

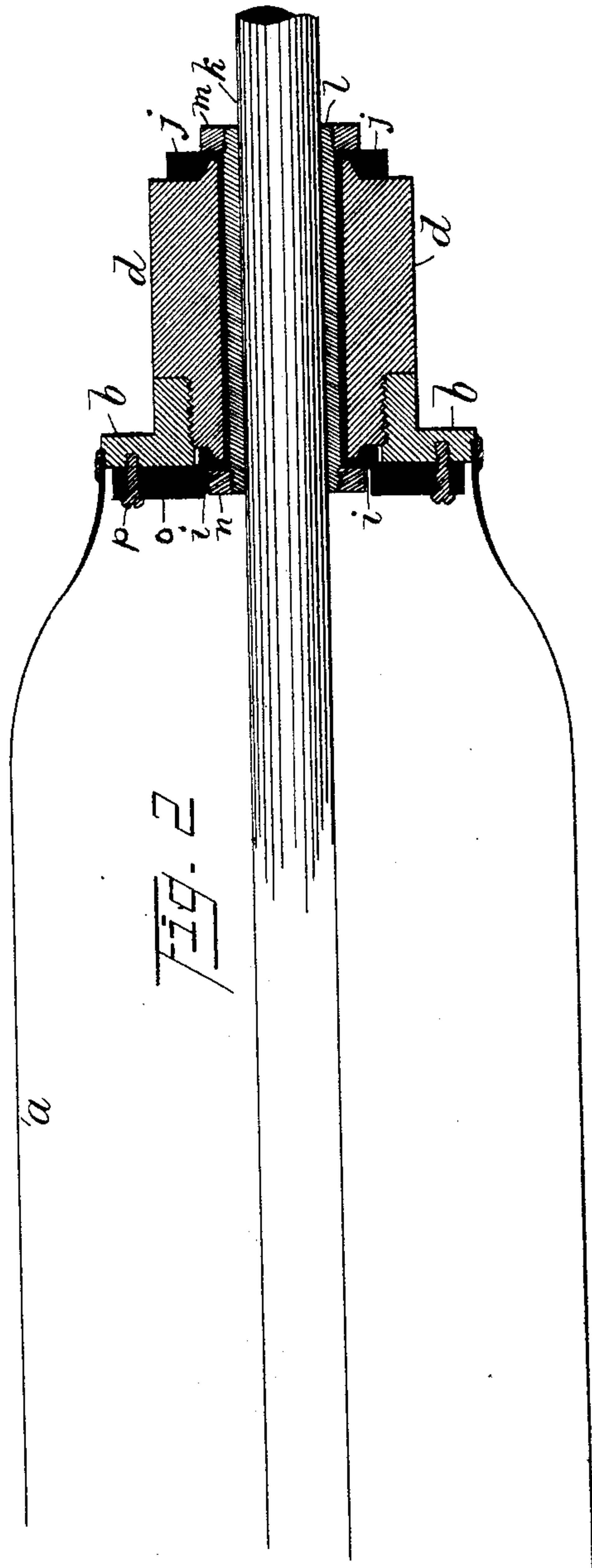
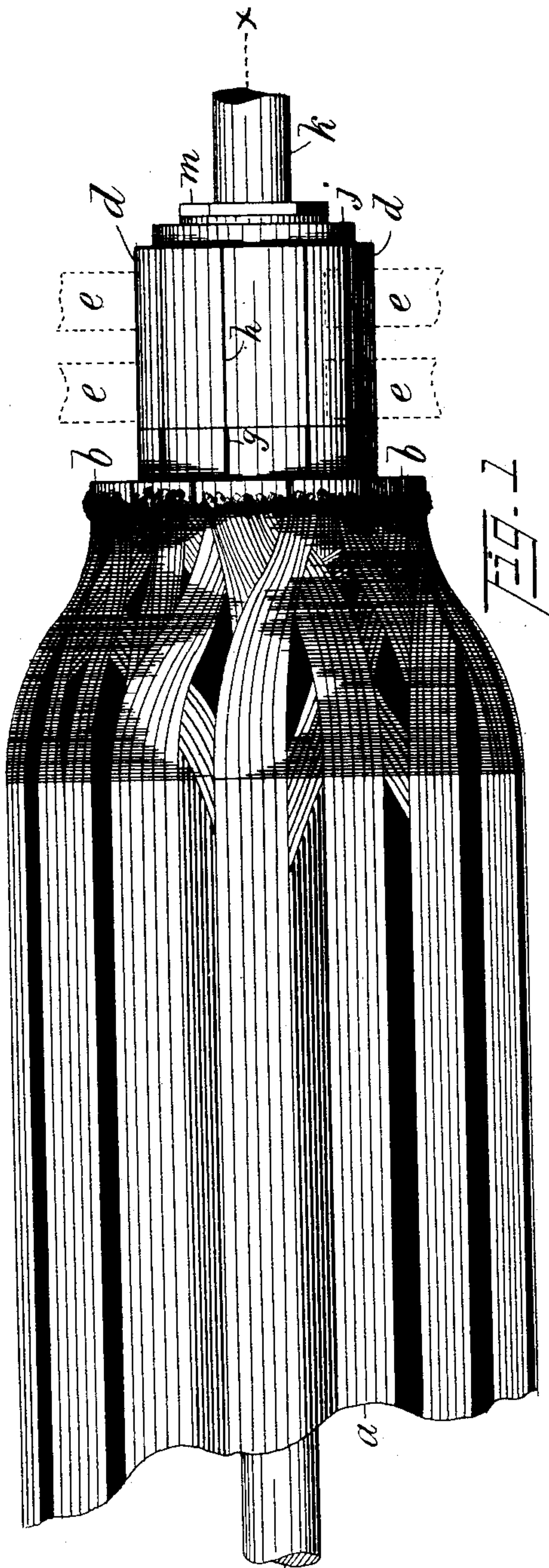
(No Model.)

