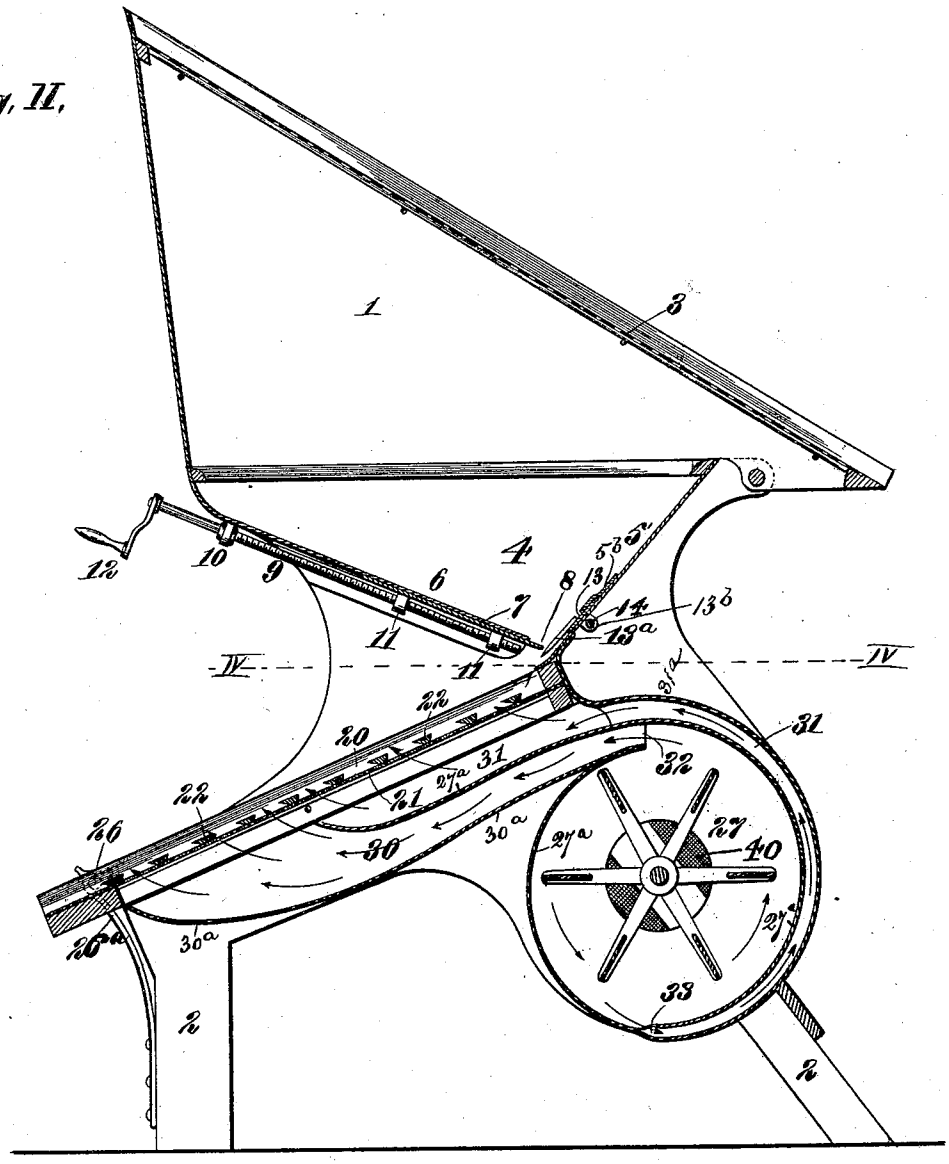
3 Sheets—Sheet 2.

G. T. CHAUDEFOSSE.

DRY ORE CONCENTRATOR.

No. 406,335. Patented July 2, 1889.

Fig. II.



Attest:
E. Arthur
Geo. L. Wheelock

Inventor:
Gustave T. Chaudefosse.
By Knight Bros.
Atty's.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 3.

G. T. CHAUDEFOSSE.

DRY ORE CONCENTRATOR.

No. 406,335. Patented July 2, 1889.

Fig. III.

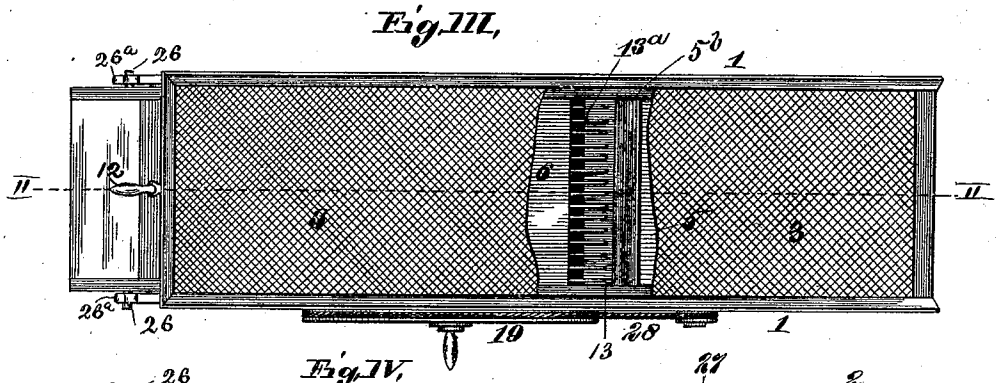


Fig. IV.

