

J. GREAVES.  
DEMAGNETIZER.

No. 384,152.

Patented June 5, 1888.

Fig. I

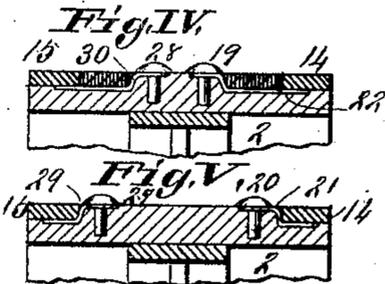
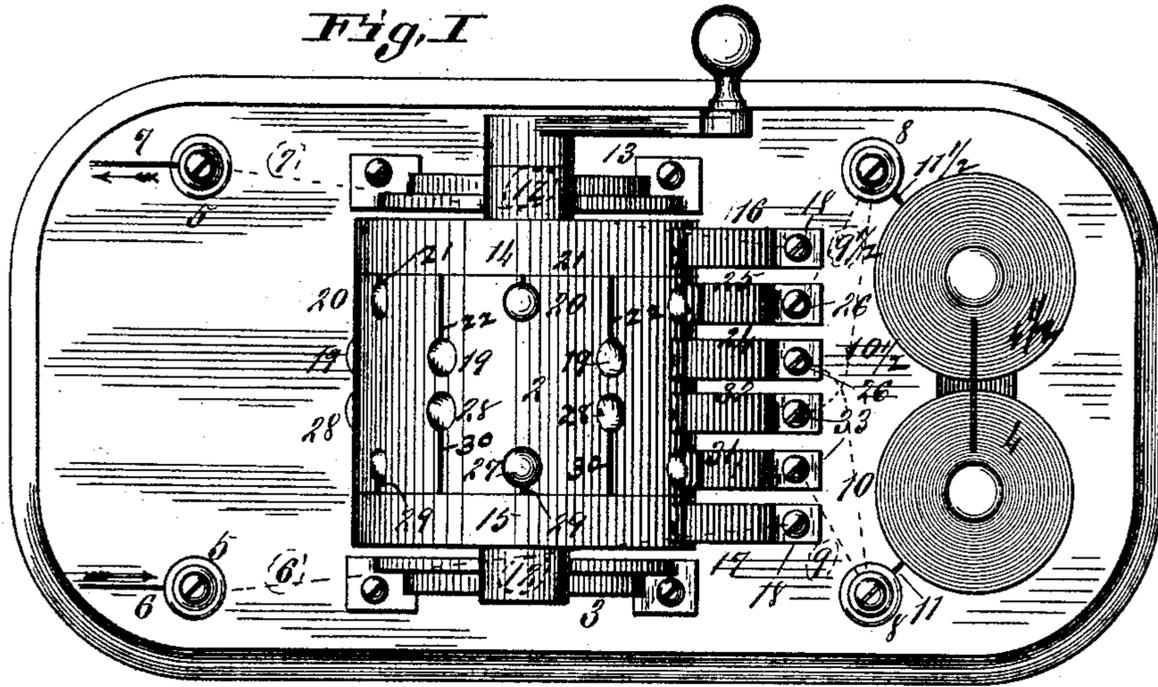


