J. JOHNSON.

MAGNETIC MACHINE FOR SEPARATING IRON FROM BRASS TURNINGS AND FILINGS.

No. 68,205. Patented Aug. 27, 1867.

Fig: 1.

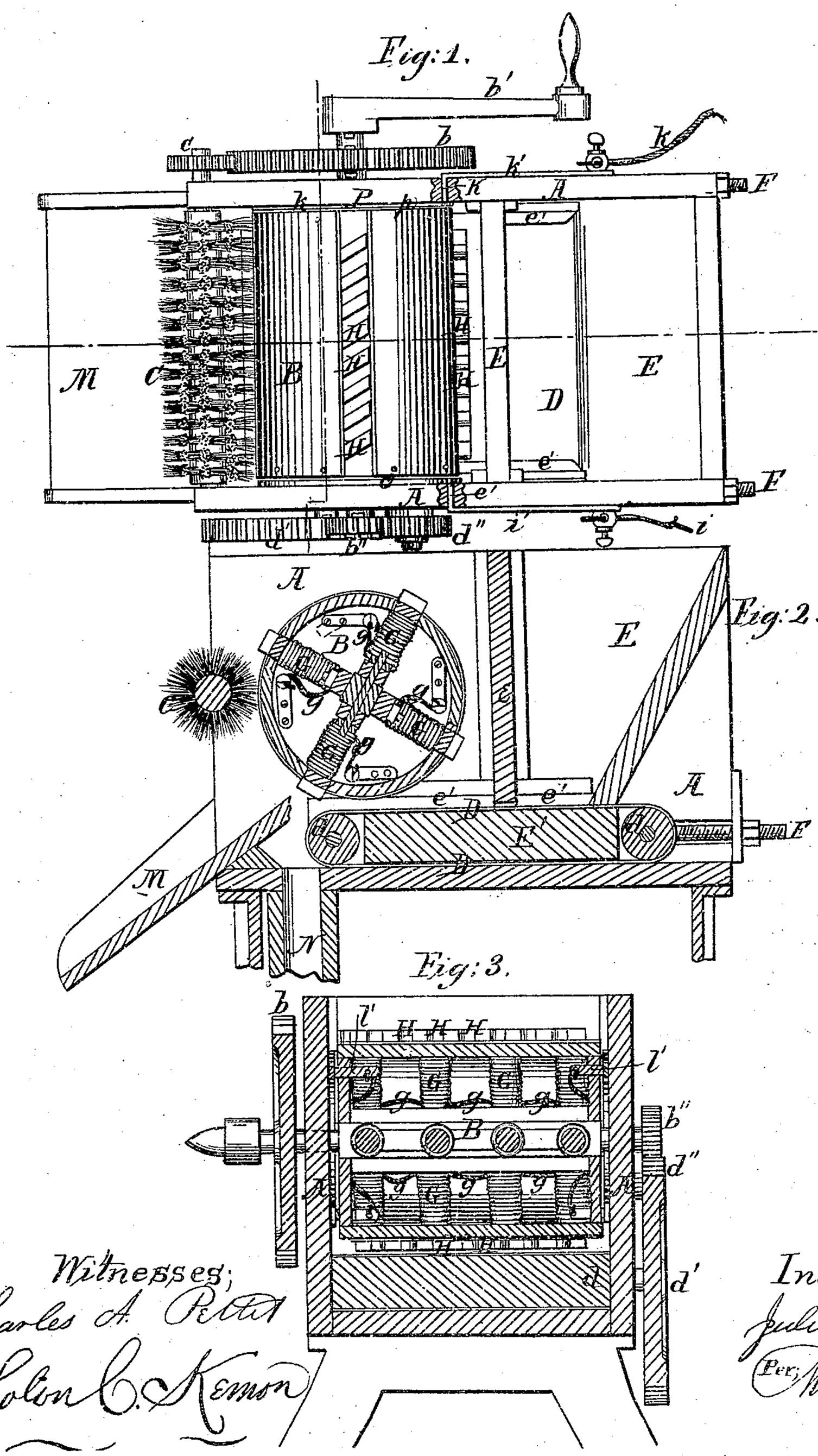

Fig: 2.

Fig: 3.

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JULIUS JONSON, OF BALTIMORE, MARYLAND, ASSIGNOR TO GUSTAVUS JONSON AND H. L. FRANK, OF SAME PLACE.

Letters Patent No. 68,205, *dated August* 27, 1867.

IMPROVEMENT IN MAGNETIC MACHINE FOR SEPARATING IRON FROM BRASS TURNINGS AND FILINGS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JULIUS JONSON, of the city and county of Baltimore, and State of Maryland, have invented a new and improved Machine for Cleaning Brass Turnings and Filings; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents a top view of my invention.

Figure 2 represents a longitudinal vertical section of the same.

Figure 3 shows a horizontal section of the same.

