

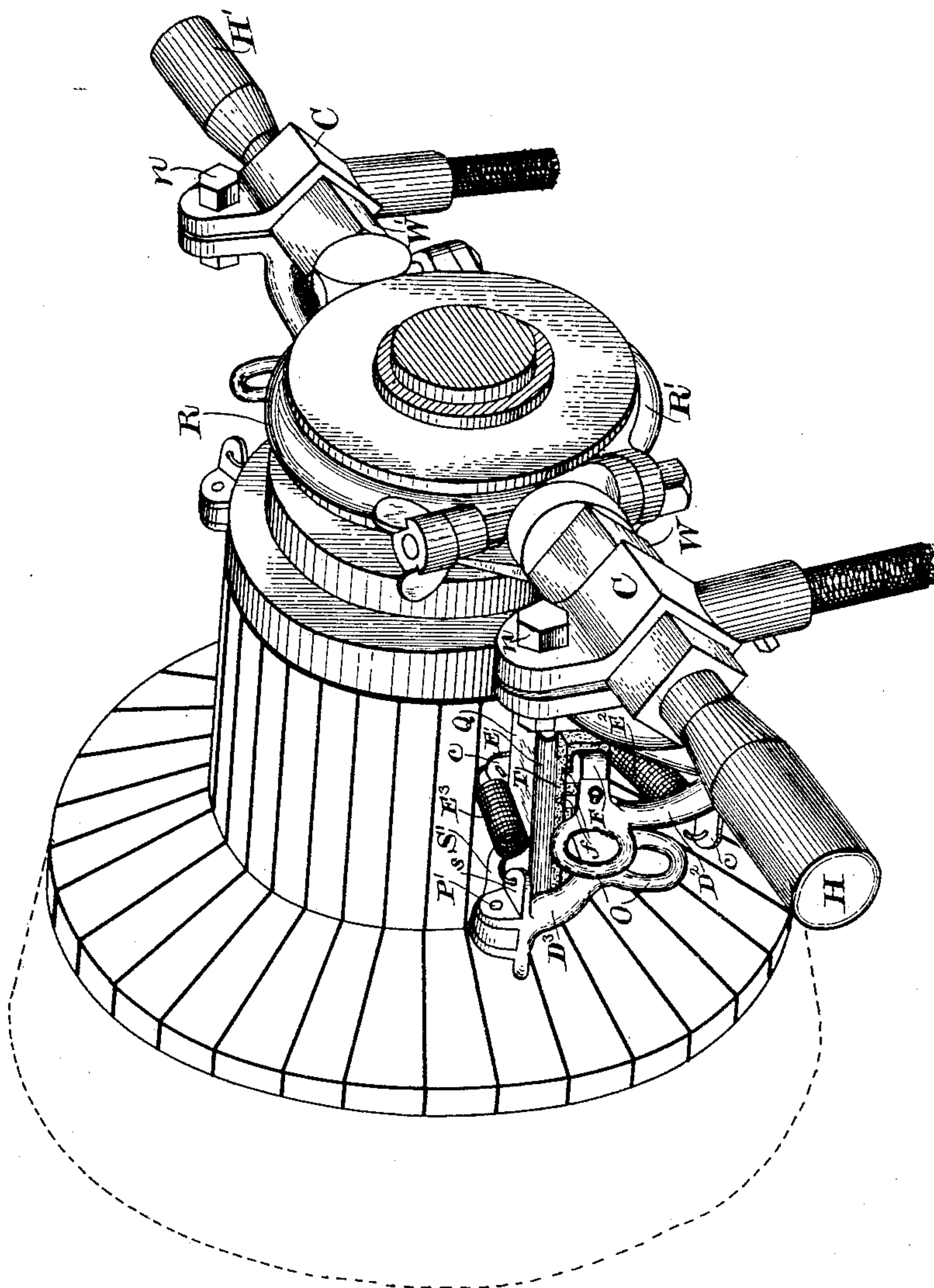
(No Model.)

2 Sheets—Sheet 1.

E. THOMSON & W. O. WAKEFIELD.
BRUSH HOLDER FOR DYNAMO ELECTRIC MACHINES.

No. 462,973.