Fig. II

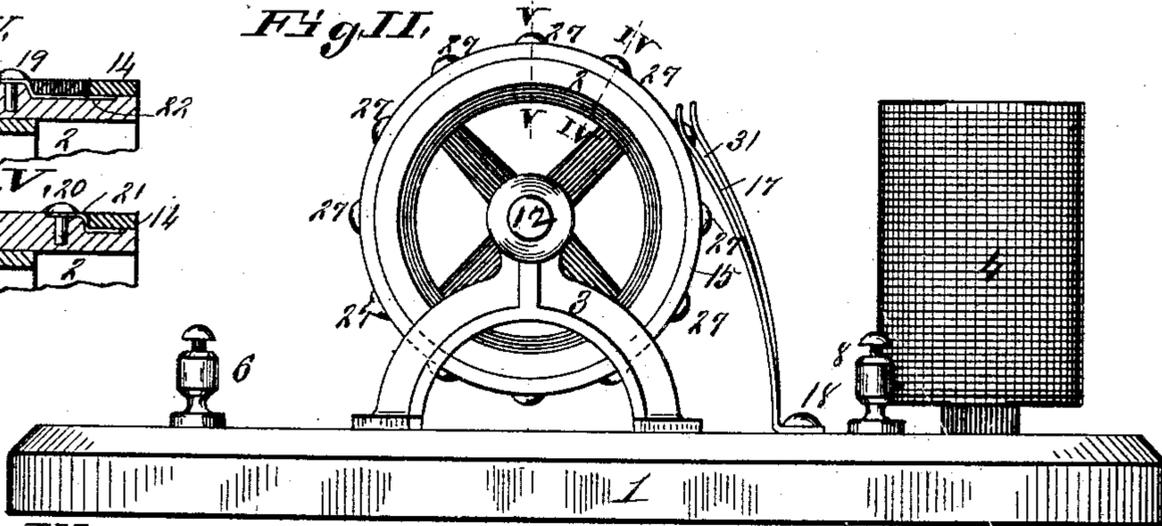
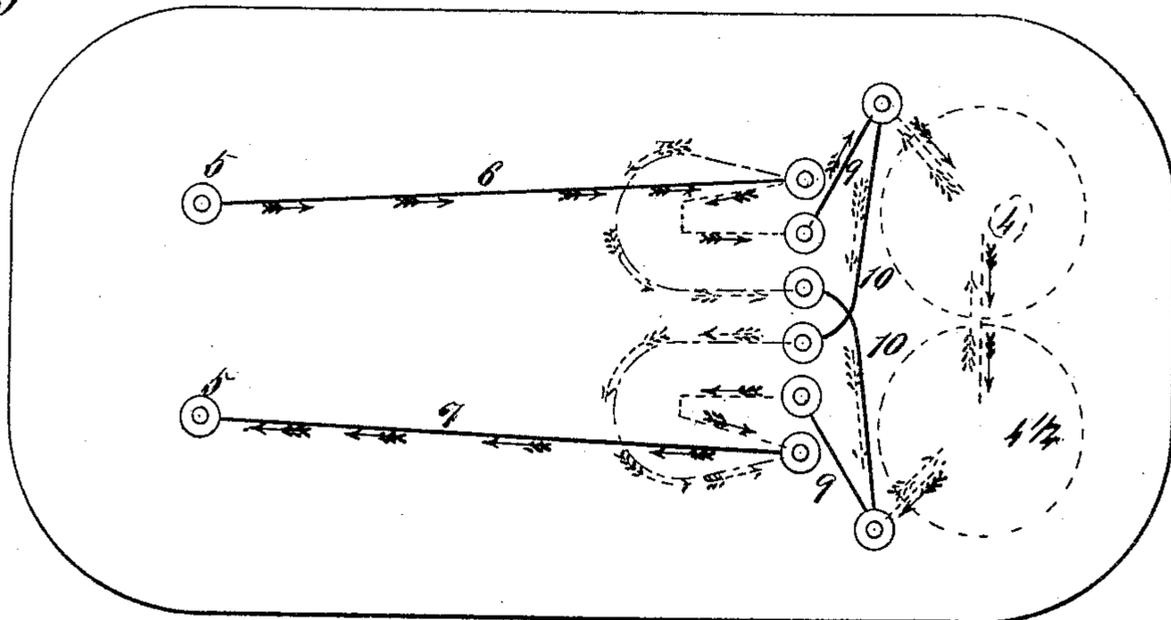


Fig. III



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(No Model.)

2 Sheets—Sheet 2.

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Fig. VI.

