

(No Model.)

2 Sheets—Sheet 1.

W. L. CARD & J. C. DANE.

DRY ORE SEPARATOR.

No. 300,044.

Patented June 10, 1884.

Fig. 1.

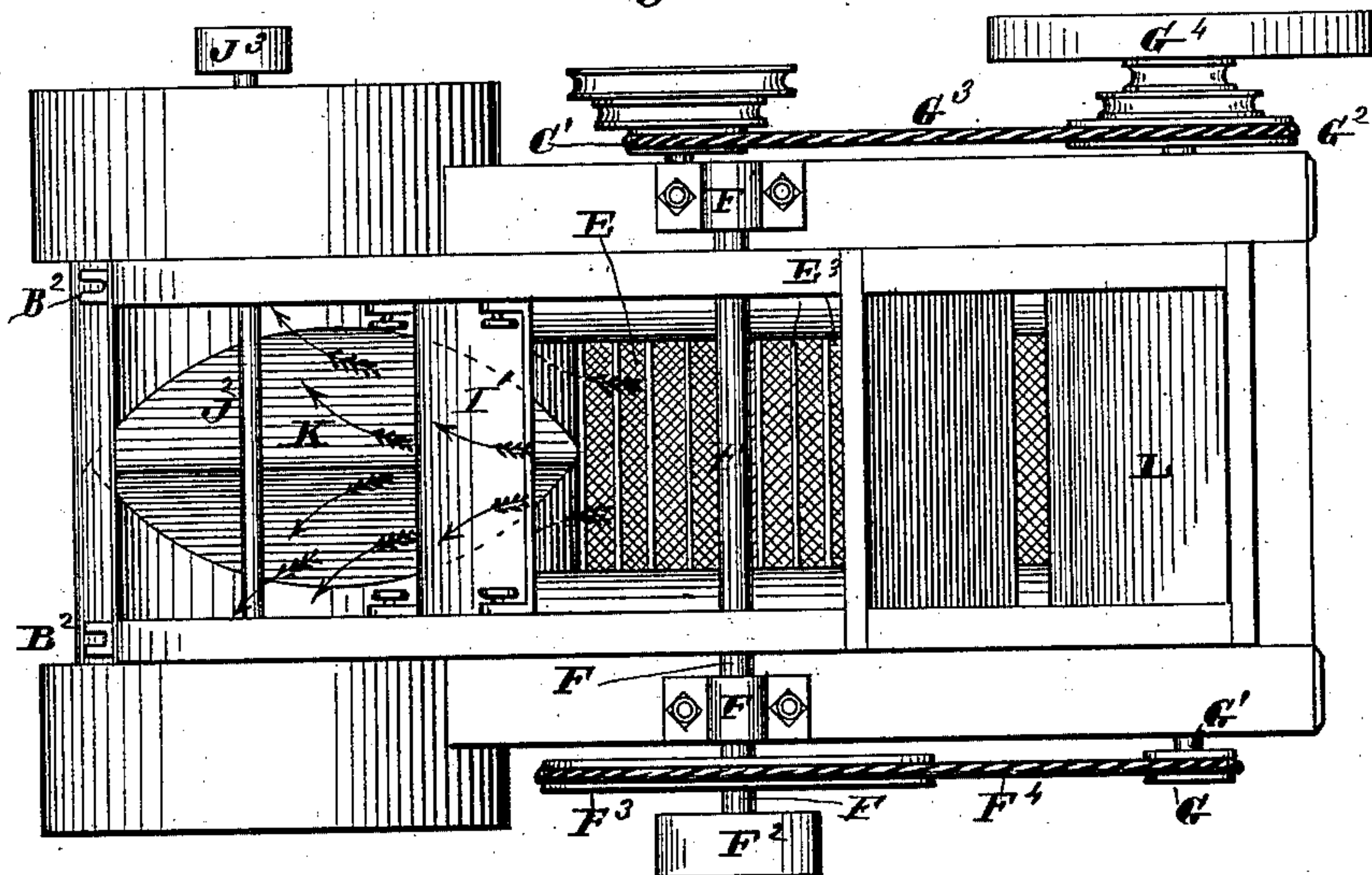


Fig. 2.

