

(No Model.)

C. A. GAISER.

ARMATURE FOR ELECTRO MAGNETS.

No. 338,260.

Patented Mar. 23, 1886.

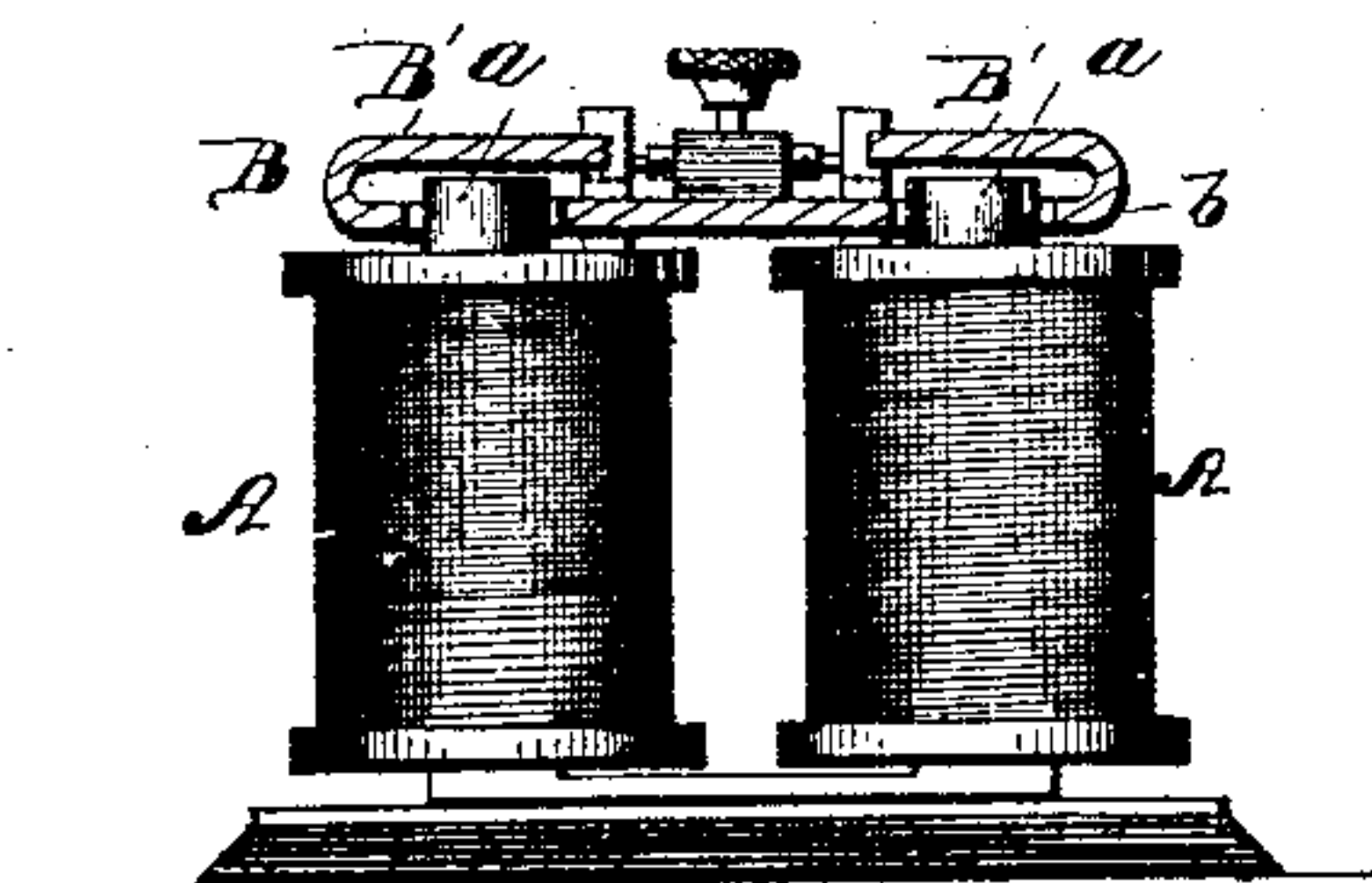


Fig. 1.