2 Sheets—Sheet 1.

C. H. GAYLORD.  
DETACHABLE COMMUTATOR.

No. 477,175.

Patented June 14, 1892.



Witnesses.

A. N. Leavens  
L. Reynes-

*Inventor*

by C. H. Gaylord  
W. H. Burridge atty.

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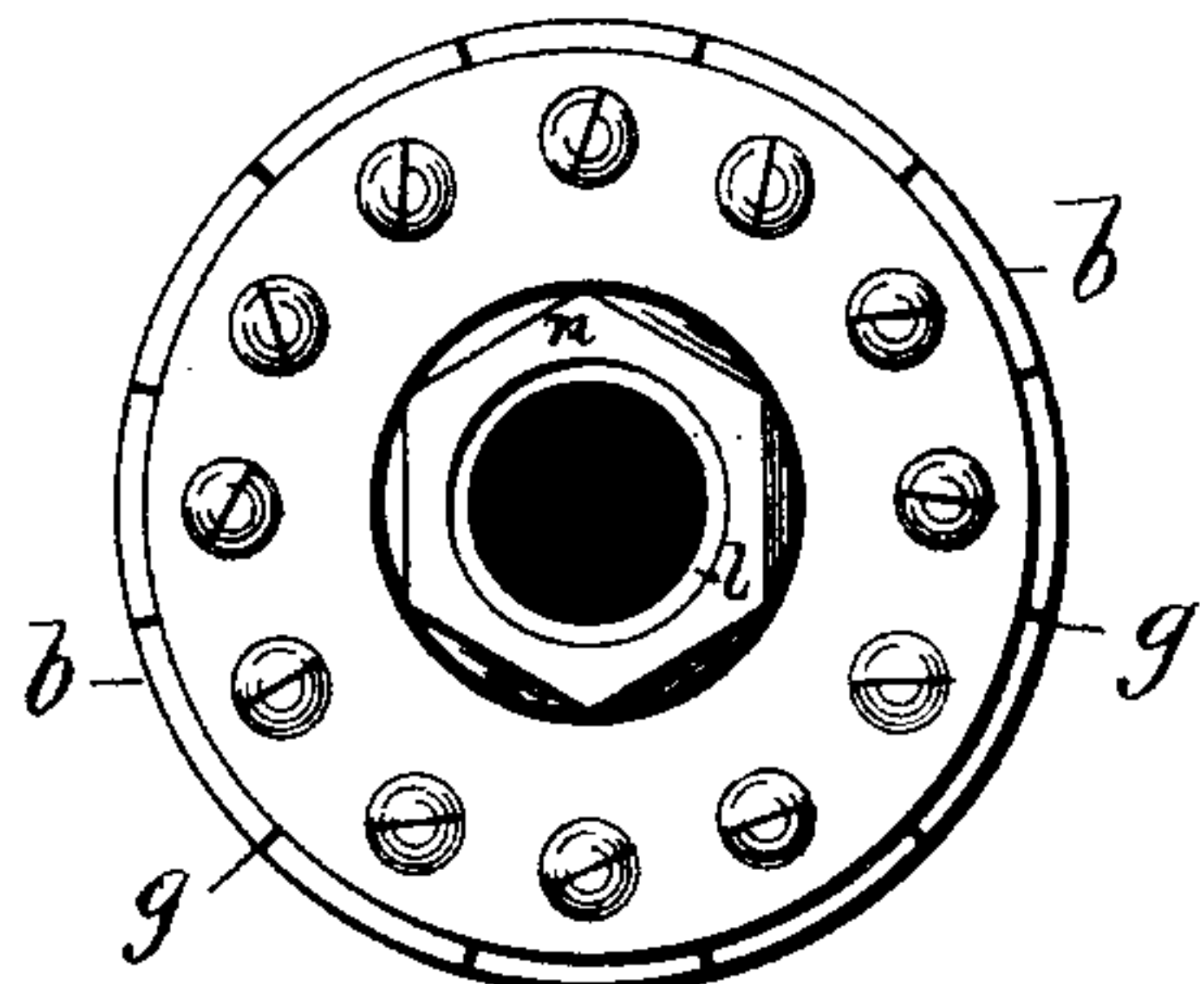


