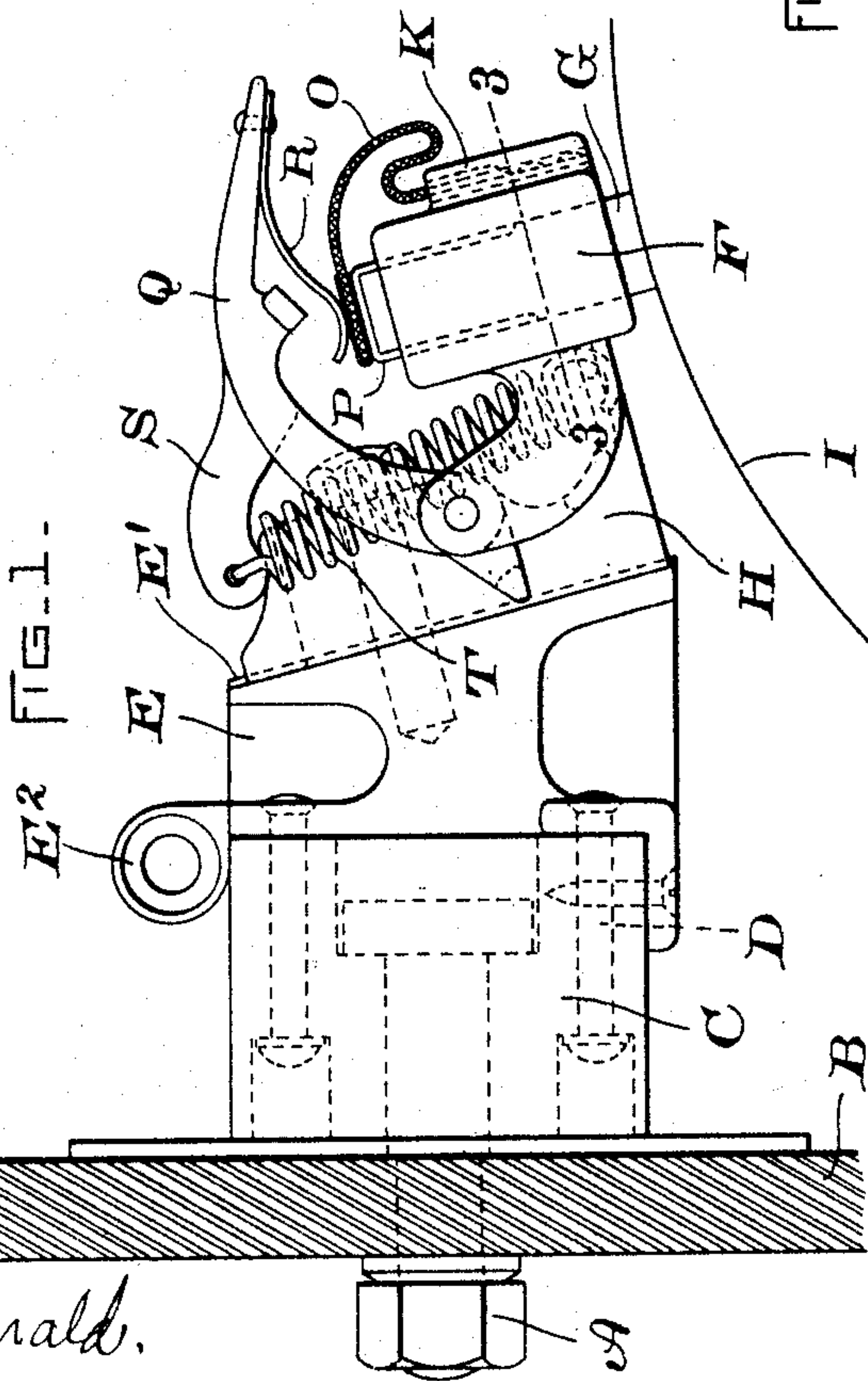
