

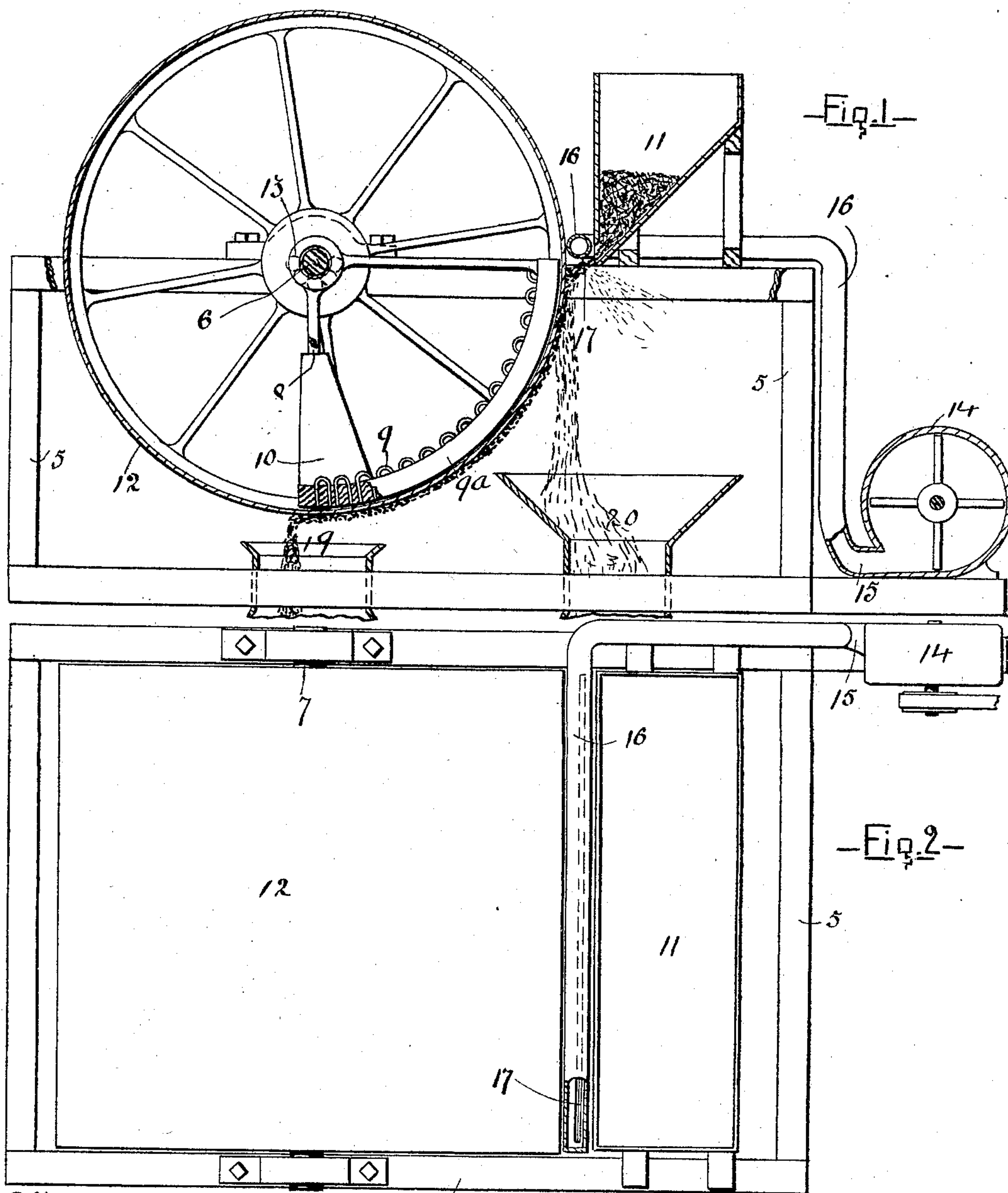
No. 607,984.

Patented July 26, 1898.

G. J. CREAN.
MAGNETIC ORE SEPARATOR.

(No Model.)

(Application filed Jan. 7, 1898.)



Witnesses

R. G. Kimball
W. J. Swan

Inventor

G. J. Crean
By *his* Attorney *Oliver N. Swan*

UNITED STATES PATENT OFFICE.

GERALD JAMES CREAN, OF MONTREAL, CANADA.

MAGNETIC ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 607,984, dated July 26, 1898.

Application filed January 7, 1898. Serial No. 665,976. (No model.)

To all whom it may concern:

Be it known that I, GERALD JAMES CREAN, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have
5 invented certain new and useful Improvements in Magnetic Ore-Separators; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention has for its object to provide
10 means to more effectively separate the magnetic from the non-magnetic particles of magnetic ores when in granular form.

The invention may be said, briefly, to consist of a series of stationary magnets arranged
15 in the form of a downwardly-extending arc having its upper end located adjacent to the outlet of a hopper, a non-magnetic carrier adapted to travel in close proximity to the face of said series of magnets and from said
20 hopper to a receptacle located beneath the last magnet of the series, and a blower adapted to force a current of air downwardly through the space between the carrier and the outlet of the hopper, and therefore through
25 the ore particles as they pass from the latter to the former.

