

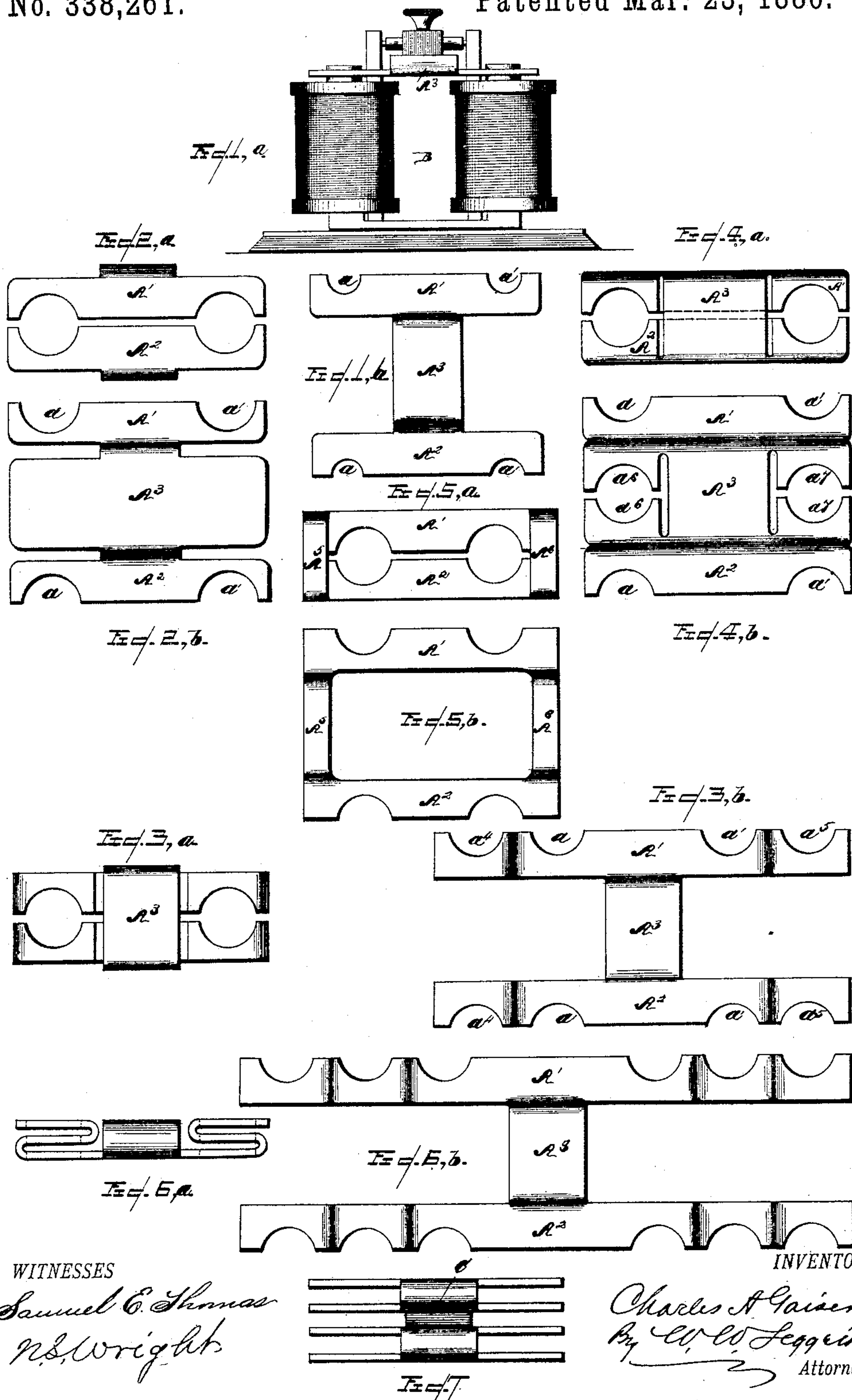
(No Model.)

C. A. GAISER.

ARMATURE FOR ELECTRO MAGNETS.

No. 338,261.

Patented Mar. 23, 1886.



UNITED STATES PATENT OFFICE.

CHARLES A. GAISER, OF EDWARDSVILLE, ILLINOIS.

ARMATURE FOR ELECTRO-MAGNETS.

SPECIFICATION forming part of Letters Patent No. 338,261, dated March 23, 1886.

Application filed July 13 1885. Serial No. 171,535. (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 same, 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 armatures for electro-magnets, and is designed to provide an improved armature, whereby increased strength of attraction shall be secured. The attractive force of an electro-magnet upon an armature develops its maximum strength upon the outer edges of the armature and magnet; and the aim of the present invention is to provide an armature in which outer edges shall be arranged so as to be attracted from all sides of a magnet, whereby an increased strength of attraction shall be brought to bear upon the armature.

As armatures have hitherto been constructed, a portion of the circumference of the core of the magnet has not been so presented to the outer edge of the armature as to exert an attractive force thereon—as, for instance, where the armature consists of a solid plate. That portion of the circumference of the core presented inwardly toward the middle of the armature loses attractive power for this reason, while in the use of perforated armatures the edges to be attracted, adjacent to the core, are inside edges, whereby the force of attraction is limited.