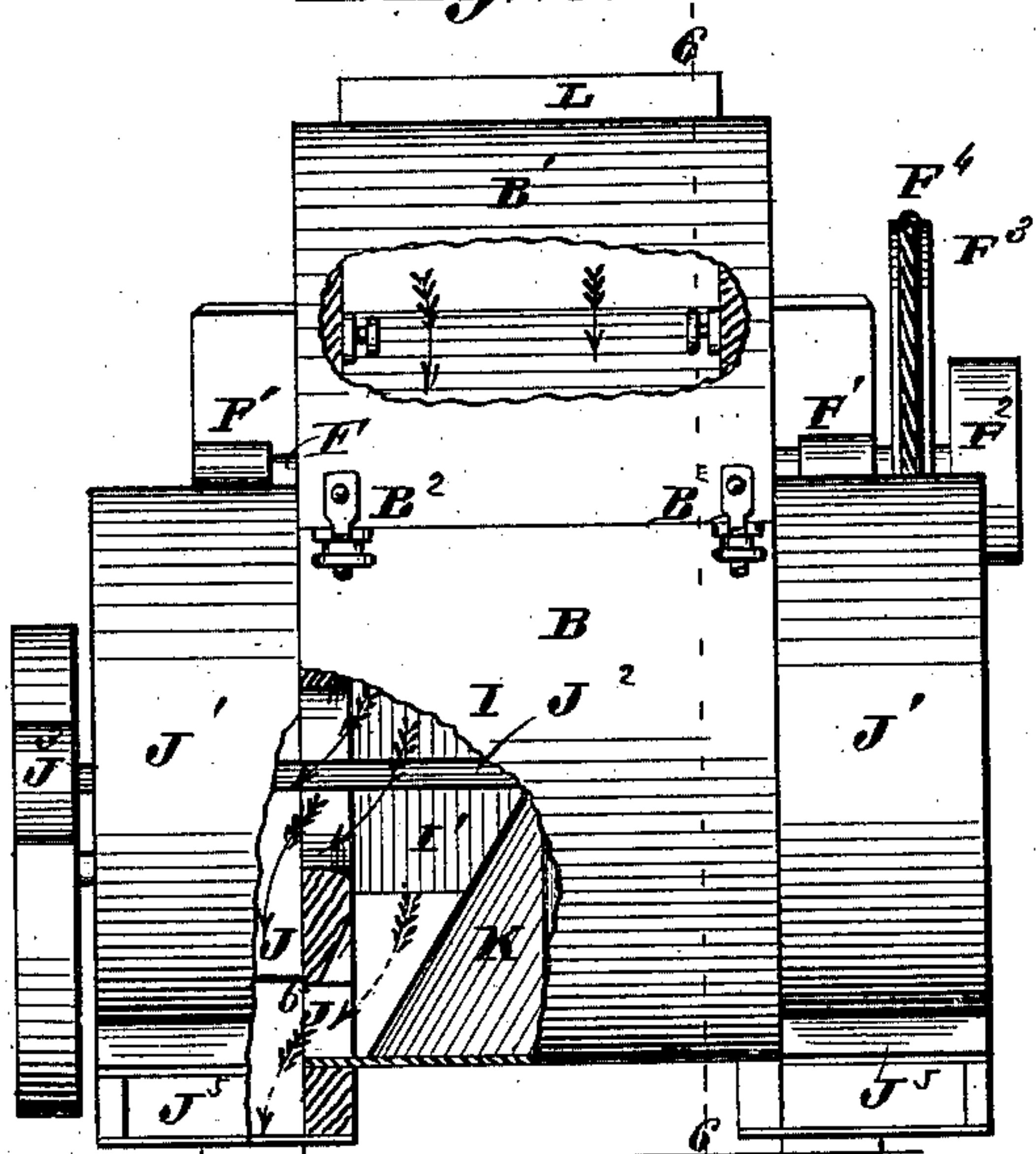


Fig. 3.

