

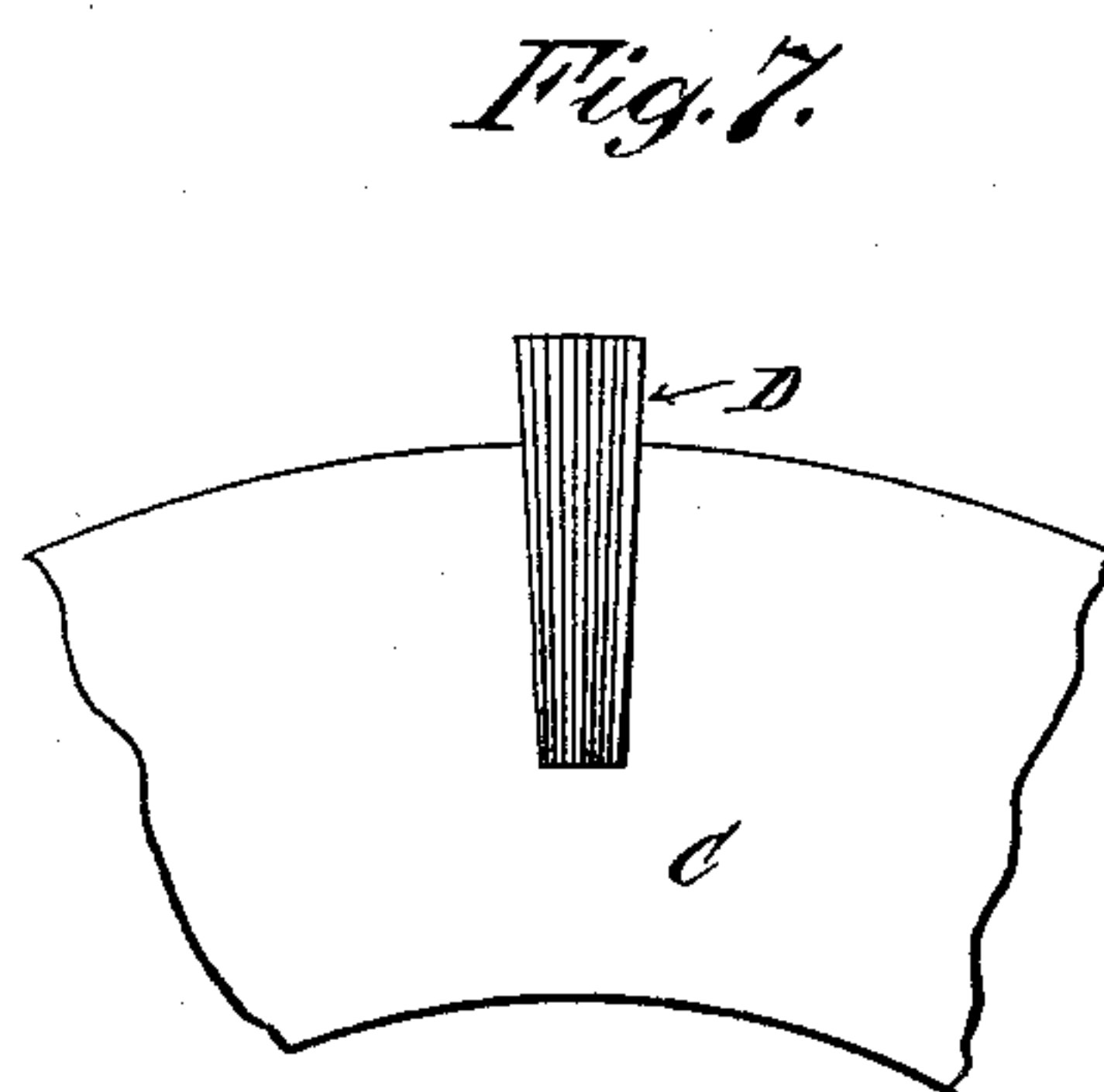
