

(No Model.)

E. THOMSON.

COMMUTATOR BRUSH HOLDER FOR DYNAMO ELECTRIC MACHINES.

No. 497,361.

Patented May 16, 1893.

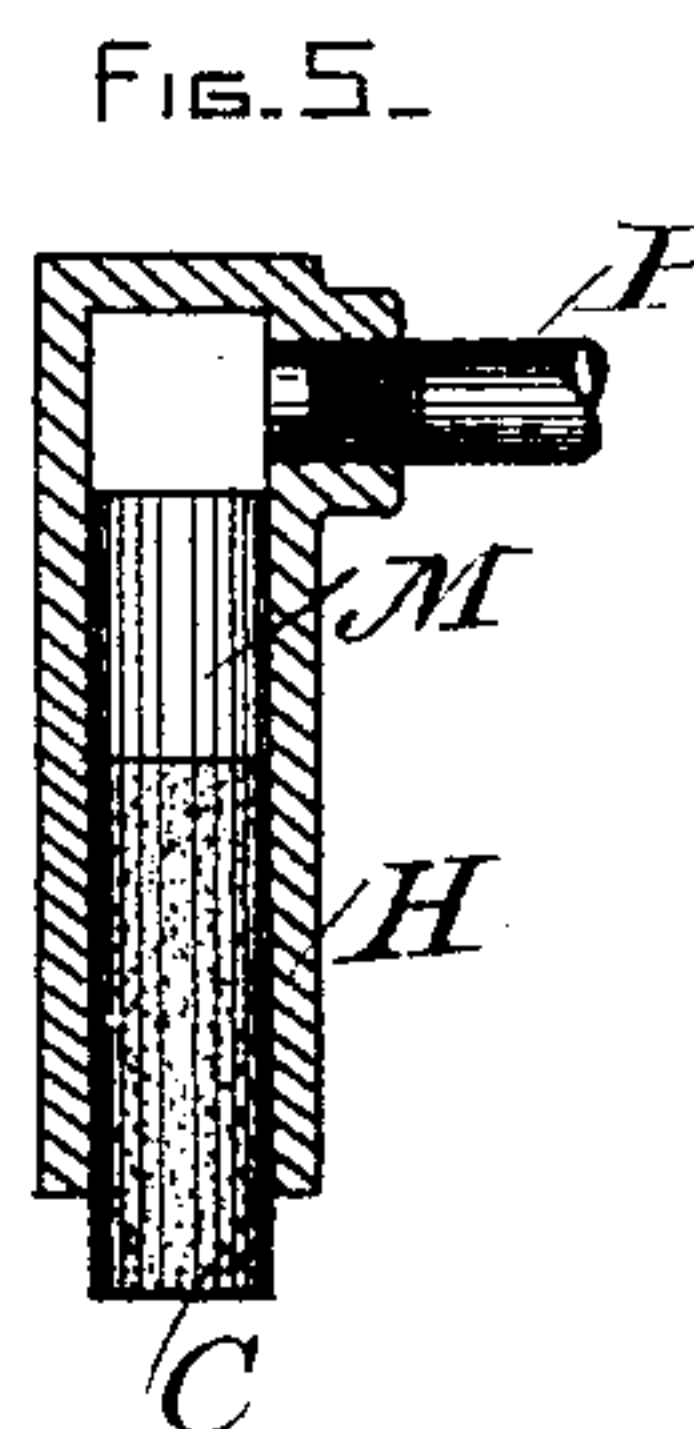