I carry out my invention as more fully hereinafter described, and more particularly pointed out in the claims.

In the drawings, Figure 1^a represents a device embodying my invention, Fig. 1^b showing the shape of the armature before being bent into proper form, in which—

A represents the armature, which is composed of plates A' and A², integrally united by the rib A³ intermediate of their ends. Each of said plates is constructed with recesses or scallops *a a'*, at a suitable distance from each other, said recesses being upon the outer edges of said plates. After the armature has been constructed, as shown in Fig. 1^b, the plates A' and A² are then bent, so that their recessed edges

face each other, as shown in Fig. 1^a, the recesses *a a'* on each edge thus forming openings, *a² a³*, whereby the armature may pass over the core of the magnet and still present only outer edges, in reality, to receive the force of attraction, and presenting such outer edges, too, entirely around the core, excepting the narrow space between the facing plates A' and A².

Figs. 2^a and 2^b represent a modified form of the armature, as first constructed and then folded, Fig. 2^a being an inverted plan, the construction being the same as above described, except that the rib A³ is extended lengthwise and centrally, so that when the plates A and A² are folded so as to face each other the rib A³ forms an auxiliary solid plate, integrally connected with the plates A' and A² and overlapping the same, as shown in Fig. 2^b. In this case the plates A' A² may pass over the core of the magnet, while the plate A³ is adjacent thereto, and will receive the attractive force of the magnet in lines more approaching a vertical direction than the lines of attraction, which are exerting their force upon the parts A' and A² when the armature is drawn to the magnet, the plates A' and A² and the solid plate A³, thus forming a double-leaved armature, affording a greater attraction of the magnet thereon.

Figs. 3^a and 3^b represent an armature constructed, essentially, as that described and shown in Fig. 1; but in this case the plates A' and A² are extended longitudinally at their ends and provided with additional recesses, *a⁴ a⁵*, upon the outer edge of each plate. The extended ends are folded inwardly, so that the returned end forms a secondary leaf, with openings opposite the openings *a a'*, this secondary leaf formed of the ends of the leaves A' A², thus bent back, serving the same purpose as the solid plate or leaf A³, described in connection with Fig. 2, and permitting said secondary leaf to pass also over the edges of the core of the magnet.

Figs. 4^a and 4^b show the same results secured in a modified manner, the rib A³ being cut so as to project into the plates A' and A², and the ends of the latter plates being scalloped on the edges opposite the recesses *a a'*, as shown at *a⁶* and *a⁷*. When bent as described under Fig. 1, an auxiliary perforated leaf, A⁴, is thus formed, as shown in Fig. 4^a.

Figs. 5^a and 5^b represent another modification, being essentially the same, wherein the leaves A' and A² are connected by two connecting-ribs, A⁵ and A⁶, at the ends of said plates, the connecting-ribs thus being at the ends of the plates instead of in the middle.

In Figs. 6^a and 6^b the plates A' and A² are constructed as shown in Fig. 3, but with a further extension recessed, whereby when they are bent back a third auxiliary leaf or plate is secured, the results attained corresponding to those already enumerated.

B represents an electro-magnet.

All of these various forms it is evident not only present the outer edges of the armature in the manner described, so as to increase the attractive force exerted upon them, but also, in those forms where one or more auxiliary leaves or plates are provided, my improved armature presents an additional means for the application of the attractive force of the magnet, as more fully described in an accompanying application.

I would have it understood that this invention contemplates any construction of armature whereby the attractive force of the magnet may have increased power upon the outer edges of the armature, on either a single plate or a series of plates, or in which a perforated plate may be combined with an unperforated plate to secure this object.

Fig. 7 represents another modification of the invention, in which a series of armature plates or leaves, constructed in any of the ways heretofore described, are employed, the same being separated from each other by a non-magnetic substance, C.

What I claim is—

1. An armature for an electro-magnet, com-

posed of a plate having recesses which receive the core of the magnet, said recesses being formed in the outer edges of the plate, substantially as described.

2. An armature for electro-magnets, composed of a plate having recesses which receive the cores of the magnets, said recesses being formed in the outer edges of the plate, the latter being bent to bring said edges adjacent to each other, substantially as described.

3. An armature for electro-magnets, composed of a plate having recesses formed in its outer edges and bent to bring said edges adjacent to each other, in combination with one or more auxiliary plates, substantially as described.

4. An armature for electro-magnets, composed of one or more plates recessed upon the outer edges and bent to bring said edges adjacent to each other, in combination with an electro-magnet, substantially as described.

5. An armature for electro-magnets, consisting of a series of plates or leaves, one or more thereof being recessed upon the edges and said edges being brought into contiguity, substantially as described.

6. An armature for electro-magnets, composed of a series of plates or leaves, one or more thereof being recessed upon the edges and mounted upon suitable intermediate supports with the recessed edges in contiguity, 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.