

(No Model.)

S. H. SHORT.
ARMATURE CORE.

No. 580,011.

Patented Apr. 6, 1897.

Fig. 1.

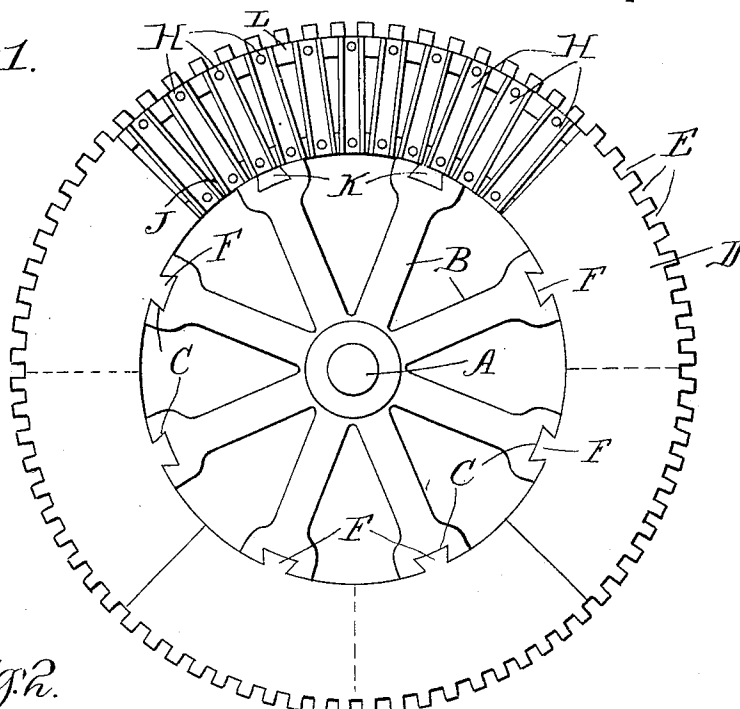


Fig. 2.

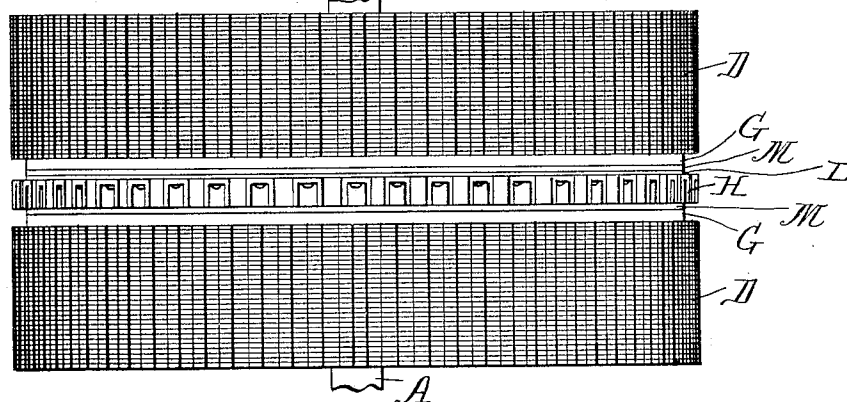


Fig. 3.

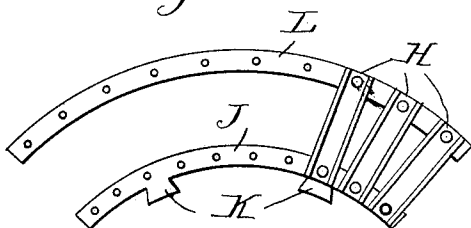
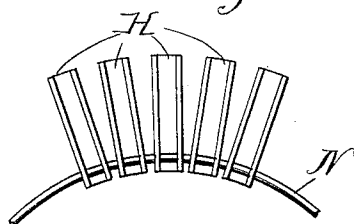


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

SIDNEY H. SHORT, OF CLEVELAND, OHIO.

ARMATURE-CORE.

SPECIFICATION forming part of Letters Patent No. 530,011, dated April 6, 1897.

Application filed January 19, 1897. Serial No. 619,331. (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 Armature-Core, of which the following is a specification.

This invention relates to armature-cores.

The object of the invention is to provide means for ventilating the cores of armatures.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, shown in the accompanying drawings, and finally specifically pointed out in the appended claims.

Referring to the accompanying drawings and the various views and reference-signs appearing thereon, Figure 1 is a view in end elevation of an armature, showing the application thereto of my ventilating arrangement. Fig. 2 is a plan view of the same. Fig. 3 is a detached detail view showing a manner of mounting the ventilating-spacers. Fig. 4 is a detached detail view illustrating a modified manner of mounting the ventilating-spacers.

The same part is designated by the same reference-sign wherever it occurs throughout the several views.

In the drawings, reference-sign A designates the armature-shaft, upon which is mounted the spider or hub, which may be of any suitable or convenient construction and arrangement, but preferably and as shown this hub or spider comprises radial arms B. Each arm B of the spider or hub is provided with a dovetail groove (indicated at C) in the outer periphery thereof. The armature-core is built up of laminæ D, constructed in the usual or any ordinary way, with slots E in their outer edges and with dovetail projections F on the inner edges thereof, said dovetail projections arranged to be received in the dovetail grooves C in the periphery of the spider-arms B. These laminæ are made of thin segments, and the core is built up in rings of such segments encircling the spider or hub, the segments of the complete ring preferably forming lap-joints with the abutting ends or joints of the segments of the preceding ring. Next adjacent to the point where it is desired to introduce ventilating-ducts a

ring of segments G, of greater thickness than that of the other segments of laminæ, is introduced to the end that the teeth or projections forming the slots E in the outer periphery of the laminæ may be properly supported and that the thinner laminæ next adjacent to the air-spaces may be prevented from bending over across such spaces. The air-spaces are formed by spacers H. These spacers may be of any suitable or desirable shape or form and of a length to extend from the inner surface of the core outwardly to the bottoms of the grooves formed in the laminæ to receive the windings.

