

(No Model.)

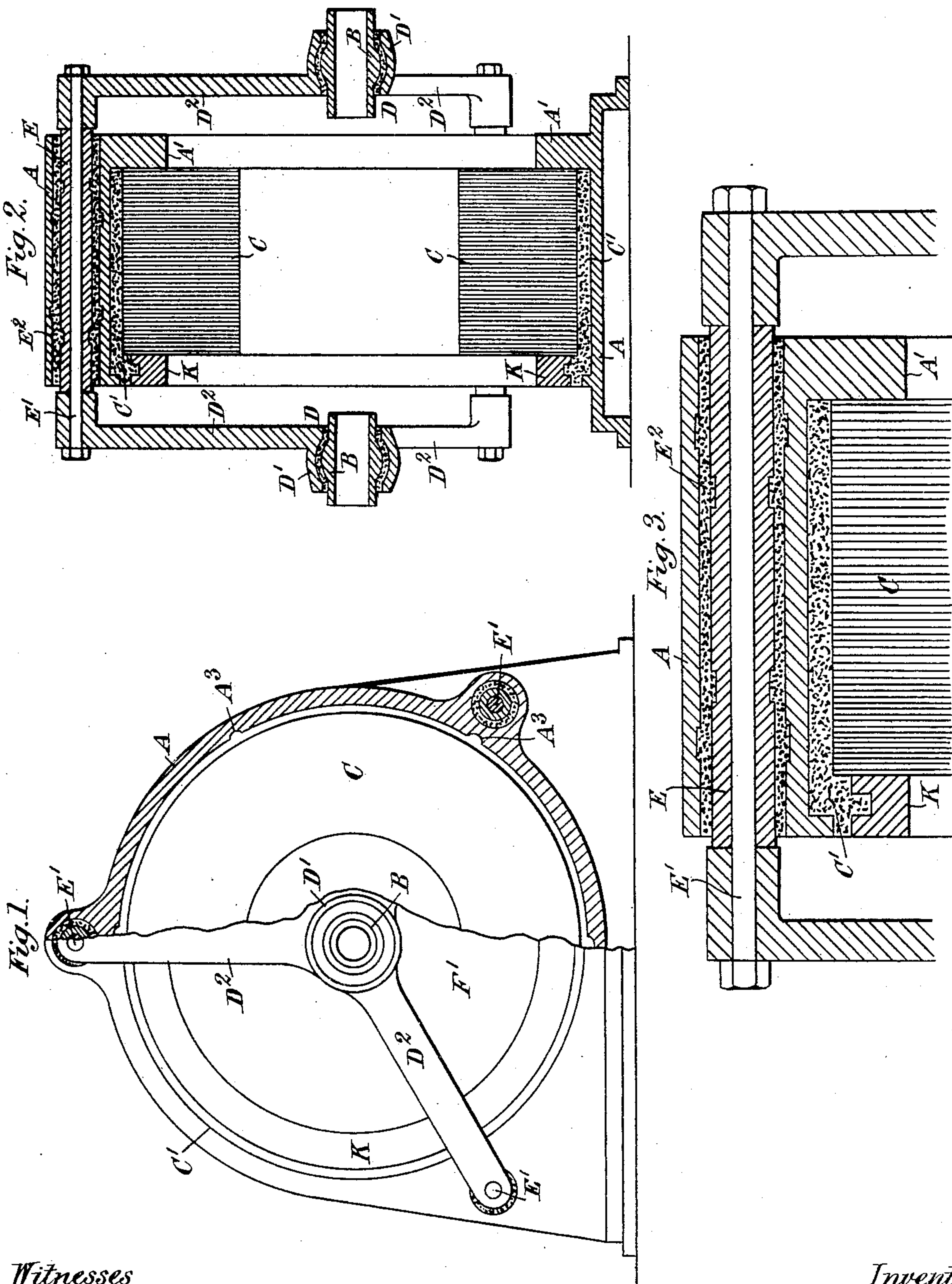
2 Sheets—Sheet 1.

