

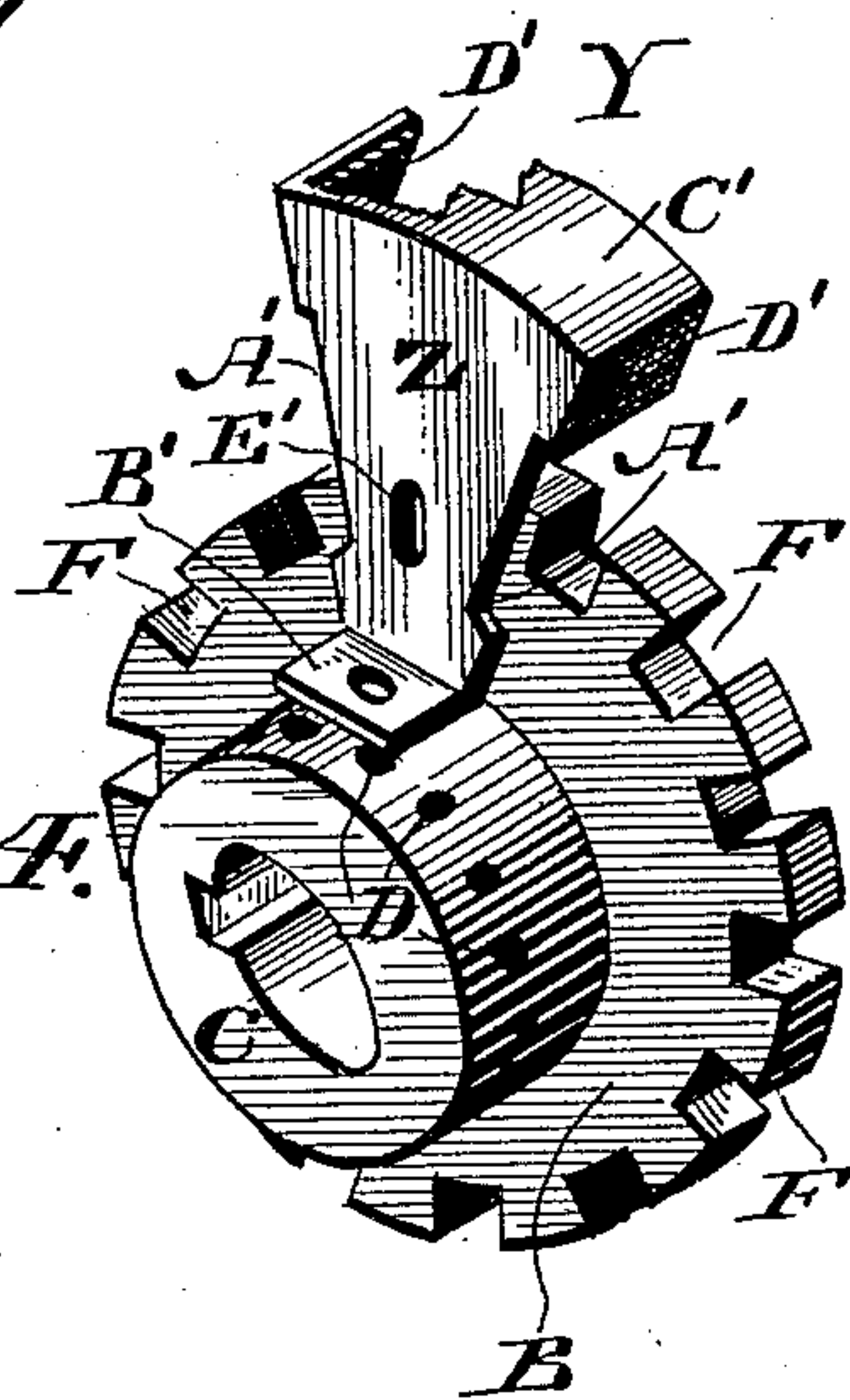
