(No Model.)

W. STANLEY.

MAGNETIC BRAKE.

No. 590,777. Patented Sept. 28, 1897.

Fig. 1.

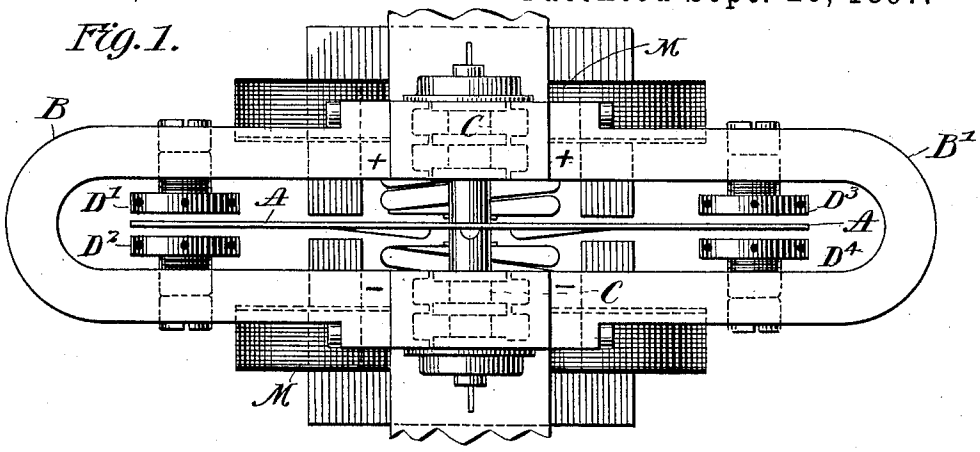
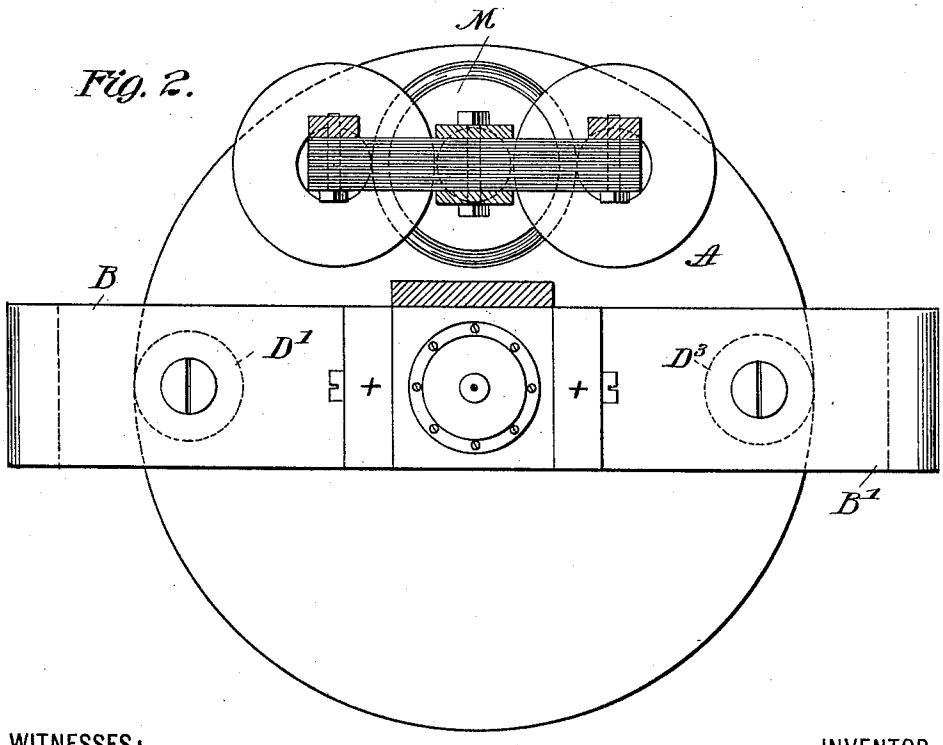


Fig. 2.



