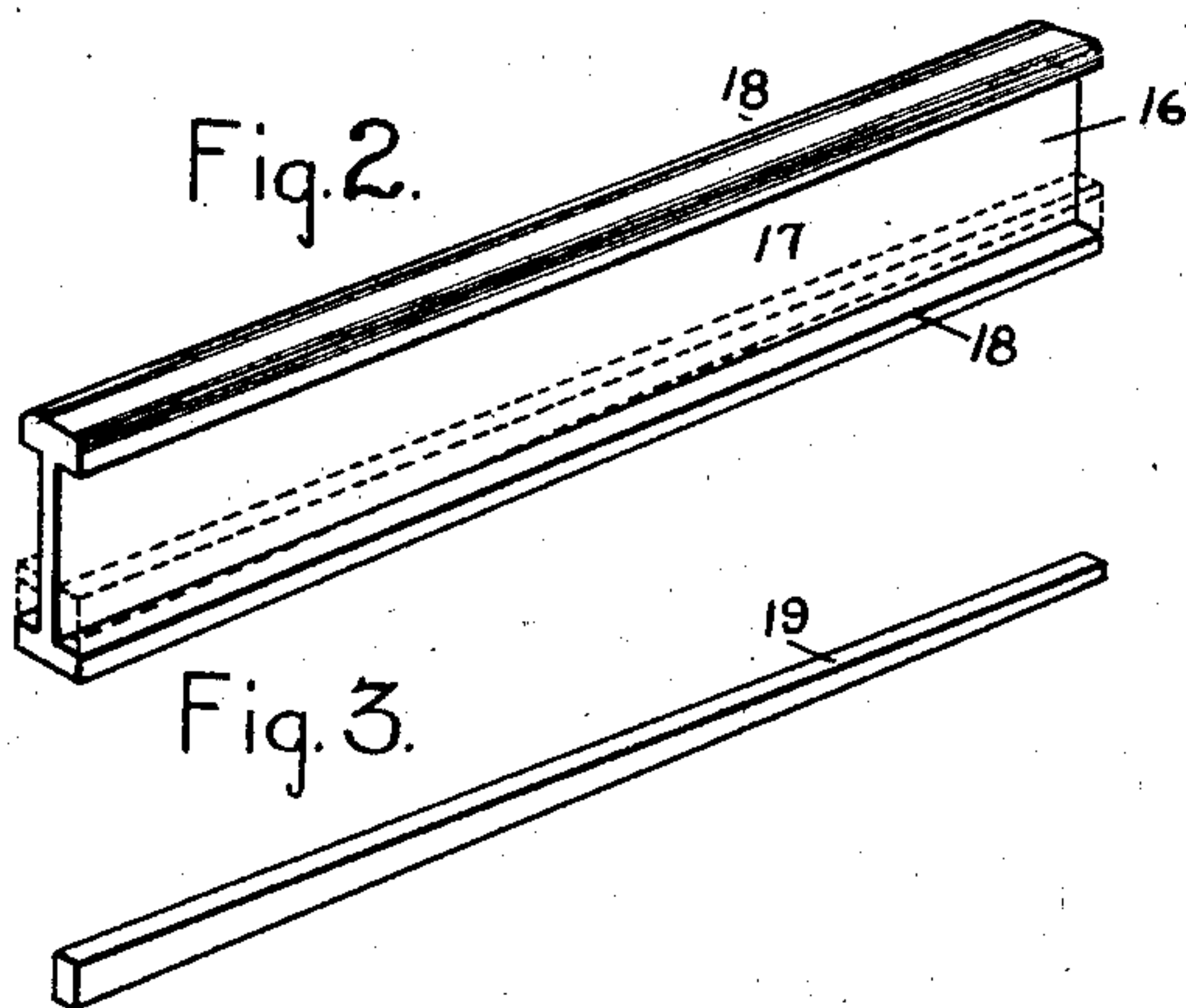
