

(No Model.)

2 Sheets—Sheet 1.

G. J. JUNKER.
COMMUTATOR BRUSH HOLDER.

No. 544,358.

Patented Aug. 13, 1895.

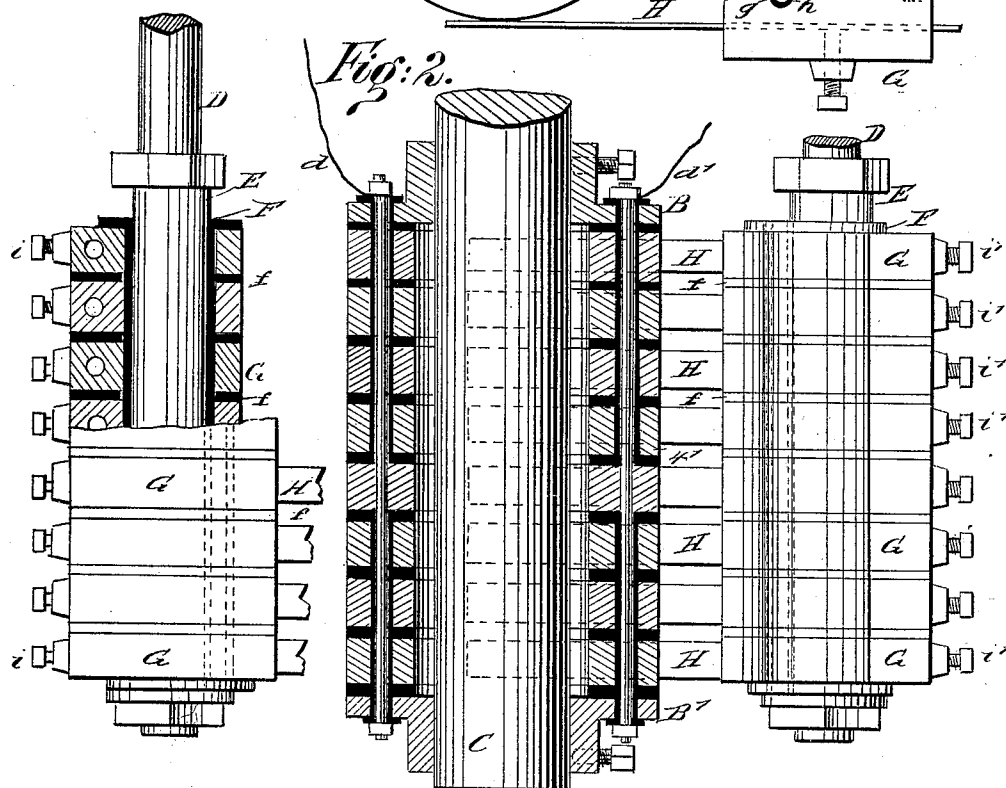
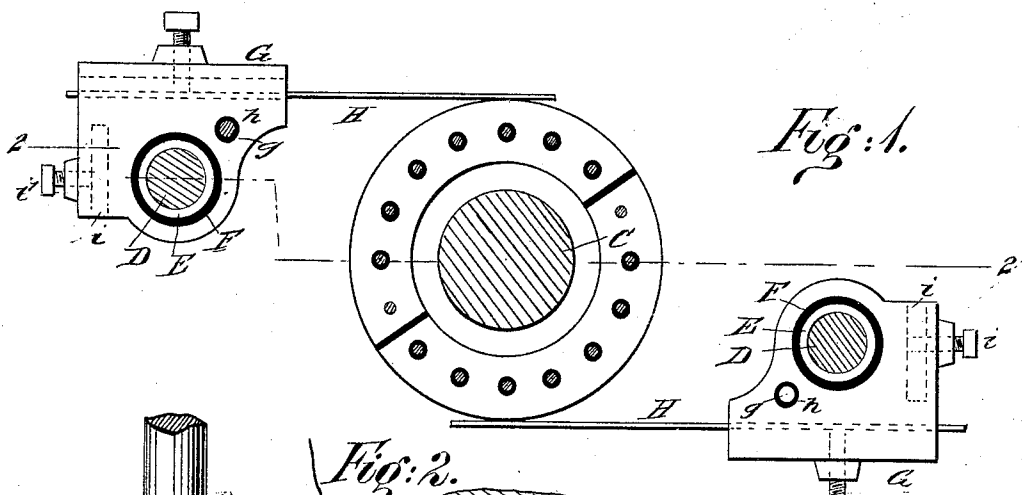
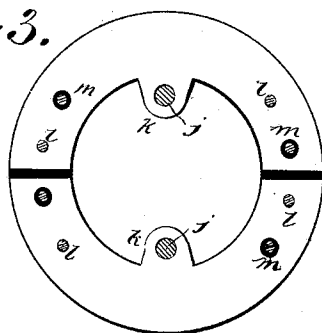


Fig. 3.