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UNITED STATES PATENT OFFICE.

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MAGNETIC BRAKE.

SPECIFICATION forming part of Letters Patent No. 590,777, dated September 28, 1897.

Application filed July 31, 1897. Serial No. 646,602. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STANLEY, a citizen of the United States, residing at Pittsfield, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Magnetic Brakes, of which the following is a full, clear, and exact description.

My invention relates more particularly to a magnetic brake, in which a metallic disk is made to rotate in a magnetic field, which sets up currents in the disk, acting to retard its rotation, and has for its objects to furnish a simple and effective means of varying the retarding effect by varying the strength of the magnetic field acting upon the rotating disk and also to make a compact and effective device. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of an apparatus embodying my improvements in magnetic brakes. Fig. 2 is a plan view of the same.

In connection with both of the views there is shown a portion of the coils, cores, and framework of a meter M.

Referring to the drawings, A represents a metallic disk about which are the permanent magnets B B′. These magnets B B′ have their north and south poles opposite to each other, so as to produce consequent poles at the center, from which the lines of force radiate to magnetic disks upon a central magnetic shaft C, which is sustained thereby. In addition to these consequent poles these magnets B B′ have additional intermediate poles, which act upon said disk A at a considerable distance from the shaft C, which supports it. These intermediate poles are formed by adjustable projections $D' D^2 D^3 D^4$, each of which consists of a magnetic disk having a magnetic screw-threaded shank which engages with a screw-threaded recess in arms of the magnets. Two of these disks are directly opposite to one another, with the result that some of the lines of force of the magnet pass from one to the other, forming between them a magnetic field. Each screw-threaded shank has a notch by means of which it can be easily turned with a screw-driver, so as to move it toward or away from the plane in which the disk A revolves. By this movement in a direction vertical to the plane of the disk the gap between the two faces of the intermediate polar projections can be increased or diminished and the strength of the field lying between them varied accordingly. I have shown this adjustable feature of my invention in connection with a magnet which has consequent poles and magnetically suspends the disk acted upon. I do not, however, intend to imply that it cannot be equally well used with a braking-magnet which does not have such consequent poles. The vertical adjustment can be equally well applied to braking-magnets whose only function is to produce a flux for the purpose of retarding the disk. It will, however, be seen that my invention has peculiar advantages in connection with the apparatus in which the retarding-disk is magnetically suspended, as the suspending-magnet can be thus made to supply all the magnetic flux which is necessary for the purpose of suspension and retardation, and the latter flux can be easily adjusted without interfering with the other features of mechanism.

What I claim is—

1. A magnetic brake, consisting of a permanent magnet having a stationary body portion, a metallic disk rotating in the field thereof, said magnet having polar projections, adjustable in a direction vertical to the plane of said disk, substantially as described.

2. A magnetic braking device, the combination of a permanent magnet having a stationary body portion, means for varying the air-gap between its polar projections, and a metallic disk lying in the field between said poles and free to revolve therein, substantially as described.

3. In a magnetic braking device the combination of a metallic disk free to revolve, and a permanent magnet producing a field within which said disk lies, said magnet having polar projections independently adjustable toward and away from the plane of said disk, substantially as described.

4. The combination of a permanent magnet having consequent poles, a metallic disk magnetically supported by the flux from said consequent poles, intermediate projections from said magnet forming intermediate poles at a considerable distance from the support-

ing-shaft of said disk, and acting upon said disk to retard its motion, substantially as described.

5. The combination of a permanent magnet, having consequent poles, a metallic disk magnetically supported by the flux from said consequent poles, intermediate projections from said magnet forming intermediate poles at a considerable distance from the supporting-shaft of said disk, said intermediate projections being adjustable in a direction vertical to the plane of said disk, substantially as described.

Signed at Pittsfield, in the county of Berkshire and State of Massachusetts, this 29th day of July, 1897.

WILLIAM STANLEY.

Witnesses:
I. D. FERREY,
GEO. H. COOPER.