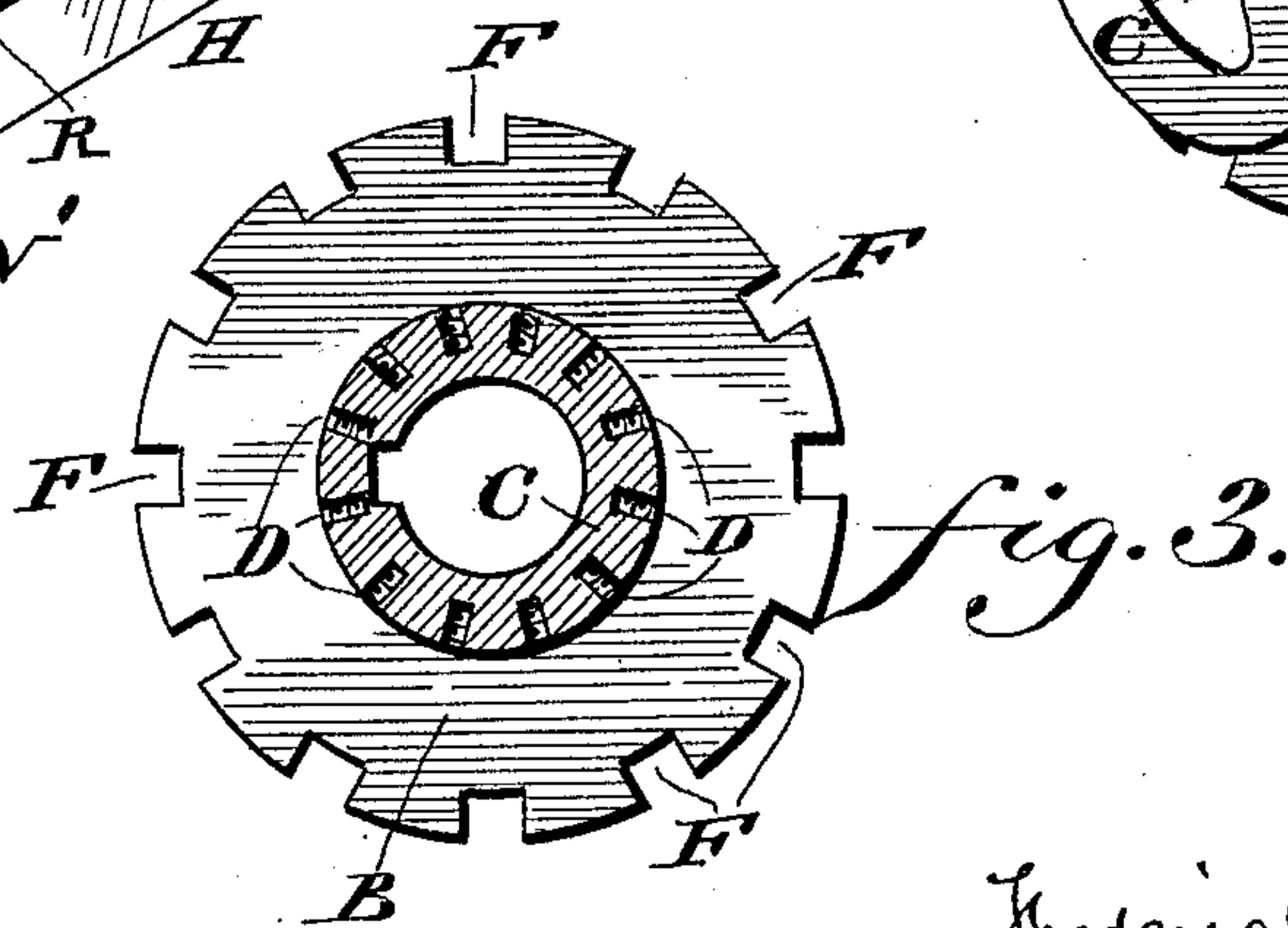
