July 10, 1951 E. V. SCHNEIDER 2,559,803

INSULATOR FOR COILS

Filed Dec. 13, 1948 2 Sheets-Sheet 1

Fig. 7

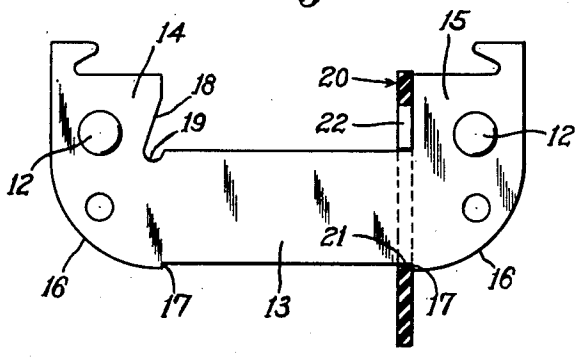
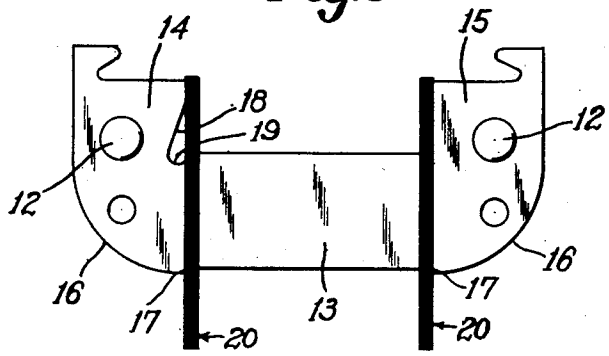


Fig. 8



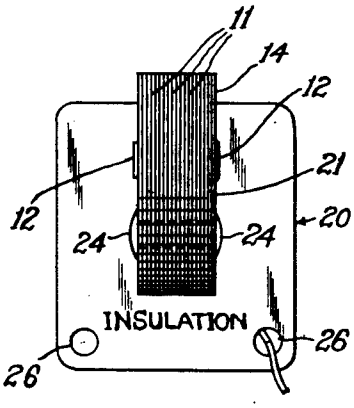
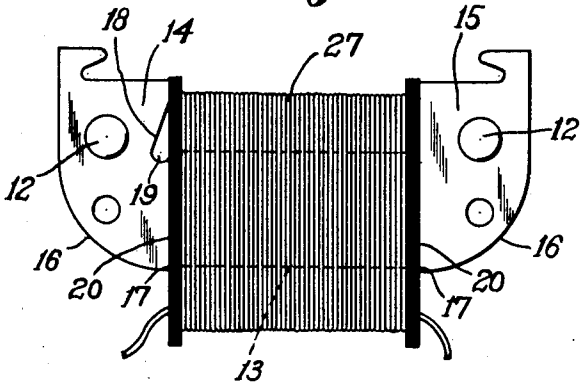


Fig. 2

Fig. 1



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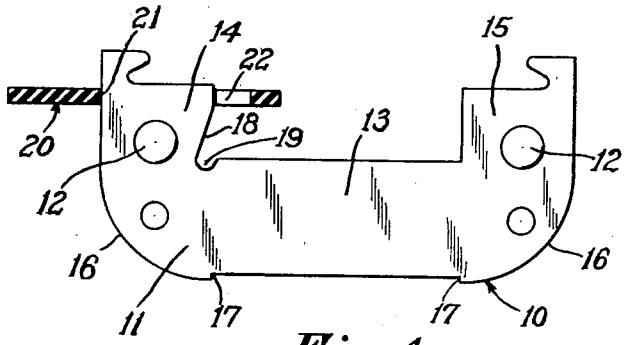