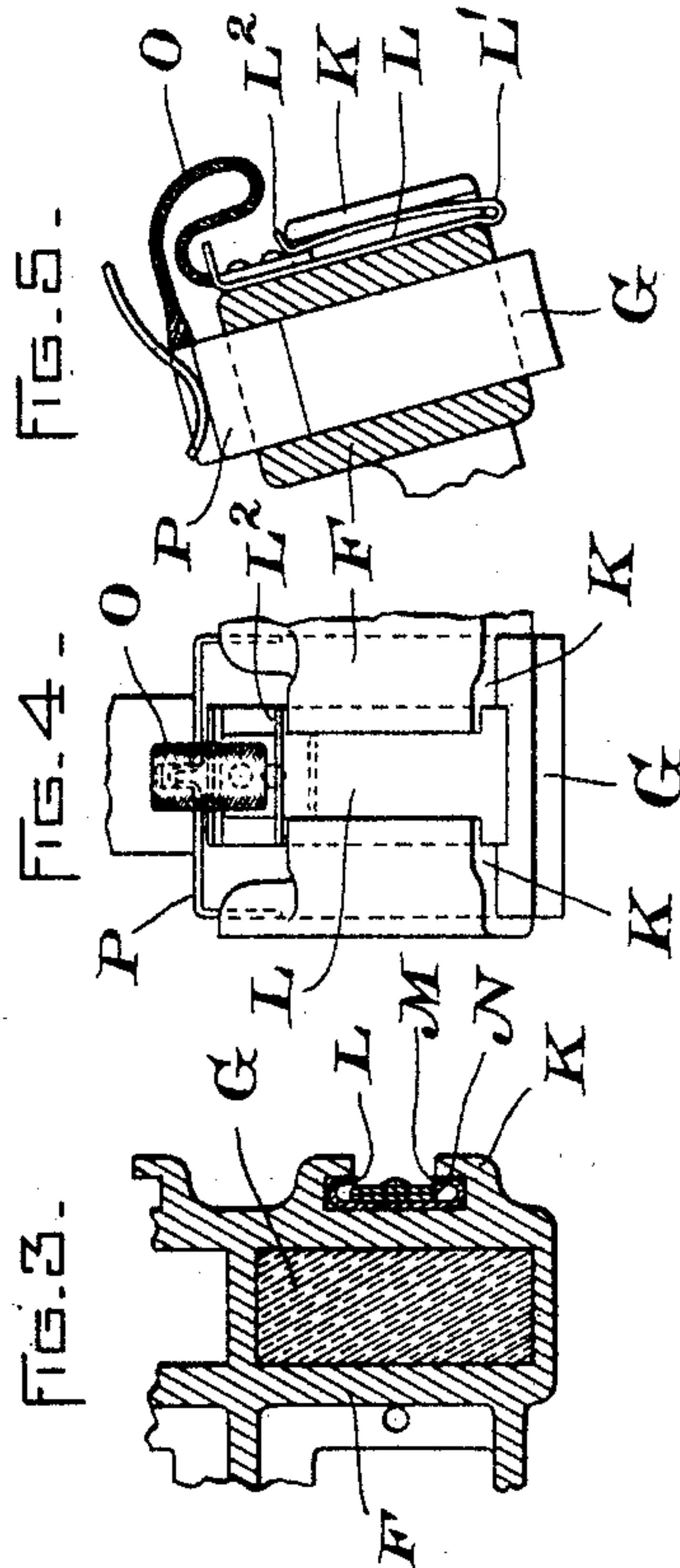