Fig. 3

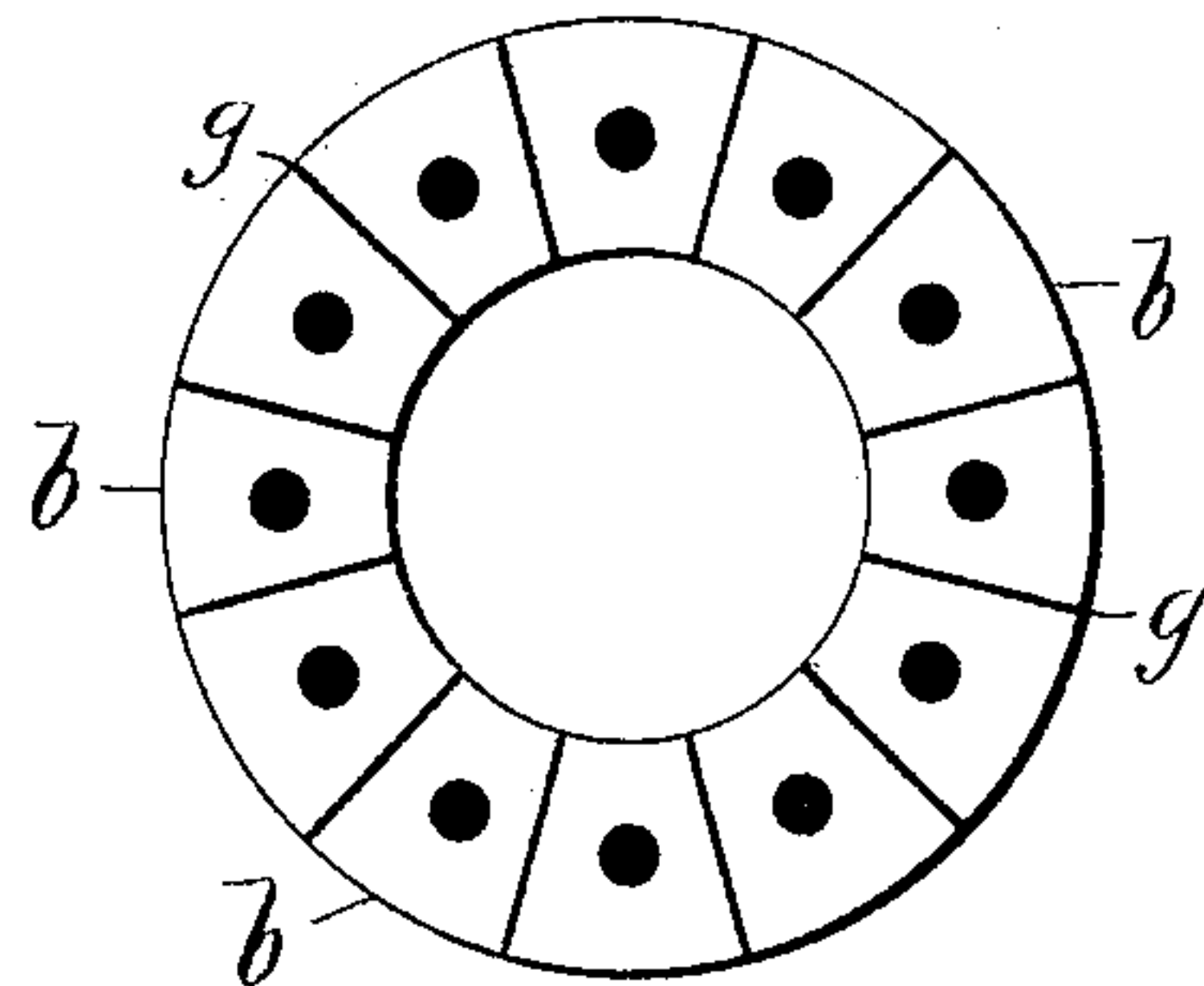


Fig. 4

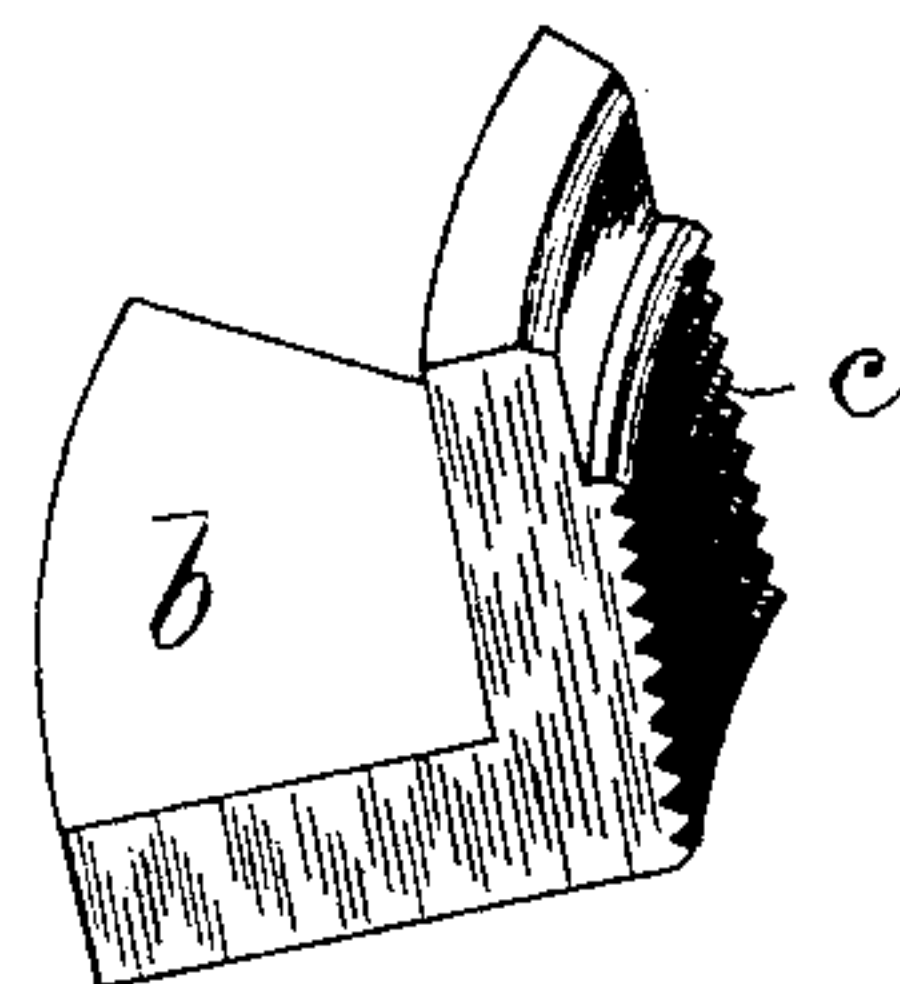


Fig. 5

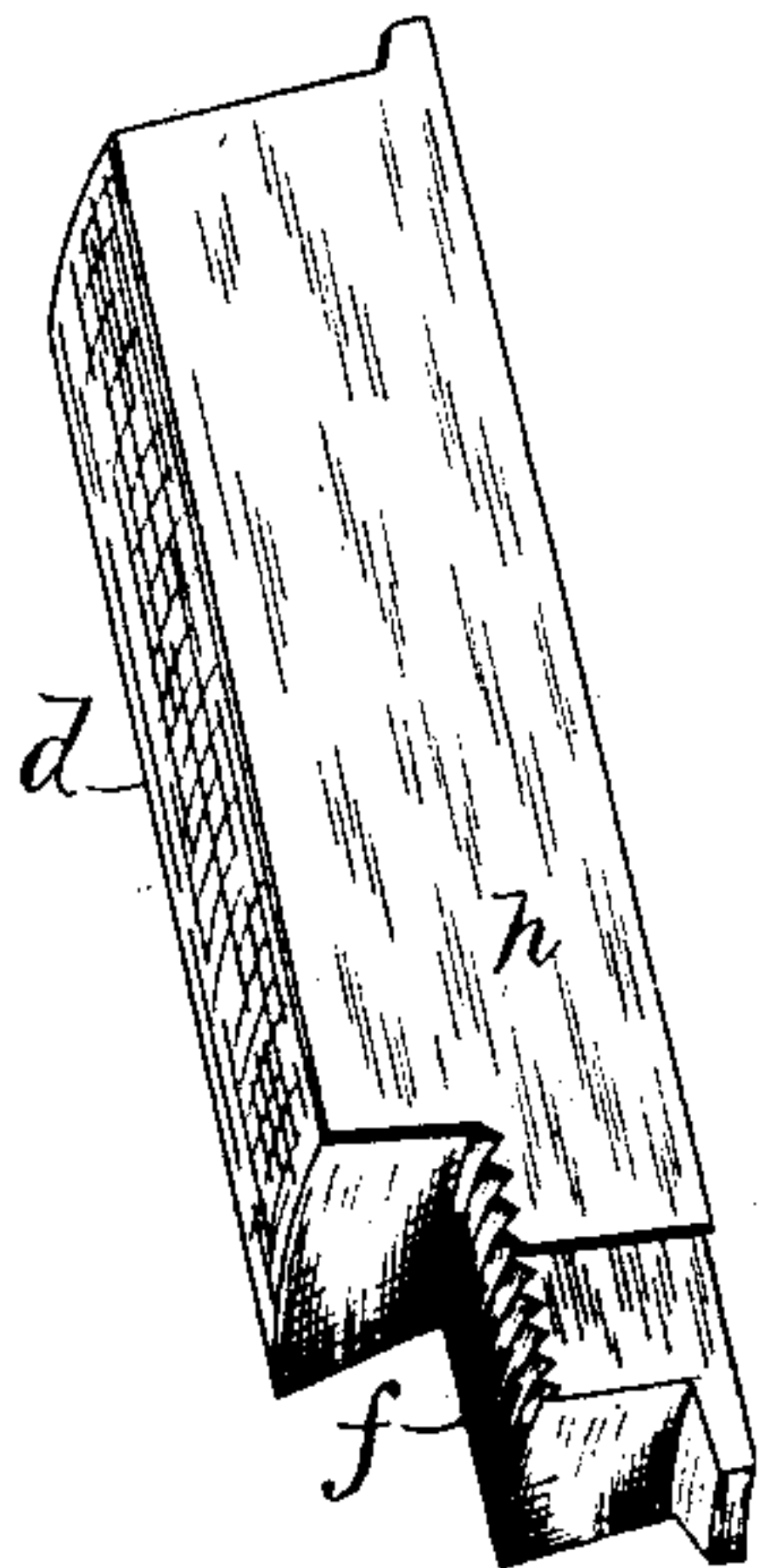


Fig. 6

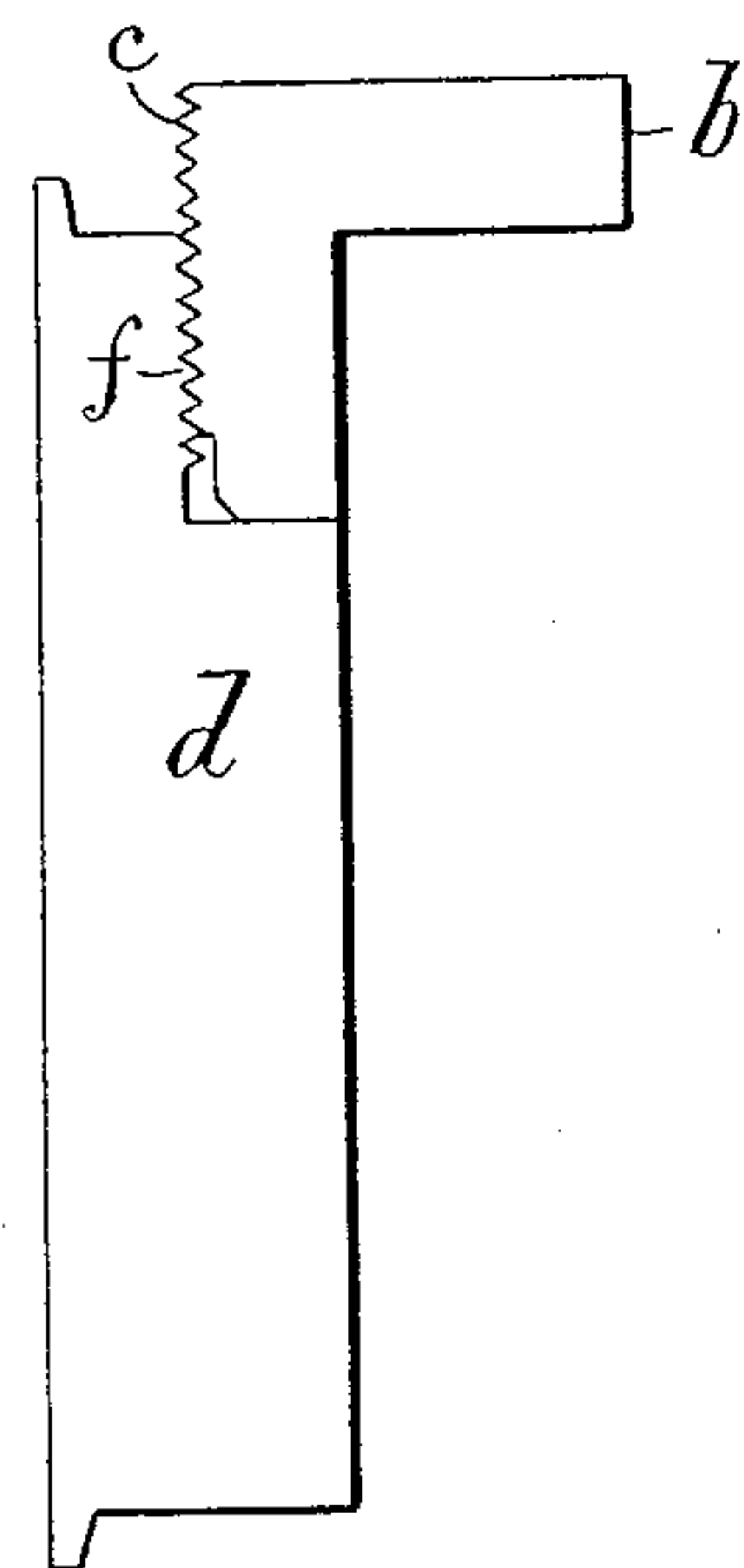


Fig. 7

Witnesses.  
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L. Chappin

Inventor.  
C. H. Gaylord  
by W. H. Burdick atty.



# UNITED STATES PATENT OFFICE.

CHARLES H. GAYLORD, OF CLEVELAND, OHIO.

## DETACHABLE COMMUTATOR.

SPECIFICATION forming part of Letters Patent No. 477,175, dated June 14, 1892.

Application filed December 17, 1891. Serial No. 415,420. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. GAYLORD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Detachable Commutator and Armature, of which the following is a full, clear, and complete description thereof.

The nature of my invention relates to the formation or construction of a detachable commutator and armature for electric motors or dynamos, said commutator being so constructed as to be readily detached from the armature when it becomes worn without disconnecting the wires of said armature, thereby expediting the repairing of the motor and lessening the expense of same.

That the invention may be seen and fully understood by others familiar with the art, reference will be had to the following specification and annexed drawings, forming part thereof.