For full comprehension, however, of my invention reference must be had to the accompanying drawings, forming a part of this
30 specification, wherein like symbols indicate the same parts, and in which—

Figure 1 is a longitudinal vertical section of a magnetic ore-separator constructed according to my invention and with the supporting-frame partly broken away; Fig. 2, a
35 plan view thereof.

The frame 5 may be of any approved design and constructed of any preferred material. A shaft 6 is mounted transversely of
40 this frame and has loosely hung therefrom, as at 7, a frame consisting, preferably, of a right-angled portion 8, supporting at its ends a series of preferably permanent magnets 9, arranged in the form of an arc and connected
45 together preferably by mounting them in a wooden section 9^a, having its ends rigidly secured to the ends of said frame-piece 8, the ends or poles of said magnets projecting through said wooden section and having the
50 faces of their ends flush with the outer surface thereof, while this magnet-carrying frame is maintained in the position shown in Fig. 1

by means of a counterpoise 10. A hopper 11 is mounted upon the frame and has its outlet-opening located adjacent to the upper-
55 most of the series of magnets.

The non-magnetic carrier that I prefer to use consists of a brass cylinder 12, rotatably mounted through roller-bearings 13 upon the shaft 6, concentrically of and inclosing the
60 series of magnets and with its inside face in close proximity to the poles of said magnets.

A blower operated from any available source is located, preferably, as at 14 and has its discharge-pipe 15 connected to a length
65 of pipe 16, slotted, as at 17, and extending above and parallel to the outlet-opening of the hopper and having its end closed and adapted to direct a current of air downwardly
70 through the magnetic and non-magnetic particles as they leave the hopper.

In the operation of my separator the particles of ore, magnetic and non-magnetic, running from the hopper, which has been presumably filled, will be precipitated against
75 the cylinder, where the magnetic particles will be held by the attractive force of the magnets, thus, owing to the weight of said magnetic particles, causing the cylinder to rotate and carry said particles to the receptacle 19 at the lower end of the series of magnets, where they will drop from the cylinder, while the non-magnetic particles will drop
80 directly into a receptacle 20, arranged below the outlet-opening of the hopper, the current of air from the blower meanwhile cleansing the particles as they leave the hopper of dust, chips, and other light non-magnetic particles.

What I claim is as follows:

1. A magnetic ore-separator comprising a
90 series of stationary magnets arranged in the form of an arc; a hopper located adjacent to said magnets; a rotatable carrier adapted to travel across the surface of and in close proximity to said magnets and intermediate of
95 same and said hopper, and said carrier being adapted to receive movement from the ore particles running from said hopper and adhering to said carrier.

2. A magnetic ore-separator comprising a
100 series of stationary magnets arranged in the form of an arc; a hopper located adjacent to said magnet; a rotatable carrier adapted to receive movement from the ore particles run-

ning from said hopper and to travel across the surface of and in close proximity to said magnets and intermediate of same and said hopper; and a blower adapted to direct a current of air between said hopper and carrier, for the purpose set forth.

3. A magnetic ore-separator comprising a series of stationary magnets arranged in the form of an arc; a hopper located adjacent to said magnets; a rotatable carrier adapted to travel across the surface of and in close proximity to said magnets and intermediate of same and said hopper, said carrier being adapted to receive movement from the ore particles running from said hopper and adhering to said carrier; and a blower adapted to direct a current of air between said hopper and carrier, for the purpose set forth.

4. A magnetic ore-separator comprising a frame; a shaft mounted in said frame; a series of magnets arranged in the form of an arc; means for suspending said magnets from said shaft; a counterpoise mounted at one end of said series of magnets; a carrier consisting of a non-magnetic cylinder mounted upon said shaft and adapted to receive movement from the ore particles running from said hopper and travel around and in close proximity to said series of magnets; and means for feeding the magnetic ore in granular form to said carrier, for the purpose set forth.

5. A magnetic ore-separator comprising a frame; a shaft mounted in said frame; a series of magnets arranged in the form of an arc; means for suspending said magnets from said shaft; a counterpoise mounted at one end of said series of magnets; a carrier consisting of a non-magnetic cylinder mounted upon said shaft and adapted to receive movement from the ore particles running from said hopper and to travel around and in close proximity to said series of magnets; means for feeding the magnetic ore in granular form to said carrier; and a blower adapted to direct a current of air through said ore while being fed to the carrier, for the purpose set forth.

6. A magnetic ore-separator comprising a frame, 5; a shaft, 6; a series of permanent magnets 9; right-angled frame 8; counterpoise 10; cylinder 12 adapted to receive movement from the ore particles running from said hopper; roller-bearings 13; hopper 11; blower 14; discharge-pipe 16; and receptacles 19 and 20; all arranged substantially as described and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GERALD JAMES CREAN.

Witnesses:

FRED. J. SEARS,
ARTHUR T. BAKER.