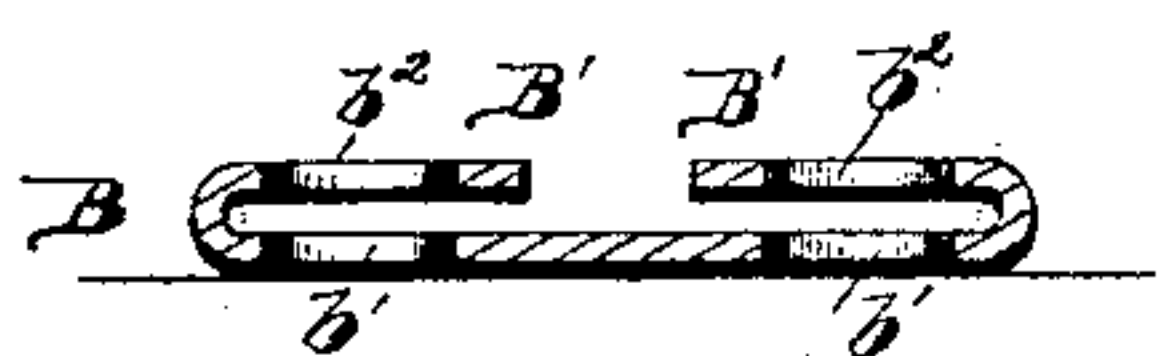


Fig. 2.

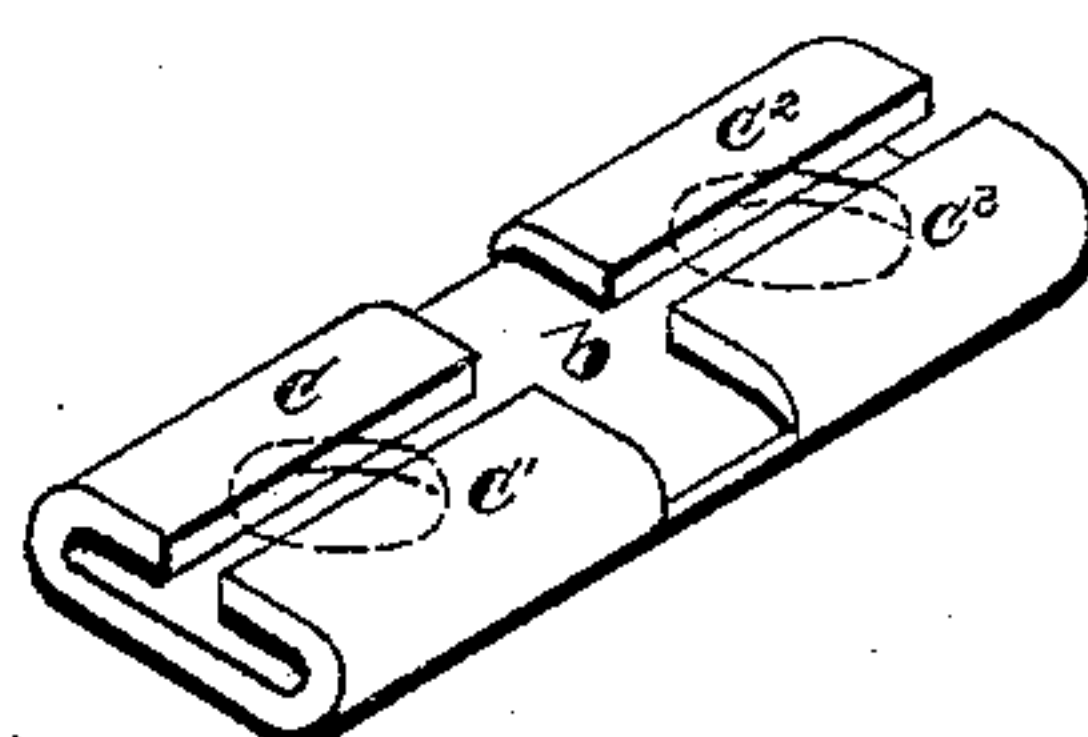


Fig. 3.