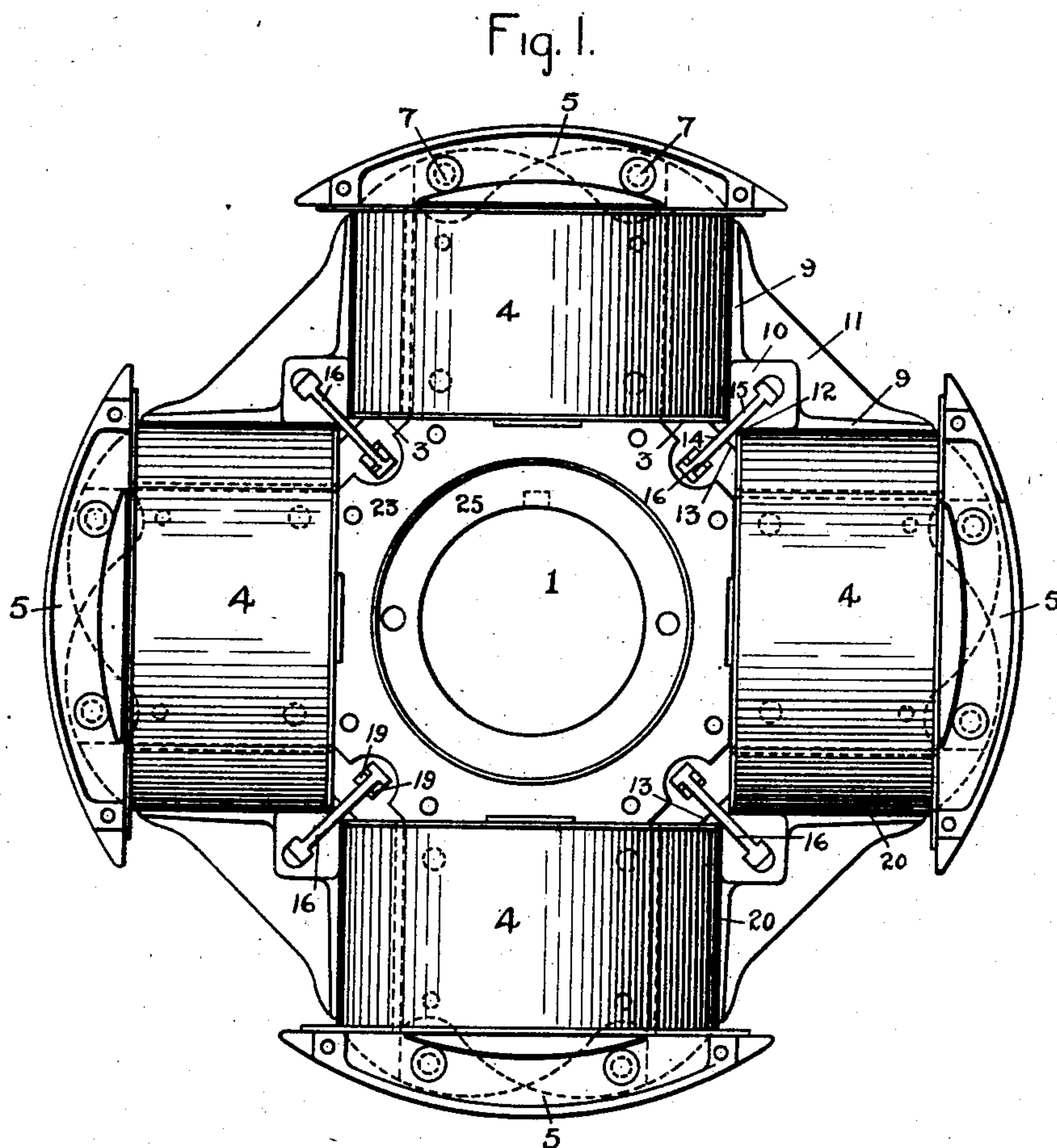