Patented Nov. 10, 1891.



File.

WITNESSES.

Alex. F. McDonald.
P.O. Orme

INVENTORS-

Elinor Thomson
 William O. Wakefield
 by Butler's Knight Attys

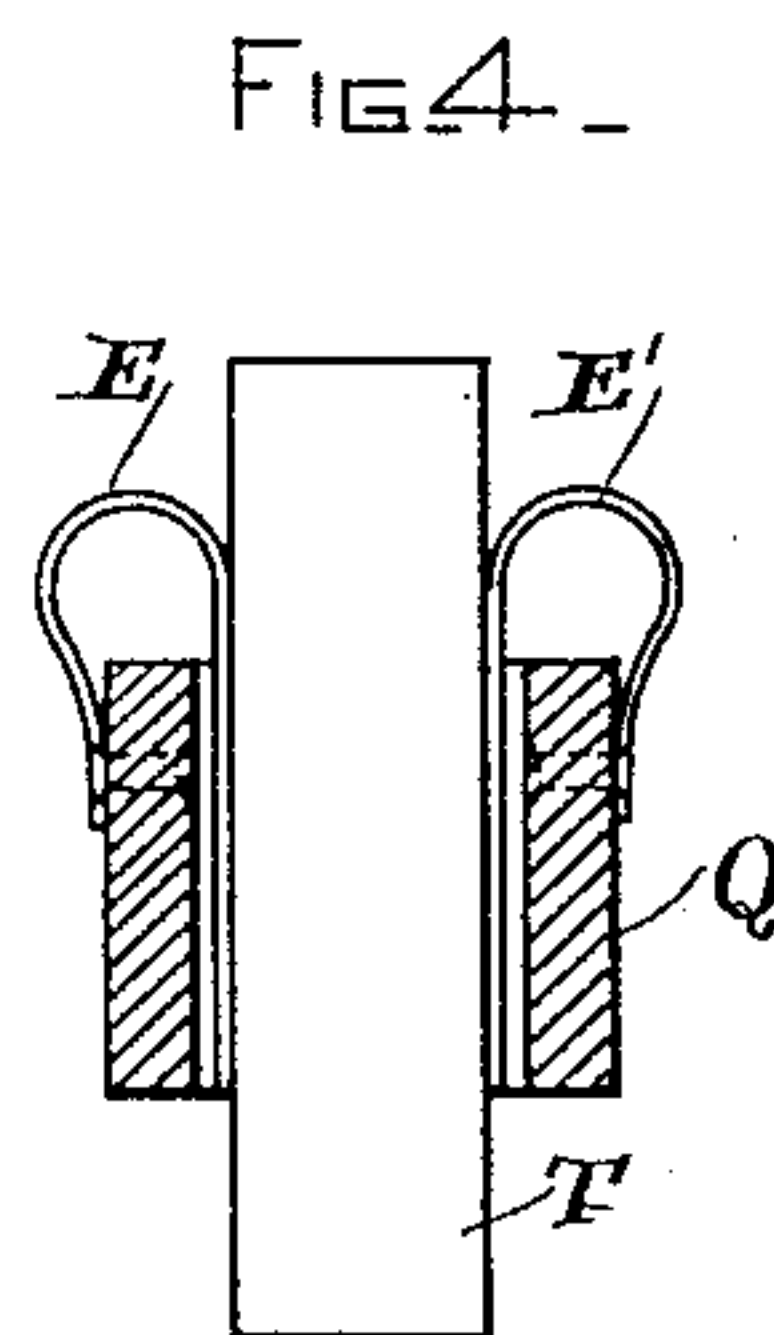