Fig. 4

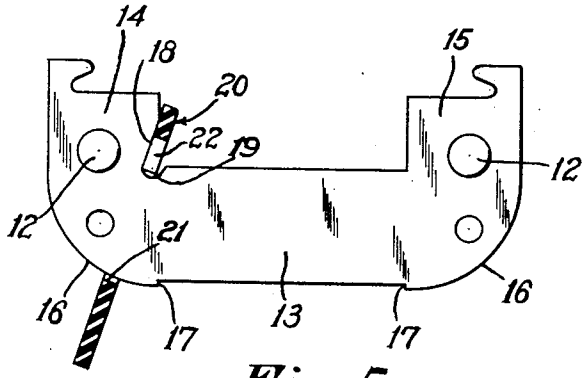


Fig. 5

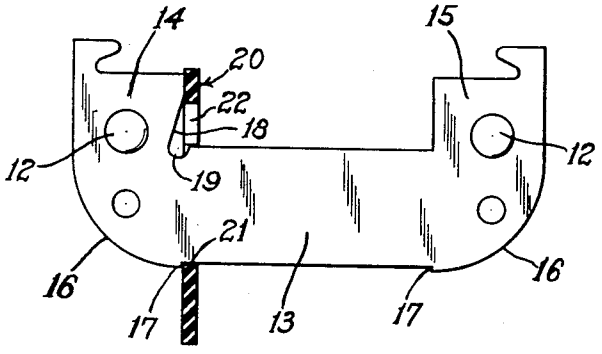
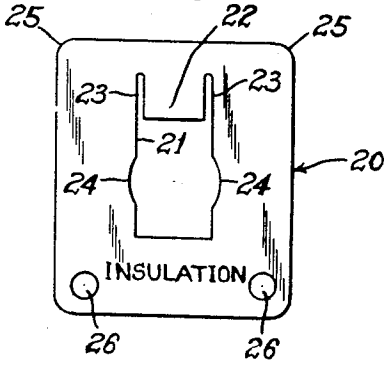


Fig. 6

Fig. 3



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Patented July 10, 1951

2,559,803

UNITED STATES PATENT OFFICE

2,559,803

INSULATOR FOR COILS

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Application December 13, 1948, Serial No. 64,919

1 Claim. (Cl. 174—138)

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The invention relates to insulators and more particularly to an insulator adapted for use at the ends of coils.

In various electrical appliances, such as induction motors and the like in which a coil is wound upon an elongated portion thereof, it is customary to provide an insulator at each end of the coil.

These insulators are formed from flat, substantially heavy fibrous sheet material and are substantially rigid. Owing to the rigidity of these insulators and particularly because of the fact that the part upon which the coil is to be wound is usually provided with extensions or enlargements at each end thereof, it is difficult to install the insulators upon the stator of the motor, or other device on which they are to be used, and it is customary practice to cut the insulator entirely through on one side of the central opening therein so that it may be distorted in order to mount it in position thereon.

The present invention contemplates the provision of an insulator for such use which is so constructed that it may be mounted upon a stator of a motor, or other device upon which a coil is to be wound, without the necessity of severing the insulator at one side of the central opening.

Another object of the invention is to provide an insulator of this character which may be quickly and easily mounted in position upon the stator or the like and which will be frictionally held in place thereon.

A further object is to provide such an insulator in which a comparatively flexible tongue is formed therein at one side of the central opening therein to permit the insulator to be passed over the extensions or enlargements at the ends of the device.

A still further object is to provide such an insulator in which the central opening therein is substantially the size and shape of the cross section of the part upon which it is to be mounted.

Another object is to provide an insulator of the character referred to in combination with a stator, or other part upon which a coil is to be wound, which is provided with extensions or enlargements at each end and having a notch therein adjacent to one of said extensions or enlargements to receive the tongue of the insulator during an initial step of mounting the insulator thereon.