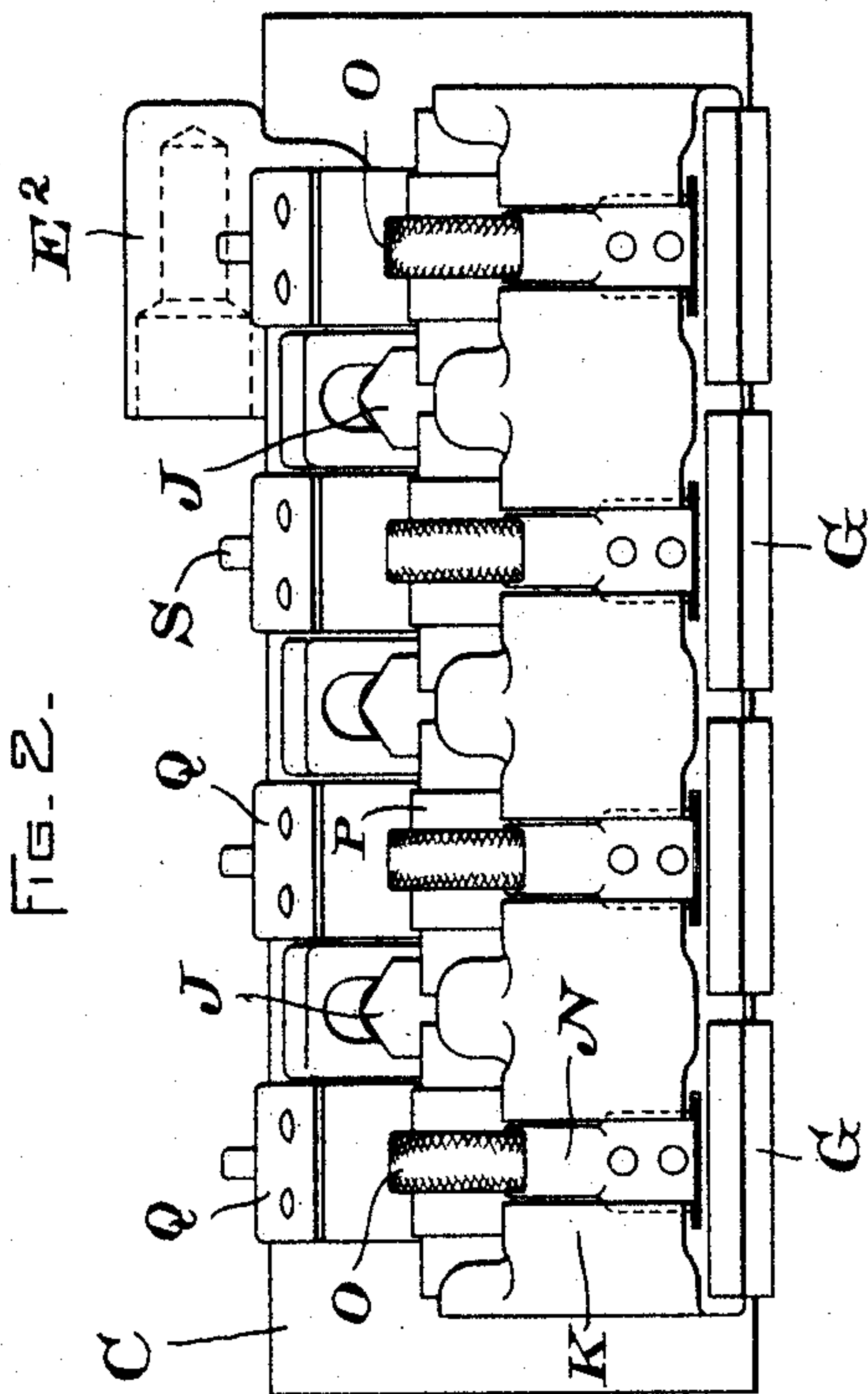