H. G. REIST.
FIELD MAGNET STRUCTURE.
APPLICATION FILED APR. 11, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

Robt. C. Chapman
Helen Orford

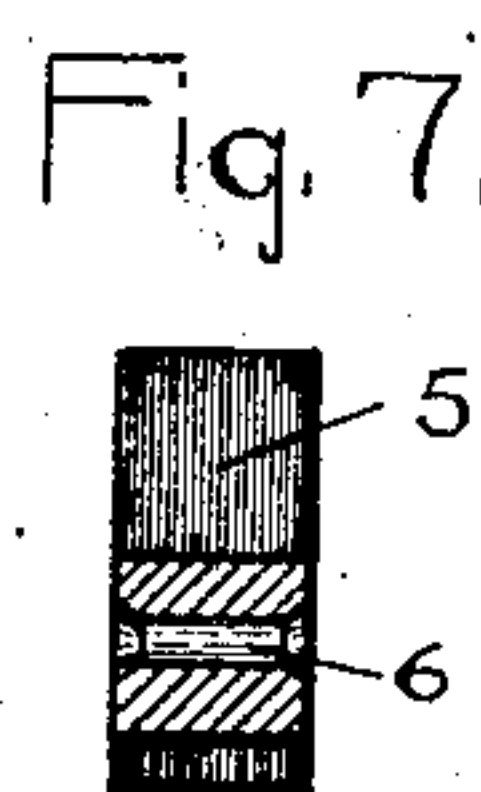
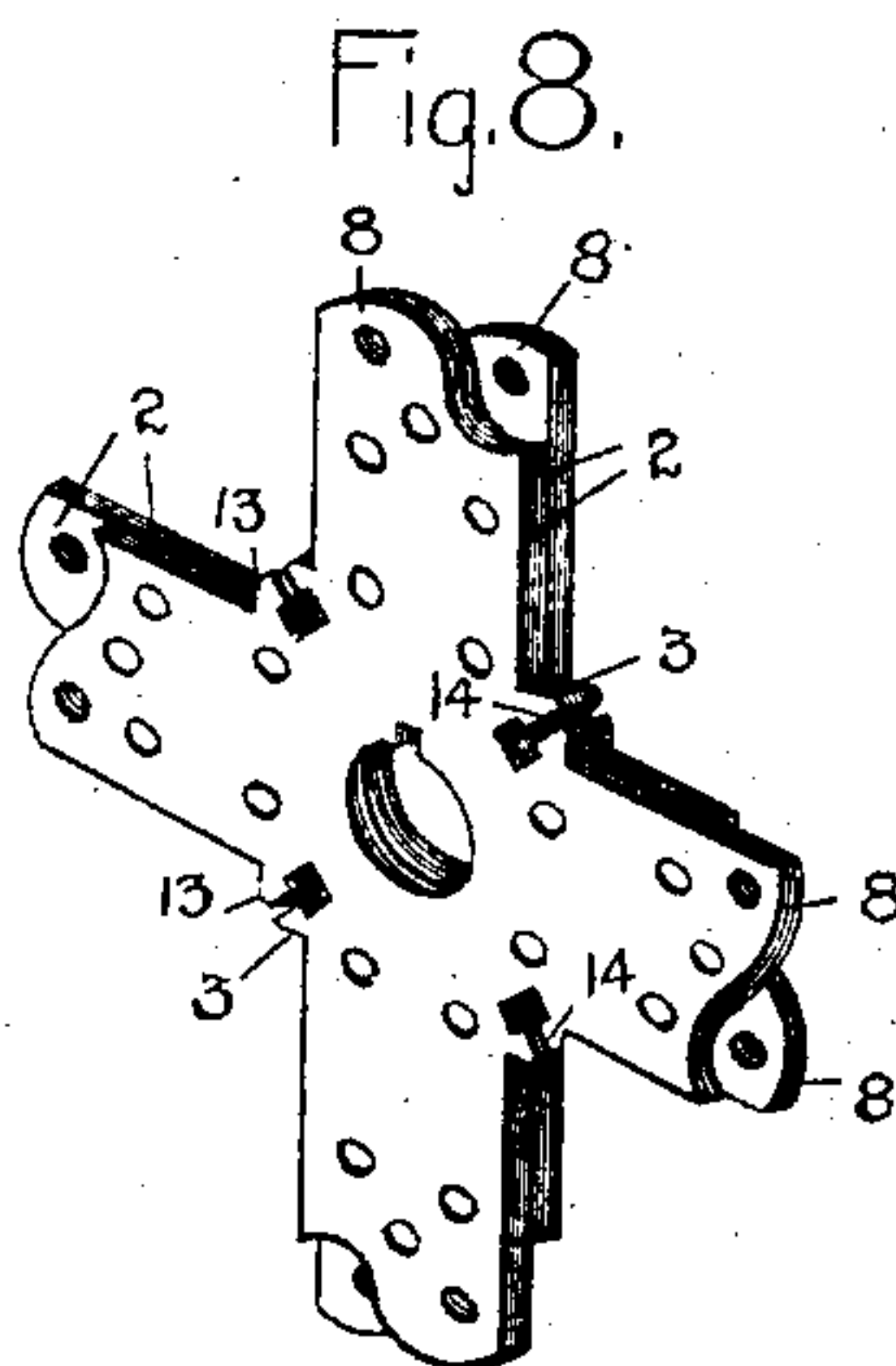
