(No Model.) 2 Sheets—Sheet 1.

G. CONKLING.

MAGNETIC SEPARATOR.

No. 403,576. Patented May 21, 1889.

Fig. 1.

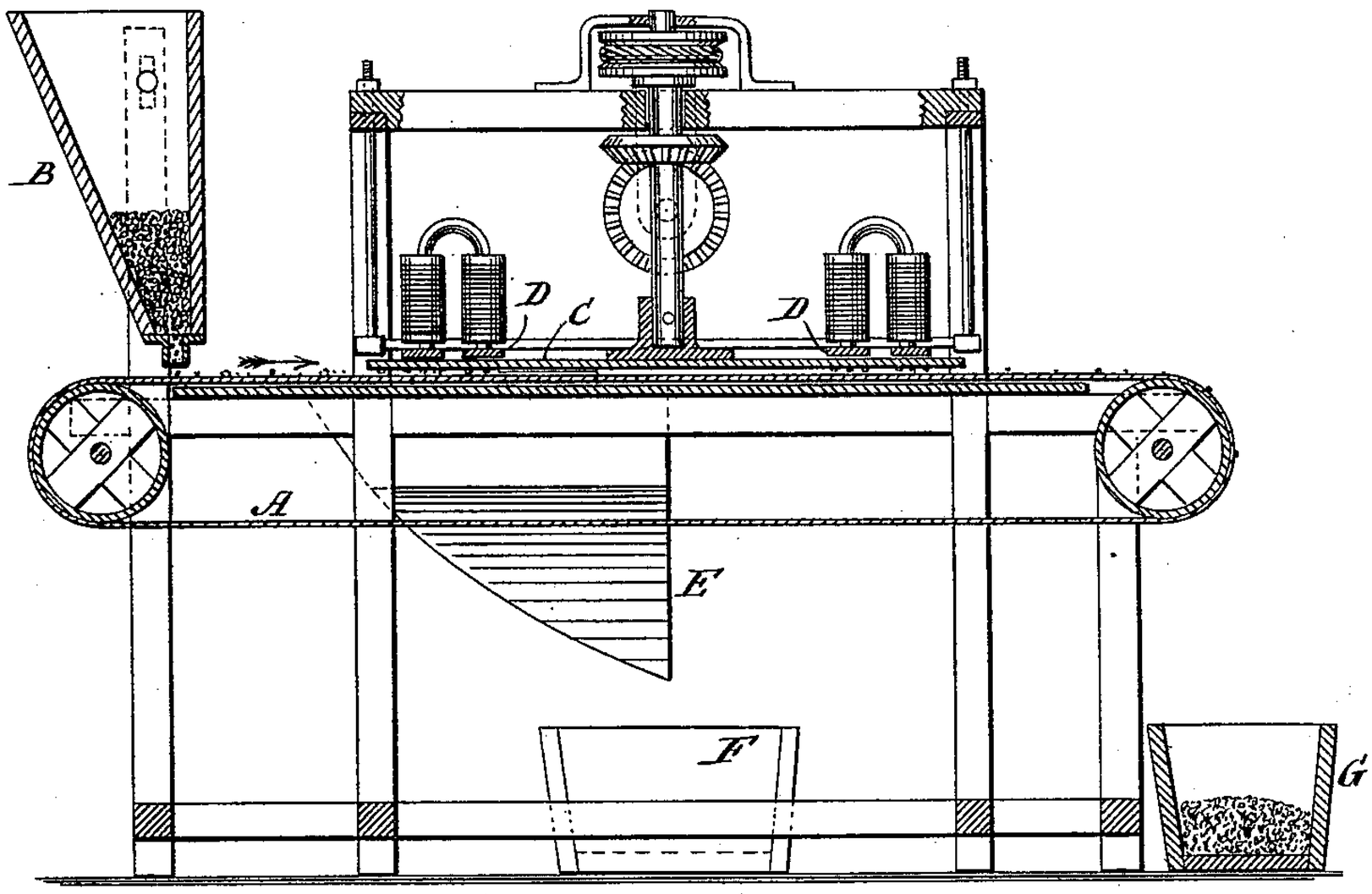