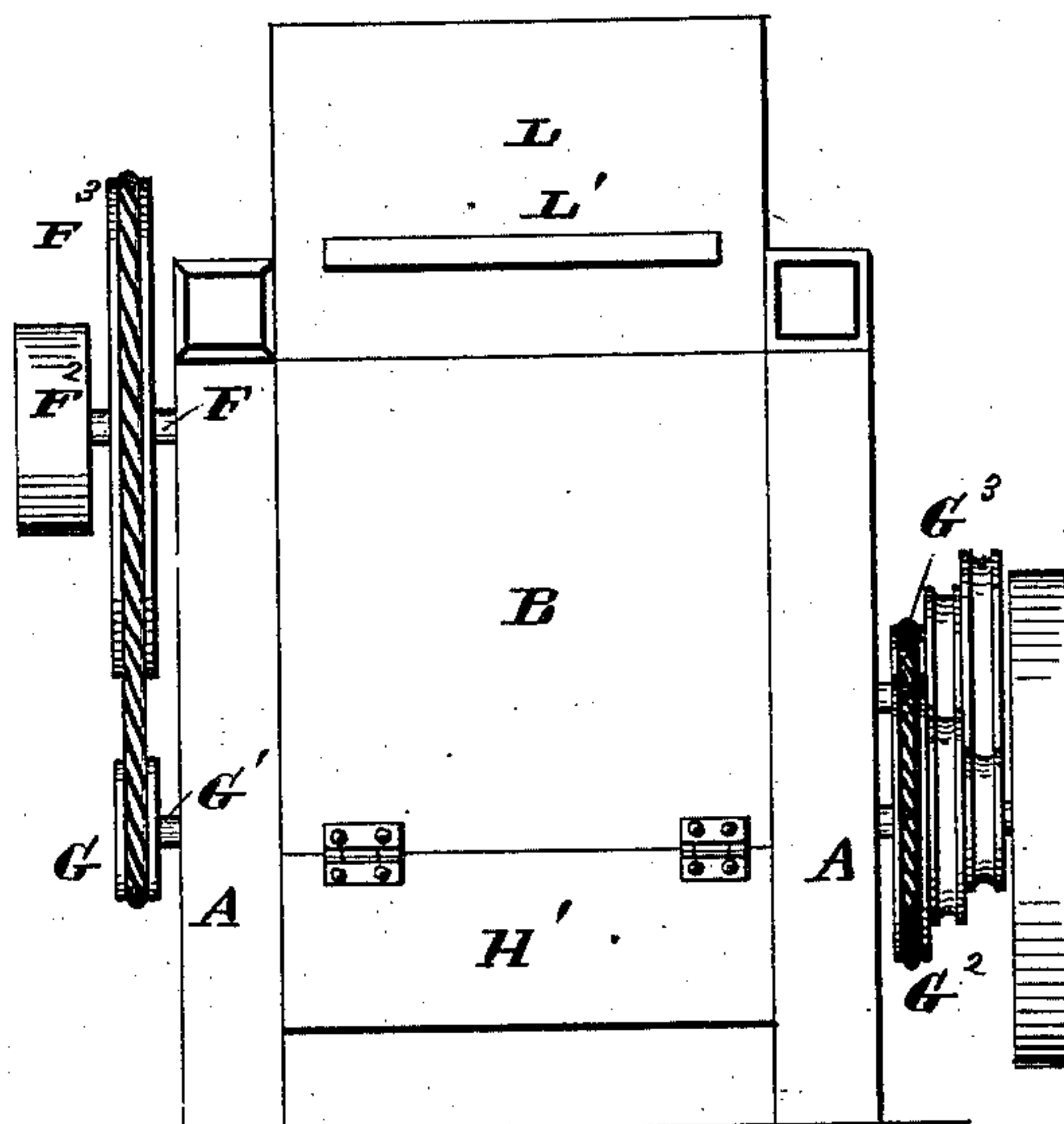


Fig. 4.

