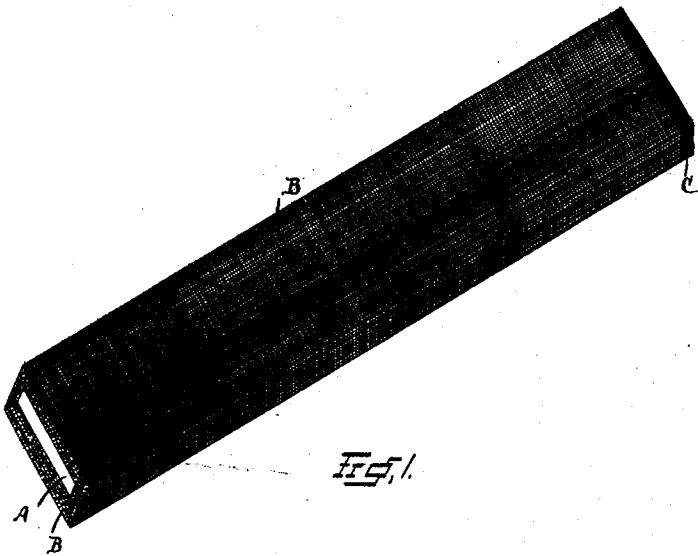


(No Model.)

N. M. CROSS.  
COMMUTATOR BRUSH.

No. 550,252.

Patented Nov. 26, 1895.



WITNESSES:

W. Markes, Jr.  
J. J. Mooney

INVENTOR

Nellis M. Cross  
BY  
Hallock & Lord  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

NELLIS M. CROSS, OF NORTH EAST, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO CHARLES A. ENSIGN, OF SAME PLACE.

## COMMUTATOR-BRUSH.

SPECIFICATION forming part of Letters Patent No. 550,252, dated November 26, 1895.

Application filed October 29, 1894. Serial No. 527,105. (No model.)

*To all whom it may concern:*

Be it known that I, NELLIS M. CROSS, a citizen of the United States, residing at North East, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Commutator-Brushes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to commutator-brushes for electrical dynamos and motors; and it consists in certain improvements in the construction thereof, as will be hereinafter fully set forth, and pointed out in the claim.

My invention is illustrated in the accompanying drawings as follows:

Figure 1 is a perspective view of my improved commutator-brush. Fig. 2 is a longitudinal section of the same.

Heretofore commutator-brushes have often been made of a single bar of metal, and they have sometimes been made of fine metal gauze of several thicknesses compacted together.

It is understood that the brushes made of gauze, as above stated, possess greater conductivity for a given size than when made of a solid bar of the same or substantially the same size, but such brushes are not stiff or resilient as in a single bar.

In my device I secure the increased conductivity possessed by a brush made of gauze, and I obtain the necessary stiffness and resiliency.

My device consists of a brush formed of a gauze compacted upon a central core, which consists of a single bar of metal, the said bar or core giving the necessary stiffness and resiliency to the brush and to the outer coating of gauze giving the necessary or desirable conductivity.

In the accompanying drawings, A marks the central core or bar.

B marks the outer coating or mass of gauze compacted upon the central core. This gauze is cut in strips, diagonally or on the bias, from the web, and is wound upon the central core in several layers and closely pressed or compacted together.

At the end of the brush which is to be clamped to the holdings, I form a solid metallic head by soldering the several layers of gauze and the bar A solidly together, as shown at C in the drawings.

What I claim as new is—

As an article of manufacture, a commutator brush, composed of a central core of sheet metal, having stiffness and resiliency, and an outer coating or mass, around said bar, formed by winding metallic gauze thereon.

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

NELLIS M. CROSS.

Witnesses:

J. KEESE HALLOCK,  
WM. P. HAYES.