UNITED STATES PATENT OFFICE.

HARRY F. STRATTON, OF CLEVELAND, OHIO, ASSIGNOR TO THE ELECTRIC CONTROLLER & MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

ALTERNATING-CURRENT MAGNET.

1,331,290. Specification of Letters Patent. Patented Feb. 17, 1920.

Application filed October 14, 1918. Serial No. 257,937.

To all whom it may concern:

Be it known that I, HARRY F. STRATTON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Alternating-Current Magnets, of which the following is a specification.

My invention relates to alternating current magnets, and more particularly to means and methods of preventing the chattering of the armatures of such magnets on their pole faces.

It is necessary that there be intimate and unyielding engagement between the armature and the pole-faces of an alternating current magnet when they are in the closed position. Chattering will occur and increase to a dangerous extent if intimate and continuous engagement between these parts does not exist; and, in addition, the current taken by the armature-operating winding will increase as the air-gap between the armature and pole-pieces becomes appreciably large. The current may under such a condition increase to such an extent that the winding will be burned out. Therefore, it is necessary, not only from the standpoint of quiet running and absence of vibration or chattering, but also of preventing the winding from becoming overheated, that the armature of alternating current magnets should engage their pole-faces intimately and accurately. It is difficult to secure intimate and accurate engagement of the armature and pole-faces of such magnets without very expensive machine work. It has required as much time as two hours to adjust the main operating magnet shown on my Patent, No. 1,225,687, granted May 8, 1917, so that it becomes noiseless when attached to the compensator frame as indicated in the said patent. It is the object of the present invention to provide a very cheap, simple, and efficient means and method whereby the time required for such adjustments may be greatly reduced and an intimate and accurate engagement may be brought about and maintained between the armatures and the pole-faces of alternating current magnets.

Referring to the accompanying drawing which shows substantially the main magnet disclosed in my said patent, Figure 1 is a side view with parts in section illustrating one form of my invention, and Fig. 2 is a rear or right-hand elevation of Fig. 1. Fig. 3 is a view similar to Fig. 1 but with the armature loosely mounted on the frame 7.

1 designates the armature of an alternating current magnet, pivoted on the pin 2 beneath its lower end. 3 is the U-shaped magnet core, having the pole-faces 4 arranged to be engaged by the adjacent face of the armature. 2^a being the energizing winding on the lower leg of the core. It has the metal strips 5 welded to its back surface. These strips have their back faces machined so as to be as nearly as possible parallel with the pole-faces 4. These back faces lie against the machined surfaces 6 on the front of the base or frame 7.

The studs 8 extend through the frame 7 and are screwed into tapped holes in the strips 5. The nuts 9 on the outer ends of the studs are screwed into engagment with the back of the frame 7 to secure the core 3 in place. The metal plate 10 has the holes 11 arranged to be received by the studs 8. This plate with the studs 8 in the holes 11 is placed just back of the nuts 9, as shown on Fig. 1. The nuts 12 on the studs 8 are screwed down tightly against the outer face of the plate to lock the studs 8 and the nuts 9 from accidentally turning.

The nuts 9 being drawn up tightly against the frame 7, current is applied to the magnet winding 2^a, which causes the armature 1 to be drawn against the pole-pieces 4. If the magnet is silent, the nuts 12 are tightened up against the plate 10, clamping the studs 8, the plate 10, and the nuts 9 and 11 into a relatively fixed relation, and thereby preventing any change in the adjustment of the pole-pieces 4 with respect to the armature 1. If, however, the magnet chatters when current is first admitted to the winding, one of the nuts 9, sometimes the upper and sometimes the lower one, is first loosened until the magnet becomes quiet. Occasionally, it is necessary to loosen both nuts 9 to make the magnet quiet. When the adjustment of one or both of the nuts 9 has made the magnet noiseless, the nuts 12 are tightened the same as if no adjustment had been required. I found that the precise amount the nuts 9

C. E. BROWN.

AUTOMATIC CONTROLLING DEVICE FOR ELECTRIC CIRCUITS.

