

(No Model.)

W. H. FLEMING.
DYNAMO BRUSH.

No. 513,611.

Patented Jan. 30, 1894.

Fig. 1.

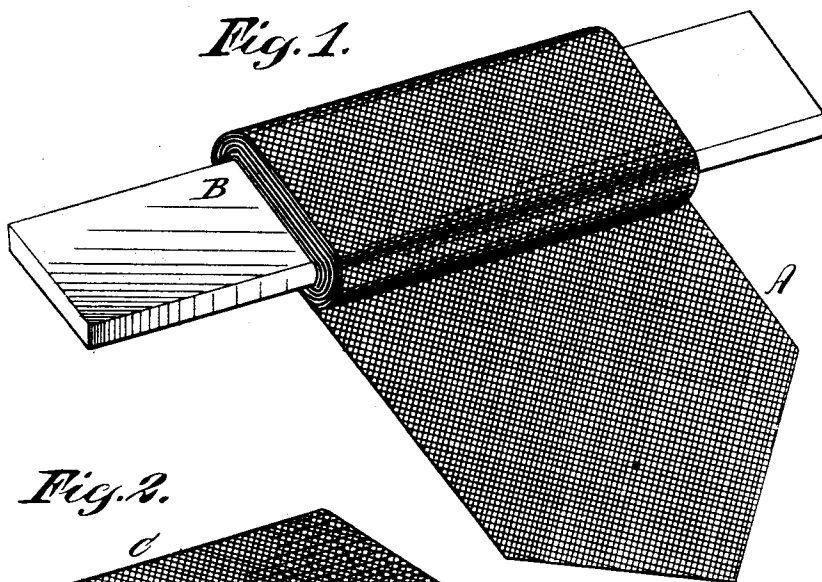


Fig. 2.

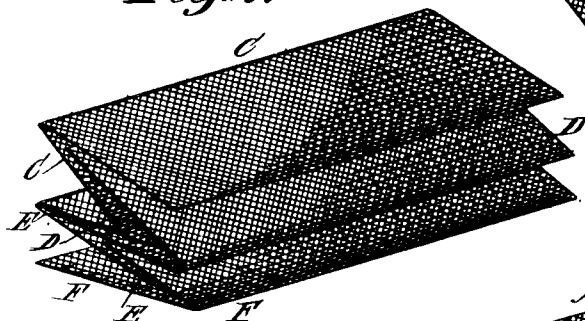


Fig. 3.

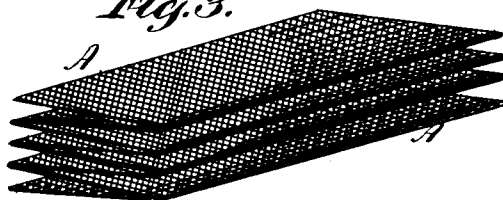
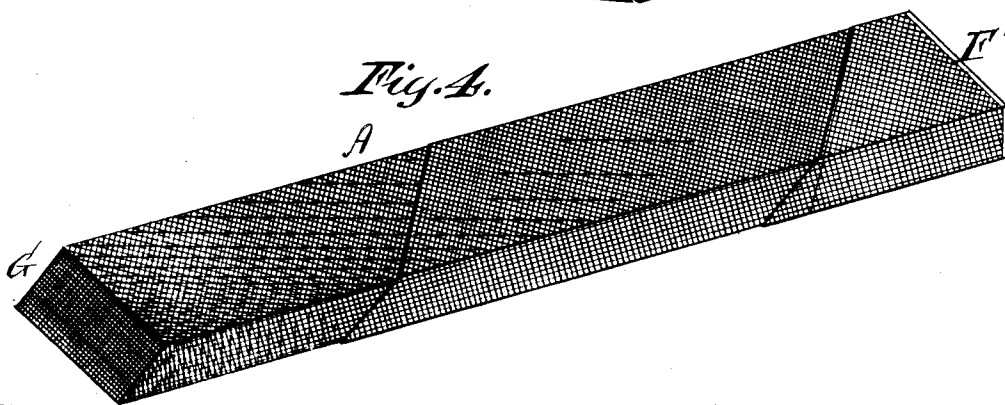


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILFRID H. FLEMING, OF BAYONNE, NEW JERSEY.

DYNAMO-BRUSH.