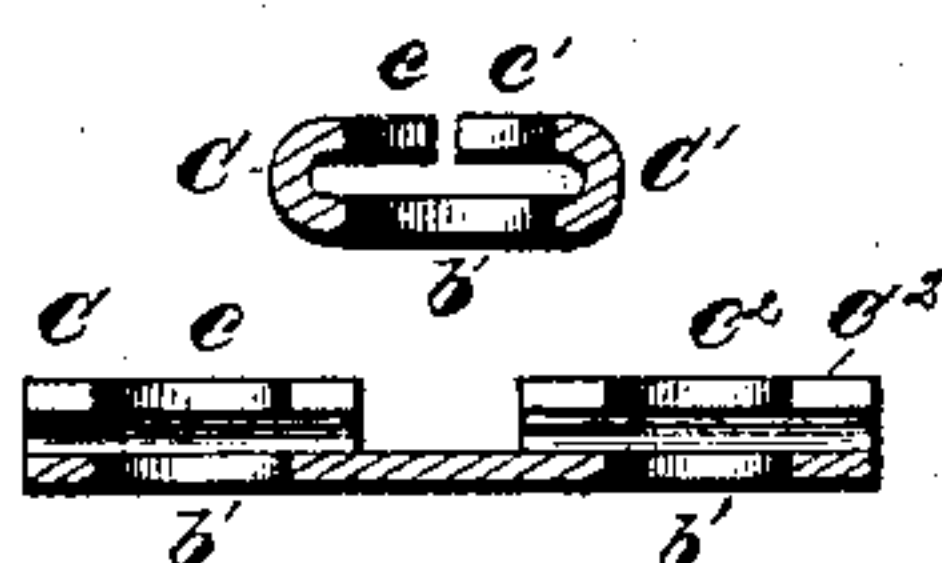


Fig. 4.

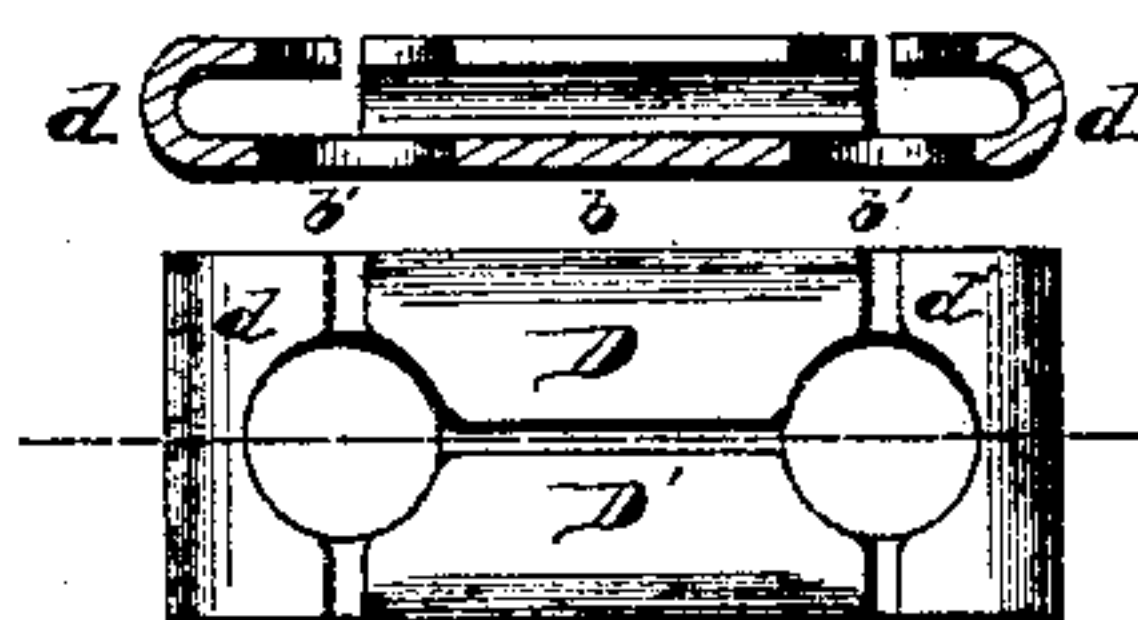


Fig. 5.