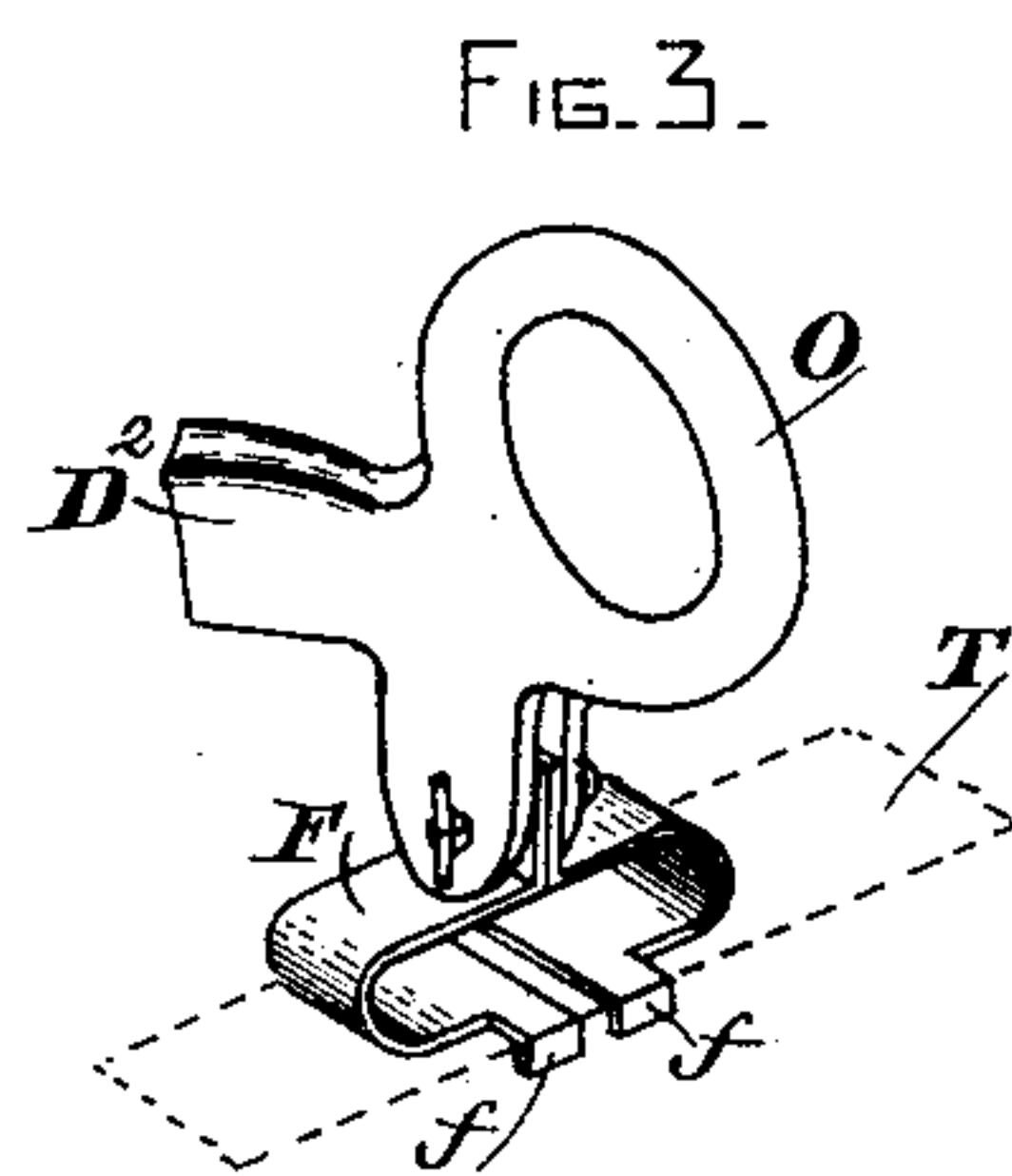
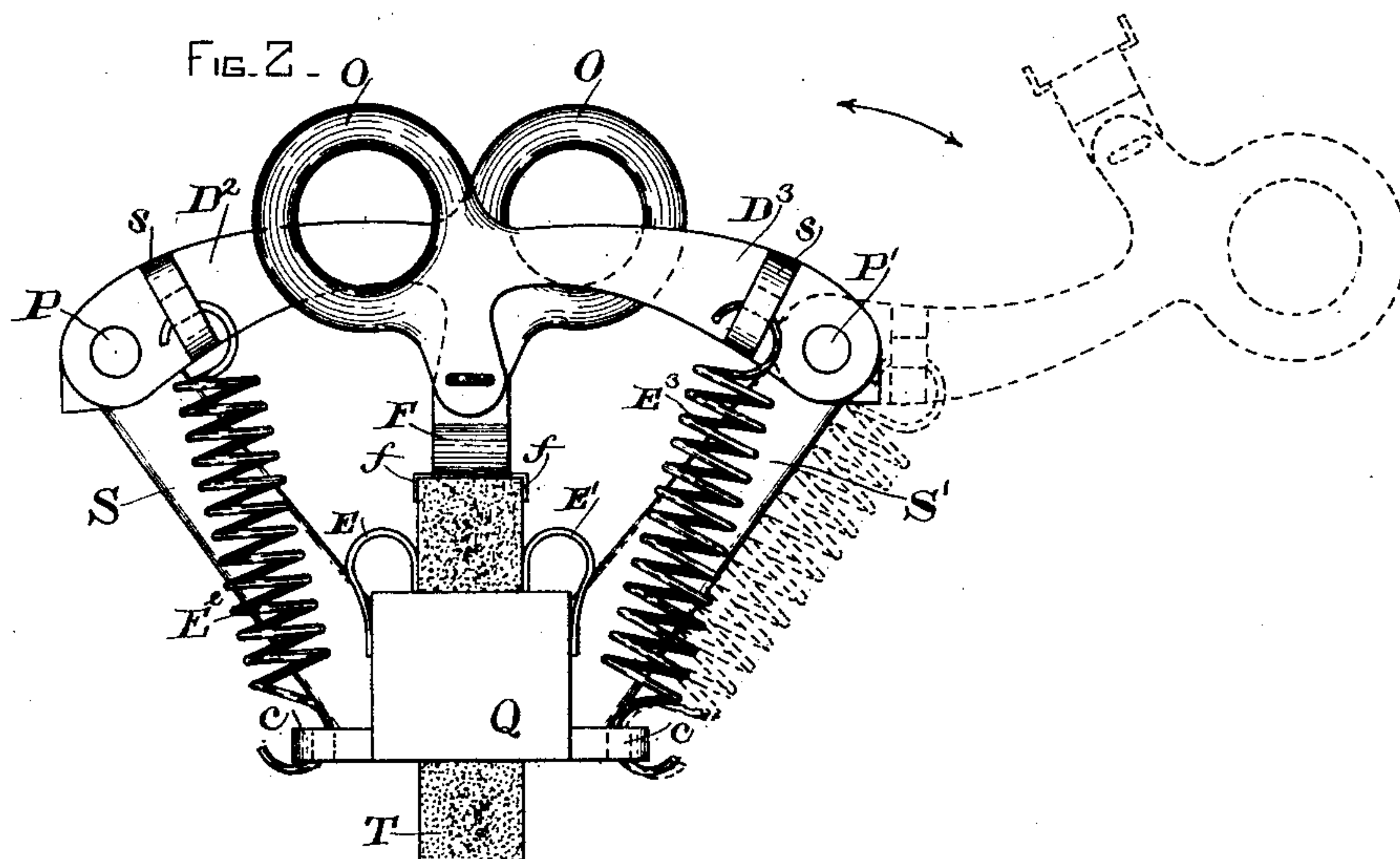
(No Model.)