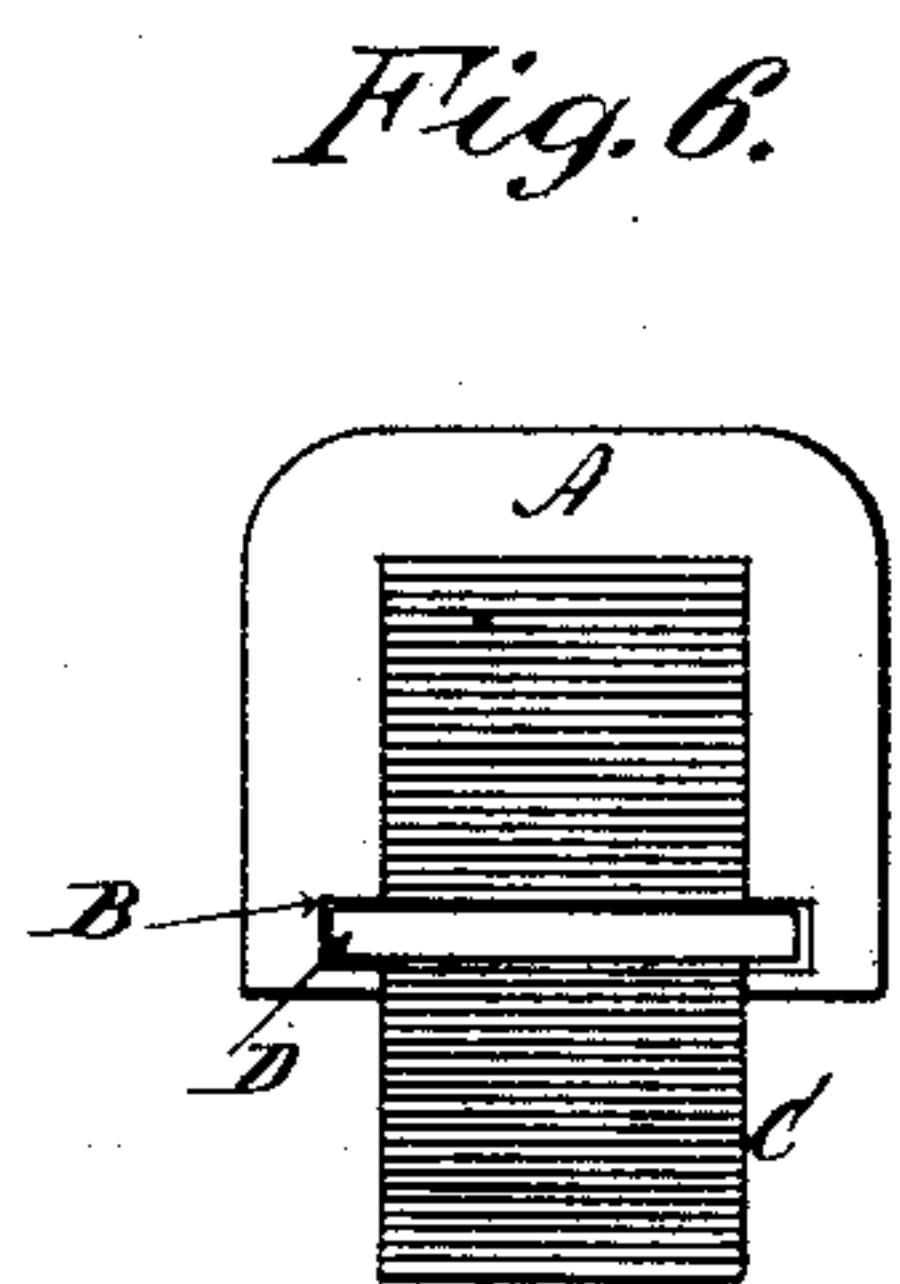