(No Model.)

N. M. BEEDE,
BRUSH HOLDER.

No. 586,957.

Patented July 27, 1897.



WITNESSES.

A. H. Abell.

A. J. McDonald.

INVENTOR.

Neal M. Beede, by
Geo. R. Blodgett,
Att'y.

UNITED STATES PATENT OFFICE.

NEAL M. BEEDE, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE
GENERAL ELECTRIC COMPANY, OF NEW YORK.

BRUSH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 586,957, dated July 27, 1897.

Application filed May 5, 1897. Serial No. 635,153. (No model.)

To all whom it may concern:

Be it known that I, NEAL M. BEEDE, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Brush-Holders, (Case No. 542,) of which the following is a specification.

The present invention relates to brush-holders employed on dynamo-electric machines, and it has its greatest utility in connection with railway-motors wherein the brush-holder space is limited.

It has for its object to provide a flexible connection between the carbon brush and the holder for increasing the conductivity, which can be readily removed with the brush without the use of tools or disturbing the holder.

In the accompanying drawings, attached to and made part of this specification, Figure 1 is a front elevation of my improved brush-holder. Fig. 2 is a side elevation, and Fig. 3 is a section on the line 3 3 of Fig. 1. Figs. 4 and 5 are modifications.

Secured by bolts A to the frame or other suitable part of the machine B is a block of insulating material C. Extending parallel with the block C and secured to it by rivets D is a casting E, which furnishes a support for the main body of the brush-holder. Formed integral with the casting is a socket E², in which the armature-terminal is secured. The right-hand face of the casting is slightly inclined and is provided with a rib or ribs E' to assist in holding the brush-holder in place.

The brush-holder proper consists of a casting F, provided with four rectangular openings for the reception of the carbon brushes G, and a back portion H, which has grooves coinciding with the ribs E'. To allow the brush-holder to be adjusted toward and away from the commutator I, the back portion H is slotted, and working in these slots are clamping-bolts J. On the front face of the holder are lugs K, which are so arranged that they form a receptacle for the spring-contact L. The spring-contact L consists of a piece of sheet metal bent over on the sides, as at M, to form springs for retaining it in position. Extending upward from the contact is a flat piece N, and to this is secured, by solder or

other suitable means, the flexible connection O. The latter is employed to increase the conductivity between the brush and the holder.

Mounted on the top of each carbon brush is a U-shaped spring-clip P, and secured thereto by solder and rivets is the upper end of the flexible connection O. The clip P may, if desired, be riveted to the brush.

The carbon brushes closely fit the rectangular openings in the casting, so as to increase the conductivity, present a large wearing-surface, and at the same time prevent chattering of the brushes. These openings are roughly made at the time of casting and are afterward broached out by a suitable tool, as are also the inner surfaces of the lugs L. This makes a very cheap and at the same time accurate construction.

Pivotaly secured in lugs extending rearwardly from the casting F are arms Q, which are provided on their under sides with springs R, bearing on the carbon brushes, and on top with lugs S, forming supports for the upper ends of the springs T. The spring T is secured at its lower end in a lug formed integral with the casting F and under normal conditions holds the arm in the position shown; but when the arm is swung backward the spring works over a dead-center and retains it in the raised position.

When it is desired to remove a brush, the arm is thrown backward and the brush and spring-contact L removed together. A new brush may then be placed in the spring-clip P and the whole returned to place without having disturbed any of the others and without the use of any tool.

By this construction a person may with one hand readily remove a brush or brushes from the holder, and in street-car work, where the motors are not easy of access, this is a very desirable feature, for it permits the person to support himself with one hand.

In Figs. 4 and 5 I have illustrated a slight modification of the spring-contact. The brush G is mounted in the holder F and is provided at its upper end with a spring-clip P, to which is secured the flexible connection O. On the front of the holder are lugs K, forming a receptacle for the spring-contact L, which consists of a piece of sheet metal

bent back upon itself. At the bottom is a slight enlargement L' , which engages with the under side of the holder and prevents the contact from coming out, due to the jarring of the machine. At the top of the clamp is a projection L^2 , which engages with the top of the holder and prevents the clamp from sliding down. The flexible connection O is secured to the contact by rivets.

10 I am aware that it has been proposed heretofore to employ flexible connections between carbon brushes and their holders in order to increase the conductivity; but in all such instances with which I am familiar one end of
15 the flexible connection is secured to the brush-holder by a screw and the screw soldered to prevent it from loosening. This made it difficult to remove the brush on account of the shortness of the flexible connection, and it is
20 undesirable to remove the screw each time the brush is changed.

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

25 1. The combination, in a brush-holder, of an opening for the reception of a commutator-brush, a brush movable in said opening, a flexible connection leading from the brush,

and a spring-clamp secured to the flexible connection, and making electrical connection with the body of the brush-holder.

2. The combination in a brush-holder, of receptacles for the brushes, carbon brushes mounted in the receptacles, spring-clips secured to the brushes, flexible leads fastened to the clips, spring-clamps secured to the leads, and lugs on the body of the brush-holder for holding the clamps.

3. The combination in a brush-holder, of a casting in which the brush is mounted, a spring-clip mounted on the brush, a flexible connection secured to the clip, a receptacle formed on the casting, and a contact secured to the flexible connection and mounted in the receptacle, the contact consisting of a sheet of spring metal bent back on itself and provided with means for holding it in the proper position.

In witness whereof I have hereunto set my hand this 1st day of May, 1897.

NEAL M. BEEDE.

Witnesses:

B. B. HULL,
E. W. CADY.