A. SOAMES.

CONSTRUCTION OF DYNAMO ELECTRIC MACHINERY.

No. 598,540.

Patented Feb. 8, 1898.



Witnesses
Ed. Bullock.
A. M. Perkins.

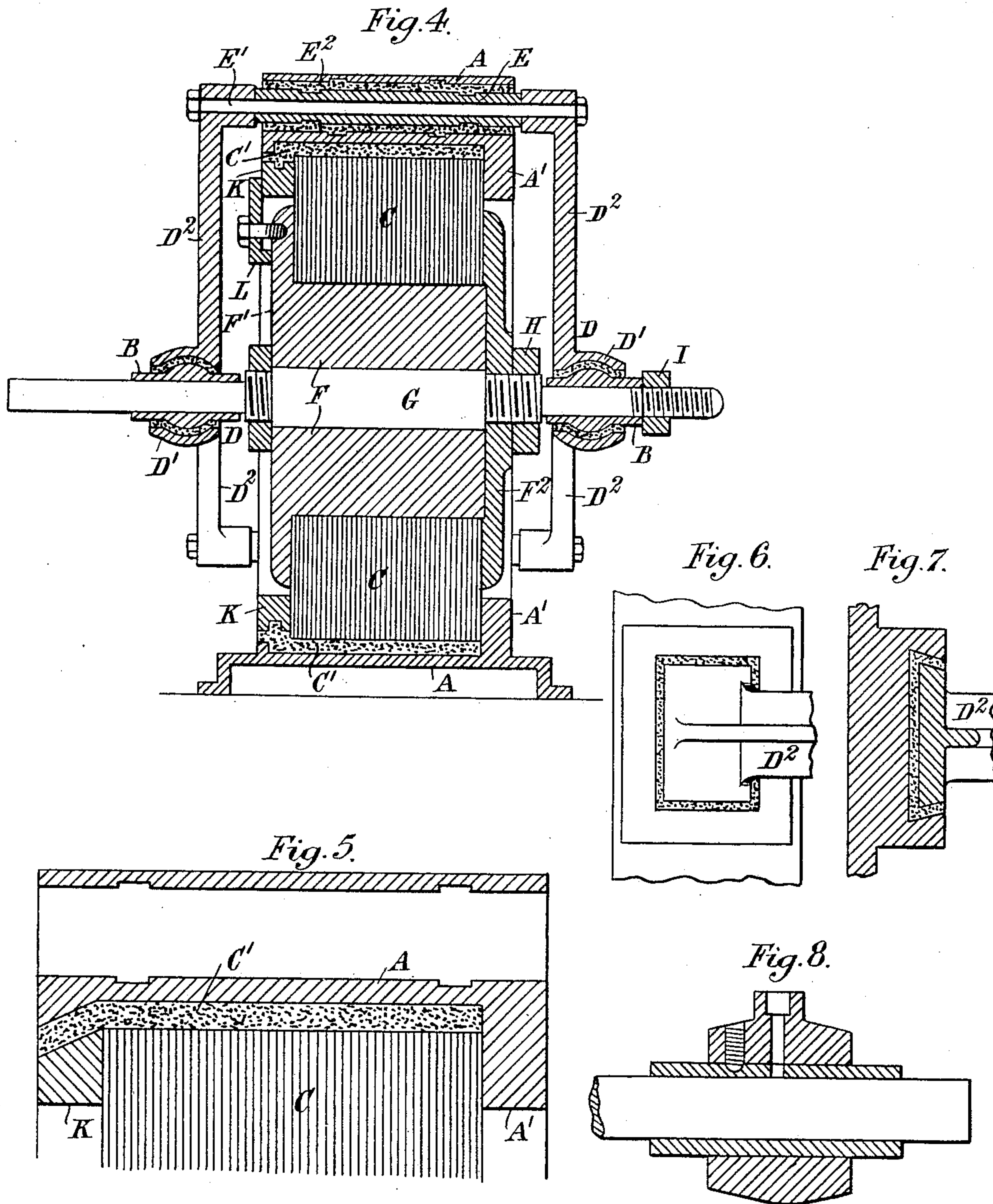
Inventor
Alfred Soames
By his Attorneys,
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UNITED STATES PATENT OFFICE.

