(No Model.)

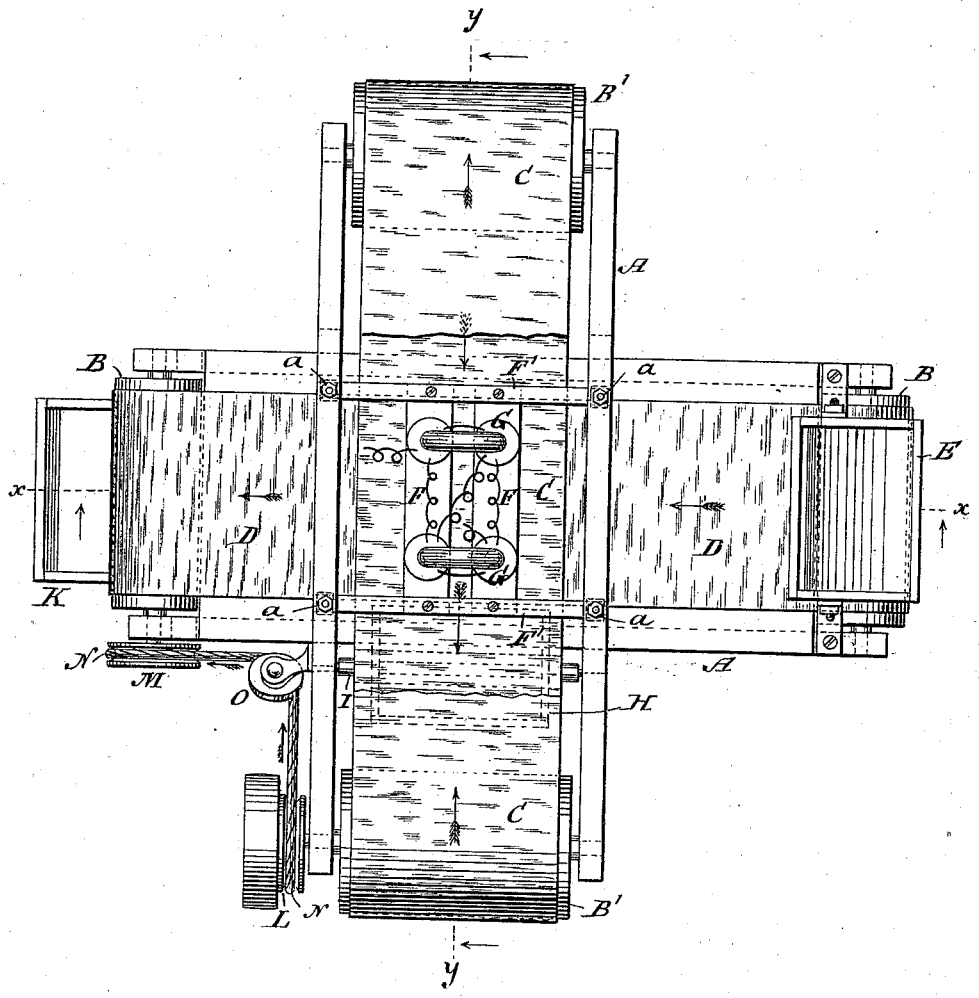
2 Sheets—Sheet 1.

G. CONKLING.

MAGNETIC SEPARATOR.

No. 383,863. Patented June 5, 1888.

Fig. 1.



WITNESSES:

Eduard Wolff.
William Miller

INVENTOR.

Gurdon Conkling.

BY Van Santvoord & Hauff

ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

G. CONKLING.

MAGNETIC SEPARATOR.

No. 383,863. Patented June 5, 1888.

Fig. 2.

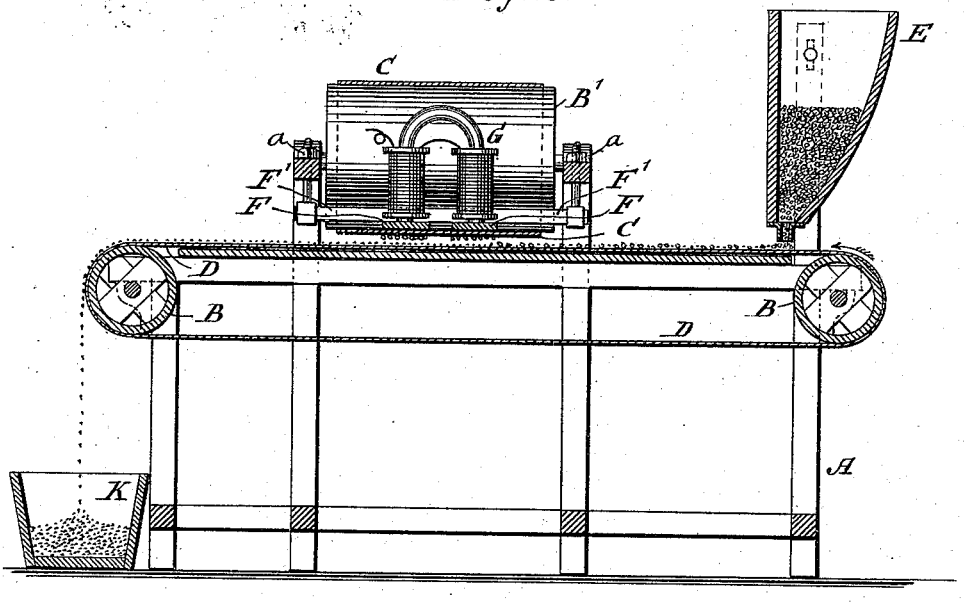
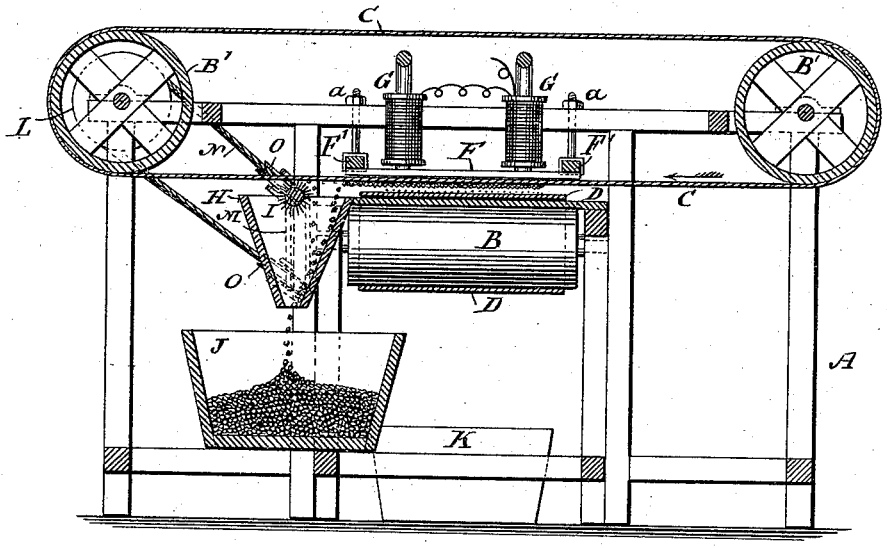


