

(No Model.)

S. H. SHORT.
FLAT WINDING FOR ARMATURES.

No. 568,415.

Patented Sept. 29, 1896.

Fig. 1.

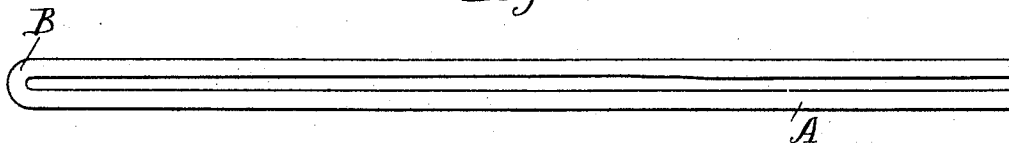


Fig. 2.

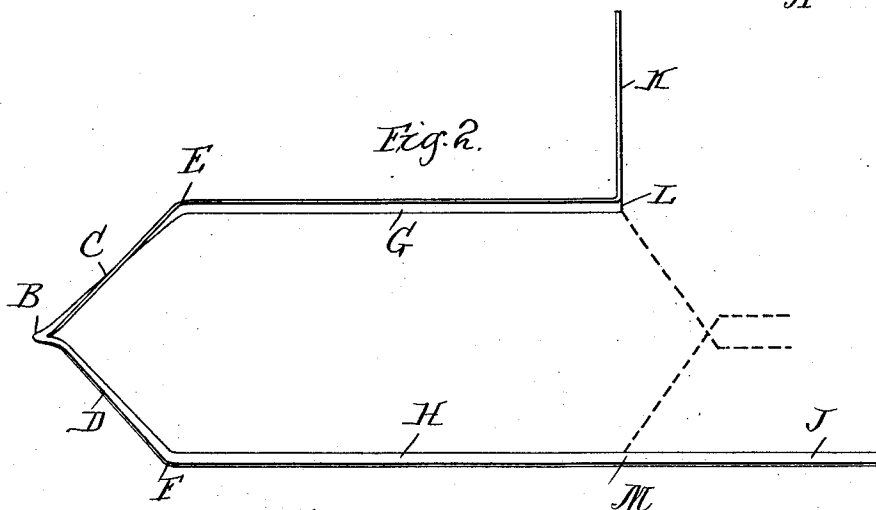


Fig. 3.

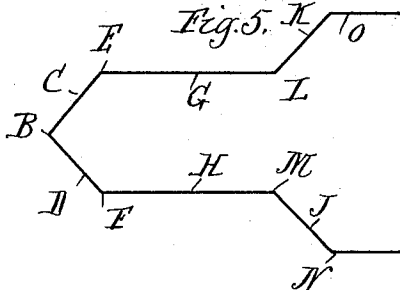


Fig. 4.

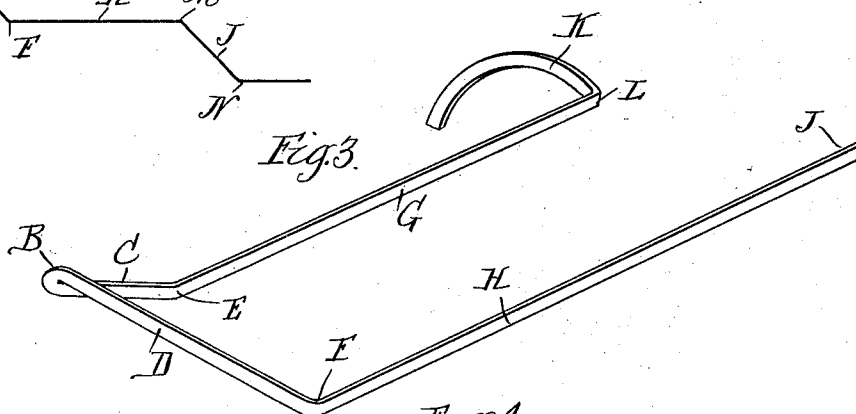
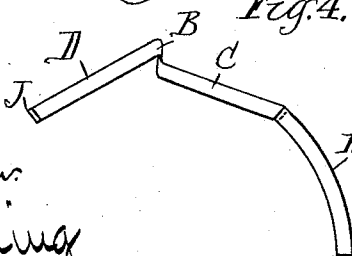


Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

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FLAT WINDING FOR ARMATURES.