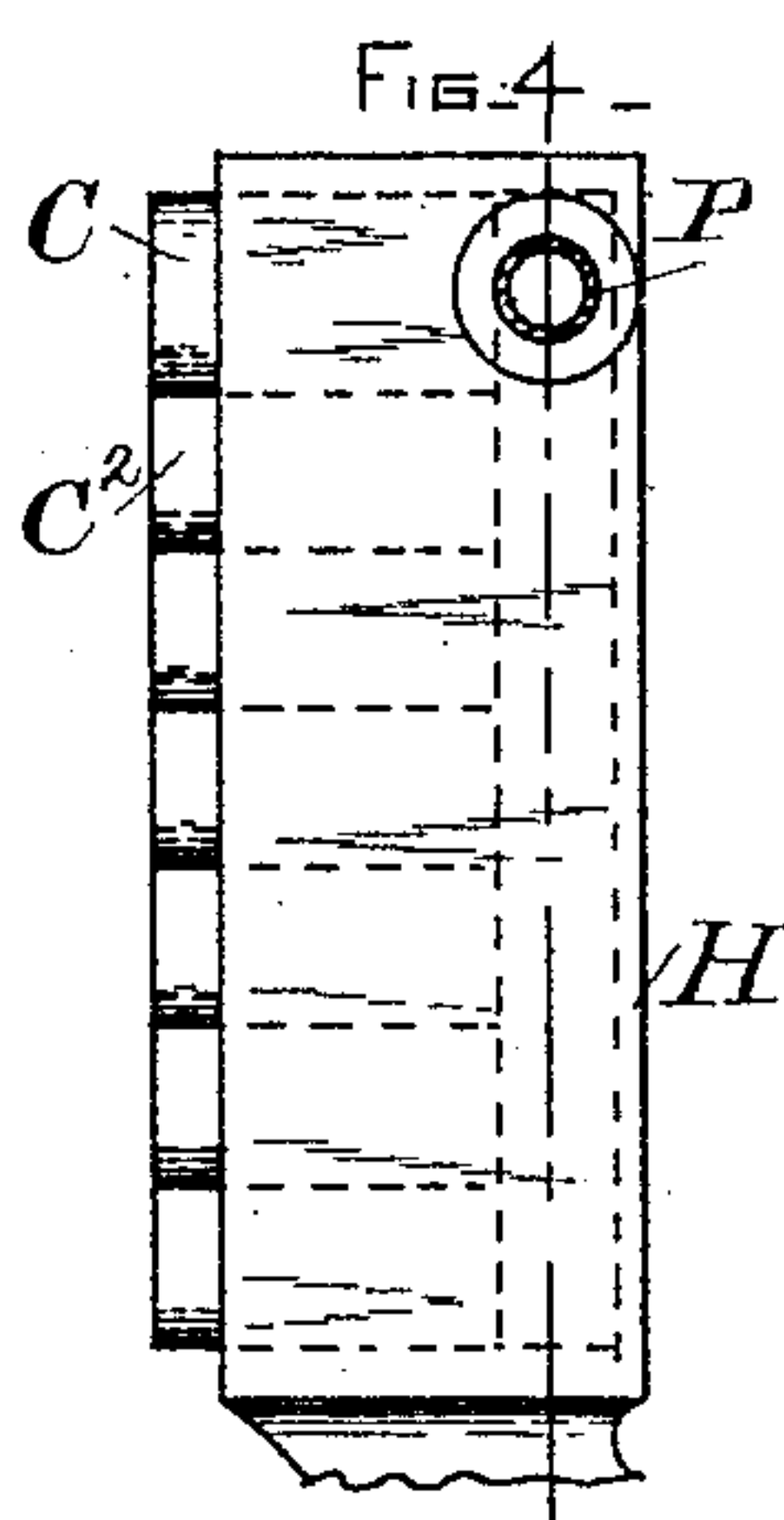
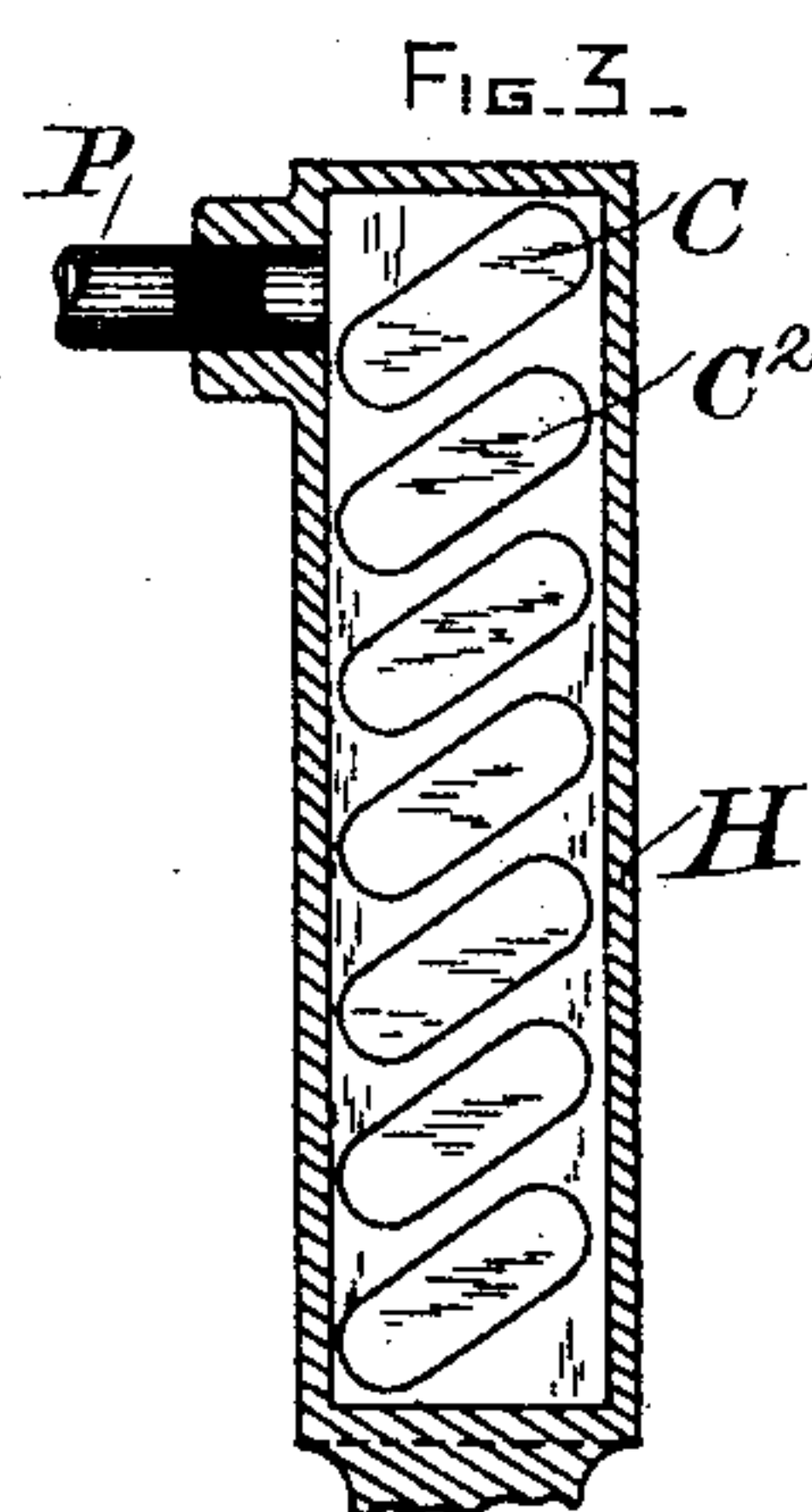