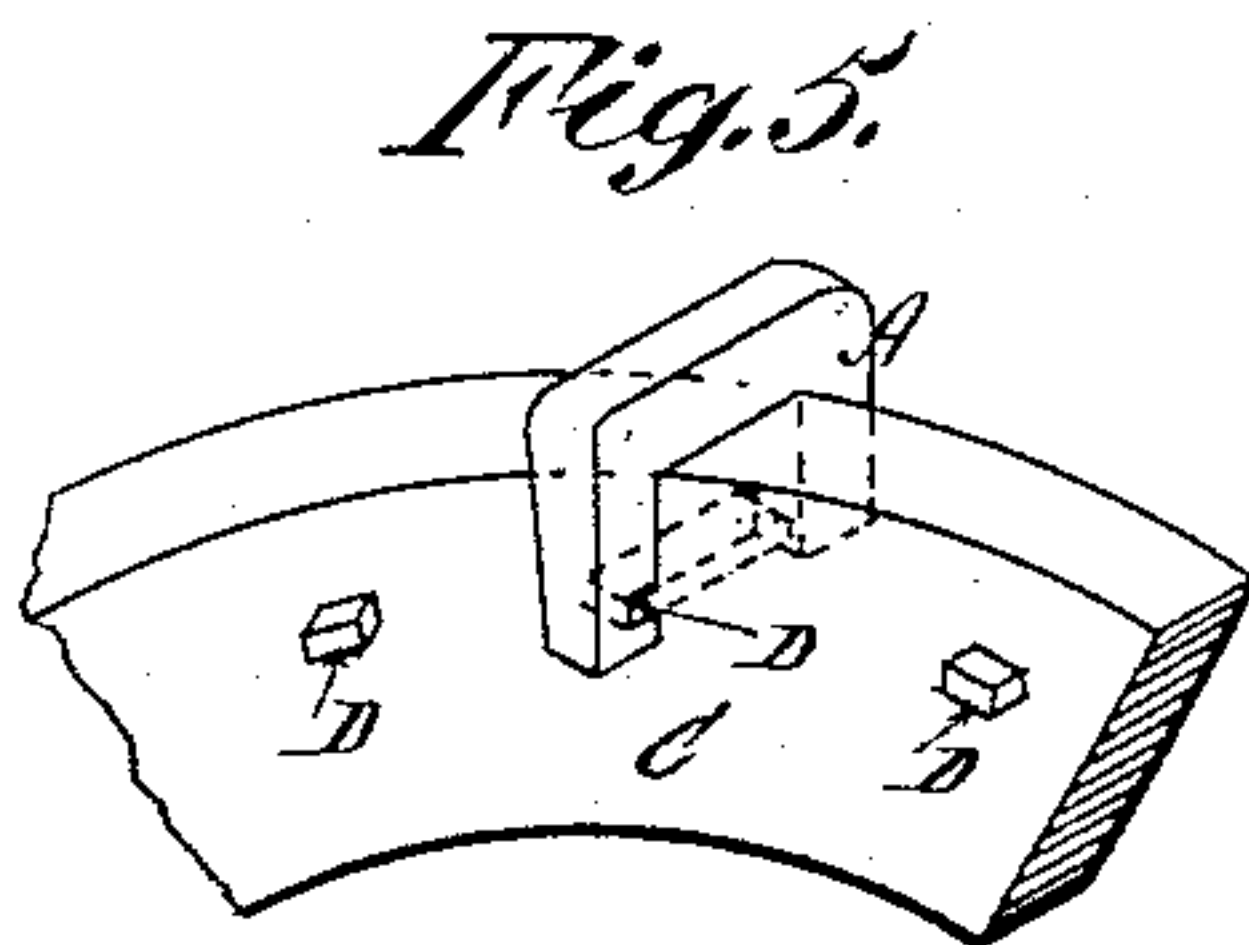
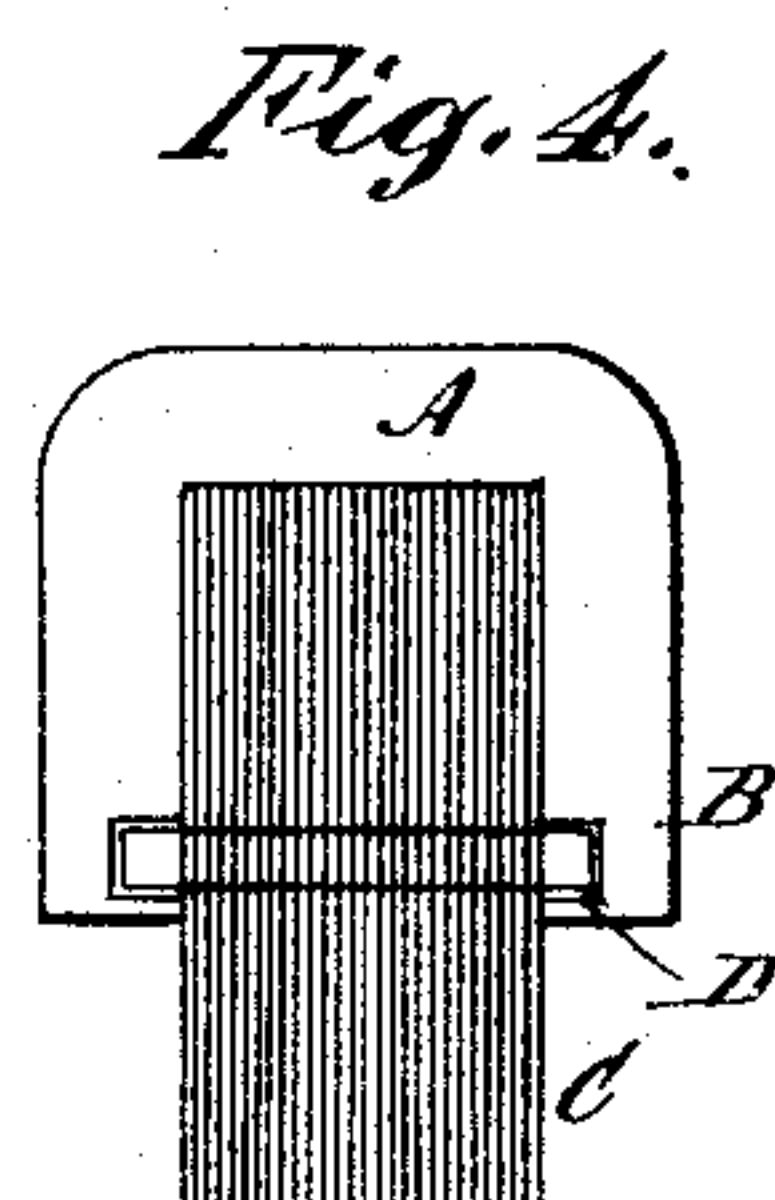