2 Sheets—Sheet 2

E. THOMSON & W. O. WAKEFIELD.
BRUSH HOLDER FOR DYNAMO ELECTRIC MACHINES.

No. 462,973.

Patented Nov. 10, 1891.



WITNESSES.

Alfred Macdonald
A. D. Dine

INVENTORS.

Edwin Thomson
William O. Wakefield
by M. H. Knight
Att'y.

UNITED STATES PATENT OFFICE.

ELIHU THOMSON, OF SWAMPSCOTT, AND WILLIAM O. WAKEFIELD, OF LYNN, MASSACHUSETTS.

BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 462,973, dated November 10, 1891.

Application filed February 20, 1891. Serial No. 382,153. (No model.)

To all whom it may concern:

Be it known that we, ELIHU THOMSON, a citizen of the United States, residing at Swampscott, in the county of Essex and State of Massachusetts, and WILLIAM O. WAKEFIELD, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented a certain new and useful Improvement in Brush-Holders for Dynamo-Electric Machines, of which the following is a specification.

Our invention aims to secure a holder for the commutator-brushes of a dynamo-electric machine, generator, or motor which permits ready adjustment of the brush-carrying arms bodily toward and away from the commutator, ready access to the brushes, and simplicity of construction in general.

To this end it consists in certain novel parts and combinations, which will be clearly understood from the following specific description and are illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective view showing our invention. Fig. 2 is an end view of one of the brush-carrying arms, and Figs. 3 and 4 are details of specific parts.

Encircling the shaft of the armature is a yoke R R', made in two parts, permitting its ready removal, which stands in our invention as a support for the brush-arms and brushes and may be replaced by other parts serving the same purpose.

From opposite sides of the yoke extend projections W W', or "studs" as we call them herein, which are either insulating in character or insulated, and will usually consist of insulating-sleeves slipped over inner rods or pins on the yoke, handles H H' being provided for shifting the yoke around the shaft. These studs W are made square or of other angular form in cross-section, the only essential point being that their shape is such as to hold the brush-arms from rotating thereon, while permitting adjustment toward and away from the commutator. The brush-arms are attached to the studs by clamps C, embracing the latter and secured in place by nuts n. Each arm comprises a box or socket

Q for the brush and brackets or braces S S' on opposite sides of the box, leaving a clear open space in line with the brush.

Upon the brackets are pivoted on pins P P' swinging followers D² D³, shaped as shown, and each provided with a ring O or other hand-hold, while at their free ends are attached rocking springs F, having flanges f, spanning the brush T, of carbon, or carbon and metal, in any of the forms now used. These followers press the brush into engagement with the commutator, and for that purpose springs E² E³ are provided, attached to the arm at c c and to lugs s s upon the followers, which project out slightly to one side, so that the followers can be thrown over a dead-center, as indicated in dotted lines, Fig. 2, and held there by the springs, thus permitting the ready removal of the carbon brushes or examination of the commutator.

In order to insure a good contact with the brush, we attach two springs E E', Fig. 4, to the box, whose free ends press laterally against the sides of the brush.

The brush-arms as a whole may be adjusted lengthwise on studs W, as may be found desirable, according as the length of the brushes changes, and the arrangement of followers described keeps the brush firmly in contact with the segments even though the motors be subjected to considerable jar, as in railway-work, thus avoiding sparking.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the commutator-yoke having radially-projecting pins, insulating-sleeves on said pins, clamps radially adjustable on said sleeves, and brush-holders carried by said clamps.

2. The combination of the commutator-yoke having radially-projecting pins, insulating-sleeves of non-circular cross-sections on said pins, clamps radially adjustable on said sleeves, and brush-holders carried by said clamps.

3. The combination of a commutator-yoke having insulating or insulated studs of angular cross-section with the brush-arms having clamps embracing the studs and adjustable

lengthwise thereon and one or more spring-actuated followers pressing the brushes against the commutators.

4. The combination of a commutator-brush holder having a socket, a brush movable therein, a brush-pressing arm movable toward and away from such brush, and a spring acting upon said arm to hold it upon either side of a dead-center.

5. The combination of a brush-carrying arm having a box or socket for the brush, a pivoted follower, and a spring acting to hold the follower when swung to either side of a dead-center, as set forth.

6. The combination of a brush-arm having a box or socket, with the brush set in such socket, and the independently-pivoted fol-

lowers having independent actuating-springs and each acting to press the brush against the commutator.

7. The combination of the brush-arm and brush with the followers having pivotal bearings on opposite sides of the brush and adapted to swing down beside one another upon the brush, pressing the latter into engagement with the commutator, as described.

In testimony whereof we have hereto set our hands this 17th day of February, 1891.

ELIHU THOMSON.

WILLIAM O. WAKEFIELD.

Witnesses:

JOHN W. GIBBONEY,

BENJAMIN B. HULL.