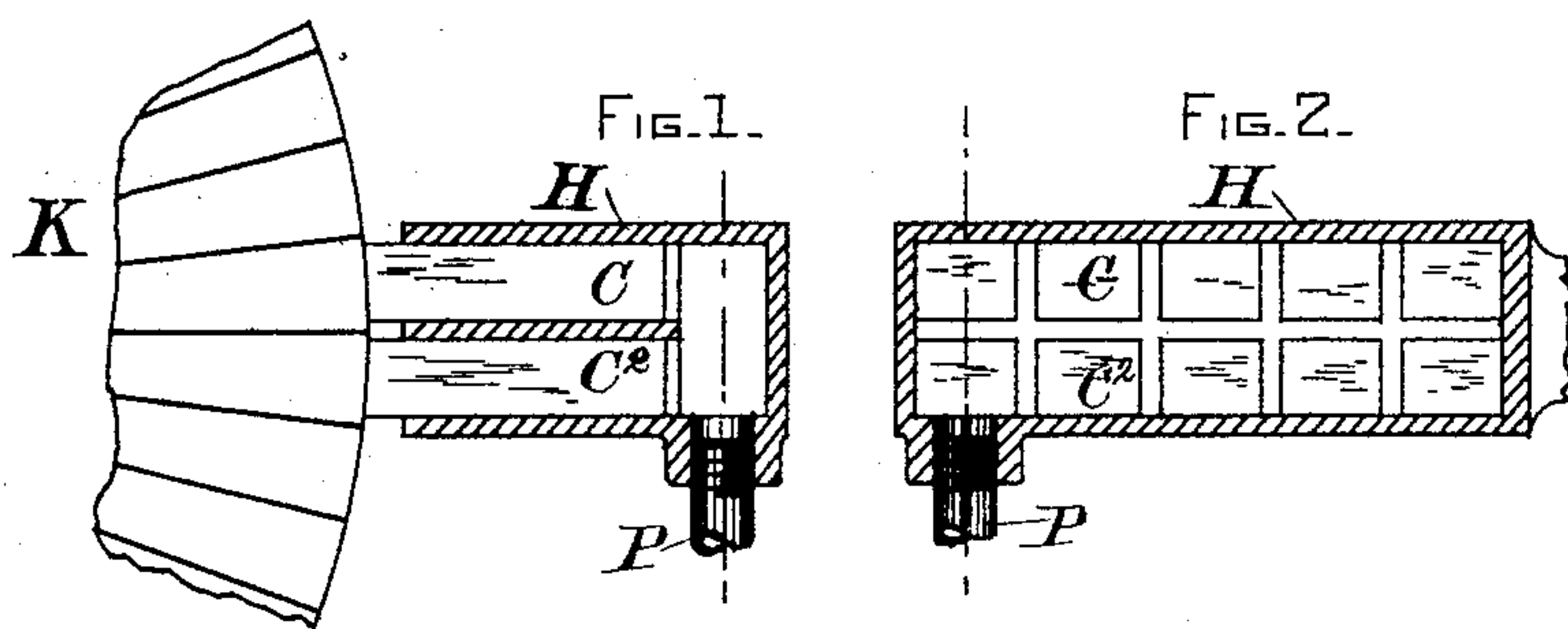
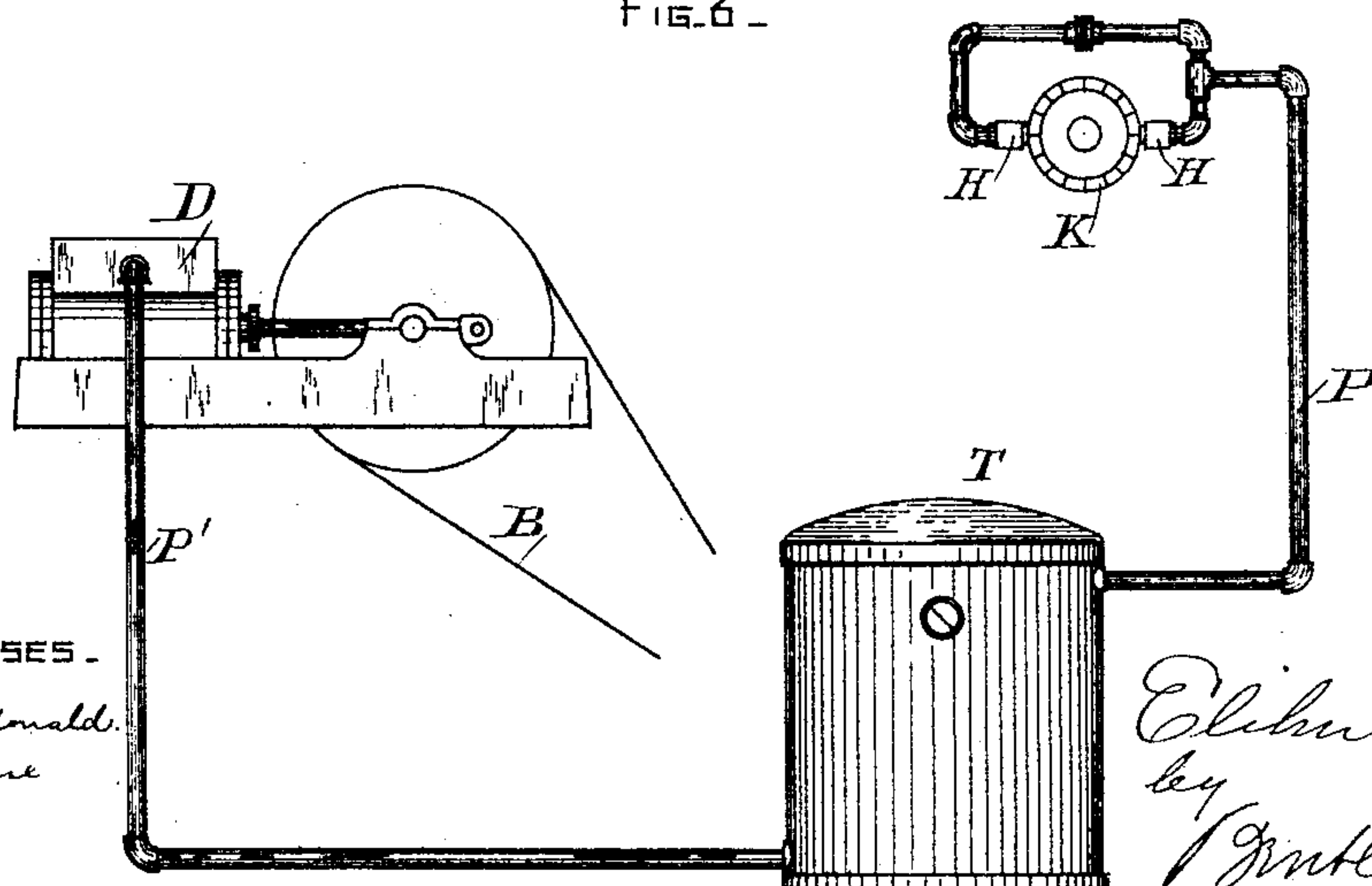