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

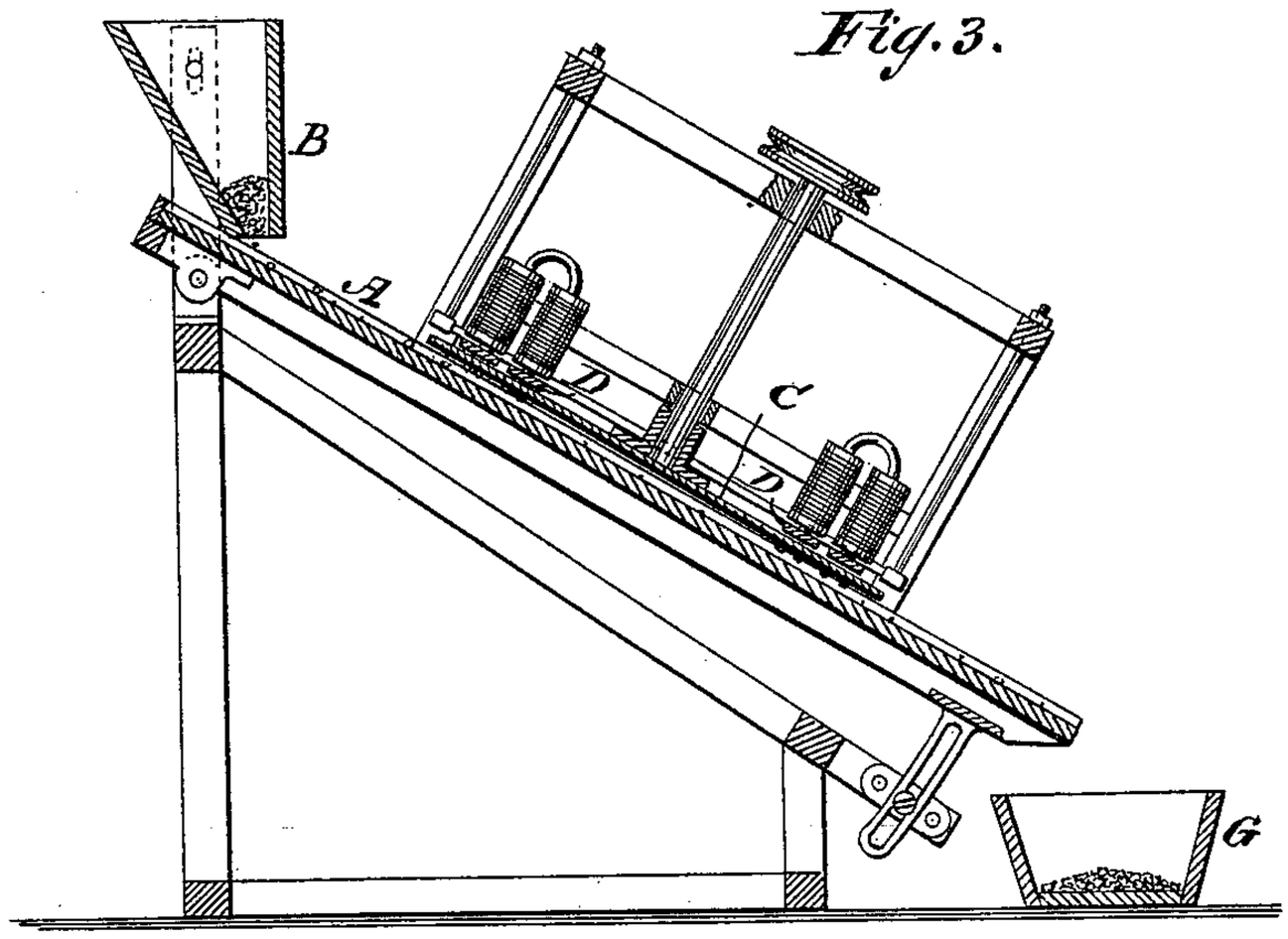
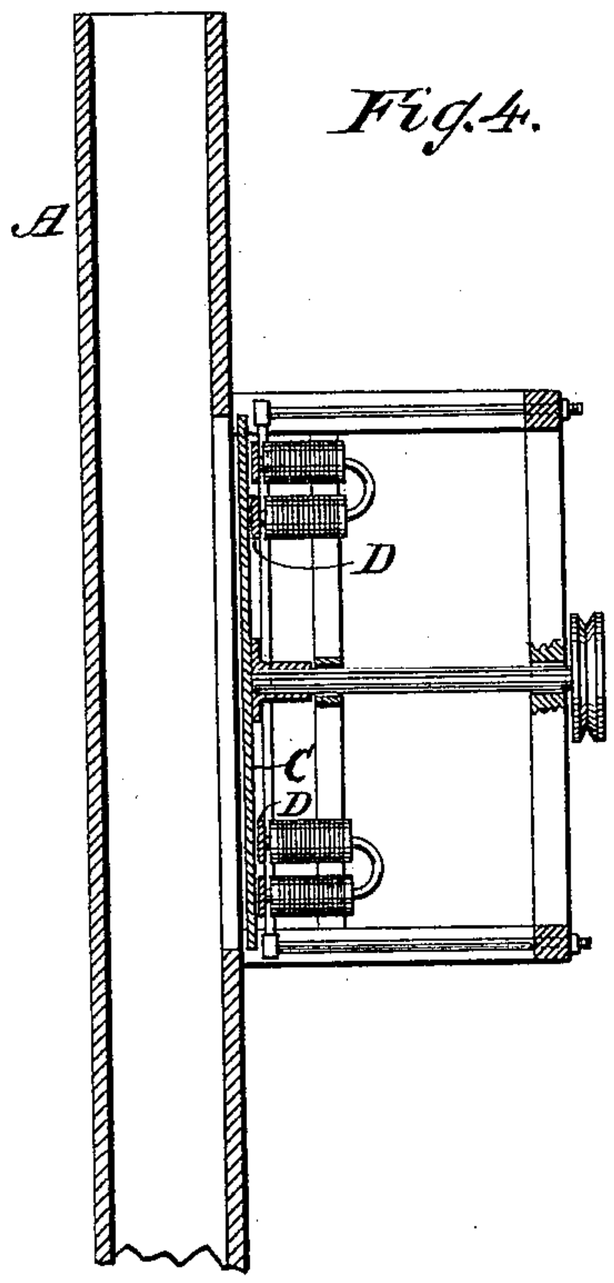