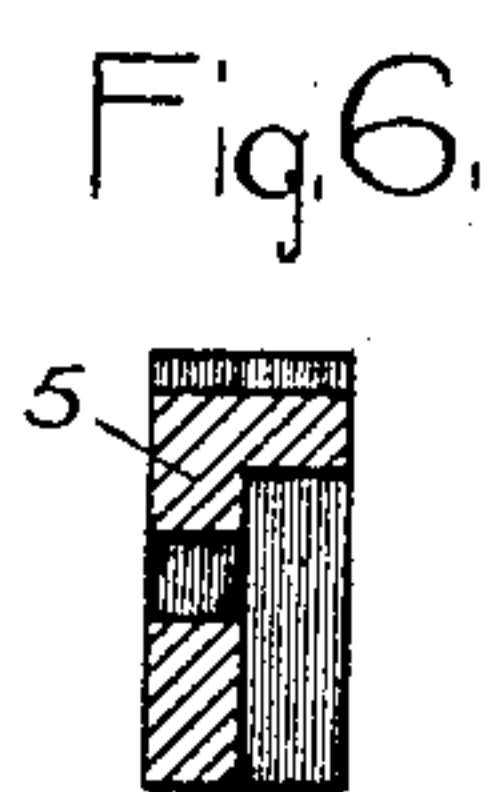
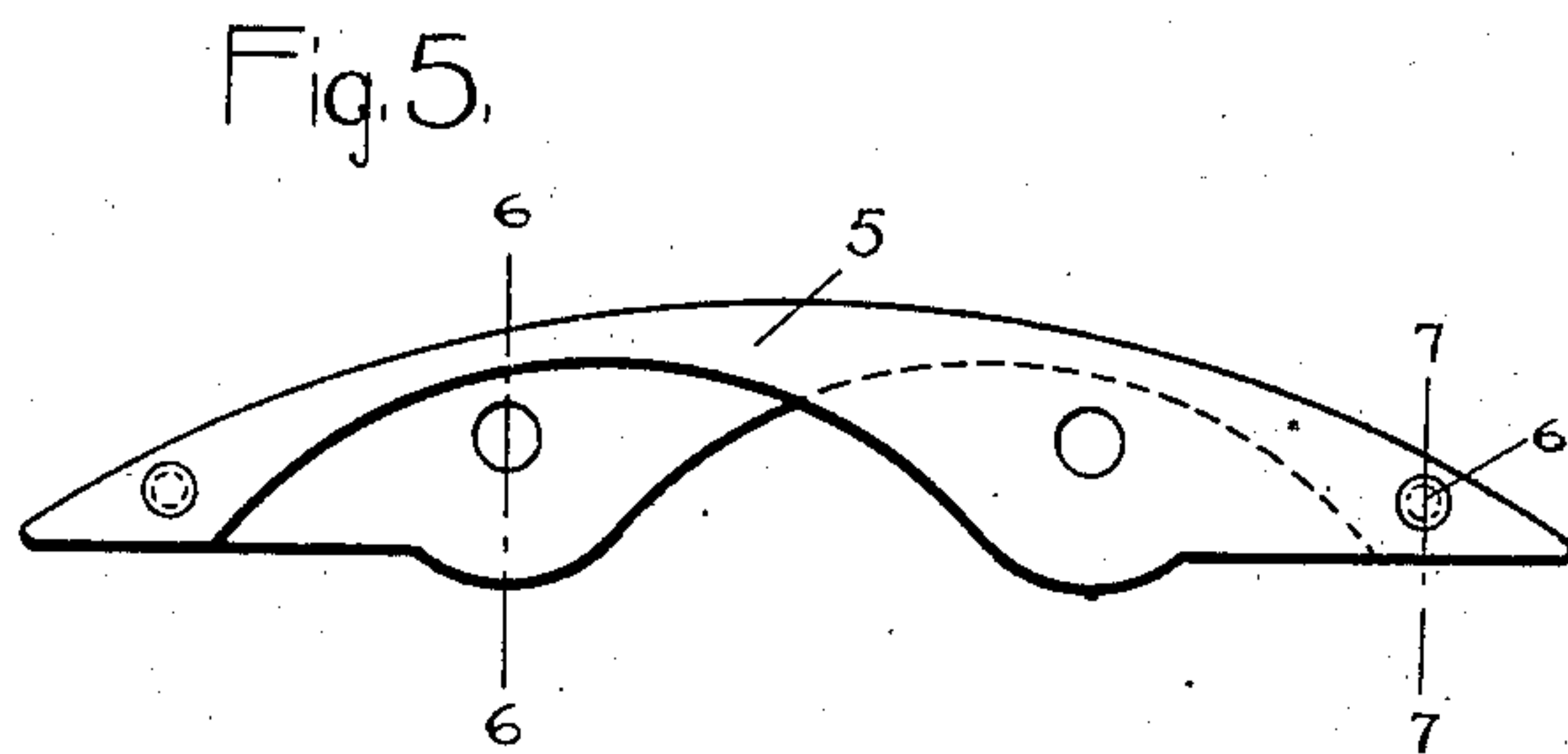
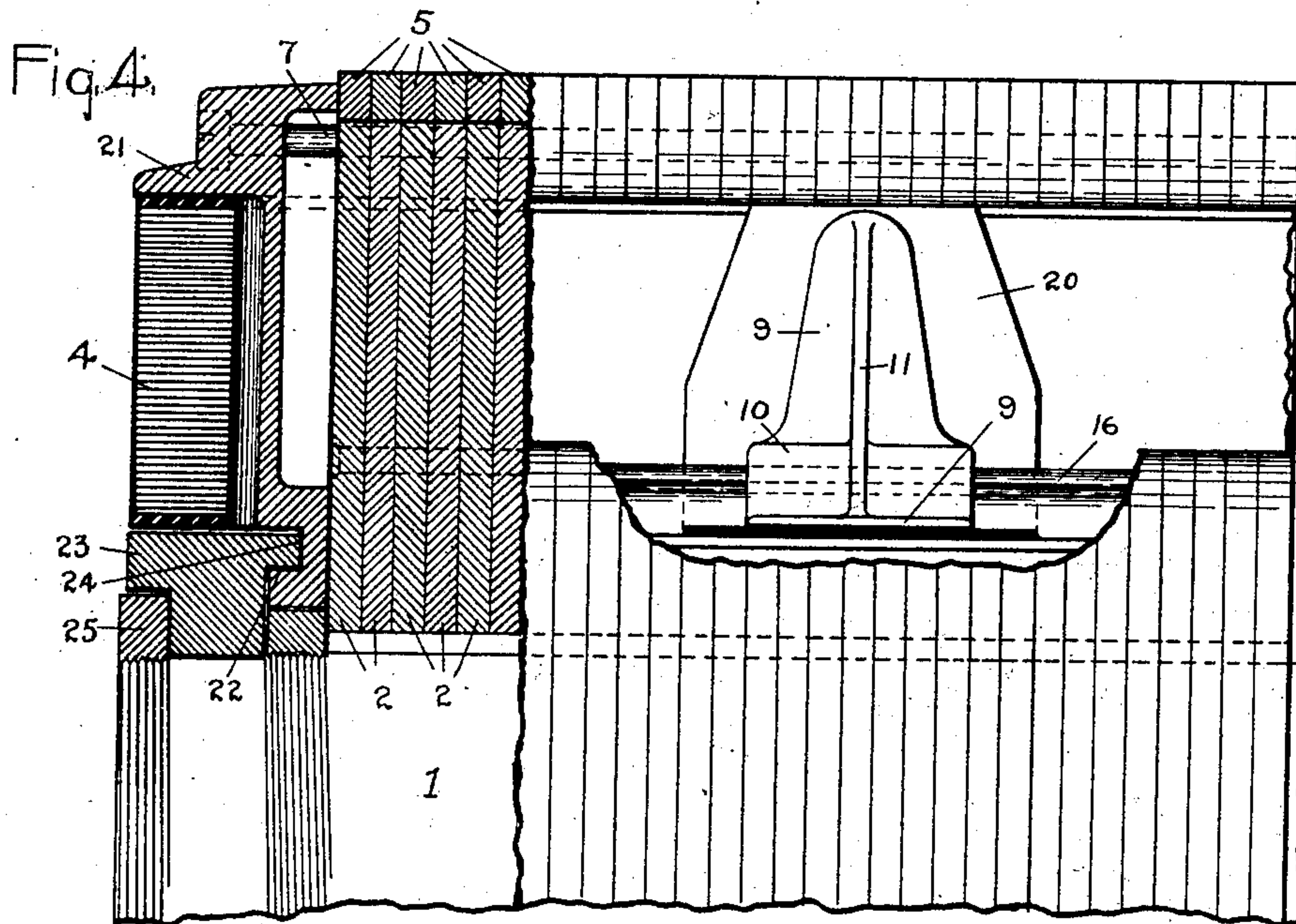
Inventor:

Henry G. Reist.
Allen H. Davis
ATTY

H. G. REIST.
FIELD MAGNET STRUCTURE.
APPLICATION FILED APR. 11, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:
Wm. A. Chapman
Helen Orford

Inventor:
Henry G. Reist.
by *Alb. B. Davis*
Atty.

UNITED STATES PATENT OFFICE.

HENRY G. REIST, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

FIELD-MAGNET STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 729,414, dated May 26, 1903.

Application filed April 11, 1902. Serial No. 102,357. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. REIST, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Field-Magnet Structures, of which the following is a specification.

This invention relates to dynamo-electric generators of the revolving field-magnet type; and its object is to improve certain features of construction whereby lateral and radial stresses on the field-coils are better resisted than heretofore.

The invention comprises braces secured against the sides of the field-coils and collars on the driving-shaft connected by a rabbet-joint with the plates which support the ends of the field-coils. The braces are fastened to the body of the field-magnet structure, preferably by links fitting into undercut slots in the braces and the body, and serve to prevent any lateral vibration of the coils with reference to the pole-pieces on which they are mounted. The rabbeted collars and end plates resist centrifugal strains and assist in preventing radial movement of the coils on the pole-pieces.

In the accompanying drawings, Figure 1 is an end view of a four-pole revolving field-magnet embodying my invention. Fig. 2 is a perspective view of a link. Fig. 3 is a similar view of a wedge. Fig. 4 is a side elevation, partly in section and partly broken away, of one end of the field-magnet. Fig. 5 is an end view of the pole-tip. Figs. 6 and 7 are cross-sections thereof on the lines 6-6 and 7-7, respectively; and Fig. 8 is a perspective view of two of the units of which the hub and pole-pieces are composed.