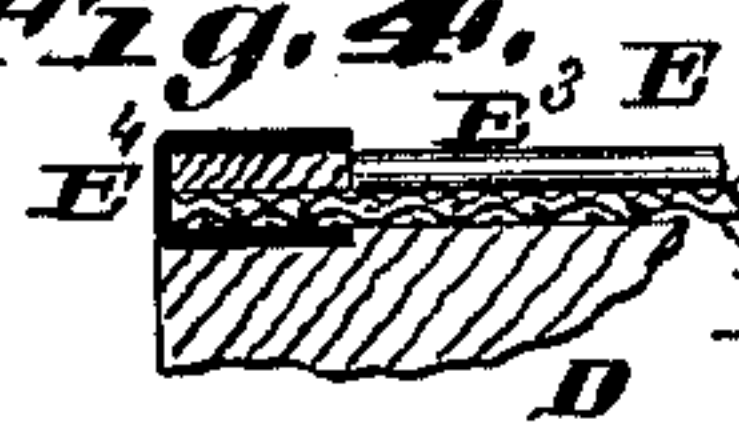
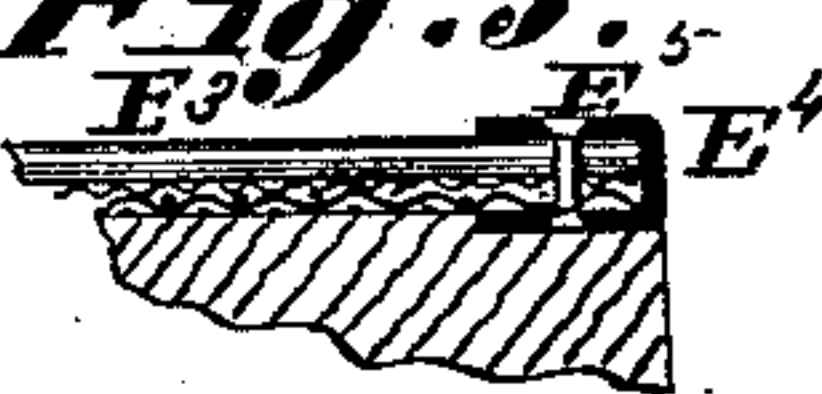


Fig. 5.



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W. L. CARD & J. C. DANE.

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Fig. 6.

