UNITED STATES PATENT OFFICE.

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SPACE-BLOCK FOR ARMATURES.

SPECIFICATION forming part of Letters Patent No. 662,928, dated December 4, 1900.
Application filed January 18, 1900. Serial No.1,856. (30 mo. filed.)

To all whom it may concern:

Belit known that I, HENRY GEISENHÖNER, a
5 citizen of the United States, residing at Schenec-
tady, county of Schenectady, State of New
York, have invented certain new and useful Improvements in Space-Blocks for Armatures, (Case No. 1,338), of which the following is a specification.

This invention relates to space-blocks for armatures of dynamo-electric machines or electric motors. It is usual in constructing armatures for generators or motors to provide spaces between groups of the punchings or core-plates which constitute the iron body of the core of the armature in order to promote ventilation and keep down the heating of the armature due to the molecular changes in the iron under its motion in the magnetic field and other causes. The invention can of course be readily applied to any electrical apparatus having a laminated iron structure which requires cooling. My invention is designed to promote such ventilation by a space-block of great simplicity and cheapness of construction and of great rigidity against the pressure to which the core-plates are subjected when being assembled.

In carrying out my invention I provide at the points where ventilation is desired core-plates or punchings of iron, to which I affix radial iron strips supported edgewise on the core-plates in such a way as to have a firm seat thereon free from any tendency to bend sidewise when the bundles of laminae are pressed together. I effect this result by providing radial slots, with which are connected the space-pieces, which may be secured firmly in place by inserting in the slots and pushing outward radially, the space-pieces being provided with offsets either before or after their insertion, by which they are locked in position. I prefer to mount these space-strips so that they project on both sides of the core-plate, the offsets being so arranged that they will not interfere with the outward flow of air-currents. Both the core-plates and the space-pieces being made from sheet metal, it will be evident that the construction I provide is a very cheap one, and as they may be inserted or detached by a sliding movement with relation to the slot in the core-plate their assembly or dismounting is an extremely simple matter.

The novel features of my invention will be hereinafter more specifically described, and will be definitely indicated in the claims. In the accompanying drawings, which illustrate my invention, Figure 1 is a side elevation of a portion of a core-plate embodying my improvements. Fig. 2 shows detail views 60 of the space-piece employed in the construction shown in Fig. 1. Fig. 3 is a side elevation of a portion of a core-plate provided with a modified form of space-piece, and Fig. 4 shows detail views of the space-piece of Fig. 3.

Referring first to the construction shown in Fig. 1, 1 represents a section of the core-plate, which is a punching of sheet-iron provided with radial slots 2 2°, etc., which may be punched at the same time that the teeth 30 are cut in the core-plate. It will be understood that this core-plate is or may be of the same shape as the laminae which form the body of the armature-core. I provide a space-piece to be locked in these slots, which may be a simple punching of sheet-iron, such as indicated at 3 in Fig. 2. I preferably punch a slot at the end of the core-plate as shown, so that the space-piece may be locked to the core-plate and project on both sides of the same. The length of the space-piece should be such as to permit it to be inserted laterally in the slots 2 2°, and it should be of such thickness relative to the slot as to permit such insertion. After being placed half-way through the slot it may be pushed outward radially, so that the walls at 4° at the sides of the slot may engage the two sides of one of the teeth in the core-plate. The two tongues at the rear end of the slot, as shown at 5°, may then be given a lateral bend, as indicated in Fig. 1, which firmly locks the space-piece in position. Thus it has a firm seat on the core-plate in a true perpendicular direction to the face of said plate and not only affords the necessary separation of adjacent sections of the core to permit the flow of air-currents, but stiffens the teeth and prevents bending.

I have shown in the drawings only a few 100 of the strips in position. It will be understood, however, that as many as are desired
may be provided, and, best of all, one for each tooth of the core-plate. Thus when the core-plates are assembled in position between adjoining bundles of laminas in the armature-core and pressure applied the space-pieces have no tendency to buckle or twist and permit all the pressure to be applied to the core which is needed for its best construction.

In Fig. 3 I have shown a modification in which the slots are provided with enlargements, as indicated at 6, on its opposite walls to cooperate with corresponding lugs stamped in the space-piece. In this construction the space-piece may be punched with a slot at one end only, as indicated at 7 in Fig. 6, as 8, being struck up in the process of punching or in a subsequent operation after the piece has been punched. To suit the space-pieces in the core-plate, the lugs 8 9" are brought into alignment with the enlargements 6 6" of the slot in the core-plate and the space-piece then pushed half-way through the core-plate, when an outward thrust will cause the tongues at the sides of the slot 7 to pass over the armature-tooth, as indicated in Fig. 3, thus bringing the lugs 8 9" over the metal of the core-plate and firmly locking the space-piece in position. In this organization it is a matter of extreme ease to withdraw the space-piece after the core of the armature has been disassembled. In the construction shown in Fig. 1 it would be necessary first to bend the tongues 8 9" into alignment with the slot.

The essential feature of my invention is the attachment of the space-pieces to a flat punching without the addition of rivets or other extraneous pieces of metal and by a simple sliding movement which affords a secure mechanical lock and holds the parts in position.

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

1. A space-block, comprising a flat core-plate punched and having secured thereto a space-piece supported on the core-plate edge on and locked thereto by overhanging walls.

2. A space-block, comprising a flat core-plate punched to receive a space-piece, and a space-piece secured thereon edge on, and locked in position by being pushed over the plate.

3. A space-block, comprising a core-plate punched with radial slots, space-pieces adapted to be inserted into the radial slots, the space-pieces being slotted to permit movement relatively to the core-plate, and locked thereto by the walls of said slot.

4. A space-block, comprising a core-plate radially slotted, space-pieces within the slots 60 projecting on both sides of the core-plate and locked thereto by lateral projections.

5. A space-block, comprising a core-plate, space-pieces extending through radial slots in the core-plate, lateral projections on the 65 space-pieces, and corresponding enlargements in the slots to permit assembling, and a slot in the outer end of the space-piece to permit its movement in the radial slot to lock it in position.

6. A space-block, comprising a space-plate and space-pieces secured thereto by integral lateral extensions from the space-plates at both sides of the plate.

7. A space-block, comprising a space-plate 75 and space-pieces extending through the plate edgewise, and locked thereto by lateral extensions at both sides of the plate.

8. A space-block, comprising a slotted space-plate, and space-pieces set edgewise in the 80 slots projecting on opposite sides of the plate and locked in place by the slot-walls.

9. A space-block composed of punchings of sheet metal and comprising a slotted core-plate and space-pieces set edgewise in the slots 85 and anchored at both sides of the plate.

10. A lamination and a slotted space-piece which spans it.

11. A lamination, a slotted space-piece which spans it, and integral lateral extensions from the space-piece on opposite sides of the slot, which secure the space-piece to the lamination.

In witness whereof I have hereunto set my hand this 15th day of January, 1908.

HENRY GEISENHÖNER.

Witnesses:

BENJAMIN B. HULL,

MABEL E. JACOBSON.