

(No Model.)

C. O. BARTLETT.
MAGNETIC SEPARATOR.

No. 349,422.

Patented Sept. 21, 1886.

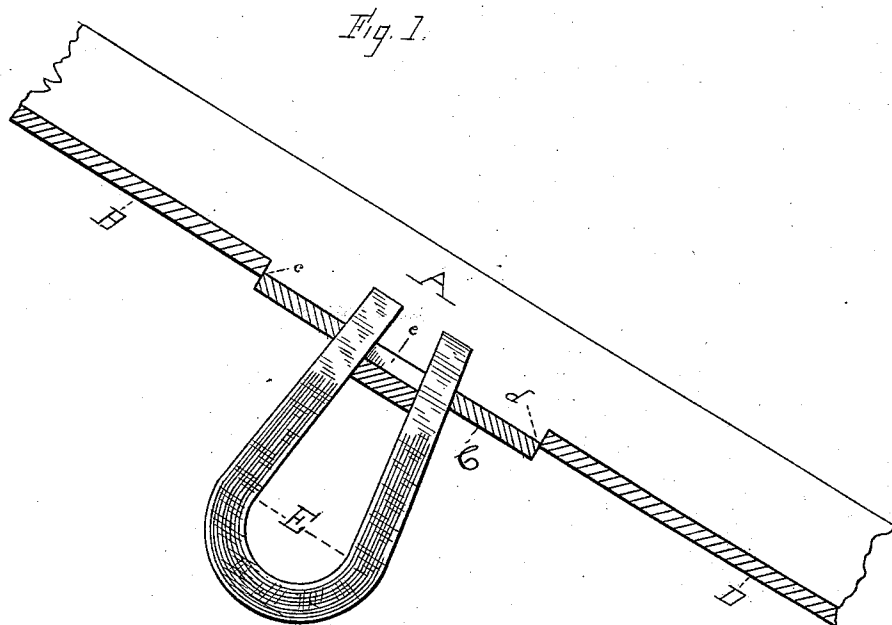
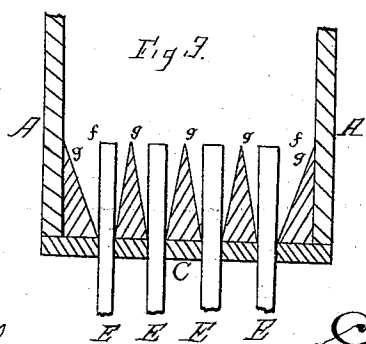
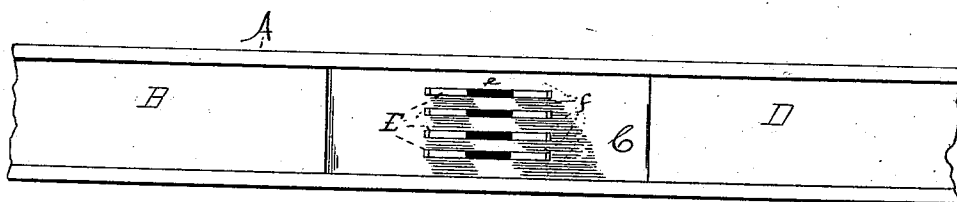


Fig. 2.



WITNESSES:

Jos. L. Hall
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MAGNETIC SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 349,422, dated September 21, 1886.

Application filed April 12, 1886. Serial No. 198,583. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. BARTLETT, a citizen of the United States, residing at Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Magnetic Separators; and I do hereby declare the following to be a description of the same, and of the manner of constructing and using the invention, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, forming a part of the specification, the principle of the invention being herein explained, and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention consists of a magnetic separator. It can be used in separating metallic particles from grain, or in clarifying other articles as they pass into a chute from one location to another, or are discharged from one receptacle into another.

In the drawings, Figure 1 is a vertical longitudinal section. Fig. 2 is a plan. Fig. 3 is a detail view, hereinafter referred to.

A are the side walls of the chute, and of any desired height. B, C, and D are distinct sections of the bottom of the chute. The chute being normally inclined, sections B and D are substantially in the same plane, and section C, located between the two latter, is depressed, so that its upper surface plane lies below the upper surface planes severally of sections B and D. Section B is at the receiving end of the chute, and section D is at the discharge end. The lower end of section B, as it meets the upper end of section C, forms the wall *c*, which may be either abrupt or sloping, as preferred. The upper end of section D, where it meets the lower end of section C, forms the wall *d*, which is preferably abrupt. Section C is provided with slots *e*, through which project upwardly the free ends of a series of horse-shoe magnets, E, whose connected ends project below the under surface of said section. Said free ends of the magnets project upwardly from the upper surface of section C for only a portion of the height of the sides A, thereby leaving a free space between the said ends of the

magnets and the common plane of the tops of the said sides. Free channels *f*, for the passage of grain, lie between the said series of the projecting free ends of the magnets, and also between each wall A and its contiguous magnet.

The operation of my invention as thus described is as follows: As the grain or other article enters upon the receiving-section B, any heavy or metallic substance in it would naturally tend to fall down over the wall *c* upon the depressed section C, and there be arrested by the magnets, and should such fallen substance happen to pass unarrested through channels *f* it would naturally be stopped at wall *d*; or, should any heavy substance pass over the tops of the free ends of the said magnets, there is still a probability of its falling to the surface of section C before it reaches wall *d*, and so be stopped by said wall. Any metallic substance mixed in with entering grain, whether falling at *c* or not, would be exposed to be arrested in its passage by the magnets; or, should it happen to pass them, it might afterward fall sufficiently to be stopped by wall *d*, and as such substances—metallic or otherwise—are stopped by the magnets or stopped by wall *d*, and so accumulate, they can be readily removed therefrom at any time by the temporary arrest for that purpose of the discharging substance. If desired, I may form a longitudinal convex partition, *g*, centrally located between each two magnets, so as to deflect the metallic particles in channels thereby formed between the magnets, and close to the latter, so that one magnet only of a pair may attract such metallic substances. Fig. 3 is a detail view in transverse section representing such a construction.

What, therefore, I claim is—

1. The combination, with a section of a chute provided with magnets, of an anterior section of the bottom of said chute, located in a plane passing over the plane of the magnet-section, substantially as set forth.

2. The combination, with a section of a chute provided with magnets, of a posterior section of the bottom of said chute, located in a plane passing over the plane of the magnet-section, substantially as set forth.

3. The combination, with a section of a

chute provided with upwardly-projecting magnets, said magnets projecting only partially between the upper surface of said section and the plane of the tops of the side walls of the chute, of a section anterior to the said magnet-section, and a section posterior to said magnet-section, said anterior and posterior sections located in planes passing over the plane of the said magnet-section, substantially as set forth.

4. The combination, with the intermediate section, C, of a chute, and magnets projecting upwardly through said section, of the two extreme sections B and D, located in planes passing over the plane of said intermediate section, and walls *c* and *d*, formed by the several junctions of sections B and D with section C, substantially as set forth.

5. A magnetic separator having three successive bottom sections, the two extremes of said sections being essentially in the same plane with each other, and the intermediate

section located in a corresponding plane depressed below the planes of the two other sections, said intermediate plane provided with inwardly-projecting magnets, substantially as set forth.

6. In a chute, the combination, with two bottom sections located in substantially the same plane with each other, and an intermediate bottom section connecting the same, the plane of said intermediate section being depressed below the plane of the two other said sections, of a magnet or magnets projecting upward through said depressed section, substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 1st day of April, A. D. 1886.

CHARLES O. BARTLETT.

Witnesses:

T. B. HALL,
JNO. G. HALL.