SPECIFICATION forming part of Letters Patent No. 513,611, dated January 30, 1894.

Application filed November 13, 1893. Serial No. 490,801. (No model.)

To all whom it may concern:

Be it known that I, WILFRID H. FLEMING, a subject of the Queen of Great Britain, and a resident of Bayonne city, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Dynamo-Brushes, of which the following is a specification.

This invention relates to wire gauze brushes for dynamos, and is concerned with the method of making them, and with certain details of construction by means of which I am enabled to produce a brush greatly superior to any heretofore made. Wire gauze has been found particularly well suited to the construction of brushes for this purpose, as being porous. A brush made of it presents a large cooling surface and consequently will not become overheated. Such a brush also has the advantage of being somewhat flexible, which enables it to accommodate itself to the surface of the commutator, and thereby greatly diminishes the wear upon this part of the machine.

My improvements have for their object an increased flexibility as well as durability, and to this end I arrange the gauze so that the wires cross each other diagonally across the length of the brush, and subject the brush afterward to a heavy pressure in a hydraulic press, by which means it is given a compactness nearly equal to a solid material without destroying its flexibility.

In the drawings I have shown the mode of constructing such a brush in sufficient detail to enable any one skilled in the art to carry out my invention.

In the drawings, Figure 1, shows a method of forming up the gauze by winding, and Figs. 2 and 3, show the other methods of forming the gauze into shape, while Fig. 4, shows a brush complete.

Referring to Fig. 1, of the drawings A, is the strip or wire gauze from which the brush is made, and B, a mandrel upon which it is wound. The strip of gauze is cut from the sheet or roll upon the bias so that the interlacing wires extend diagonally across its length as shown. This is then overwound upon a mandrel in a lathe or in any other convenient way. When sufficient gauze has been wound up to make a brush of the desired size,

the mandrel is withdrawn, and the somewhat loose roll of gauze is put into a mold of the proper size and subjected to a heavy pressure in a hydraulic press. In this operation the layers of gauze are pressed into a compact mass, the end of the strip being forced into the layer below so as to make a smooth joint. The brush therefore needs no sewing or other form of fastening, such as has always been heretofore found necessary to bind the free end of the strip of the material. Winding a strip of gauze up in this manner is the preferable way of using it in forming a brush, but when desired the gauze may be formed into shape in several other ways. One way of doing this is shown in Fig. 2, and another in Fig. 3. As shown in Fig. 2, the gauze is cut into pieces of the length of the brush and twice its width, the piece being cut from the sheet or roll so that the wires extend diagonally across it. These pieces are then bent in the middle, and the folded leaves C, C, D, D, and E, E, thus formed, put together in the manner shown. In the form of construction shown in Fig. 3, the strip of gauze A, of a width equal to the length of the brush is taken and bent into a zigzag as shown. After being formed up in either of these ways the gauze is pressed into a compact mass as above described.

After being taken from the mold one end of the brush is dipped in solder and if desired a metal end plate is soldered on as shown at F', Fig. 4. The other end is beveled off as shown at G, same figure, to give it a proper shape for bearing against the commutator.

The mold in which the brush is shaped in the press is preferably made adjustable as then the same mold may be made available for making brushes of different widths and thickness.

A brush made in accordance with this specification is compact and strong, very durable, and exceedingly flexible. Adapting itself readily to the surface of the commutator it is always in good metallic contact with it, thereby preventing to a large extent the sparking so destructive of this part of the dynamo.

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

1. A dynamo brush consisting of successive

layers of wire gauze formed into the desired shape, and then compacted by pressure, substantially as specified.

2. A dynamo brush consisting of successive
5 layers of wire gauze in which the wires are disposed diagonally to the length of the brush, compacted together by pressure, substantially as specified.

3. The method of forming wire gauze dy-
10 namo brushes, which consists in winding or otherwise disposing the material into the general form of the brush, and then compacting the material by pressure, substantially as specified.

4. The method of forming dynamo brushes, 15 which consists in overwinding a strip of wire gauze, the wires in the strip being disposed diagonally to its length, and then compacting the roll of gauze thus obtained, into a brush of the form and size desired, by pressure, 20 substantially as specified.

Signed at New York, in the county of New York and State of New York, this 2d day of November, A. D. 1893.

WILFRID H. FLEMING.

Witnesses:

WILLIAM RAUNEY,
C. M. LUNGREN.