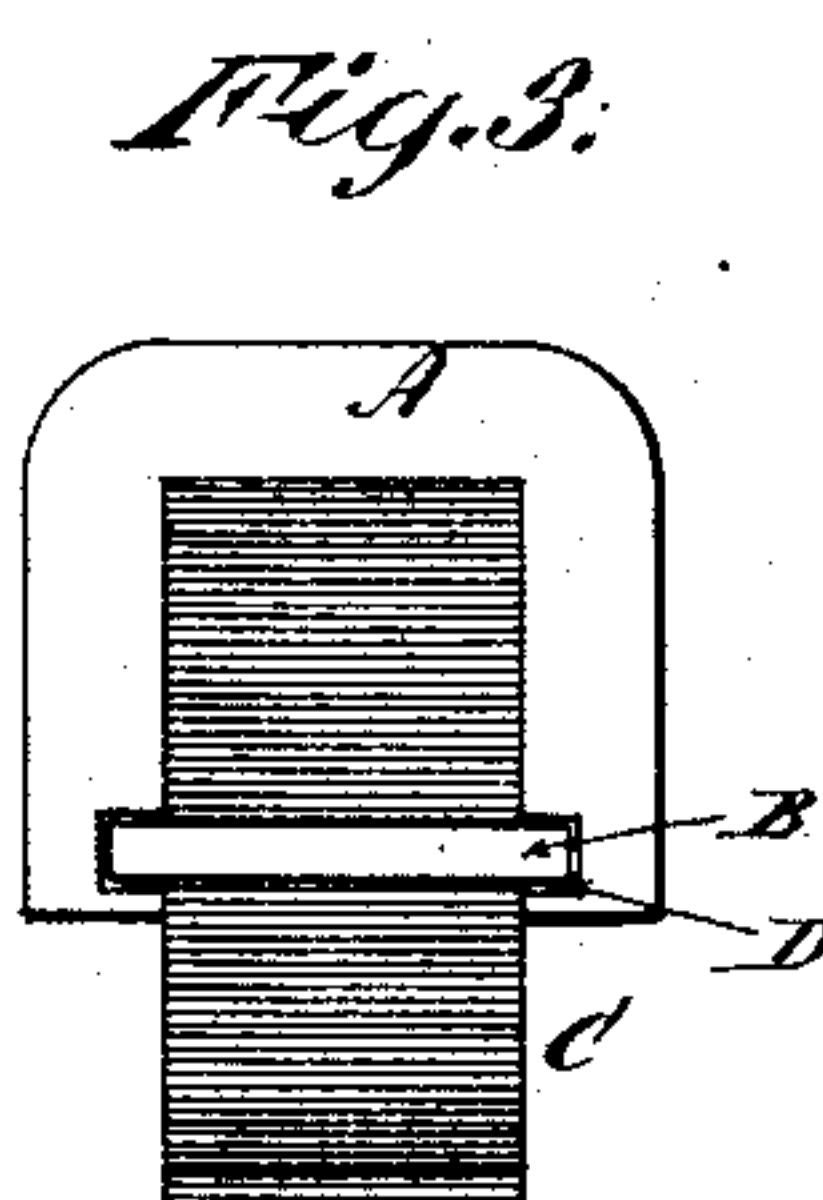