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3 SHEETS—SHEET 1.

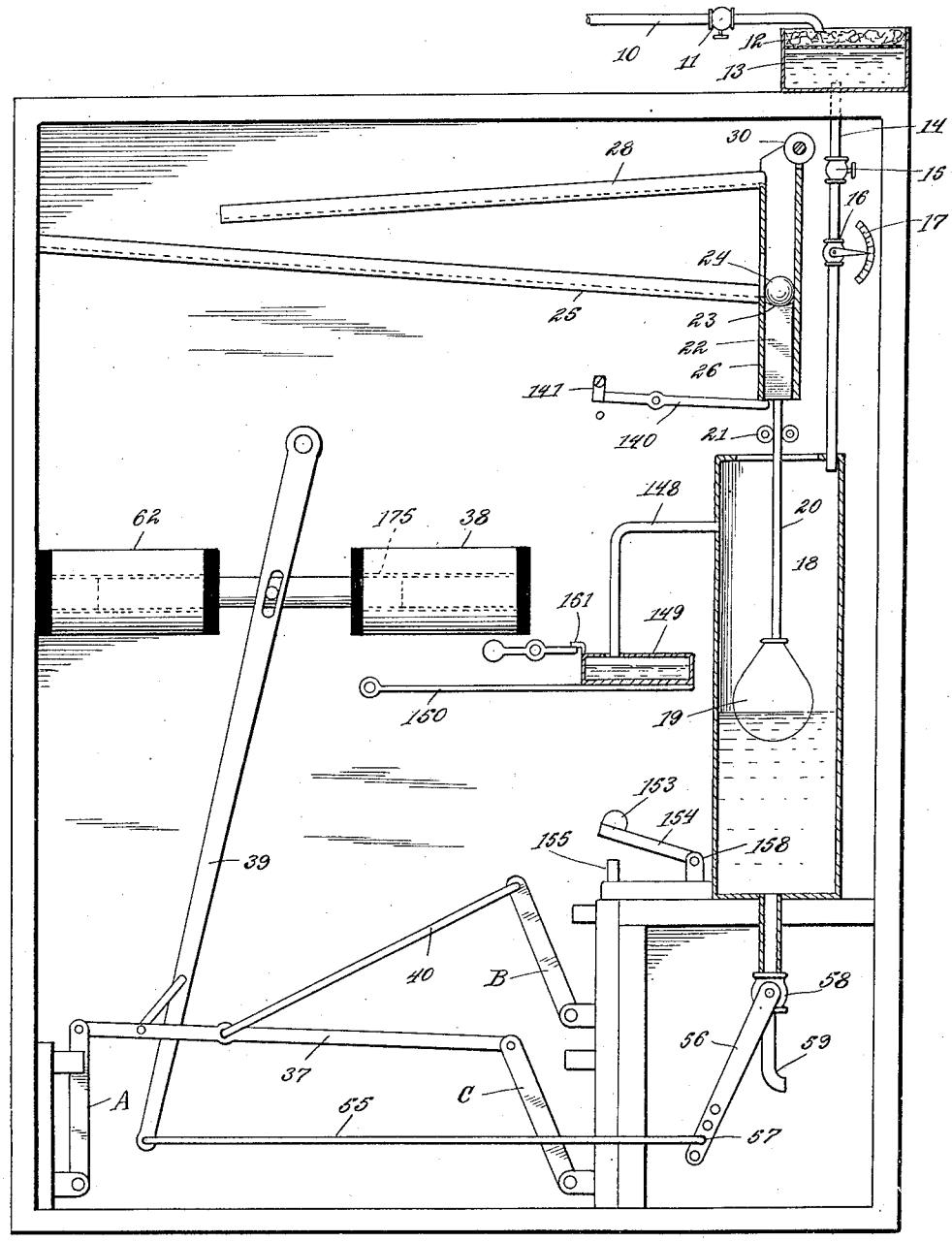


Fig. 1

Inventor
C. E. Brown,

Witness
C. F. Rudolph

By Victor J. Evans
Attorney