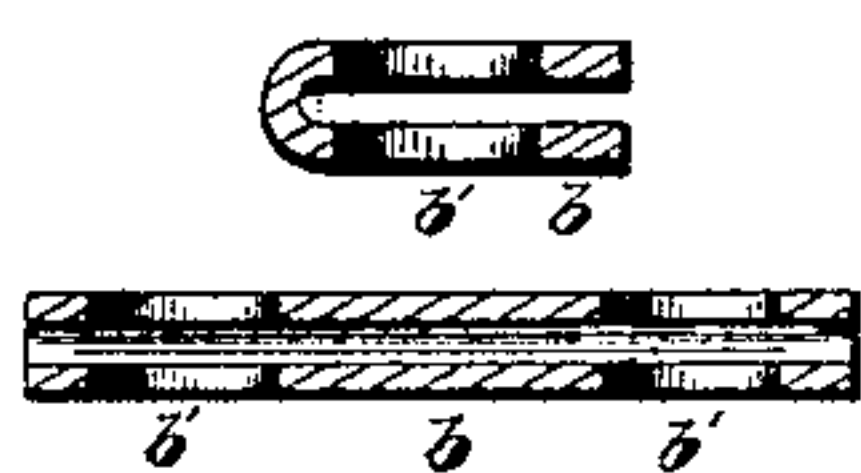


Fig. 6.

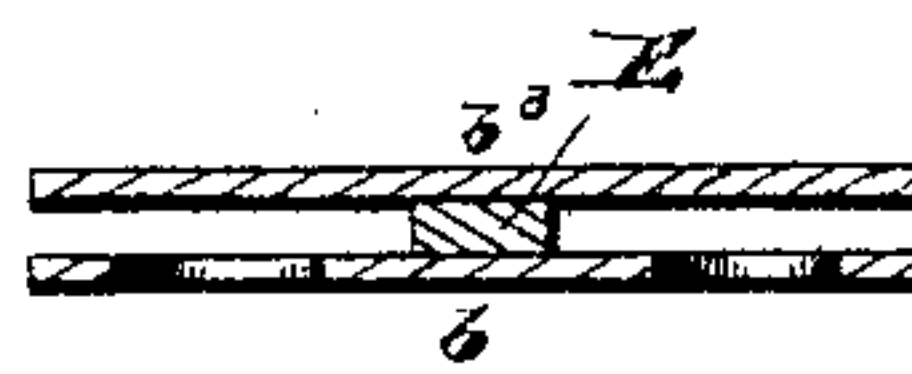


Fig. 7.



Fig. 8.

WITNESSES

Samuel C. Thomas.
N. S. Wright.

Charles A. Gaiser INVENTOR
By W. W. Beckett
Attorney

UNITED STATES PATENT OFFICE.

CHARLES A. GAISER, OF EDWARDSVILLE, ILLINOIS.

ARMATURE FOR ELECTRO-MAGNETS.

SPECIFICATION forming part of Letters Patent No. 338,260, dated March 23, 1886.

Application filed July 6, 1885. Serial No. 170,798. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. GAISER, of Edwardsville, county of Madison, State of Illinois, have invented a new and useful Improvement in Armatures for Electro-Magnets; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved armature for use with electro-magnets in various devices, and is more especially designed as an improvement in perforated armatures of the class shown and described in the patent granted to Henry Stroh, April 17, 1877, No. 186,584. As mentioned in said patent, when a perforated armature is used the attraction of the magnet upon the armature is at its minimum when the armature is at the end of its stroke, the power of the magnet diminishing as the armature approaches the point of rest adjacent to the core of the magnet, the lines of attraction at that point neutralizing each other to a considerable extent. In this case greater power can only be applied to such an armature by the use of a stronger battery.

The object of my present invention is to secure such a result, the application of greater power upon the armature by the magnet without increased power in the battery. I accomplish this result by the construction of the armature as hereinafter more fully described, and more particularly pointed out in the claims, my invention consisting, essentially, in constructing a perforated armature with one or more auxiliary leaves, which shall be so made and arranged as to receive the attractive force of the magnet after the first leaf shall have passed over the core of the magnet, the attraction upon the auxiliary leaf or leaves being stronger in that position than it is upon the first, as will be seen in the accompanying drawings, and in the more detailed specification following.

In the drawings, Figure 1 is a front elevation of a device embodying my invention, showing my improved armature seated upon the magnet. Figs. 2, 3, 4, 5, and 6 illustrate

various modifications of the device, all embodying the same principle or invention

A represents an electro-magnet.

B is an armature.

b represents the lower leaf, perforated so that the poles *a* of the magnet may freely pass through its perforations *b'*.