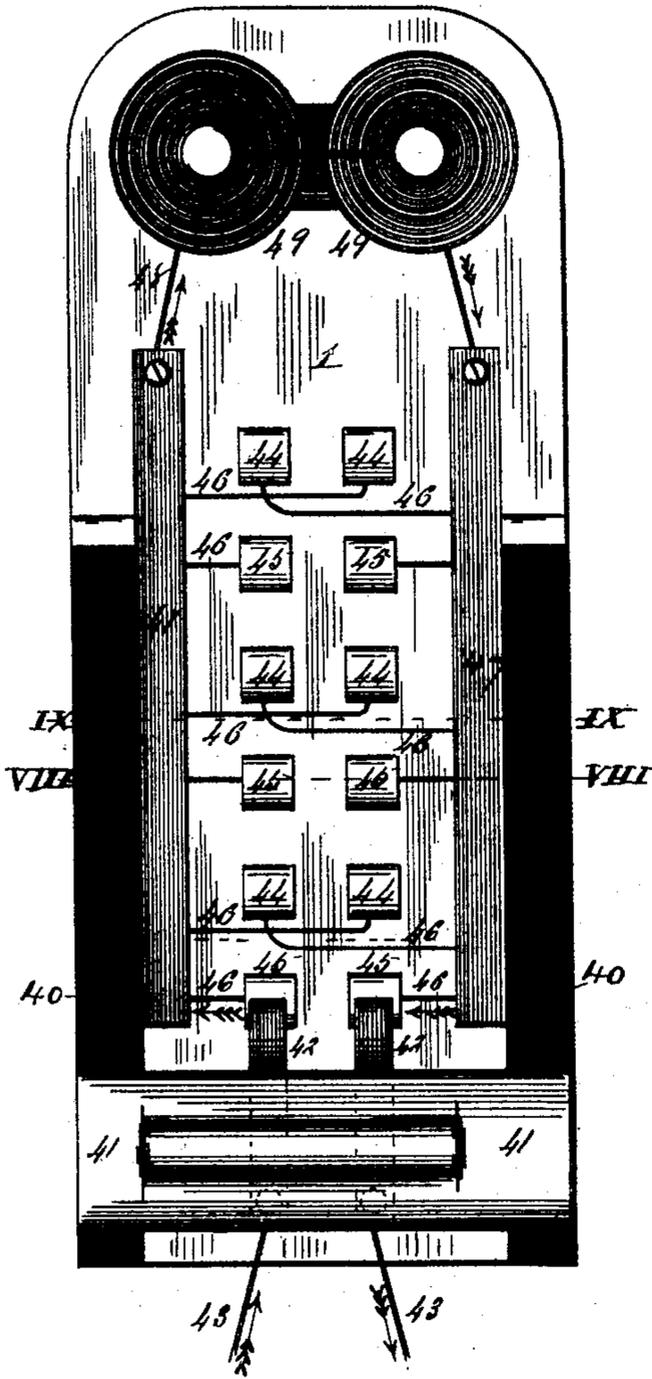


Fig. VII.

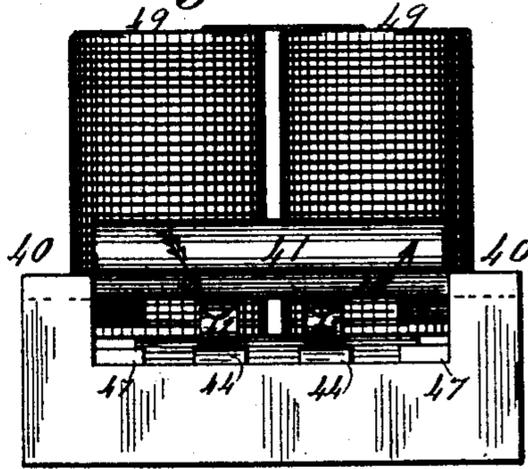


Fig. VIII.

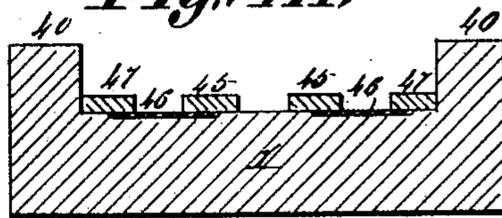
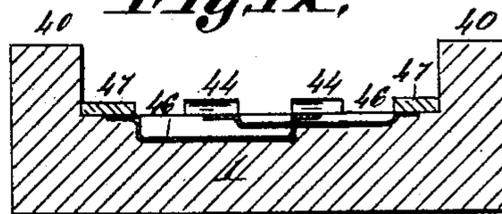


Fig. IX.



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# UNITED STATES PATENT OFFICE.

JOHN GREAVES, OF ST. LOUIS, MISSOURI.

## DEMAGNETIZER.

SPECIFICATION forming part of Letters Patent No. 384,152, dated June 5, 1888.