FIG. 6 -



WITNESSES -

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UNITED STATES PATENT OFFICE.

ELIHU THOMSON, OF SWAMPSCOTT, MASSACHUSETTS, ASSIGNOR TO THE THOMSON-HOUSTON ELECTRIC COMPANY, OF CONNECTICUT.

COMMUTATOR BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 497,361, dated May 16, 1893.

Application filed November 2, 1891. Serial No. 410,602. (No model.)

To all whom it may concern:

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

My present invention relates to an improvement in brush-holders for the commutators of dynamo electric machines. It is applicable to commutators or collectors for dynamos and motors where a number of carbon-brushes are required to be applied to the same for collecting current, and where the pressure on the brushes is desired to be uniform throughout, notwithstanding the wear on the pieces, so as to produce uniformity of action in collecting current from the commutator.

My invention also relates to other details which will be specified.

In the accompanying drawings, Figures 1 and 2 are sections in different directions of the brush-holding chamber. Figs. 3, 4 and 5 show modifications. Fig. 6 shows the compressed air-pumping apparatus and connections.

In Fig. 1, K represents a number of commutator segments to which the carbon brushes C, C² are applied. These brushes are held in suitable guides in a holder H, in which holder they practically form plungers or pistons. There may be a number of ranges in a single holder, as seen in Fig. 2. It is desirable to apply these brushes with equal force and to cause them to be sensitive to any inequalities of the surface of the commutator. I therefore apply to the back of the pieces the pressure of a fluid, such as air entering by a pipe or supply opening P whereby the brushes are forced toward the commutator, and each brush receives the same pressure, notwithstanding variations in the length, and whereby in case of inequalities in the commutator K, the pieces may independently act to follow those inequalities. Any escape of air or leakage alongside the carbon brushes or collectors C, C² also tends, in my invention, to keep the carbon pieces cool, and also to cool the commutator.

Instead of employing two ranges of carbon

brushes as C, C², Figs. 1 and 2, I may make the pieces oblong in section, as in Fig. 3, fitting into oblong holes in the holder, with a chamber at the back whereby air pressure is distributed evenly to them. These oblong holes are made at an angle so that the whole surface of the commutator K receives the pressure of the ends of the pieces as pressed down, the side view being shown in Fig. 4.

Fig. 5 shows in addition to the devices before described, a metallic plunger or follower M, which may be made to fit the guide accurately, following and transmitting the air pressure to the carbon brush, and at the same time, aid in carrying the current therefrom, as it makes good contact with both the brush and the guide. In this case, the carbon need not fit accurately the space in which it is held.

In any case, brushes of any approved sort or composition may be used, but carbon brushes are more especially adapted for use with this invention. They may, if desired, be plated to improve the contact.

Fig. 6 simply shows means for procuring the necessary air supply for the devices shown above. The pump D, may be driven by any suitable source of power, such as a belt B, leading to a driving shaft, and the compressed air is passed through the pipe P', to a reservoir T, which is made to have a capacity sufficient to keep the pressure approximately uniform. From the reservoir, the air passes through the pipe P, to the brush-holders H, forcing the brushes down upon the commutator K, as above described, and cooling the brushes and commutator by the leakage along the sides of the brush. This leakage also serves to rupture or blow out the sparks on the commutator.

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

1. The combination with the commutator brush, of a fluid pressure device acting upon the brush to force it in contact with the commutator or traveling contact.

2. The combination with the commutator, of the independently moving brushes, and the air-pressure device acting on said brushes to force them against the commutator.

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3. The brush-holder having a number of compartments in which the carbon or other brushes are movable independently, and a chamber above such brushes connected with
5 a source of compressed air.

4. The combination with the commutator and brushes, of a holder for such brushes having a compressed air chamber above said brushes, and an air pump communicating
10 with such chamber.

5. In a current collector, a number of flat

brushes arranged obliquely and separately movable in a retaining holder with the portions resting upon the traveling conductor overlapping, whereby all of the available con- 15 tact surface is utilized.

In witness whereof I have hereunto set my hand this 27th day of October, 1891.

ELIHU THOMSON.

Witnesses:

JOHN W. GIBBONEY,
HENRY N. SWEET.