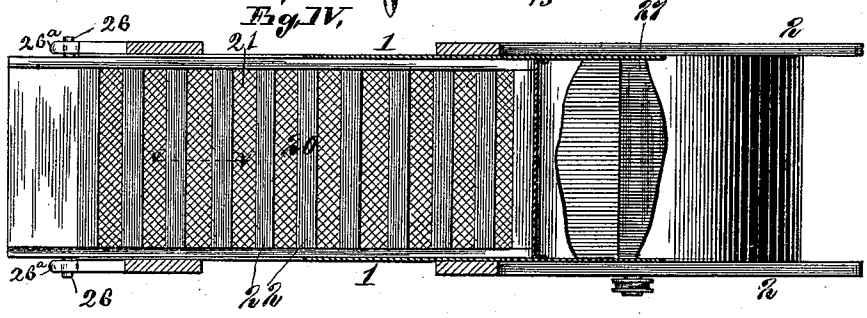


Fig. V.

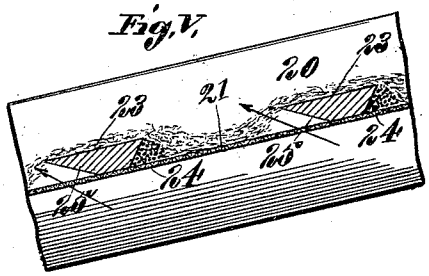


Fig. VI.

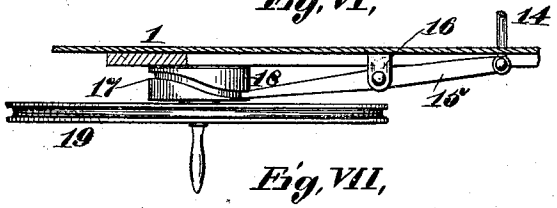


Fig. VII.

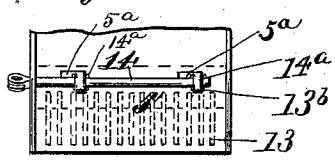
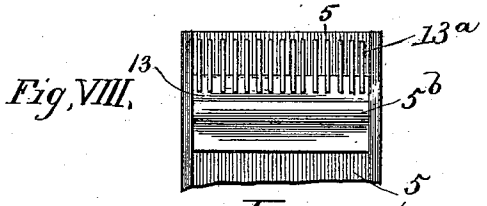


Fig. VIII.



Attest:
E. Arthur
Geo. Wheelock

Inventor:
Gustave T. Chaudefosse
By Knight Bros
Atty's.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

GUSTAVE T. CHAUDEFOSSE, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE SONORA MINING AND DRY CONCENTRATOR COMPANY, OF EAST ST. LOUIS, ILLINOIS.

DRY-ORE CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 406,335, dated July 2, 1889.

Application filed December 4, 1888. Serial No. 292,670. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE T. CHAUDEFOSSE, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Dry-Ore Concentrators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is a side elevation of my improved machine. Fig. II is a vertical longitudinal section taken on line II II, Fig. III. Fig. III is a top view with part of the screen removed. Fig. IV is a horizontal longitudinal section taken on line IV IV, Fig. II. Fig. V is an enlarged detail longitudinal section of the ore-bed, taken on line V V, Fig. IV. Fig. VI is a longitudinal section, enlarged, taken on line VI VI, Fig. I. Fig. VII is a detail view showing part of the under side of the feed-board. Fig. VIII is a detail view showing part of the upper side of the feed-board.

My invention relates to certain improvements in dry-ore concentrators; and it consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, 1 represents the frame of the machine, supported on suitable legs 2.

3 represents a screen, onto which the ore-laden material is deposited, and through which it falls into a hopper 4. The hopper is composed of an inclined feed-board 5 and an inclined chute 6. The inclined chute 6 is arranged with a valve 7 for regulating the exit-opening 8. The valve is operated by a screw-threaded rod 9, fitting in a guide 10 on the under side of the chute 6, and working through lugs 11 on the valve 7. The rod is provided with a crank 12, by which it may be turned. It will thus be seen that by turning the rod in the proper direction the valve may be opened or closed more or less, to regulate the size of the opening 8.