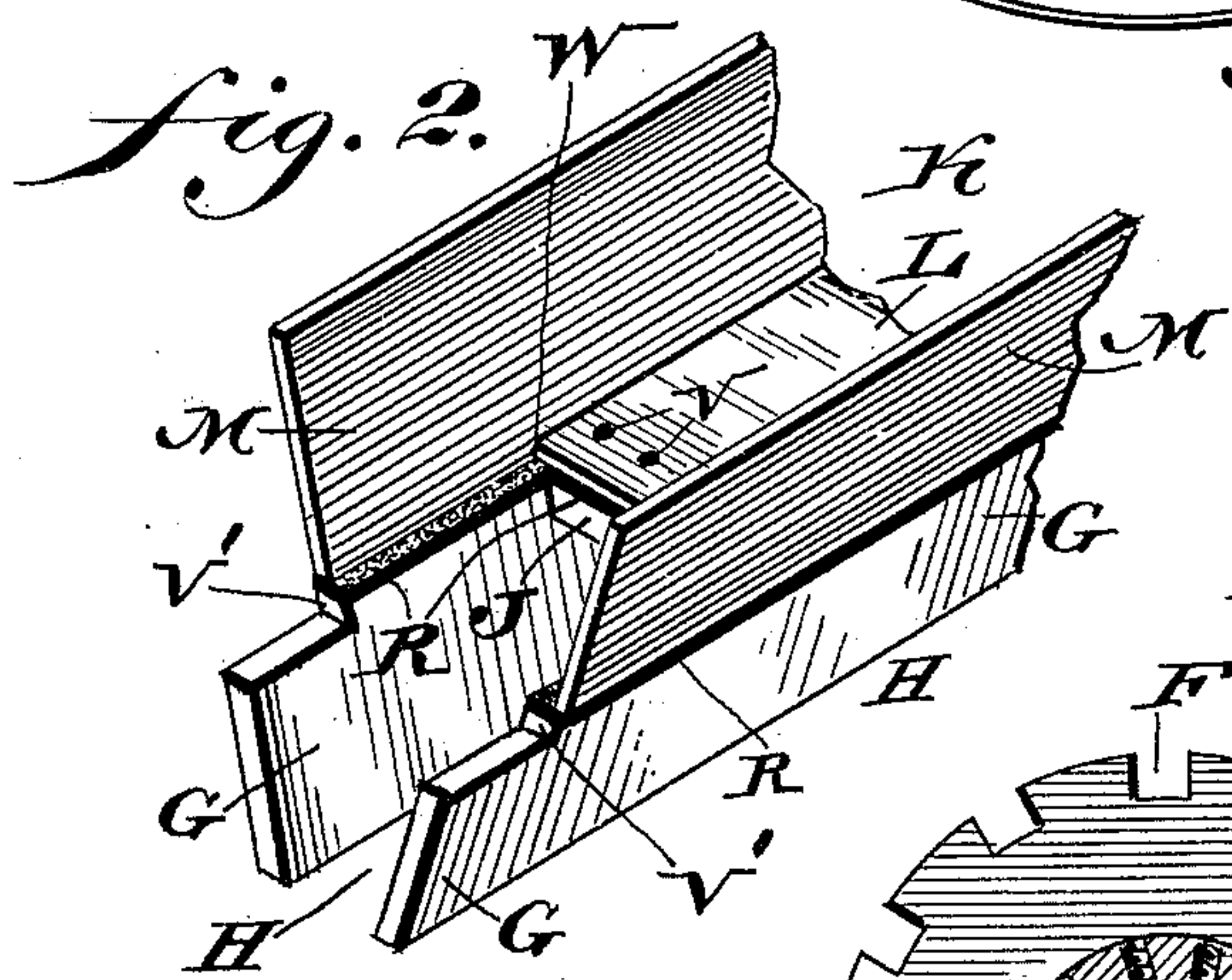