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GURDON CONKLING, OF GLENS FALLS, NEW YORK.

MAGNETIC SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 403,576, dated May 21, 1889.

Application filed August 23, 1888. Serial No. 283,532. (No model.)

To all whom it may concern:

Be it known that I, GURDON CONKLING, a citizen of the United States, residing at Glens Falls, in the county of Warren and State of New York, have invented new and useful Improvements in Magnetic Separators, of which the following is a specification.

This invention relates to a magnetic separator, as set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a section of a separator along the line *x x*, Fig. 2. Fig. 2 is a plan view of a separator. Fig. 3 is a sectional view of a modification. Fig. 4 is a sectional view of another modification.

Similar letters indicate corresponding parts.

In the drawings, the letter A indicates a conveyer or support for the mass to be treated, such as crushed or pulverized iron ore. A suitable supply device—such as a hopper, B—can be used to feed the mass to the conveyer. A revolving disk, C, is arranged between the mass under treatment and a magnet, D. The magnet causes the magnetic particles—such as iron—to adhere to the disk C, which carries them to a hopper, whence they pass into a suitable receptacle.

In the drawings are shown two magnets, D, two hoppers, E, and two receptacles, F. A receptacle, G, is shown for the non-magnetic particles. The two magnets may be of different intensities with relation to the mass under treatment. By having, for example, the magnet nearer to the hopper B of less relative intensity than the other magnet the first-named magnet can be made to cause only pure magnetic particles to adhere to the disk C, while the other magnet will then have a tendency to cause magnetic particles, with other or non-magnetic substances, to adhere to said disk. A differential separation can thus be secured, perfectly pure magnetic particles being deposited in one receptacle F and magnetic particles with other or non-magnetic substances being deposited in the other receptacle F.

The magnets D may be either permanent or electro-magnets, and their different intensities with relation to the mass under treatment may be variously attained. For example, by making one magnet weaker than another and placing both magnets at an equal distance from the mass under treatment the action of one magnet on said mass will be weaker than that of the other magnet; or by making both magnets of equal intensity and placing one magnet at a greater distance from the mass under treatment than the other magnet the action of one magnet on said mass will be relatively weaker than that of the other magnet. The magnet of less relative intensity can be made to cause only pure magnetic particles to adhere to the disk C, and the magnet of strong relative intensity will then tend to cause magnetic particles, together with non-magnetic particles, to adhere to said disk.

The conveyer A may be variously formed—as, for example, in Figs. 1 and 2, where the conveyer is a belt traveling over rollers, or, as in Fig. 3, where the conveyer is an incline which can be set at various angles, as required, or, as in Fig. 4, where the conveyer is a chute or tube, through which the mass falls.

The disk C can be rotated by any suitable well-known means, and by connecting the disk C and the rollers of the conveyer A, Fig. 2, as by means of a belt, H, motion can be transmitted between the conveyer and disk; or, the conveyer might be a stationary table, over which the mass to be treated is spread in a suitable layer to be attracted by the magnet to the disk.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a conveyer for supporting the mass to be treated, of a magnet, a disk revolving independent of the conveyer and magnet at a point between said conveyer and magnet, and means for revolving the disk, substantially as described.

2. The combination, with a conveyer for supporting the mass to be treated, of a stationary magnet, a disk revolving between the conveyer and the stationary magnet, and means for revolving the disk, substantially as described.

3. The combination, with a conveyer for supporting the mass to be treated, of a magnet located above the conveyer, a disk revolving above the conveyer and under the

magnet, and means for revolving the disk, substantially as described.

4. The combination, with a conveyer and magnets of different intensities relatively to the mass under treatment, of a revolving disk between the magnets and said mass, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

GURDON CONKLING. [L. S.]

Witnesses:

W. C. HAUFF,

E. F. KASTENHUBER.