

(No Model.)

K. KOCH.
COMMUTATOR BRUSH.

No. 495,136.

Patented Apr. 11, 1893.

Fig. 1.

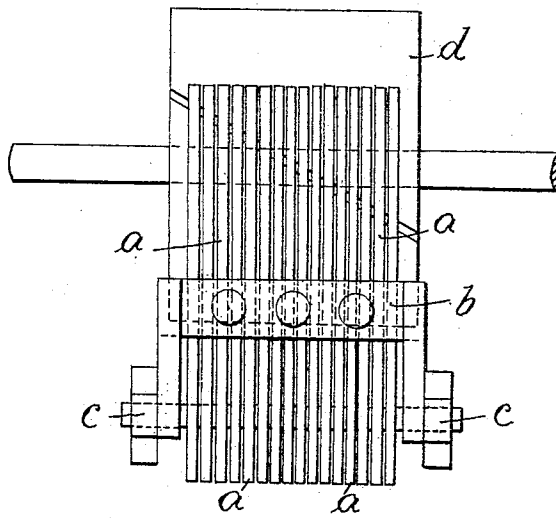
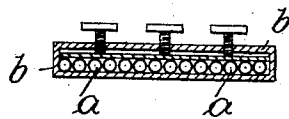


Fig. 2.



Witnesses.
Wm. H. H. H.
E. W. W.

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by
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UNITED STATES PATENT OFFICE.

KARL KOCH, OF ELSEY, NEAR HOHENLIMBURG, GERMANY.

COMMUTATOR-BRUSH.

SPECIFICATION forming part of Letters Patent No. 495,136, dated April 11, 1893.

Application filed November 10, 1892. Serial No. 451,581. (No model.)

To all whom it may concern:

Be it known that I, KARL KOCH, a subject of the King of Prussia, German Emperor, and a resident of Elsey, near Hohenlimburg, in the Province of Westphalia, Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Commutator-Brushes, of which the following is a full, clear, and exact specification.

My invention relates to commutator-brushes for electrical machines and consists in providing these brushes with small metallic tubes, or making them entirely of such tubes, whereby the strength and durability of the brushes are increased.

My invention will be more readily understood with reference to the accompanying drawings, in which:

Figure 1, is a front view of my improved commutator-brush and its holder, as fitted to the commutator of an electrical machine. Fig. 2 is a cross-section of the brush with its holder.

Like letters denote corresponding parts in both figures.

In carrying my invention into effect, I prefer to construct the commutator-brush entirely of small metallic tubes, as shown at *a*; these tubes are inserted in a holder *b* of any suitable construction, in the form of construction represented on the drawings, the holder *b* is pivoted at *c* and any appropriate means are provided for keeping the tubes *a* against the commutator, indicated at *d*, with an adjustable force. The tubes *a* are of course dis-

placeable in the holder *b* in the usual manner, in order to account for the wear of the commutator-brush.

Though I prefer to make the brush entirely of tubes, I may also employ the usual wires or sheet-metal straps, &c., in conjunction with metallic tubes.

By the described construction I secure the following advantages: The improved brushes are much more resistant than brushes of usual construction having the same contact surface. It is therefore possible to press the brush more forcibly upon the commutator and thereby to increase the conductivity of the brush, as it is well known that the chief electric resistance is found in the place of contact. Moreover the brush may be easily cleaned, as it is sufficient to blow air through the tubes in order to remove dust and the like.

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

1. As a sliding contact piece for commutator-brushes, a metallic tube (*a*), substantially as and for the purpose described.

2. A commutator-brush consisting entirely of small metallic tubes (*a*), substantially as and for the purpose described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

KARL KOCH.

Witnesses:

FRITZ HOLTSCHMIT,
W. OTTO.