On the lower end of the feed-board 5 is a sliding comb 13, the points or teeth 13^a of which are in close proximity to the inner end of the valve 7. This sliding comb is not stationary, but is given a slow continuous vibration for the purpose of producing a uniform feed and distribution of the material. It is provided with lugs 13^b, working through slots 5^a in the feed-board, and is operated by a rod 14, connected to the slotted ends of the lugs by means of key-pieces 14^a, passing through slots in the rod, (see Figs. VI and VII,) and the outer end of which is made fast to a lever 15. The lever is pivoted to the frame of the machine at 16, and its inner end fits in a cam-groove 17 of a disk 18 on the driving-shaft of the machine. On the shaft is also a pulley 19, which may be driven by power or turned by hand, as desired.

5^b is a strip lapping over the upper edge of the comb.

It will thus be seen that when the machine is in operation there would be imparted to the comb a continuous vibration, which will cause the material to be evenly fed through the opening 8, and this vibration of the comb also insures against clogging or choking of the material in the feed-opening. From the opening 8 the material falls onto an incline or bed 20. This bed is composed of a suitable porous cloth 21, upon which are arranged a number of transverse ribs or bars 22. The bars are of peculiar shape in transverse section, and are illustrated in this respect in Fig. V. They have a wide top 23, with an undercut back 24 and an undercut front 25. As the ore-laden material passes down over the bed 20, the valuable mineral is gathered behind the ribs in the under-cut 24, as shown in Fig. V, while the sand and refuse matter passes over the ribs and is delivered from the lower end of the table. The object of the under-cut 25 is to permit a free current of air to pass through the cloth, or, in other words, to avoid danger of the sand settling on all parts of the bed and preventing the free passage of the air.

It will thus be seen, by referring to Fig. V, that a space is left in front of each bar, into which the material does not accumulate, and through this space the air is allowed to pass and act upon the material as it falls from each rib or bar.

The ore-bed rests upon the frame 1 and is held in place by spring-arms 26ª, engaging pins 26 on the lower end of the bed. These spring-arms prevent the downward sliding of the ore-bed and hold it firmly in place. When it is desired to remove the ore-bed, it can be done by simply pulling outward on the free ends of the spring-arms to disengage them from the pins 26.

An air-current is produced to effect the separation of the precious material from the refuse matter by means of a fan 27, driven from the pulley 19 by a belt 28, or by other suitable means. The fan has two delivery-flues 30 and 31 of peculiar construction. The lower flue has a base-plate 30ª, curved downwardly from the top of the fan-chamber to the lower end of the ore-bed. The upper flue 31 has an outer plate 31ª, curved upwardly from the base of the fan-chamber, around and over the latter to the upper end of the ore-bed. The two flues are formed between the frame of the machine by an intermediate plate 27ª, extending from the middle portion of the ore-bed to and around the fan, and forming the fan-chamber. The flue 30 opens at 32 into the fan-chamber, and the flue 31 opens at 33 into the fan-chamber. The opening of the flue 30 and its size are in excess of those of the flue 31. It will thus be seen that a greater column or current of air will pass through the flue 30 than through the flue 31. The object of this is to have a comparatively small current of air at the upper part of the ore-bed while the precious material is yet distributed through the body of the mass, and then to have a stronger current of air at the lower part of the ore-bed, where the precious material has largely passed to the bottom of the mass, and thus is less liable to be discharged from the bed by the air-current. By the use of these two different currents of air the separation of the ore is more effectually accomplished.

40 represents the air-supply opening of the fan. (See Fig. I.) At each side of this opening there is a semicircular disk or flat ring 41, held in place by buttons 42. The object of these disks is to give a means of access, by removing them, to the interior of the fan-chamber.

43 represents cleats secured to one of the supporting-legs 2, behind which the inner end of each half of the ring fits and is held in place.

I claim as my invention—

1. In an ore-concentrator, the combination, with an inclined ore-bed, of upper flue 31, beneath the upper portion of the ore-bed, a lower flue 30, beneath the lower portion of the ore-bed and beneath the upper flue and of larger size than the latter, and a fan producing air-currents through the flues, substantially as described.

2. In an ore-concentrator, the combination, with an inclined ore-bed, of the fan, the lower flue 30, having an opening 32 into the fan-chamber and a base-plate 30ª curved downwardly from the top of the fan-chamber to the lower end of the ore-bed, the upper flue 31, having an opening 33 into the fan-chamber, and an outer plate 31ª, curved upwardly from the base of the fan-chamber, around and over the latter to the upper end of the ore-bed, and the intermediate plate 27ª, extending from the middle portion of the ore-bed to and around the fan and forming the fan-chamber, substantially as described.

3. In an ore-concentrator, the combination of an ore-bed resting on an inclined support and having pins 26, and springs 26ª, adapted to engage said pins and hold the bed on its support, substantially as and for the purpose set forth.

GUSTAVE T. CHAUDEFOSSE.

In presence of—
GEO. H. KNIGHT,
EDW. S. KNIGHT.