ALFRED SOAMES, OF LONDON, ENGLAND, ASSIGNOR TO THE DAVIES MOTOR COMPANY, LIMITED, OF SAME PLACE.

CONSTRUCTION OF DYNAMO-ELECTRIC MACHINERY.

SPECIFICATION forming part of Letters Patent No. 598,540, dated February 8, 1898.

Application filed December 6, 1897. Serial No. 660,966. (No model.)

To all whom it may concern:

Be it known that I, ALFRED SOAMES, a subject of the Queen of Great Britain, residing at 16 Red Lion Street, Clerkenwell, London, England, have invented certain new and useful Improvements in the Construction of Dynamo-Electric Machinery, of which the following is a specification.

This invention relates especially to the construction of electromotors in which a pile of annular stampings is required to be accurately centered in a frame which also carries the shaft of an armature to be revolved within the annular stampings with a narrow clearance or air-gap between them.

According to this invention the annular stampings and the bearings for the armature-shaft, or one or other of these, are secured to the frame concentrically one with the other by means of type or such like metal or other suitable material cast between them and the frame.

Figure 1 of the drawings annexed shows an end view, one-half in section, of the frame of a machine so constructed. Fig. 2 is a longitudinal section. Fig. 3 is a part longitudinal section on a larger scale. Fig. 4 is a longitudinal section showing the way in which the stampings are held in place within the frame and concentric with the bearings at the time when type-metal is run into the space between them and the frame. Fig. 5 shows a modified form of ring used for holding the assemblage of stampings. Figs. 6 and 7 show a modified way in which the brackets which carry the bearings for the armature-shaft may be fixed to the frame. Fig. 8 shows an alternative way in which the bearings for the armature-shaft may be formed.

A is the frame, shown to be cylindrical, but it might be square or of other form.

A' is an inwardly-projecting flange.

B are the bushes or bearings for the armature-shaft.

C are the rings or stampings. They are shown as being circular on the exterior, but they might be square or of other form. The apertures formed through these rings to receive the field-windings are not shown.

The bushes B are held by type-metal or other castings within a central boss D', forming part

of a bracket D. D² are arms radiating from this boss. They are bolted at their ends by bolts E' up to the ends of tubes E, which are secured transversely across the frame by type-metal or other castings E².

C' is the type-metal casting securing the rings to the frame.

The tubes E are first secured in proper position to the frame. To effect this, the tubes are placed into holes or recesses which extend transversely through the frame from one side of it to the other. The ends of the radial arms D² of the brackets D are then attached by bolts E' to the ends of the tubes E, and both brackets are held in any suitable manner in proper position relatively to the frame. Type-metal or other suitable material is then poured into the spaces between the tubes and the interior of the recesses, and the tubes are so secured in position. After both end brackets D have thus been secured to the frame the bearing-bushes B are secured within the central bosses D' of the brackets D. To do this, the bushes are placed onto the armature-shaft and also passed into the central bosses D', one of the brackets D being taken off from the frame A and afterward replaced to allow of this, and while the shaft is held in any suitable manner in proper position relatively to the frame type-metal or other suitable material is run into the spaces between the bushes B and the interior of the bosses, and the bushes are thus secured truly in line with one another. After this has been done the ring-stampings C are secured in position within the frame. To effect this, the rings are placed onto a mandrel F. (See Fig. 4.) The mandrel is carried by an axis G, which is of the same size as the armature-axis. F' is a fixed flange at one end of the mandrel, and F² a loose flange at the other end. The rings are placed onto the mandrel between the flanges, and the loose flange is forced toward the fixed flange by turning the nut H, which screws onto a screw-thread cut around the axis G. In this way the rings are all clamped together between the flanges. The axis of the mandrel is then placed into the bearings B and is drawn endwise therein by a nut I, which screws onto a screw-thread upon it and abuts against the end of one of the bearings.