On the driving-shaft 1 is mounted the body of the field-magnet consisting of a center or hub and radial pole-pieces built up by assembling on the shaft a plurality of similar units 2, each composed of a given number of sheet-iron laminations riveted together, as shown in Fig. 8. The structure illustrated has four field-poles; but it is evident that any desired number may be provided for. At the base of each pole-piece is a shoulder 3 to support a field-coil 4, which is wound on a form and slipped on the pole-piece. The

pole-tip is then put on and secures the coil in place. This tip is preferably composed of a plurality of laminated units 5, the laminations in each unit being secured by rivets 6, a plurality of such units being fastened side by side to the pole-pieces by transverse bolts 7. Each unit pole-tip is cut away on each side, as shown, to correspond with projecting lugs 8 on the pole-pieces in accordance with the construction set forth in the patent to Thomson and Geisenhoner, No. 571,462, granted November 17, 1896.

It is found that at high speeds the long coils are liable to vibrate, and in order to prevent this I apply a brace to the side of each coil. The brace is a casting having two flat plates 9, adapted to fit against the adjacent sides of two coils. In a four-pole machine these plates will make a dihedral angle of ninety degrees; but if the machine has more than four poles this angle will be correspondingly altered. The plates are integral with a boss 10 and strengthening-webs 11. The inner angle of the boss stands close to a beveled face on the body-hub between two adjacent shoulders 3. In this beveled face and in the boss 10 are cut registering slots 14 15, each having an undercut or enlarged inner end. A link 16 is driven into the slots, having a web to fit said slots and flanges 18 to fit the enlarged ends thereof. If necessary, one or more wedges 19 can be driven in over the flanges to insure a firm solid job. A sheet of insulation 20 may be placed under each plate before the links are driven in.

The curved ends of the coils pass around end plates 21, applied to each end of the pole-pieces and secured in place by the bolts 7, which fasten the pole-tips in place. To relieve the shearing strain on these bolts, due to the centrifugal thrust of the coils and end plates, when running at high speeds and to insure a solid immovable construction, I provide in each end plate a rabbet 22, concentric with the shaft, and on the shaft I place a collar 23, having a flange 24, which fits into the rabbet 22. The collar is held in place by a nut 25, screwed on the shaft. The square engaging shoulders of the rabbet and the flange resist all centrifugal strains on the end plates and coil. It is evident that the rela-

tive positions of the rabbet and flange may be reversed, if desired.

My improvements securely lock together the body and coils, so that a strong solid structure is produced and all vibration or displacement of parts is prevented.

I do not desire to restrict myself to the exact construction or arrangement of parts shown in the accompanying drawings, as the same may be varied and modified without departing from my invention.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a field-magnet structure, the combination with the coils, of braces applied to the sides thereof.

2. In a field-magnet structure, the combination with two adjacent coils, of a brace fitting the adjacent surfaces thereof.

3. A brace for field-magnet coils, comprising two plates making a dihedral angle, a boss and strengthening-webs integral therewith, and an undercut slot in said boss.

4. In a field-magnet structure, the combination with a hub, of pole-pieces and coils, braces applied to said coils, and means for fastening the braces to the hub.

5. In a field-magnet structure, the combination with a hub having undercut slots, of pole-pieces and coils, braces applied to said

coils and having undercut slots, and links engaging with said slots.

6. In a field-magnet structure, the combination with a hub having beveled faces containing undercut slots, of pole-pieces and coils, braces fitting between adjacent coils and provided with undercut slots, and links each having a web and flanges to engage with said slots and fasten the braces to the hub.

7. In a field-magnet structure, the combination with the pole-pieces and coils, of end plates between the coils and pole-pieces, and collars connected with said end plates by rabbet-joints.

8. In a field-magnet structure, the combination with the pole-pieces and coils, of end plates between the coils and pole-pieces, and collars connected with said end plates by rabbet-joints concentric with the axis of rotation of the structure.

9. In a field-magnet structure, the combination with an end plate for a coil, having a rabbet concentric with the driving-shaft, of a collar having a flange fitting into said rabbet.

In witness whereof I have hereunto set my hand this 9th day of April, 1902.

HENRY G. REIST.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.