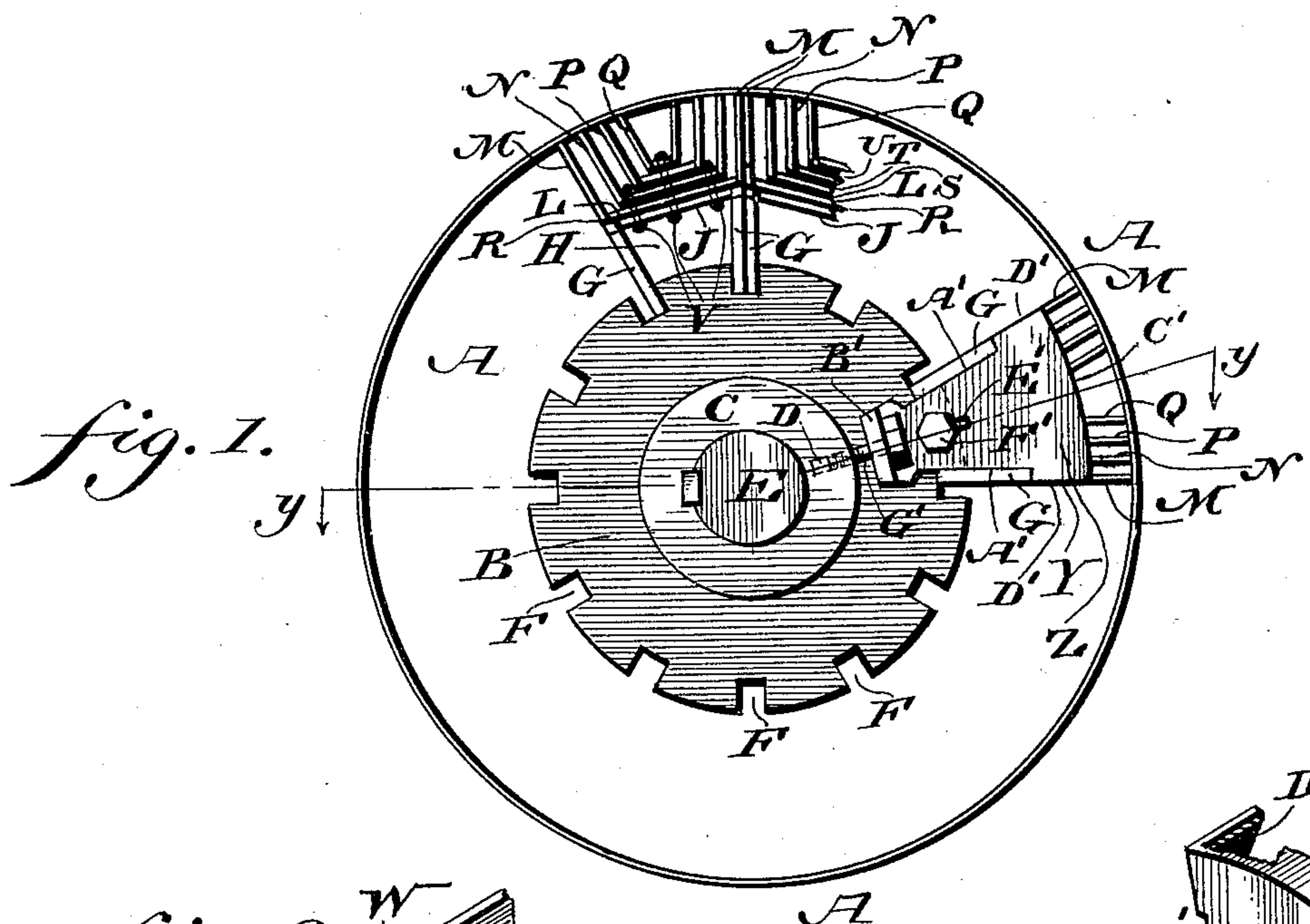
(No Model.)

