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METHOD OF FITTING AND WINDING COILS ON POLE ARMATURES OR FIELD MAGNETS

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Fig. 1.

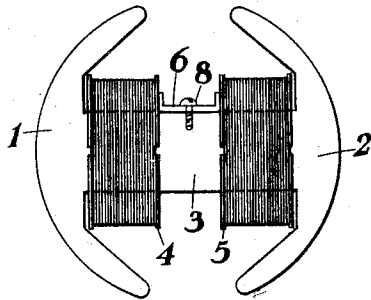


Fig. 2.

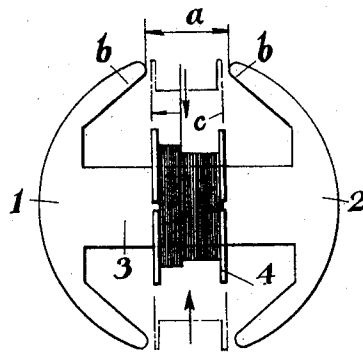


Fig. 3.

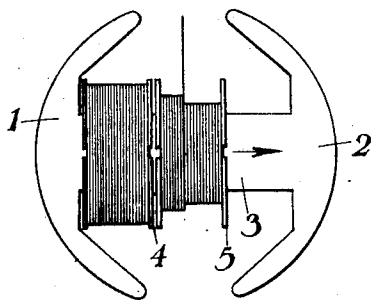
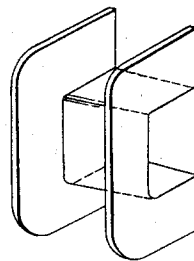


Fig. 4.



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METHOD OF FITTING AND WINDING COILS ON POLE ARMATURES OR FIELD MAGNETS

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The invention relates to a method for fitting and winding coils on pole-armatures or field magnets for electrical machines, wherein the pole pieces are formed integral with the core and, in order to obtain a field with a larger cross-section, are made to extend back to approximately the centre of same and over the coils, i. e. the pole pieces are cut away on the inside to accommodate the coils.

Armatres or field magnets of this kind are used especially for small motors where it is essential for the cost of manufacture to be kept down to a minimum. Hitherto it has only been possible to fit these coils on armatures with cut-away pole pieces, by having one head of the core made removable. This involves an appreciable increase in cost and a more complicated design, which is particularly troublesome where the iron core consists of sheet iron layers, such as dynamo sheets.

According to this invention this drawback is obviated and the stamping of the sheets of which the armature is to be formed out of a single piece for the entire section of the form desired is rendered possible by having the ends of the pole-pieces separated by a space somewhat larger than the width of the bobbins of the coils, and by having the bobbins divided or formed in two parts. In assembling, the two halves of one bobbin are held together about the middle of the iron core and wound with the coil wire. When the first coil is finished, the bobbin, the two parts of which are now held together by the winding, is pushed laterally into its final position against the inner face of the pole piece, and the two halves of the second bobbin are then placed in position on the core and wound in a similar manner. When the second coil is finished, this also is pushed over laterally into its final position against the inner face of the other pole piece. The coils are retained in their working positions by means of a suitable intermediate member.

In the accompanying drawings which illustrate diagrammatically one embodiment of this invention:—

Figure 1 illustrates a fully wound field

magnet core or armature for an electric machine.

Figure 2 illustrates the winding of the first bobbin.

Figure 3 the winding of the second bobbin, and

Figure 4 one half of a bobbin in perspective.

The armature or field magnet consists of the pole pieces 1 and 2 formed integrally with a core 3 and the tips of the pole pieces extend backwards towards the centre so that the distance a between the ends b of the pole pieces is somewhat greater than the width c of the bobbins 4 and 5, so that the latter, made up of two parts, can be placed on the core 3.

When winding, the two parts of the bobbin 4 are placed on the core 3 in the position shown in Figure 2 and the wire wound thereon. When this coil is finished it is pushed to the left against the inner face of the pole piece 1 and the two parts of the bobbin 5 are then placed in the mid-position as shown in Figure 3. This coil, having been fully wound, is pushed laterally to the right against the inside face of the pole piece 2 and a distance piece 6 is placed between the two bobbins and secured in position by a screw 8 or other convenient means.

What I claim is:—

1. The method of fitting and winding coils on pole armatures in which the pole pieces are integral with the core, the tips of said pole pieces being extended backwards towards the centre thereof the wound bobbins being accommodated adjacent the inner faces of the pole pieces, means being provided for retaining the respective bobbins in the latter position, which consists in placing the bobbins, formed in two parts, in mid-position on the core for winding after which operation the wound bobbins are moved laterally to each end of the core against the inner faces of the pole pieces, and finally securing the retaining means in position.

2. The method of fitting and winding coils on pole armatures in which the pole pieces are integral with the core, the tips of said pole pieces being extended backwards towards the centre thereof the wound bobbins being ac-

commodated adjacent the inner faces of the pole pieces, means being provided for retaining the respective bobbins in the latter position, which consists in placing a two-part bobbin for one coil on the core and winding same while in mid-position thereon the wound bobbin being subsequently moved laterally on the core to a position adjacent one pole piece after which operation a two-part bobbin for a second coil is similarly placed in the mid-position, wound and moved laterally into position adjacent the opposite pole piece and finally securing the retaining means in position.

3. The method of fitting and winding coils on pole armatures in which the pole pieces are integral with the core, the tips of said pole pieces being extended backwards towards the centre so as to be separated by a space somewhat greater than the width of the bobbins, the wound bobbins being accommodated adjacent the inner faces of the pole pieces, means being provided for retaining the respective bobbins in the latter position, which consists in placing two-part bobbins singly in mid-position on the core, winding the coils thereon, moving the wound bobbins laterally to a position adjacent the respective pole pieces and finally securing the retaining means in position.

4. An armature for an electric machine comprising oppositely disposed pole pieces and a straight core formed integral therewith the tips of the pole pieces being extended backwards towards the centre of the core, a two-part coil wound bobbin arranged on said core adjacent each pole piece and detachable means secured to the core for retaining said bobbins in their respective positions.

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