Application filed August 15, 1887. Serial No. 246,988. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN GREAVES, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Demagnetizers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

10 Figure I is a top or plan view of my improved device. Fig. II is a side elevation. Fig. III is a bottom view. Figs. IV and V are detail sections taken, respectively, on lines IV IV and V V, Fig. II. Figs. VI to IX, inclusive, represent one modification of my preferred form of device, Fig. VI being a top view, Fig. VII an end view, and Figs. VIII and IX transverse sections taken on lines VIII VIII and IX, Fig. VI.

20 My invention relates to a device for demagnetizing articles—such, for instance, as watches and other time-pieces, or other things or articles that may become magnetized; and my invention consists in features of novelty, herein-  
25 after fully described, and pointed out in the claims.

Referring to the drawings, 1 represents a base supporting a drum or cylinder, 2, on standards 3 and magnets 4 and 4 $\frac{1}{2}$ . It also  
30 supports binding-posts 5, for holding the battery-wires 6 7, and like binding-posts, 8, for holding wires 9 9 $\frac{1}{2}$ , 10 10 $\frac{1}{2}$ , 11 and 11 $\frac{1}{2}$ , which lead from the brushes to the magnets. The cylinder 2 is provided with journals or arbors  
35 12, which fit in the upper ends of the standards 3, and one of the journals is provided with a crank, 13, by which the cylinder may be turned. The body of the cylinder is preferably made of some non-conducting material,  
40 and at its ends it is provided with rings 14 and 15.

16 17 represent brushes secured to the base 1 at 18, and bearing, respectively, upon the rings 14 and 15. (See Fig. I.)

45 19 20 represent two rows or series of pins arranged on the outer surface of the drum or cylinder, the pins 20 having electrical connection with the band or ring 14 by means of narrow plates or wires 21. (See Fig. V.) The  
50 pins 19 are likewise connected electrically with the ring 14 by means of narrow plates or wires 22. (See Fig. IV.)

24 and 25 represent brushes secured at 26 to the base 1, and whose free ends bear, respectively, against the pins 19 and 20 as the cylinder or drum is turned. 55

27 and 28 represent rows of pins arranged on the surface of the drum or cylinder at the opposite end to the rows 19 and 20, the pins 27 having electrical connection with the band  
60 or ring 15 by means of narrow plates or wires 29, (see Fig. V,) and the pins 28 having like connection by means of narrow plates or wires 30. (See Fig. IV.)

31 and 32 represent brushes secured at 33 to  
65 the base 1, and whose free ends bear, respectively, against the pins 27 and 28 as the cylinder or drum is turned.

The wire 6 extends from the post 5 to the point 18, where the brush 17 is connected to  
70 the base, and the wire 7, leading to the battery, extends from the post 5 to the point of connection between the brush 16 and the base.

The object of the construction I have described is to get a reverse current through the  
75 magnets, in close proximity to which the article to be demagnetized is held and from which it is gradually removed.

The operation of the device is as follows: The current passes through the wire 6 to the  
80 brush 17; from the brush 17 to the ring 15; from the ring 15 to one of the pins 27. (We are presuming now that the cylinder is turned, so that the brushes 25 and 31 are bearing  
85 against one set of the pins 20 and 27, as shown in Fig. I.) The current then passes through the pin 27, upon which the brush bears, through such brush 31, then through the wire 9, binding-post 8, and wire 11 to the magnet 4. From  
90 the magnets it passes on through the wire 11 $\frac{1}{2}$ , (on the other side of the device,) through the binding-post 8, through the wire 9 $\frac{1}{2}$ , out through the brush 25, through the pin 20, upon which  
95 such brush bears, to the ring 14; from the ring 14 to the brush 16 and from the brush 16 out through the wire 7 to the battery. As the operator continues to turn the cylinder the brushes 25 and 31 would leave the pins  
100 20 and 27, and before they come against the next two pins of these rows the brushes 24 and 32 will come against two of the pins, 19 and 28, and as they do the current passes from the ring 15 to the pin 28, on which the brush 32 bears, through this brush to the