2 Sheets—Sheet 1.

F. J. HAERER & C. L. GIKELEITER.
ARMATURE FOR DYNAMO ELECTRIC MACHINES.

No. 567,746.

Patented Sept. 15, 1896.



WITNESSES:

L. Douville,
P. H. Hayes.

INVENTORS:
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(No Model.)

2 Sheets—Sheet 2.

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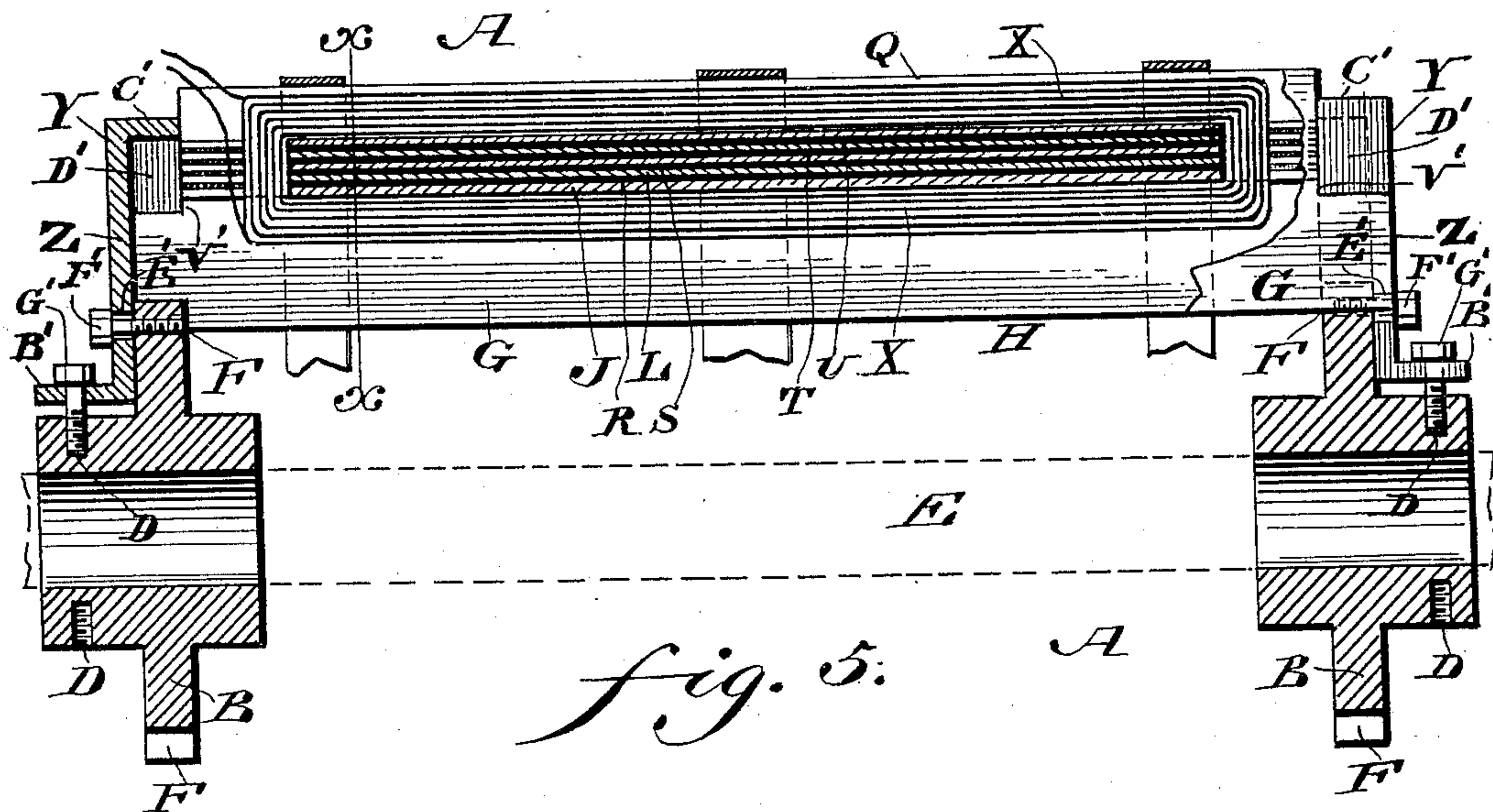


fig. 5.