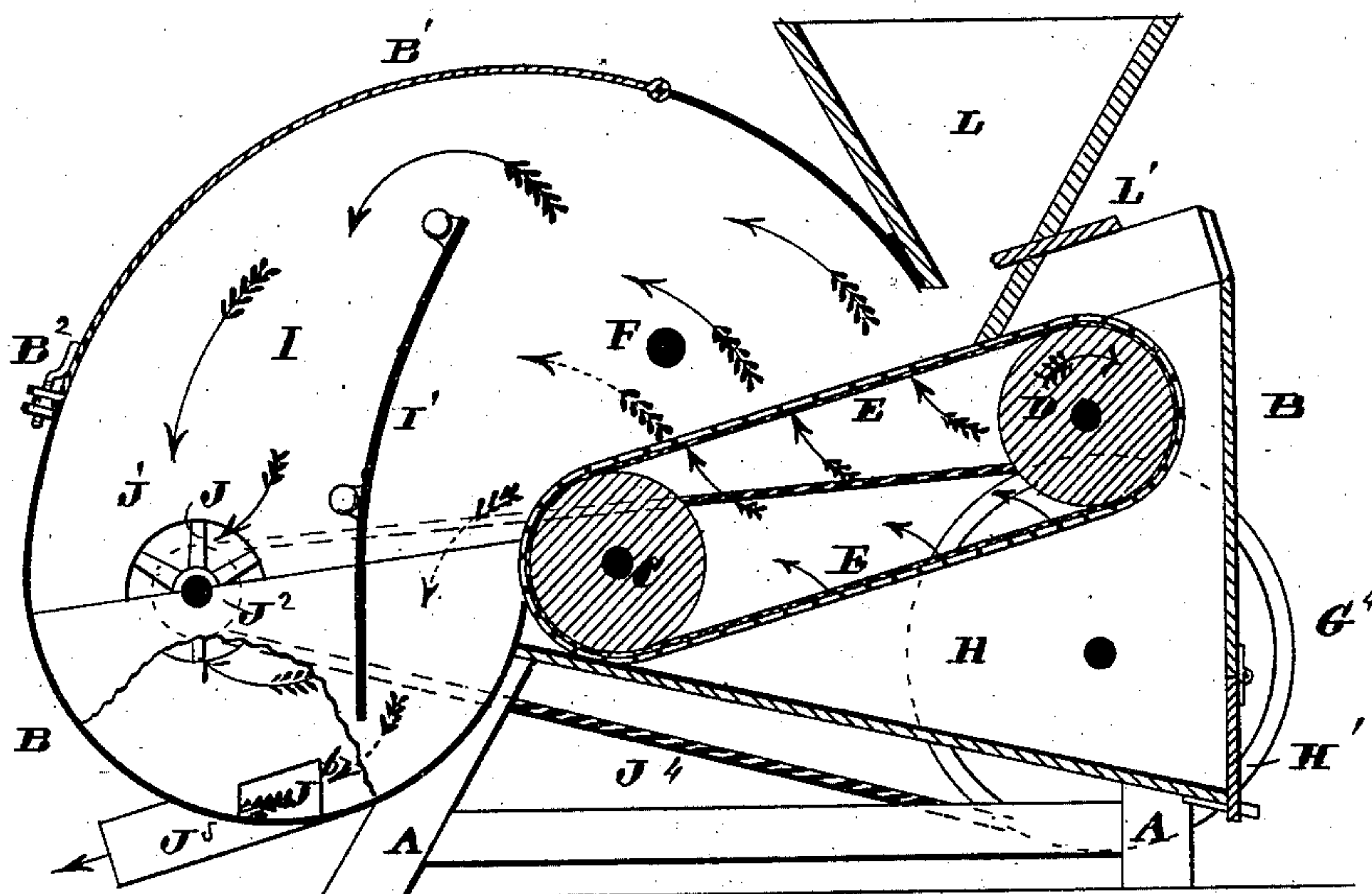