SPECIFICATION forming part of Letters Patent No. 568,415, dated September 29, 1896.

Application filed May 4, 1896. Serial No. 590,223. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY H. SHORT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Flat Winding for Armatures, of which the following is a specification.

This invention relates to flat windings for armatures.

10 The object of the invention is to provide a flat winding for armatures of simple and improved construction which is cheap and efficient.

15 The invention consists, substantially, in the features hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claim.

20 In the accompanying drawings, Figure 1 is a view in plan of a strip of winding material before it is bent into winding-frame shape. Fig. 2 is a view in plan illustrating a winding-frame bent to shape for parallel winding, indicating in dotted lines an arrangement for series winding. Fig. 3 is a view in perspective 25 of a frame bent for parallel winding. Fig. 4 is an end view of the construction shown in Fig. 3. Fig. 5 is a diagram showing a frame bent for a different style of parallel winding.

30 In carrying out my invention I take a straight flat rod or bar A, of suitable material, and first bend the same laterally, that is, in the plane of the flat side thereof, into the form shown in Fig. 1, so that the flat surfaces of both portions of the bend are in the same plane, the bend B being held in any suitable manner during such bending operation in the same plane with the corresponding sides of the two arms. The two ends of the bar so 35 formed are then bent laterally in opposite directions away from each other and from the bend B, and said arms are also bent out of the same plane, so that the portions C D of the winding will project in opposite directions away from the bend B and will be inclined relative to each other both as to longitudinal and as to lateral directions. At the 45 points E and F the two arms are again bent into substantially parallelism, thereby forming the arms or side portions G H of the winding-frame. The said portion H may be extended longitudinally, as shown at J, Figs. 2, 3, and 4, and suitably connected to the

commutator in the usual or any ordinary manner, and the end K of the side portion G may be bent laterally from the portion G 55 at the point L and suitably curved longitudinally thereof, as shown in Figs. 2, 3, and 4, and the end thereof connected in the usual or in any convenient manner to the proper commutator-segment. 60

The arrangement above described adapts the winding-frame for use in parallel couplings of the armature-windings. If desired, however, for series winding the end portions J K of the side bars H G, respectively, may 65 be bent toward each other at the points indicated by reference-signs M L, as indicated in dotted lines in Fig 2; or, if desired, and for a different style of parallel winding, both the end portions J K may be bent away from each other at the points M L, respectively, 70 and then again into parallelism at the points N O, and finally suitably connected to the proper commutator-segments, as indicated in Fig. 5. 75

In the form shown in Figs. 2, 3, and 4 the end portion K is curved in the direction of its length and edgewise in order to more snugly fit the curvature of the armature-core, as will be readily understood. 80

The several bends above described may be imparted to the bar A in any suitable or convenient manner and upon any conveniently-arranged forms.

85 From the foregoing description it will be seen that in plan view an armature-winding constructed in accordance with my invention will present substantially the edge of the bar throughout the entire length thereof, the several bends, except the bends E F L M N 90 O, being bends in the direction of the edge of the bar, while said bends E F L M N O are flatwise bends, thereby facilitating the easy and rapid arrangement of the windings upon the armature-core and also facilitating 95 and cheapening the formation of the winding.

By employing flat copper rods or bars the necessary bends, as above described, may be easily effected.

100 It will be observed from the foregoing description that the said portions G H of the winding-frame are in parallel relations with respect to each other, but that the bend B is not contained in the same plane with said

side portions G H, but is elevated above the plane of said side portions.

Having now set forth the nature and object of my invention and the manner of carrying the same into practical effect, what I claim as new and useful and of my own invention is—

An armature-winding comprising a flat bar, provided with an edgewise bend to form parallel arms, the flat sides of which lie in the same plane, said arms being deflected laterally in opposite directions away from said bend and out of parallel relation, and each provided with a sidewise bend into parallel-

ism to form the side portions of the winding-frame, the free ends of said side portions provided with a bend to bring the same into proper position to be coupled to the commutator-segments; as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 27th day of April, 1896, in the presence of two subscribing witnesses.

SIDNEY H. SHORT.

Witnesses:

R. G. BONE,

M. A. KENSINGER.