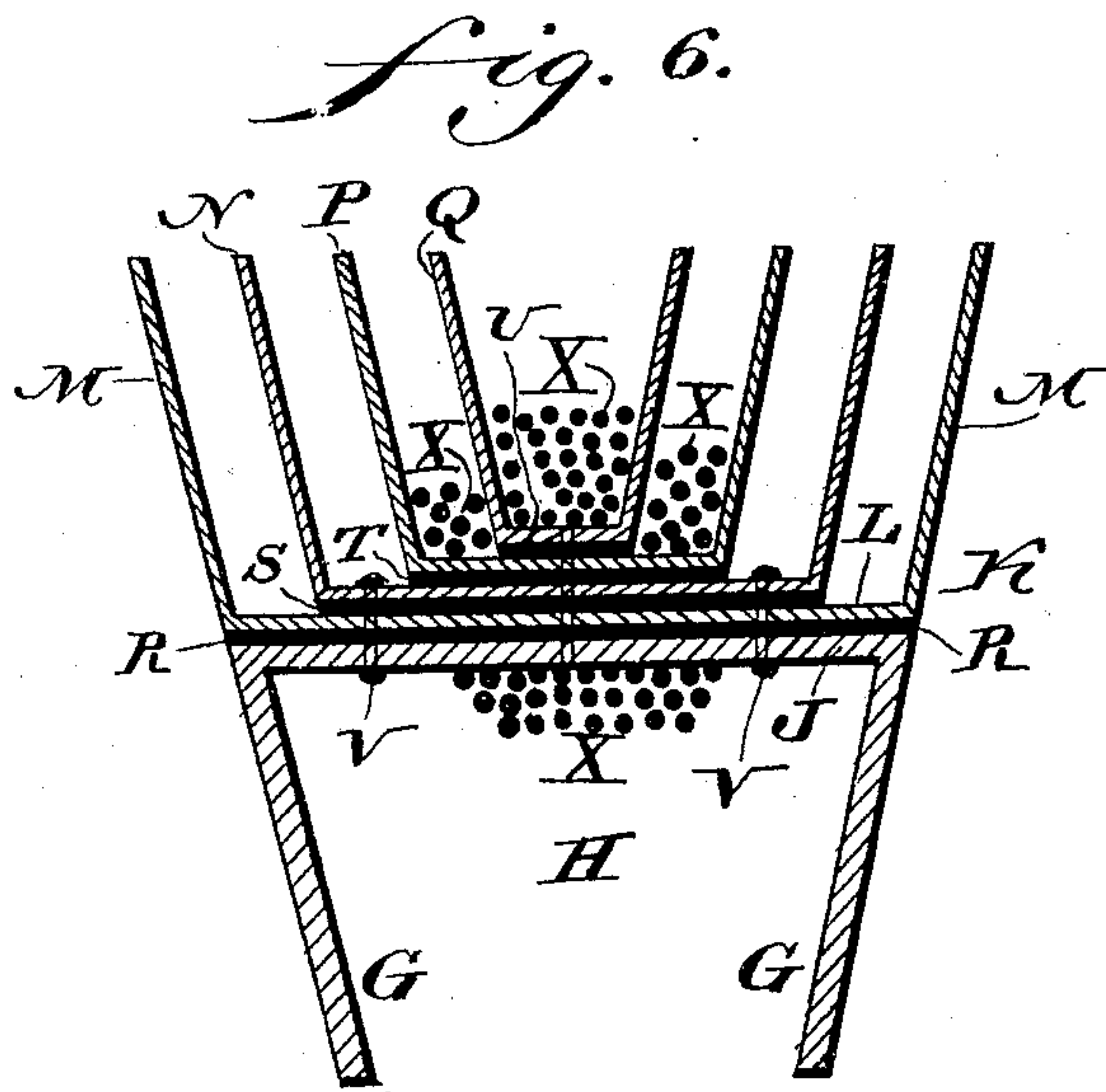


fig. 6.

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UNITED STATES PATENT OFFICE.

FREDERICK J. HAERER AND CHARLES L. GIKELEITER, OF PHILADELPHIA,
PENNSYLVANIA.

ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 567,746, dated September 15, 1896.

Application filed April 11, 1896. Serial No. 587,157. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK J. HAERER and CHARLES L. GIKELEITER, citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Armature-Magnets, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention relates to armature-magnets; and it consists of novel means for supporting the coils thereof, whereby in the case of accident to any portion of said coils or windings, as a wire burning out or becoming broken from any cause, the disablement of the machine for a long period is avoided, provision being made for readily detaching that portion of the armature containing the coil or winding in which the broken wire is located and for readily inserting a new one in its place, whereby any stoppage of the machine for a considerable time is avoided.

It also consists of a novel construction and assemblage of troughs or similar devices around which the windings are made.

It also consists of a novel construction of clamping devices for holding the different coils or windings in position.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents an end view of an armature-magnet embodying our invention. Fig. 2 represents a perspective view of a portion of one of the troughs employed with the coils or windings removed, the same being shown in detached position. Fig. 3 represents a transverse section through the hub of the head seen in Fig. 4. Fig. 4 represents a perspective view of one of the heads employed in detached position and a clamp adapted to be mounted thereupon. Fig. 5 represents a longitudinal section on line *yy*, Fig. 1. Fig. 6 represents a transverse section on line *xx*, Fig. 5.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates an armature, the same consisting of the heads B, which are provided with the hubs C, which have therein the threaded holes or sockets D,

said heads being mounted upon and caused to revolve in unison with the shaft E by means of keys or similar devices.

F designates notches in said heads B, in which are adapted to rest the limbs or members G of the inverted supporting-troughs H, the same being preferably made of channel-iron, and said limbs G having the connecting member or top J.

K designates a trough which may be a suitable length of channel-iron having the base L, and is adapted to rest upon the top J of the trough H, said members J and L being separated by the insulation R, and said trough K being provided with the upwardly-extending members M.

N, P, and Q designate other troughs, which are formed of lengths of channel-iron of different sizes, the same being superimposed upon each other in the manner indicated in Figs. 1 and 6 and being held together by means of the rivets V or other similar devices.

In Fig. 2 is shown a perspective view of the supporting-trough H and the outer trough K, mounted thereupon, the other troughs being removed.

V' designates shoulders near the extremities of the limbs G, adjacent the termination of the members M of the trough K, the base L of the upper trough being cut out to the extent indicated at W in Fig. 2, which point also marks the termination of the top J of the trough H, said members L and J being cut out, as indicated, in order to furnish room for the coils or windings X, the relative position of which to the troughs being indicated in Figs. 5 and 6.

Y designates a clamp employed, the same consisting of the upright triangular-shaped body portion Z, which has its sides recessed at A' for the reception of the ends of the members G, as indicated in Fig. 1. B' designates the foot of said member Z, which is deflected laterally and is adapted to be held upon the hub C by means of tap-bolts G' or other similar devices, it being understood that the number of clamps Y correspond to the number of notches F and also to the number of threaded sockets D. C' designates the top of said clamp Y, said top having the depend-

ing sides D', while the body portion Z is provided with the elongated slot E', through which the bolt F' is adapted to pass, said bolt engaging a suitable portion of the head B, whereupon it will be seen that the clamp Y is positively and effectively held in the desired position.