Figure 1 is a view of a portion of an armature and commutator detached from the other necessary parts of the motor. Fig. 2 is a longitudinal section on line *x x*, Fig. 1, showing the armature in simple outline. Fig. 3 is an interior end view of my improved commutator. Figs. 4, 5, 6, and 7 are views of detached sections hereinafter explained. Figs. 5, 6, and 7 are enlarged.

Like letters of reference designate like parts in the drawings and specification.

It is a well-known fact to all familiar with the art that heretofore it has been necessary to cut or disconnect the wires of the armature from the commutator in order to provide the motor or dynamo with a new commutator after the old one has become worthless from the wear of the brushes, thereby causing considerable delay and expense. I have by my invention provided for or reduced to a great extent this delay and expense by producing a detachable commutator, as hereinafter described.

In Figs. 1 and 2 the armature is represented by *a*, (only shown in outline in Fig. 2,) which is connected with the commutator in the ordinary manner by solder or other suitable means.

The commutator is constructed, as shown, of a number of metallic sections *b* of substan-

tially the form shown in Figs. 4 and 5, Fig. 5 being a perspective view of one of said sections detached. These pieces or sections are wedge-shaped, and when placed together in the manner required and as shown in Fig. 4 form the circular interior head of the commutator to which the wires of the armature are attached. A female thread *c* is cut on the collar formed by the sections *b*, as shown in Figs. 5 and 7. Other metallic sections *d*, of essentially the form shown in Figs. 2, 6, and 7, (Fig. 6 being a perspective view,) when placed together, as required, form a cylinder. This cylinder forms the body or portion of the commutator on which the wear of the brushes comes. Said brushes are indicated in Fig. 1 by dotted lines *e*. On the interior terminal of the cylinder formed by the pieces *d* is a male thread *f*, which corresponds to the female thread *c*. The head of the commutator or that portion formed by the section *b* is insulated by any known non-conducting material, as shown at *g*, Figs. 1, 3, and 4. The body or cylinder of the commutator is also insulated between the pieces *d*, (indicated at *h*, Figs. 1 and 6.) The non-conducting disks *i* and *j*, Fig. 2, bind the sections *d* together and at the same time insulate them from the shaft *k*, to which the commutator is necessarily made fast by means of the jacket or sleeve *l* and nuts *m* and *n*. The sections *b* and their insulation *g* are held in their required position by a non-conducting disk or cap *o*, a screw *p* passing through said cap into each separate section *b*. The armature *a* being connected with the head of the commutator, the cylinder of said commutator can readily be screwed thereto, the sections *d* coming in electrical contact with the sections *b*, and the insulation *h* connecting with the insulation *g*.

As shown by dotted lines *e* in Fig. 1, the brushes bear on the cylinder or portion of the commutator composed of the sections *d*. Consequently the wear is on said cylinder, which can readily be removed and replaced by a new one at a comparatively small expense, owing to the cylinder being threaded into the collar to which the armature is connected, it not being necessary, as heretofore, to disconnect the entire commutator by cutting or disconnecting the wires of the armature.

The female thread may be on the cylinder

and the male thread on the collar. However, the construction shown in drawings is preferable.

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

1. A detachable commutator and armature consisting of metallic sections *d*, suitably insulated, of a cylindrical form, one terminal of which having a male thread, in combination  
10 with a collar *b*, provided with a female thread for engagement and disengagement with said male thread of the cylinder, with the collar arranged in electrical contact with the armature, substantially as and for the purpose set  
15 forth.

2. In combination with the armature of an electric motor or dynamo, a detachable commutator consisting of two or more metallic sections forming a cylinder or sleeve suitably  
20 insulated and threaded into a collar composed

of two or more sections insulated and connected with the wires of the armature, said cylinder being in electrical contact with said collar arranged in co-operative relation with the brushes, substantially as and for the purpose specified. 25

3. In an adjustable commutator and armature, the cylinder or sleeve of the said commutator threaded at one terminal thereof with the collar *b*, having a threaded connection with the said sleeve, in combination with the armature arranged in electrical connection with the commutator, substantially as and for the purpose set forth. 30

In testimony whereof I affix my signature in presence of two witnesses. 35

CHARLES H. GAYLORD.

Witnesses:

E. F. HOPKINS,

W. H. BURRIDGE.