Fig. 3.



WITNESSES:

Eduard Wolff.
William Miller.

INVENTOR.

Gurdon Conkling.

BY Van Santvoord & Hauff,

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GURDON CONKLING, OF GLENS FALLS, NEW YORK.

MAGNETIC SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 383,863, dated June 5, 1888.

Application filed September 23, 1887. Serial No. 250,511. (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 Machines for Eliminating Impurities from Magnetic Iron Ores and other Materials, of which the following is a specification.

This invention relates to a machine which is intended principally for concentrating magnetic iron ores in an economical manner, but which can also be used for separating iron filings from non-magnetic matter.

The peculiar and novel construction of my machine is set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view, some portion being broken away to expose the parts below. Fig. 2 is a vertical section in the line *x x*, Fig. 1, looking in the direction of the arrow opposite to that line. Fig. 3 is a similar section in the line *y y*, Fig. 1, looking in the direction of the arrow opposite to that line.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates a frame which forms the bearings for four rollers, B B B′ B′. The rollers B B support the primary endless belt or apron D, and the rollers B′ B′ support the secondary endless belt or apron C, which runs transversely to the apron D. E is a hopper placed over the primary apron D. In proximity to secondary apron C are placed one or more magnetized plates, F. These plates are made preferably of hardened steel, and by placing upon them one or more magnets, G, they become magnetized. The magnets G may be permanent magnets or electro-magnets. The plates F are secured to traverses F′, which are connected by screws *a a* to the frame A, so that by means of said screws the plates F can be raised or lowered. A hopper, H, is placed in suitable relative position to the secondary apron C, (see Fig. 3,) and a brush or scraper, I, acts on said secondary apron. Suitable receptacles, J K, are provided—one for the concentrated ore or iron particles and the other for the gangue or refuse. A belt, N, which extends round pulleys L M, is made to impart motion to the aprons C D. Said belt passes over guide-rollers O O, Figs. 1 and 3.

The machine operates as follows: The ore or material to be treated is crushed or pulverized and fed to the primary apron D through the hopper E, so as to form a thin layer on said apron. As the apron is moved in the direction of the arrow thereon in Figs. 1 and 2, the layer of pulverized ore passes slowly beneath the magnetized plates F, and the iron contained in said layer being attracted by said plates is caused to adhere to the secondary apron C, which moves in the direction of the arrows shown thereon in Figs. 1 and 3. As this secondary apron moves along, the particles of iron adhering to it are carried over the hopper I, and they drop down through this hopper into the receptacle J, being separated from the apron either by their inherent gravity or by the action of the scraper I. The non-magnetic particles in the layer formed on the primary apron D are dropped into the receptacle K.

My machine can be used for concentrating iron ores of different kinds, and I have found it very useful in treating magnetic iron ores containing phosphorus or titanium.

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

1. The combination, with a primary apron, of a secondary apron to operate transversely to the primary apron, a magnetized plate secured in proximity to said secondary apron, so as to draw the iron particles to said secondary apron, and suitable driving mechanism for actuating the aprons, substantially as set forth.

2. The combination, with a primary apron and a secondary apron made to operate transversely to the primary apron, of a magnetized plate secured in proximity to said secondary apron, so as to draw the iron particles to said secondary apron, suitable driving mechanism for actuating the aprons, and a scraper or brush made to act on said secondary apron, substantially as set forth.

3. The combination, with a primary apron,

of a secondary apron made to operate transversely to the primary apron, a magnetized plate secured in proximity to said secondary apron, so as to draw the iron particles to said secondary apron, and means for adjusting the magnetized plate in relation to the secondary apron, substantially as set forth.

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

GURDON CONKLING. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.