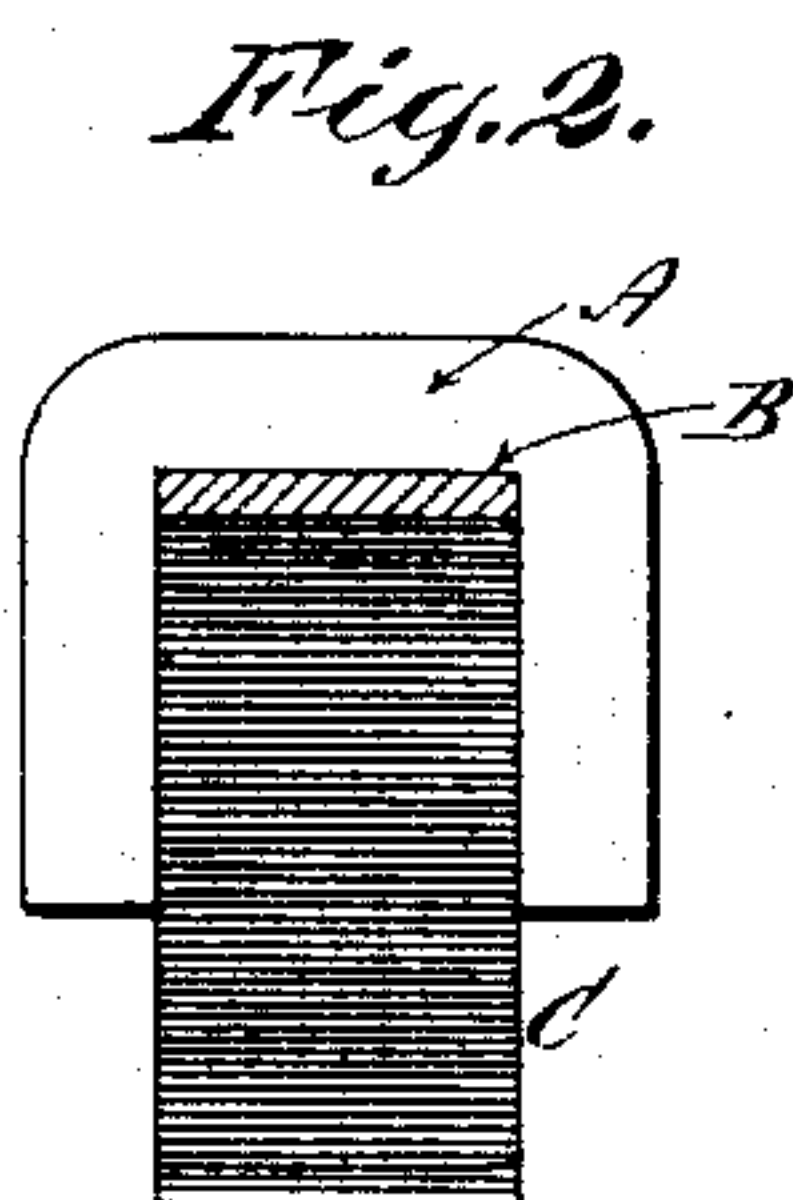