In Fig. 1 the armature is constructed of a single leaf, having its ends bent back, as shown, so that the return bends *B' B'* come opposite the perforations *b' b'*, and consequently opposite or over the poles of the magnet when the armature has been attracted to the magnet. In the process of the manufacture of said armature the ends are extended lengthwise and then bent back over the perforations in the main portion of the leaf, the bent ends thus serving the purpose already described—viz., that of an auxiliary leaf, which will receive the attractive force of the magnet more powerfully than the main body of the leaf when drawn to the magnet, as the lines of attractive force are then more direct upon the over-turned ends than upon the main body of the leaf when it has been drawn over the edges of the core—i. e., the attractive forces of the magnets are not neutralized in their relation to the ends to the same extent as they are diminished in their power upon the main body of the leaf in the position described.

In Fig. 2 the same idea is illustrated, in which case the armature is constructed the same as above described, except that the ends bent back are also perforated, as shown at *b'' b''*, said perforations coming opposite the perforations *b' b'*, thus allowing said ends to pass over the edges of the cores also.

In Fig. 3 the same idea is carried out by constructing the main body of the leaf with lateral extensions *C C' C'' C'''* on both sides and adjacent to both ends, said extensions bent back so that they extend over the perforations *b'* and over the core when the armature is drawn to the magnet. By this construction, it is evident, similar results are obtained as already described.

In Fig. 4 the armature illustrated is constructed the same as that shown in Fig. 3, with this difference, that the lateral extensions which are bent back are cut away, as shown

at $c\ c'\ c''\ c'''$, so as to leave an opening similar to the perforations b' and adjacent thereto when so bent over, allowing the upper leaf formed thereby to pass over the edges of the core, as in Fig. 2.

Fig. 5 represents the leaf b constructed with lateral extensions $D\ D'$ from the body of the leaf between the perforations $b'\ b'$ bent back, and also with longitudinal extensions $d\ d'$ at the ends, which are also bent back, these extensions being shown cut away to form perforations over the perforations b' .

Fig. 6 represents the leaf b made double and bent along the middle, each being perforated so as to form a double-leaved armature, each leaf being like the other and made from one piece bent back, as shown.

Fig. 7 represents a perforated armature or perforated leaf, b , in combination with an unperforated leaf, b'' , separated by some non-magnetic substance, E . One or more perforated leaves may be similarly combined with one or more unperforated leaves so separated.

Fig. 8 shows still another modification, in which two or more perforated armatures are combined, each separated from the one adjacent by a non-magnetic substance, E .

These various modifications are designed to illustrate the fact that my invention may assume various forms of construction; and I would distinctly have it understood that I do not limit myself to any specific shape or form of armature, as it is designed to include any and all forms embodying the ideas herein specified.

In Figs. 1, 2, 3, 4, 5, and 6 the armature is illustrated as constructed of a single piece of metal, bent in various ways to form a secondary leaf integral with the main perforated leaf b , the secondary leaf being perforated or unperforated, as may be desired.

In Figs. 7 and 8 the armature is shown with a secondary leaf, not integrally connected with the main leaf b , but separated therefrom by a non-magnetic substance. Moreover, my invention is not limited to a single secondary leaf constructed in either of the manners de-

scribed, but contemplates a series of such leaves so related to each other as to secure the results described.

What I claim is—

1. An armature consisting of a leaf provided with perforations, and a secondary leaf overlapping the same, substantially as and for the purpose described.

2. The combination, with an electro-magnet, of an armature consisting of a leaf provided with perforations, and a secondary leaf overlapping the same, substantially as and for the purpose described.

3. An armature consisting of a series of leaves overlapping each other, substantially as described.

4. An armature consisting of a series of leaves overlapping each other and separated from each other by a suitable intermediate space, substantially as described.

5. An armature consisting of a series of separate leaves overlapping each other, said leaves being separated from each other by a suitable intermediate space, and one or more thereof being provided with perforations, substantially as described.

6. An armature consisting of a leaf provided with perforations, and a secondary leaf integral therewith, said secondary leaf bent back to overlap the other, substantially as described.

7. An armature consisting of a leaf provided with perforations adapting it to pass over the edges of the cores of an electro-magnet, and the combination therewith of one or more auxiliary leaves, the construction being such that an electro-magnet may exert more attractive force upon the auxiliary leaf or leaves than upon the leaf adjacent to the magnet when said armature has been drawn to the magnet, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

CHARLES A. GAISER.

Witnesses:

CYRUS E. GILLESPIE,
FRANK. M. WILLIAMS.