Similar letters of reference indicate corresponding parts in the several figures.

In this invention the iron turnings are separated from the brass by means of revolving magnets. In all large machine-shops a great deal of valuable brass is lost by being mixed, in the shape of chips, shavings, filings, &c., with scraps or filings of iron, so that it is almost impossible to separate them. Small magnets are sometimes employed by hand for the purpose, but this process is slow and its work necessarily imperfect. I have previously patented a machine for accomplishing the purpose much more expeditiously and economically. This invention is designed to accomplish the same result, but in a more perfect manner.

In order that others skilled in the art to which my invention appertains may be enabled to make and use the same, I will proceed to describe it in detail.

In the drawings, A A represent the frame of the machine. B is a revolving cylinder, having journals bearing in boxes in the sides of the frame, and its shaft terminating at one extremity in the cog-wheel *b* and crank *b'*, and at the other extremity in the cog-wheel *b''*. C is a revolving brush, on a shaft which receives motion from the cylinder-shaft B by means of a small pinion, *c*, working in the cog-wheel *b*. The brush is so situated that when the cylinder B and brush C are put in motion by power applied at the crank *b'*, it sweeps the surface of the cylinder and removes all dust or other matter that may have collected thereon. Under and in the rear of the cylinder, working on rollers *d d*, is the endless apron D, extending from the rear side of the hopper or feed-box E to a point a little forward of the centre of the cylinder B, and put in motion by the pinion-wheel *d'* and idler *d''*, working in the cog-wheel *b''* attached to the cylinder-shaft. The hopper E is placed over the end of the apron D, and its front side *e* comes down very close to the apron, leaving just space enough between for the proper amount of filings or turnings to be regularly carried from the hopper to the cylinder upon the apron. The side *e* is made to slide vertically, for convenience in cleaning the machine, and to adapt the hopper to the different sizes of material that may be used. Guards *e' e'* along the edges of the apron, and fitting closely down upon it, are provided, to keep the turnings from falling off the sides of the apron or wedging between it and the frame. A flat table or bed, E', is stationed within the revolving-apron, for the purpose of supporting it with its load of turnings during the operation of the machine. F F are set-screws, which regulate the tension of the apron D, being connected with the journal-boxes of its rear roller *d*. The cylinder B is hollow, having a central shaft. Attached to this shaft are sets of electric helices G G, connected with magnets H H on the surface of the cylinder, arranged in parallel rows along its entire length, one helix to each magnet. The magnets are constructed with rectangular or parallelopiped faces, and are inclined obliquely across their direction of revolution, so that while there are wide spaces between them they together sweep over the whole surface occupied by the filings on the apron beneath them, and come in contact with every particle of metallic dust upon that surface. I incline the faces of each series or row of magnets in opposite directions to those of the row next preceding and following it, by which the filings are agitated thoroughly, first being thrown in one direction and then in the other, so as to bring all the chips or dust in contact with the magnets. All the helices of each set are connected by wires *g g*, and the magnets are connected by the bar upon which they are supported. The ends of the cylinder are of dry wood or other non-conducting substance. Between the frame A and one end of the cylinder is a circular plate, O, of some conducting material, such as brass or iron, which is connected with one pole of the battery by the rod *i'* and wire *i*. Between the opposite end of the cylinder and the frame A is another circular plate, P, made in two parts, one a semicircle, *p*, of high conducting power, and

the other a semicircle, p', of some non-conducting material. The conducting semicircle is put in communication with the other pole of the battery by the rod K′ and wire K. Arms of brass or other conducting substance, $l\,l'$, project through the wooden ends of the cylinder so as to nearly or quite touch the circular plates O P, and are connected with each other and with the helices G G by means of the wires $g\,g$.

In an apparatus of this construction the electric circuit is complete from the wire K to the wire i only when the arm l' is opposite to the conducting semicircle p, and is broken when the arm l' is opposite to the other semicircle, p'. The circuit is therefore broken once and completed once in every revolution of the cylinder B. The magnets H H are therefore rendered powerfully active once each during such revolution, and during the remainder of the revolution are deprived of their magnetism. The point at which they receive the magnetism is arranged so that they shall become active just as they reach the brass and iron turnings moving towards the cylinder on the apron D, and shall continue active until they nearly reach the brush C. As they become magnetized, all the iron among the mass moving on the apron will adhere to them, and be carried around almost to the brush, when, as the magnets lose their power by the stoppage of the electric current, they will drop into the spout M and be discharged. The brass turnings, not being attracted by the magnets, will pass along with the apron D, and be delivered from it into the side spout N.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the helices G G, magnets H H, wires $g\,g$, and rods i' K′, in connection with the plate O and the plate P, substantially as and for the purpose described.

2. I claim the arrangement of the magnets H H, with their faces in a position inclined obliquely across their direction of revolution, substantially as and for the purpose specified.

JULIUS JONSON.

Witnesses:

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