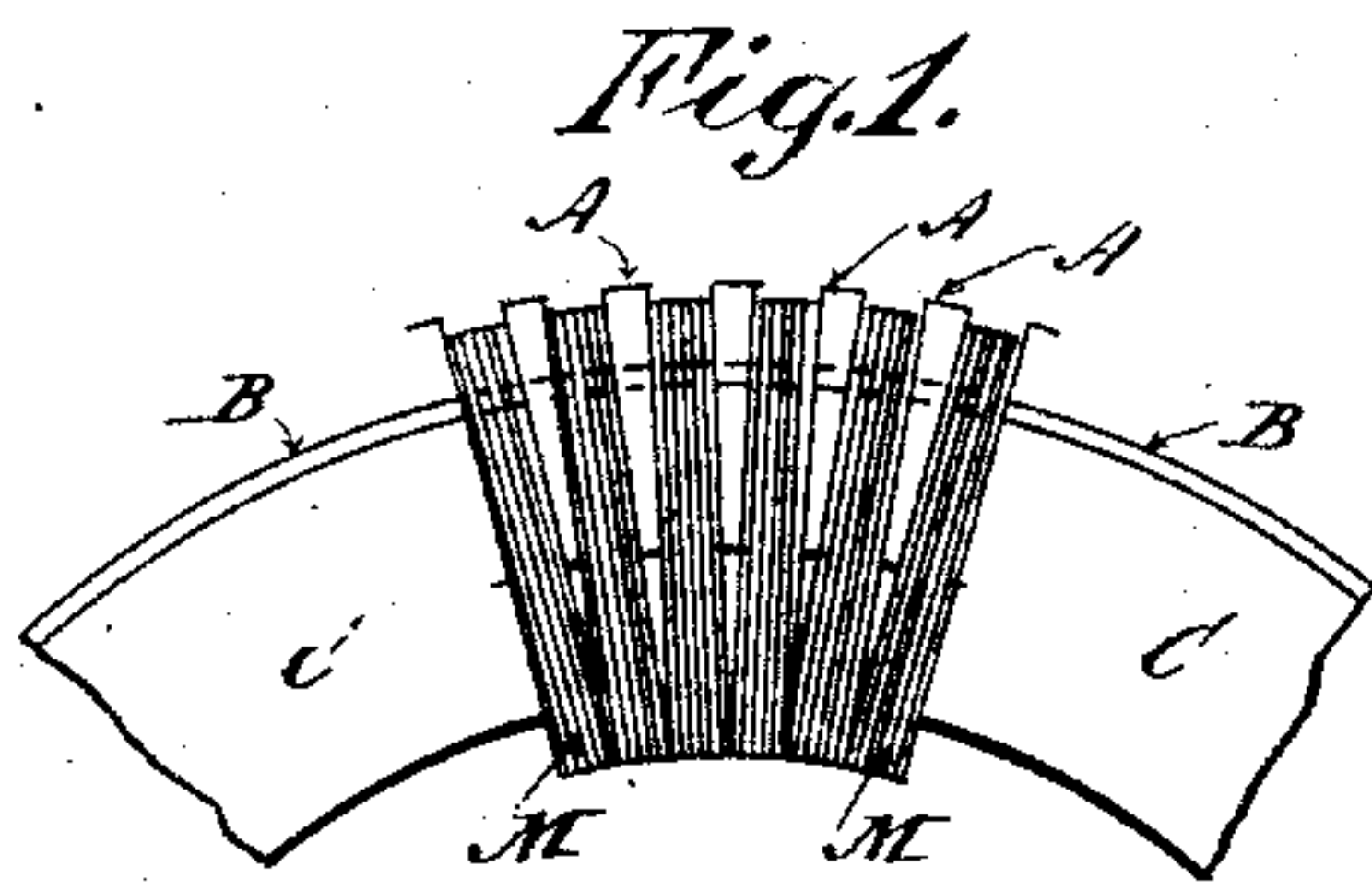
(No Model.)