WITNESSES:

Chas. Nida.
G. M. Hopkins.

INVENTOR

G. J. Junker
BY Munroe & Co.
ATTORNEYS.

(No Model.)

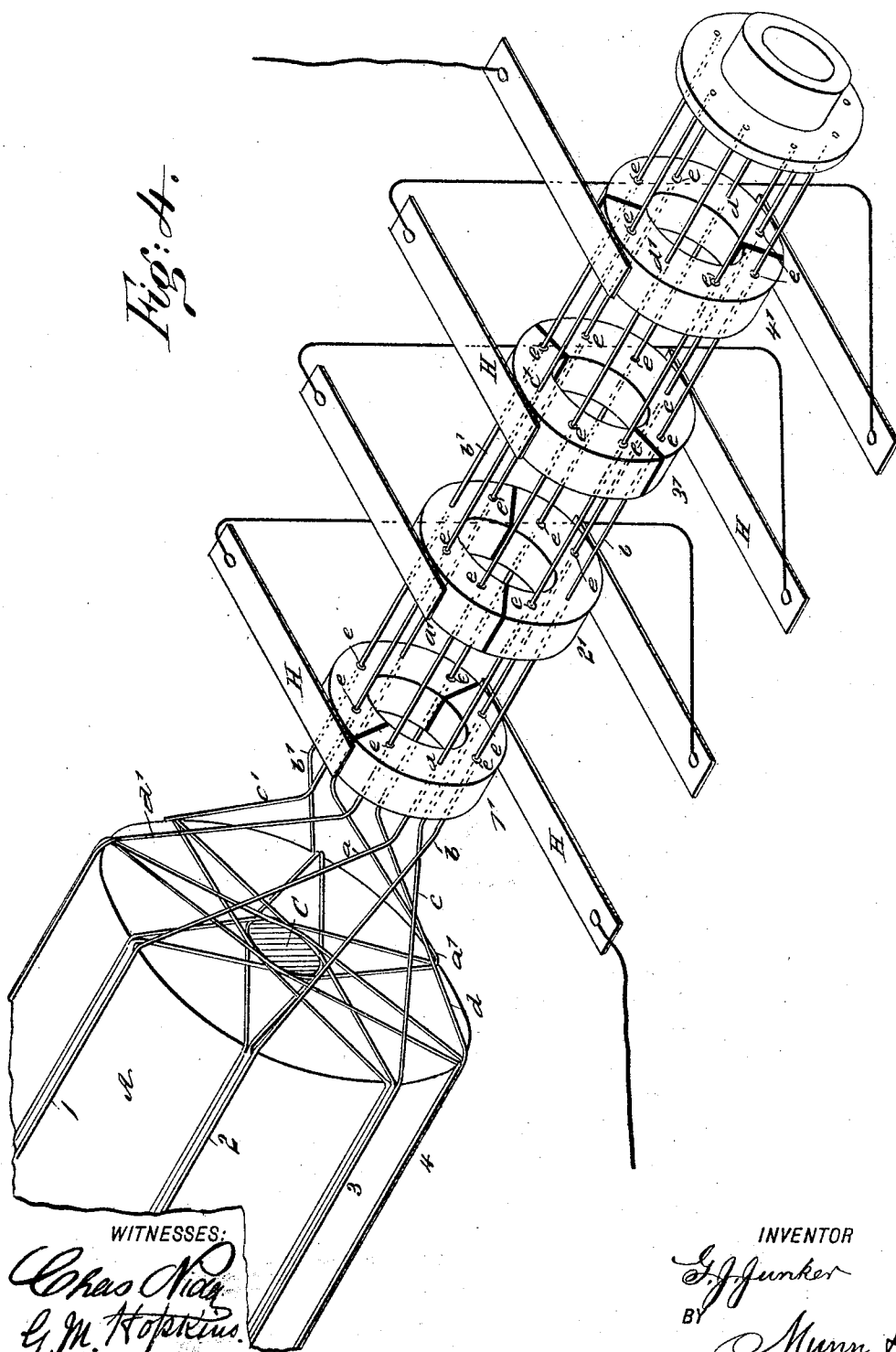
2 Sheets—Sheet 2.

G. J. JUNKER.
COMMUTATOR BRUSH HOLDER.

No. 544,358.

Patented Aug. 13, 1895.

Fig. 4.



WITNESSES:

Chas. Noy
E. M. Kopersius.

INVENTOR

G. J. Junker

BY

Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE J. JUNKER, OF MOUNT VERNON, ILLINOIS.

COMMUTATOR-BRUSH HOLDER.

SPECIFICATION forming part of Letters Patent No. 544,358, dated August 13, 1895.

