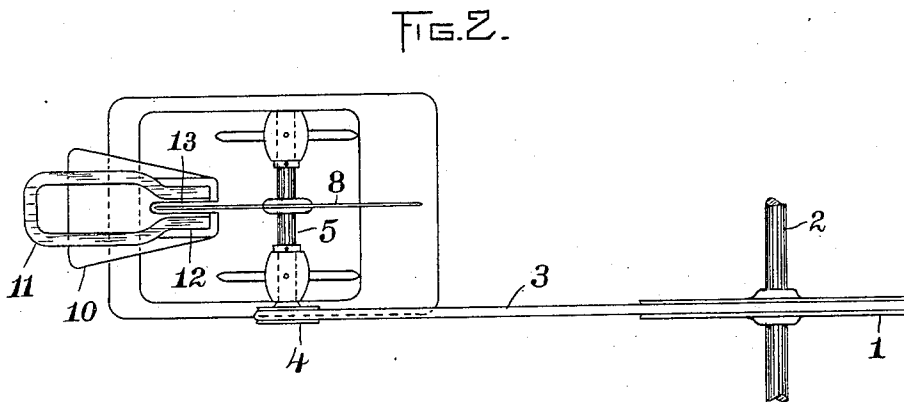
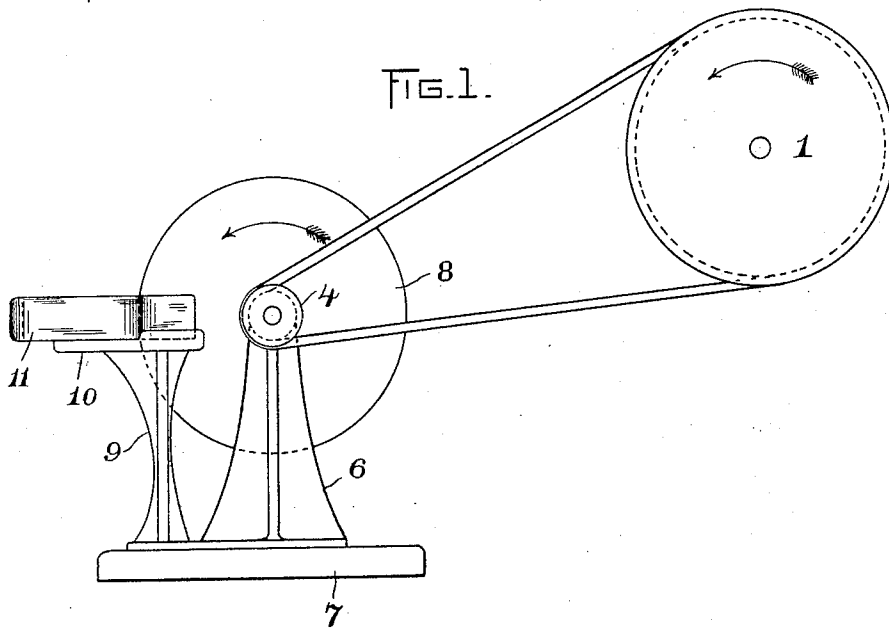


(No Model.)

F. P. COX.
METHOD OF AGING PERMANENT MAGNETS.

No. 558,045.

Patented Apr. 14, 1896.



WITNESSES.

Henry Westergaard
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INVENTOR-

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UNITED STATES PATENT OFFICE.

FRANK P. COX, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE GENERAL ELECTRIC COMPANY, OF NEW YORK.

METHOD OF AGING PERMANENT MAGNETS.

SPECIFICATION forming part of Letters Patent No. 558,045, dated April 14, 1896.

Application filed February 21, 1896. Serial No. 580,158. (No model.)

To all whom it may concern:

Be it known that I, FRANK P. COX, a citizen of the United States, residing at Lynn, county of Essex, and State of Massachusetts, have invented certain new and useful Improvements in the Method of Aging Permanent Magnets, of which the following is a specification.

This invention relates to the aging of permanent magnets, and has special reference to the aging of permanent magnets employed in wattmeters, particularly of the type of recording wattmeters set forth in patent to E. Thomson, dated March 24, 1891, No. 448,894. It is essential that permanent magnets used in such wattmeters and in other electrical instruments should possess the character of permanency of charge in order that the indications or working of such instruments can be relied upon. To obtain this, it is necessary to take out the loose magnetism from the magnet, which has been accomplished by boiling.

This invention contemplates obtaining this result by revolving an electrical conductor in the field of the magnet, thereby reducing the flux and rendering permanent the flux that remains by cutting the lines of force with the revolving electrical conductor.

To illustrate means for carrying out the invention, an apparatus therefor is shown in the accompanying drawings, in which—

Figure 1 shows the driving-pulley connected by an endless belt with a pulley and shaft on which is mounted a copper disk, or its equivalent, projecting between the poles of a permanent magnet mounted and secured in a suitable supporting-frame. Fig. 2 is a plan view of the apparatus shown in Fig. 1.

1 indicates a driving-pulley connected with a suitable source of power by means of the shaft 2, and also connected by means of the endless belt 3 with the pulley 4 on the end of the shaft 5, having its bearings in suitable supports 6, mounted on a base 7. Upon the shaft 5 is also mounted a copper disk 8, and at one end of the base 7 is mounted a supporting-frame 9, having at its top a clamping-table 10, in which may be secured a permanent magnet 11, the poles 12 of which lie adjacent to a slot 13 in the table 10. The slot 13 is located adjacent to and at such a distance from the shaft 5 as to have located within the slot

13 and adapted to revolve therein the outer part of the copper disk 8. By means of this apparatus the magnet 11 is secured in place and can be aged by revolving the copper disk 8, operated by means of the driving-pulley 1.

The permanent magnet 11 having been secured on the table 10 with the copper disk 8 projecting between its poles 12, upon revolving the copper disk 8 by means of the driving-pulley 1 and its connections the lines of force are cut by means of the revolution of the copper disk 8 and the loose magnetism in the magnet 11 is removed, the desired per cent. of its flux being removed according to the speed of revolution of the copper disk 8. In this way the permanent magnet 11 is aged, and, afterward being placed in a wattmeter of the type heretofore referred to, is unaffected by the rotation of the copper disk in said wattmeter, and the indications and working of such wattmeter can be relied upon.

It is understood that the copper disk 8 may be replaced by a closed winding or the magnet 11 can be so mounted as to be revolved instead of the disk 8, the result being the same. Suitable stops may be provided on the table 10 to hold the magnet in place.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The method of aging magnets, which consists in reducing the flux in the magnet and causing the flux remaining therein to be permanent, by cutting the lines of force in the magnet through the revolution of an electrical conductor in the field of said magnet.

2. The method of aging magnets which consists in revolving an electrical conductor in the field of a permanent magnet thereby cutting the lines of force, reducing the flux, and causing the remaining flux to be permanent.

3. The method of removing the loose magnetism from a permanent magnet, which consists in revolving an electrical conductor in the field of a permanent magnet thereby cutting the lines of force, reducing the flux, and causing the remaining flux to be permanent.

In witness whereof I have hereunto set my hand this 19th day of February, 1896.

FRANK P. COX.

Witnesses:

JOHN W. GIBBONEY,

HENRY O. WESTENDARP.