wire 10 $\frac{1}{2}$ , and from the wire 10 $\frac{1}{2}$ , through wire 11 $\frac{1}{2}$ , to the magnet 4 $\frac{1}{2}$ , (instead of to the magnet 4, as in the other instance, the wire 10 $\frac{1}{2}$  crossing over to the opposite binding-post from that to which the wire 9 passes, as shown by dotted lines in Figs. I and III.) The current then passes out through the wires 11 on the other side of the machine from which it enters, through the post 8, through the other wire, 10, up the brush 24 to the pin 19, upon which such brush bears, and from here it passes to the ring 14, thence through the brush 16, and by way of the wire 7 to the battery. As the cylinder is turned these operations are repeated. First, the electric current passes through the magnets from 4 to 4 $\frac{1}{2}$  and from 4 $\frac{1}{2}$  to 4, or, in other words, passes alternately in reverse directions, as explained, and as the cylinder is turned the article to be demagnetized is held close to the magnets, as stated, and is gradually withdrawn, the cylinder of course having been turned sufficiently to cause several reversals in the current before the watch or other article is removed from the influence of the magnets, the result being that the articles are demagnetized.

In Figs. VI to IX, inclusive, I have shown one modification of my preferred form of construction, which is, however, susceptible of being further modified, so far as the mechanical arrangement is concerned. In the modification I have shown, the base is provided with tracks 40 of non-conducting material, upon which moves a carriage or slide, 41, carrying brushes or fingers 42, and to which the battery-wires 43 are made fast.

44 and 45 represent pins or projections on the base 1, and which are connected by wires 46 to plates 47, connected by wires 48 to the magnets 49. It will be seen that the wires 46 of the pins or projections 44 cross the wires of the pins on one side of the device, passing to the plate on the other side of the device, while the wires of the pins or projections 45 are not crossed, but pass to their nearest plates. Now, as the carriage or slide 41 is moved back and forth, the brushes or fingers 42 bear upon the projections 44 45, and each time it passes from one set of projections to the other the current will be reversed, as in my preferred form of construction.

A device constructed according to my invention is inexpensive, simple, and durable, and is effectual in performing the functions for which it is intended.

The course of the currents is shown by arrows in Fig. III.

I claim as my invention—

1. In a demagnetizer, in combination with the magnets and wires, the brushes and a series of pins upon which the brushes bear, said pins being connected with opposite terminals of the magnet, and the alternate pins only be-

ing connected with the same terminal of the magnet, whereby the current is reversed or alternated through the magnets, substantially as set forth.

2. In a demagnetizer, in combination with the magnets and wires, the brushes and cylinder provided with rings and pins upon which the brushes bear, and connection between the rings and pins, the whole being arranged in such a manner that the current is reversed or alternated in the magnets as the cylinder is turned, substantially as and for the purpose set forth.

3. In a demagnetizer, in combination with the magnets and wires, the brushes and cylinder, the latter being provided with means for turning it, and with rings upon which two of the brushes bear, and also being provided with series of pins 19, 20, 27, and 28, upon which the brushes bear, all substantially as and for the purpose set forth.

4. In a demagnetizer, the combination, with an electro-magnet having two terminals and with the primary conducting-wires, of contact-brushes connected with said wires, a series of contact-points arranged in pairs and adapted to contact with said brushes, each pair of points being connected with both of said terminals, and the alternate points only being connected with the same terminal of the magnet, substantially as set forth.

5. The combination, with the primary wires 6 7 and an electro-magnet, of a revoluble cylinder, peripheral conductors on said cylinder insulated from each other, contacts bearing upon said peripheral conductor and connected with said wires 6 7, two pairs of commutator-brushes, each pair being connected with both terminals of the magnet, and the brushes of opposite sign being connected to the same terminal, and a row of contact-points for each brush connected with the peripheral conductors and adapted to meet said brushes in pairs alternately.

6. In a demagnetizer, the combination of the electro-magnets having two terminals, the brushes 24, 25, 31, and 32, arranged in pairs, wires 9 10, connecting one brush of each pair with one terminal of the magnet, and wires 9 $\frac{1}{2}$  10 $\frac{1}{2}$ , connected one brush of each pair with the opposite terminal, a revoluble cylinder provided with a crank and composed of non-conducting material, conducting-rings 14 15 on said cylinder, battery-wires 6 7, having connection with said rings, and two rows of contact-pins, 19 20 and 27 28, connected with rings 14 15, respectively, and the pins connected with each ring adapted to contact alternately with brushes of like sign.

JOHN GREAVES.

In presence of—

GEO. H. KNIGHT,  
EDW. S. KNIGHT.