Application filed November 9, 1894. Serial No. 528,303. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. JUNKER, of Mount Vernon, in the county of Jefferson and State of Illinois, have invented a new and Improved Commutator-Brush Holder, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is an end elevation of my improved commutator, showing the conductors and brush-holding rods in section. Fig. 2 is a horizontal section taken on line 2 2 in Fig. 1. Fig. 3 is a detail view of a modified form of one of the commutator-rings, and Fig. 4 is a perspective view of the commutator with the rings separated to more clearly exhibit the construction.

Similar letters and figures of reference indicate corresponding parts in all the views.

The object of my invention is to construct a commutator for dynamos and motors in which the different coils of the armature may be in series or in parallel, and by means of which the current may be taken off from each coil separately, thereby permitting of supplying as many circuits as there are coils.

My invention consists in a commutator formed of a series of bisected rings mounted on the armature-shaft, insulated from each other and from the shaft, with the halves of each ring insulated from each other and with the terminals of each coil on the armature connected with the halves of one of the commutator-rings.

It also consists in the construction whereby the terminals of the coils are all extended parallel with the shaft and insulated from all the commutator-rings except the ones to which they properly belong.

It also consists in the combination, with the rings, of series of commutator-brushes for taking of the current, all as will be hereinafter more fully described.

The construction of my improved commutator will be clearly understood by reference to Fig. 4, and the connection of the several armature-coils is there shown in series.

On the armature-core A are wound four coils 1 2 3 4, having terminals $a a' b b' c c' d d'$, respectively, and on the armature-shaft are mounted the bisected rings 1' 2' 3' 4', corresponding in number and position to the coils

with which they are respectively connected. The terminals $a a'$ are connected electrically with the halves of the bisected ring 1', while all the other terminals of the armature pass through insulating-bushings e , inserted in ring 1'. The terminals $b b'$ of coil 2 pass through the halves of the bisected ring 2' and are connected electrically therewith, while all the other terminals pass through insulating-bushings e , extending through the ring 2'. The terminals $c c'$ of coil 3 pass through and are electrically connected with the halves of ring 3', while all the other terminals pass through insulating-bushings e , extending through the ring. In a similar manner the terminals $d d'$ of coil 4 are connected electrically with the halves of ring 4', while all the other terminals pass through insulators in the ring. All the terminals are secured to end plates of insulating material or to metal plates with insulation, to prevent electrical connection therewith. When four coils are used the division-lines of the rings will be arranged forty-five degrees apart, as shown. When there are eight coils and eight rings they will be 22.5 degrees apart, and the brushes are all arranged parallel to the same plane. The same general plan will be followed with any number of coils, commutator-rings, and brushes.

In carrying out my invention in practice, I prefer to connect the commutator-rings by means of rods, which also extend through the collars B B', but insulated therefrom, and also through insulation placed between the rings, as shown in Fig. 2, the collars being secured to the armature-shaft C. In this case the rods are connected with the terminals and form continuations of the same.

In Fig. 4 I have shown the commutator-brushes connected in series, so that the current generated or used in the machine passes through all the coils in series; but, as before stated, it may be taken from each coil separately or all in parallel or in multiple series, according to requirements.

On the brush-holding rod D is placed a metal sleeve E, and on this sleeve is placed an insulating-sleeve F, and upon the insulating-sleeve are placed the brush-holders G, which are separated by insulating-plates f . The brush-holders are drilled transversely to receive a rod g , which passes through all the

holders and is insulated from each by an insulating-bushing *h*. The rod *g* causes the brush-holders to maintain a fixed relation to each other. Each brush-holder has a mortise
5 for receiving the brush *H*, and is also provided with the hole *i* for receiving a conductor and a binding-screw *i'* for clamping the conductor. The brushes are placed in relation to the commutator as shown in Fig. 1—that is to say,
10 on opposite sides of the commutator-cylinder.

In Fig. 3 is shown a modified form of ring in which the conductors *j j'* are connected with ears *k*, projecting upward from the rings, and each half ring is furnished with two dowel-pins *l* and two apertures *m*, provided with insulating-bushings for receiving the dowel-pins
15 of the adjacent ring. The bisected rings are made of any suitable metal or other conducting material adapted to the purpose.

Having thus described my invention, I 20
claim as new and desire to secure by Letters Patent—

1. A compound brush holder, formed of a number of separate holders insulated from their support and from each other, and pro- 25
vided with an insulated rod passing through the series of brush holders, substantially as specified.

2. A brush holder formed of a metal sleeve, an insulating sleeve mounted on the metal 30
sleeve, a series of brush holders mounted on the insulating sleeve, and a rod extending through the brush holders but insulated therefrom, substantially as specified.

GEORGE J. JUNKER.

Witnesses:

MARK BURROUGHS,
ROBT. F. PACE.