In this way one side of the assemblage of rings is held against the inner face of the flange A'. A ring K is also placed against the other side of the assemblage of rings and is held firmly
 5 against it by clamping-pieces L, carried by the end of the mandrel. The ring has a groove formed around its outer circumference, as shown. A corresponding groove is also
 10 formed around the inner circumference of the frame. Other grooves A³ at distances apart from one another are also formed in the frame parallel to the axis. While the mandrel is held in place in the bearings B, the frame is placed on end, with the ring K up-
 15 permost, and type-metal or other suitable material is cast into the space between the frame and the stampings C and ring K and into the several grooves above mentioned. When the metal has set, the mandrel is removed, leav-
 20 ing the stampings accurately centered within the frame and securely held in place.

Instead of grooves being cut around the ring K and frame for the type-metal or other material to be run into, as above described,
 25 the outer circumference of the ring might be beveled, as shown at Fig. 5, and the portion of the inner circumference of the frame opposite to the ring be correspondingly beveled. Instead, also, of the ends of the arms D² of
 30 the bracket D being bolted to the ends of tubes E, secured to the frame by type-metal or other castings, they might be bolted directly to the frame, or they might, as shown at Figs. 6 and 7, be made to enter recesses in
 35 the frame and be secured therein by a type-metal or other casting. Instead, also, of the bushes B being held within the bosses D' of the brackets D by type-metal or other cast-
 40 ings, they might be removable and held in place by a screw or otherwise, as illustrated at Fig. 8.

What I claim is—

1. A dynamo-electric machine in which an assemblage of sheet-metal rings and the bear-
 45 ings for the armature-shaft are secured to the frame concentrically one with the other by type-metal or other suitable material cast between them and the frame.

2. A dynamo-electric machine in which an
 50 assemblage of sheet-metal rings is secured to

the frame concentrically with the bearings for the armature-shaft by type-metal or other suitable material cast between them and the frame.

3. A dynamo-electric machine in which the
 55 bearings for the armature-shaft are secured to the frame by castings of type-metal or other suitable material.

4. A dynamo-electric machine in which an
 60 assemblage of sheet-metal rings used for carrying the field-windings is held in place within a frame concentric with the bearings for the armature-axis by type-metal or other suitable material cast into the space between its outer
 65 circumference and the frame and by one side of the assemblage of rings being held up to a flange formed around the interior of the frame by a ring which is held against the opposite
 70 side of the assemblage of rings by the type-metal or other casting.

5. A dynamo-electric machine in which the
 75 bearings for the armature-shaft are retained by castings of type-metal or other suitable material in brackets secured to the ends of the frame.

6. A dynamo-electric machine in which the
 80 bearings for the armature-shaft are carried by brackets held by bolts against the ends of tubes or blocks secured to the frame by castings of type-metal or other suitable material.

7. The hereinbefore-described method of
 85 securing an assemblage of sheet-metal rings side by side within the frame of a dynamo-electric machine concentric with the armature-bearings such method consisting in
 90 mounting the stampings side by side upon a mandrel whose axis corresponds with the armature-axis placing the axis of the mandrel into the bearings and drawing it endwise until one side of the assemblage of rings bears
 95 against a flange formed around the interior of the frame and subsequently after placing the frame on end pouring in type-metal or other suitable material into the space between the frame and the outer circumference of the rings substantially as described.

ALFRED SOAMES.

Witnesses:

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 JOSEPH LAKE.