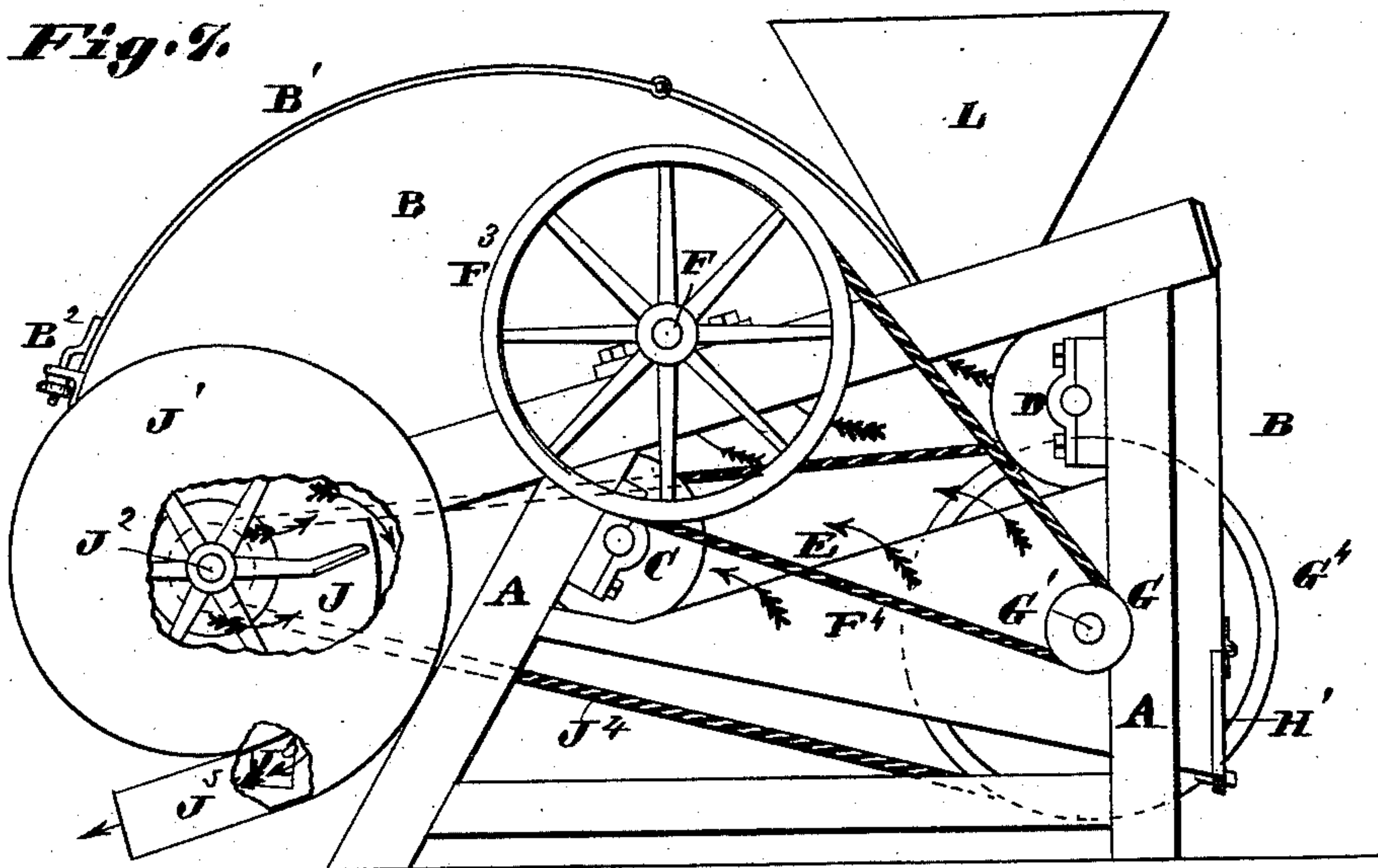