The operation is as follows: The troughs H, K, N, P, and Q are assembled in the manner indicated in Figs. 1 and 6, the abutting surfaces of said members being separated by the insulations R, S, T, and U, and said troughs being held in position by the rivets V or other devices. The wire X is then wound about the troughs in the manner indicated in Figs. 5 and 6, so that the spaces between said troughs are filled with the coils or windings. The supporting-troughs H are then placed in position, as indicated in Figs. 1 and 5, it being noticed that when the troughs are in assembled position the two abutting members G will fill a notch F, as indicated in the upper portion of Fig. 1, and thus all the coils or windings will be locked and prevented from axial movement when the same are all assembled. The clamps Y are next placed in position, the same being initially held by means of the bolt F', after which they are tightened in position by means of the bolt G', the ends of the members G interlocking with the recesses A' and the edge of the top C' abutting against the ends of the troughs M, N, P, and Q, respectively, as will be understood from Fig. 5. It will thus be seen from the foregoing that in case of accident to any coil or winding, as a wire burning out or becoming broken from any cause, upon ascertaining in which winding the accident has occurred, which can be readily done, the removal of the proper clamp Y, which holds the damaged coil in position, will enable the entire coil composed of one set of the troughs built up and held in position in the manner described, as seen in Fig. 6, to be lifted from the supporting-head B and another coil or winding to be readily placed in position, thus necessitating the stoppage of the machine for but a comparatively brief interval compared with the time which would ordinarily be required to rewind the whole armature, it being of course understood that a number of the removable coils seen in Figs. 5 and 6 are to be kept on hand in case of accident.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. An armature, having a plurality of coils or windings, heads upon which the same are supported, clamps mounted upon said heads and adapted to lock said coils in position and means for securing said clamps to said heads, substantially as described.

2. An armature, having a plurality of coils or windings, heads upon which the same are supported, clamps mounted upon said heads and provided with overhanging tops and re-

cessed sides adapted to lock said coils in position and means for securing said clamps to said heads, substantially as described.

3. An armature consisting of an inverted trough, a trough supported thereupon, a plurality of troughs of decreasing cross-sectional area supported on said last-mentioned trough, suitable insulation therebetween, a plurality of windings located in said troughs, heads upon which the latter are supported, clamps for locking said windings in position and means for securing said clamps to said heads, substantially as described.

4. In a device of the character described, a plurality of heads, notches in said heads, upon which a series of coils or windings are adapted to be supported, hubs attached to said heads, and clamps adapted to hold said coils in position, said clamps being provided with feet adapted to be secured to said hubs, substantially as described.

5. In a device of the character described, an armature consisting of an inverted trough, having its top recessed and its sides provided with shoulders on their upper portion, a second trough mounted on the former trough and having its base cut out and its sides terminating adjacent said shoulders, a series of troughs of decreasing cross-sectional area supported upon said last-mentioned trough, coils wound upon said troughs, a plurality of heads adapted to support said troughs, a series of clamps having an overhanging top and recessed sides adapted to abut against said troughs and hold the latter in position, and means for attaching said clamps to said heads substantially as described.

6. In a device of the character described, a plurality of heads having notches therein, an inverted supporting-trough having limbs adapted to be seated in said notches, troughs supported upon said first-mentioned trough, and having insulations therebetween, windings or coils about said troughs, and clamps having a top and feet for holding said troughs in position, substantially as described.

7. In a device of the character described, an inverted supporting-trough having a portion of its top, near its ends removed, and shoulders formed upon the upper portion of the depending limbs of said trough near its ends, a series of other troughs of decreasing cross-sectional area mounted upon said supporting-trough and having insulation therebetween, heads having notches therein upon which said troughs are supported, and carrying coils of wire thereupon, and clamping devices for holding said coils and troughs upon said heads, substantially as described.

8. In a device of the character described, a plurality of heads suitably supported and having notches thereupon, an inverted trough having its limbs seated in said notches, a series of troughs of decreasing cross-sectional area supported upon said former trough and having insulation therebetween, coils of wire wound about said troughs, clamps having an

overhanging top adapted to contact with said
troughs and hold the latter in position, and
means for securing said clamps to said heads,
substantially as described.

5 9. In a device of the character described,
a plurality of heads suitably supported and
having notches thereupon, said heads being
provided with hubs, an inverted trough hav-
ing its limbs seated in said notches, a series
10 of troughs of decreasing cross-sectional area,
supported upon said former trough and hav-
ing insulation therebetween, coils of wire
wound about said troughs, clamps having an
overhanging top adapted to contact with said

troughs and hold the latter in position, said 15
clamps having each a body portion provided
with an elongated slot and a foot, and fasten-
ing devices common to said clamps and heads,
substantially as described.

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