G. PFANNKUCHE.

RING ARMATURE FOR ELECTRIC GENERATORS.

No. 414,245.

Patented Nov. 5, 1889.



Witnesses:

D. W. Gardner,  
J. H. Capel

Inventor:

Gustav Pfannkuche  
By his Attorney,  
H. C. Townsend

# UNITED STATES PATENT OFFICE.

GUSTAV PFANNKUCHE, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE SCHUYLER ELECTRIC LIGHT COMPANY, OF SAME PLACE.

## RING-ARMATURE FOR ELECTRIC GENERATORS.

SPECIFICATION forming part of Letters Patent No. 414,245, dated November 5, 1889.

Application filed July 8, 1885. Serial No. 170,996. (No model.) Patented in England June 28, 1884, No. 9,536.

*To all whom it may concern:*

Be it known that I, GUSTAV PFANNKUCHE, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Ring-Armatures for Electric Generators or Motors, (for which I have obtained a patent in Great Britain, No. 9,536, of June 28, 1884,) of which the following is a specification.

My invention relates to the construction of ring-armatures of the Pacinotti or Gramme type; and its object is to so construct the same that the field-magnets shall be able to better exert an influence upon the coils by coming into closer magnetic proximity with the armature-core, and at the same time to provide a means for holding the bobbins against circumferential displacement. In ring-armatures of the ordinary form there are spaces between the coils or bobbins at the outer periphery and at the two sides of the armature, which side spaces are wedge-shaped, inasmuch as the coils must have approximately - parallel sides. In some constructions of armature those spaces at the sides or at the outer periphery, or both, are filled up with wood or such like material. In other cases pegs of wood are passed through the armature-core between the coils or bobbins; or, when the ring is built of superposed strips of iron, transverse strips or plates of iron or other metal are passed through between the separate superposed strips, so as to project at each side between the coils. In some cases the core has been formed with parallel-sided chases or grooves cut in its sides and periphery to receive the coils, leaving the metal standing out between them.

My invention relates to the means of fixing between the coils saddle-pieces of iron, filling the space between the coils at the outer periphery of the core, and having their two legs or sides wedge-shaped and extending radially inward along the side of the armature between the coils. The saddle-pieces are made from a number of strips piled together, and are constructed, preferably, to extend a little beyond the external surfaces of the coils, and therefore to pass very close to the

field-magnets, which are thus made to exert more influence on the coils. These saddle-pieces may be secured in various ways, some of which are shown in the accompanying drawings.

Figure 1 is a side elevation of a portion of an armature, showing the manner of applying the saddle-pieces. Fig. 2 is a cross-section of said armature. Figs. 3 and 4 are cross-sections of the armature, showing the manner of securing the saddle-pieces. Fig. 5 is a perspective view illustrating the same device. Figs. 6 and 7 illustrate the modification, in which the saddle-pieces are made of a number of strips.

C indicates the armature-core, made in a single piece or of a number of pieces or strips secured together, and M the armature-coils.

A indicates the saddle-piece, of iron, formed, as indicated in Figs. 1 and 2, of a portion transverse to the outer periphery of the armature-core and of two legs or arms in one piece with the transverse portion and extending radially inward along the sides of the armature-core.

In Figs. 1 and 2 the saddle-pieces are shown as connected to or formed in one piece with a curved plate or stop B, which may be applied in segments to the outer periphery of the armature-core C.

Figs. 3, 4, and 5 show the manner of holding the saddle-pieces in place by a notch and stud, the notch or depression being formed in the inner side of the limbs of the saddle-piece and the studs or pins being formed on or secured to the armature-core. By a circumferential sliding movement of the saddle-pieces in the core they are made to engage with the studs and are held by the latter against displacement by centrifugal action. The studs or pins may be the ends of a bar passing through the armature-core or across the inner periphery thereof, or may consist of spurs or projections formed in one piece with the armature-core or with a portion thereof. The saddle-piece may consist of a number of plates placed side by side, and, if desired, riveted together. Such a saddle-piece may be held to the armature-ring by studs, as indicated in Figs. 6 and 7, fitting into notches



in the individual plates, making up the complete saddle-piece.

Other ways of building up or manufacturing the saddle-piece might be used without  
5 departing from my invention.

What I claim as my invention is—

1. The combination, with the armature and the saddle-pieces provided with notches in their limbs, of lateral studs or projections  
10 adapted to enter said notches, as and for the purpose described.

2. The combination, with a ring-armature, of saddle-pieces each formed of a number of

plates placed side by side, and individually composed of a cross portion transverse to the  
15 outer periphery of the ring and limbs or legs integral with said cross portion and extending radially inward along the sides of the ring.

Signed at Hartford, in the county of Hartford and State of Connecticut, this 8th day of  
20 May, A. D. 1885.

GUSTAV PFANNKUCHE.

Witnesses:

HIRAM WILLEY,  
C. J. COLE.