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM L. CARD AND JOSEPH C. DANE, OF LA CROSSE, WISCONSIN, ASSIGNORS TO THE CARD-DANE DRY GOLD SLUICE COMPANY, (LIMITED,) OF SAME PLACE.

DRY ORE SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 300,044, dated June 10, 1884.

Application filed July 12, 1883. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM L. CARD and JOSEPH C. DANE, both of La Crosse, in the county of La Crosse and State of Wisconsin, have invented a certain new and useful Improvement in Dry Ore Separators, 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 1 is a top view. Fig. 2 is a rear view, part broken away. Fig. 3 is a front view. Figs. 4 and 5 are detail views. Fig. 6 is a longitudinal section taken on line 6 6, Fig. 2; and Fig. 7 is a side elevation, part of the fan-casing being broken away.

This invention relates to a dry ore separator wherein a current of air formed by suction is caused to pass through the mass and separate the foreign matter from the precious metal, the current passing through an endless traveling belt, onto which the mass is discharged; and this invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents the supporting-legs, and B the outer shell or casing, having a hinged portion, B', held in its closed position by suitable catches or fastenings, B², which allows access to the interior of the machine.

C D represent rollers or drums, two in number, over which fit an endless belt, E. One of the drums is driven, preferably, by the following means:

F represents a main driving-shaft, journaled in boxes F', secured to the frame, and provided with a driving-pulley, F². Upon this shaft is rigidly secured a large wheel or pulley, F³, which is connected by means of a belt, F⁴, with a small wheel or pulley, G, on one end of a counter-shaft, G', journaled in suitable boxes secured to the frame. On the other end of the shaft G' is a pulley or wheel, G², which is connected by means of a belt, G³, with a wheel, C', secured to the shaft of the roller C, (or it may be connected with a wheel or pulley on the shaft of the roller D.) There may be a number of these wheels or pulleys G² C', of different sizes, as shown in Figs. 1 and 3, so that the speed may be regulated. The belt E

is sufficiently open for the air to circulate through it, and it consists of wire-cloth, E', and silk or other textile cloth, E², the silk cloth being on the outside, and transverse bars E³, the bars being secured to the belt or apron by edge strips, E⁴, and rivets E⁵. (See Figs. 4 and 5.)

H represents a chamber beneath the belt or apron for receiving the precious metal, and it is provided with a suitable door, H'.

I represents an air and dirt chamber divided by a partition, I'. (See Figs. 1 and 6.)

J J represent suction-fans, one on each side of the chamber I, located in chambers J' J', and being on a shaft, J², journaled in suitable boxes, and which has a driving-pulley, J³, connected by means of a belt, J⁴, with a pulley, G⁴, on the counter-shaft G'.

K represents a deflector in the lower portion of the chamber I back of the partition I', which divides the air-current, causing it to pass evenly into the two fan-chambers.

J⁵ represent openings at the lower portions of the fan-chambers, through which the air exhausts or escapes, and through these openings, which communicate with the chamber I by means of small openings J⁶, the foreign matter which is carried by the blast from the endless belt is also discharged, as shown by the dotted arrows, Figs. 2 and 6, the course of the air-current being shown by full arrows.

L represents a hopper located at the forward end of the machine over the endless belt, and provided with a suitable valve, L'. (See Fig. 6.) The back of the hopper should extend down nearly to the belt, as shown.

The operation is as follows: The machine being started, the auriferous material is fed to the hopper and runs down upon the endless belt, which is traveling, as shown by the arrow in wheel D, Fig. 6, in an upward direction. At the same time the air-current is being drawn upward and outward through the belt, and in combination with gravity causes the lighter or refuse mass to float downward, the refuse passing over the lower end of the belt and out of the machine by the described means, while the gold or precious metal, being heavier, remains on the belt, and is carried by the bars E over the upper roller and discharged into the chamber H, from whence it can be removed. The dirt or refuse matter strikes the partition I', as

shown by the dotted arrows, being discharged, as shown and described, while the air-current, as shown by the full arrows, passes over the partition and into the fan-chamber, from
5 whence it escapes, as shown and set forth.

We claim as our invention—

1. In an ore-separator, the combination of an endless belt inclined downwardly from its receiving end to enable the auriferous material to flow down it, a suction device to draw
10 air through the belt upwardly and rearwardly, and a partition to deflect the lighter coarse matter toward the discharge, as set forth.

2. In an ore-separator, the combination of
15 an endless belt whose bed portion is inclined downwardly from the receiving end to permit the material to flow down it, a casing having at its rear an opening at each side, a partition transverse of the casing, a deflector to divide
20 and direct the lighter coarse matter to the side openings, and a suction device to draw a current of air through the belt in an upward and rearward direction, as set forth.

3. In an ore-separator, the combination of an endless belt whose bed portion is inclined
25 downwardly from the receiving end, and having riffles of sufficient height to arrest the heavier precious metal, a casing having at its rear an opening at each side, a partition transverse
30 of the casing, a deflector to divide and direct the lighter coarse matter to the side openings, and a suction-fan and chamber at each side of the machine, having a discharge at bottom to receive the matter passing through the side openings and compel it to pass out, the fan-cham-
35 bers being in communication with the main chamber of the casing at the rear of the partition, as set forth.

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Witnesses:

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