Preferably and as shown I employ sections of channel-iron and arrange the same radially and with the flanges thereof presented in the direction of length of the armature-shaft, but of course I do not confine or limit myself to this exact construction and arrangement, as many variations therefrom and changes therein would readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention.

The separators H may be mounted in many different ways upon the spider or hub. In Fig. 3 I have shown what I deem a preferable arrangement, wherein the spacers H are riveted or otherwise secured to segmental strips J, having projecting dovetails K, arranged to be received in the dovetail grooves C in the ends of the spider-arms B. The outer ends of the spacers are in this form of construction and arrangement held in suitable spaced relation with respect to each other by means of segmental strips L, to which the spacers are riveted or otherwise suitably secured at the outer ends thereof.

After the armature-core has been built up, as above explained, by successive layers of laminations D to the point where the ventilating-spaces are to be introduced the layer or ring of thick segments is next introduced, as above mentioned. Then a layer M of suitable insulation, such as paper, is introduced, and, finally, a row of spacers, the strips J, to which said spacers are secured, being inserted similarly to the manner in which the laminæ are inserted, with the dovetail projections K fitting in the grooves C of the spider-arms. The building up of the armature-core is

then continued by placing next adjacent the spacers a lamination or ring M of insulation, as, for instance, paper, then a ring of thick segments G, and then the successive layers of thin laminations D, until the point is attained where it is desired to introduce the next ventilating-ducts, when the above-described operation is repeated, and so on throughout the entire construction of the armature-core. Thus it will be seen that the spacers are supported directly upon the hub or spider and are not attached to the laminæ, but, on the contrary, are separated therefrom by the intervening insulation and strengthening-rings. The laminæ are efficiently supported at the points where the ventilating-ducts are introduced and are prevented from bending over into the ventilating-spaces. It will also be seen that radial ducts or passages are found through the body of the core and through which a thorough ventilation of the core is effected, and that by the use of channel-iron for the spacers the weight of the structure is reduced to the lowest point.

Instead of supporting the spacers H upon the segmental strips J, which strips have the dovetail projections K thereof adapted to be received in the grooves C of the spider-arms, said spacers may be supported in any other suitable or convenient manner. In Fig. 4 I have shown a slightly-modified arrangement for supporting these spacers, wherein the spacers are perforated transversely and are thereby strung upon a wire or other suitable support N, by which the said spacers are held in place until the pressure of the laminations on either side thereof is brought upon them, thereby binding the same firmly into place.

Many other arrangements for supporting the spacers would readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention. While I have shown and described in detail a specific form and arrangement, I do not confine or limit myself thereto; but,

Having set forth the object and nature of my invention and a form of apparatus embodying the same, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent of the United States, is—

1. An armature-core built up of laminæ and having spacers interposed between the laminæ and separated therefrom, as and for the purpose set forth.

2. An armature-core built up of laminæ and having spacers interposed between the laminæ and insulation interposed between the spacers and the laminæ, as and for the purpose set forth.

3. In an armature, a hub or spider, an armature-core mounted thereon, and ventilating-spacers mounted on said hub or spider and arranged to extend through the body of

the core, and means for supporting the core adjacent to such spacers, as and for the purpose set forth.

4. In an armature, a hub or spider, an armature-core mounted thereon, ventilating-spacers mounted on said hub or spider and arranged to extend through the body of the core, and insulation interposed between the spacers and the core, as and for the purpose set forth.

5. In an armature, a hub or spider, an armature-core mounted thereon, ventilating-spacers mounted on said hub or spider, and arranged to extend radially through the body of the core, and strips of insulation interposed between said spacers and core, as and for the purpose set forth.

6. In an armature, a hub or spider, a core comprising laminæ mounted thereon, said core having interposed ventilating-ducts formed by mounting spacers on said hub or spider, intermediate certain adjacent laminæ, as and for the purpose set forth.

7. An armature-core built up of laminæ and having spacers U-shaped in cross-section interposed between adjacent laminæ, as and for the purpose set forth.

8. An armature-core built up of laminæ and having spacers U-shaped in cross-section arranged to extend radially through the body of such core, as and for the purpose set forth.

9. An armature-core built up of thin laminæ and having sections of channel-iron interposed between adjacent laminæ and means for supporting the laminæ next adjacent to such channel-irons, as and for the purpose set forth.

10. In an armature, a hub or spider comprising radial arms, a core supported by said arms, strips mounted on said arms and between adjacent core-laminæ and spacers secured to said strips, as and for the purpose set forth.

11. In an armature, a hub or spider having radial arms, said arms provided with dovetail grooves on the outer periphery thereof, a core mounted on said arms, strips provided with dovetail projections adapted to be received in the grooves in said arms, said strips interposed in the body of said core, and spacers attached to said strips, as and for the purpose set forth.

12. An armature built up of successive thin rings or laminæ, rings of spacers, and supporting-rings interposed between said spacers and said laminæ, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 14th day of January, 1897, in the presence of the subscribing witnesses.

SIDNEY H. SHORT.

Attest:

M. A. KENSINGER,
K. HIRSCH.