H. STROH.

ARMATURES FOR ELECTRO MAGNETS.

No. 189,584. Patented April 17, 1877.

Fig.1.

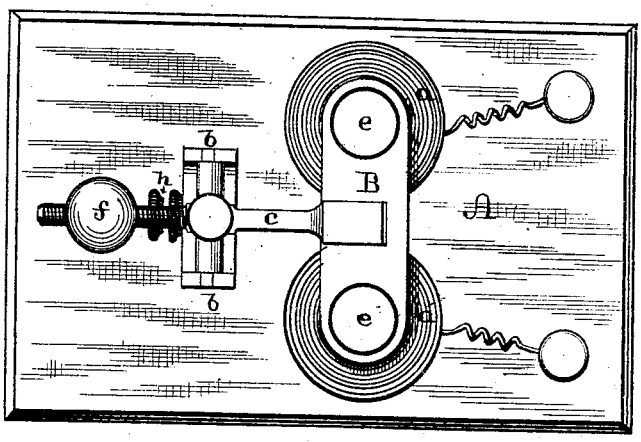


Fig.2.

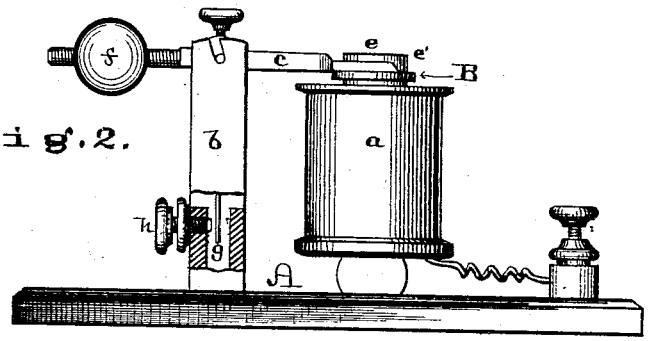
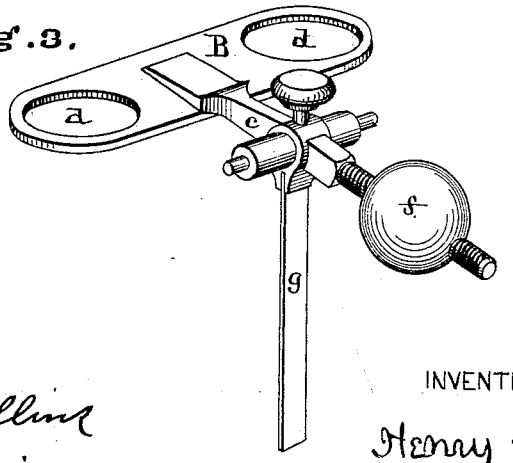


Fig.3.



WITNESSES.

John H. Collins

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INVENTOR

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UNITED STATES PATENT OFFICE.

HENRY STROH, OF EDWARDSVILLE, ILLINOIS.

IMPROVEMENT IN ARMATURES FOR ELECTRO-MAGNETS.

Specification forming part of Letters Patent No. **189,584**, dated April 17, 1877; application filed September 14, 1876.

To all whom it may concern:

Be it known that I, HENRY STROH, a resident of Edwardsville, Madison county, State of Illinois, have made a new and useful Improvement in Electro-Magnet Armatures, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a plan of an instrument embodying my improvement, Fig. 2 a side elevation, and Fig. 3 a view in perspective of the armature and supporting arm.

Similar letters refer to similar parts.

An electro-magnet is not always at once demagnetized by the interruption of the electric current. The magnetic influence to some extent sometimes lingers in the magnet. An electro-magnet is also liable to become permanently magnetized by use. In such cases the armature, after having been brought in contact with the magnet, is apt, even after the interruption of the current, to adhere thereto, requiring a stronger spring than otherwise would be necessary to withdraw it. This in turn necessitates a stronger battery to operate the magnet.

It is the aim of the present invention to provide means by which an instrument, such as a relay or other telegraphic instrument, wherein an armature is used, can be more easily operated.

Referring to the annexed drawing, A represents an ordinary electro-magnetic relay instrument, of which *a* is the magnet and *b b* the standards, in which is journaled the arm *c* that supports the armature B. The latter, instead of being an imperforated plate, closing in its movement upon the faces of the poles of the magnet, as hitherto has been customary, is provided with perforations *d d* that in diameter are slightly larger than the poles *e e* of the magnet, and the armature and magnet are so adjusted relatively that in the movement of the former the poles *e e* pass through the perforations *d d*, and, preferably, without touching the armature. At the outer end of the arm *c* is an adjustable counter-balance, *f*. In place of closing the circuit through the outer end of the arm *c*, I preferably employ a strip, *g*, for that purpose. This strip is attached to the arm *c*, and moves with the latter, and in its movement the lower end of the strip encounters a screw, *h*, completing the circuit. The strip is preferably made in the form of a spring.

The operation of the invention is as follows: The magnet attracts the armature in the usual manner. Owing, however, to the perforations in the armature the latter, in its movement toward the magnet, does not come in contact with the magnet but passes onto it, as shown in Fig. 2, and beyond the extreme end *e'* of the poles. Now, with the form of armature hitherto in use the attractive force of the magnet is exerted in its maximum when the armature is at the end of its downward stroke, and is resting upon the magnet; but, in the case of the present armature, the maximum force of the magnet is exerted at the beginning of the downward stroke of the armature, and as the armature approaches the level of the faces of the poles of the magnet the attraction of the latter rapidly diminishes, and at the end of the stroke it is at its minimum. Consequently, much less power in the way of a spring or counter-balance than has heretofore been necessary is now needed to effect the return-stroke of the armature to its original position. The effect of this is to render an instrument containing my improvement extremely sensitive, and as a practical result thereof a battery of much less than the ordinary strength is sufficient for its operation.

Having described my invention, what I claim is—

1. The herein-described armature B, provided with the perforations *d d*, operating substantially as described.

2. The combination of the standards *b b*, arm *c*, magnet *a*, poles *e e*, and armature B, having the perforations *d d*, substantially as described.

3. The combination of the armature B, provided with the perforations *d d*, arm *c*, standards *b b*, spring *g*, screw *h*, and magnet *a*, substantially as described.

4. The combination of an electro-magnet, *a*, and a perforated armature, B, substantially as described.

Witness my hand this 8th day of September, 1876.

HENRY STROH.

Witnesses:

LEWIS C. WACKER,

SAML. S. BOYD.