The above and other objects, apparent from the drawings and following description, may be attained, the above described difficulties overcome and the advantages and results obtained, by the construction, arrangement, and combination comprising the present invention, a preferred embodiment of which illustrative of the best mode in which applicant has contemplated applying the principle, being set forth in detail in the following description and illustrated in the accompanying drawings, in which:

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Figure 1 is a side elevation of a portion of the stator of an induction motor with a coil wound thereon, and insulators to which the invention pertains mounted upon said stator at opposite ends of the coil;

Fig. 2 an end elevation of the article shown in Fig. 1;

Fig. 3 an elevation of the improved insulator to which the invention pertains;

Fig. 4 an elevation of a portion of a stator, showing the first step of placing one of the improved insulators thereon;

Fig. 5 a similar view, showing the second step in which the tongue of the insulator is located in the notch in the stator to permit moving the insulator over the enlargement or extension at the end of the stator;

Fig. 6 shows the next step in the operation, in which the insulator has been moved over the end enlargement or extension and the tongue removed from the notch;

Fig. 7 shows the insulator after being slidably moved to the other end of the stator; and,

Fig. 8 shows the stator with the insulators mounted thereon in position to wind a coil upon the stator between the insulators.

Although the improved insulator is adapted for use upon various electrical appliances upon which a coil is to be wound, for the purpose of illustration the improved insulator is shown applied to the removable, coil section of a seperator stator for induction motor such as disclosed in Boyd application for Shaded Pole Type Motor, Serial No. 54,979, filed October 16, 1948

This removable section of the stator is indicated generally at 10 and comprises a stack of laminations 11 in the form of magnetic iron plates or sheets connected together by rivets 12.

The removable section of the stator comprises the straight, elongated, central portion 13 having the angular extensions 14 and 15 at opposite ends thereof with the arcuate ends 16 terminating at the slight shoulders 17.

The inner side of the angular extension 14 is inclined downwardly and inwardly as at 18, merging into the transverse notch 19. The improved insulator to which the invention pertains is in-

dicated generally at 20 and is formed of a stiff, heavy sheet material such as is commonly used for this purpose.

This insulator may be substantially rectangular in shape, as best shown in Figs. 2 and 3, and has a central opening 21 therein shaped to snugly fit over the elongated straight portion 13 of the stator section.

A tongue 22 is formed in the insulator, at one end or side of the central opening 21, by slitting the insulator on each side of the tongue as indicated at 23. Opposite sides of the central opening 21 may be enlarged, as indicated at 24, to accommodate the heads of the rivets 12 when the insulator is slipped over one end extension of the stator section as will be later described.

The corners of the insulator are preferably rounded as at 25, and apertures 26 may be formed near certain corners through which the wires may be passed for making electrical connections to the coil in usual and well known manner.

In assembling the insulator upon the stator, as shown in Fig. 4, an insulator is slipped over the extension 14, with the tongue 22 upon the inner side as shown in said figure, and the insulator is pushed down over the extension 14 until the tongue 22 is received in the notch 19, the adjacent side of the tongue 22 substantially contacting the inclined inner side 18 of the extension 14, as shown in Fig. 5.

It will be seen that in this position, with the tongue entered into the notch 19, the lower side of the central opening 21 in the insulator is thus spaced from the arcuate surface 16 at this end of the stator so that as the insulator 20 is moved to the position shown in Fig. 6, it will clear the adjacent shoulder 17 upon the stator and the tongue 22 withdrawn from the notch 19 and engaged over the top surface of the straight elongated portion 13 of the stator.

The insulator 20 may then be slidably moved along the elongated straight portion 13 of the stator until it contacts the extension 15 and the shoulder 17 at the other end of the stator, as shown in Fig. 7.

Another insulator 20 is then slipped over the extension 14 and moved through the positions shown in Figs. 4, 5 and 6, so that one of these insulators is located at each end of the straight portion 13 of the stator as shown in Fig. 8.

The coil may then be wound upon the straight

portion 13 of the stator, between the insulators 20—20, this winding either being done by hand or by a machine, such for example as disclosed in Schneider Patent No. 2,275,995 dated March 10, 1943, forming a coil 27 around the straight portion 13 of the stator between the insulators 20, as shown in Fig. 1.

If desired a thin wrap of insulation, which may be varnished cambric or the like, may be first wrapped around the straight portion 13 of the stator before the coil is wound thereon.

From the above it will be obvious that a simple, inexpensive and efficient insulator is provided for the ends of coils upon stators and the like and that the insulator is so constructed that it may be quickly and easily positioned upon the stator, or other part, without the necessity of severing the insulator on one side of the central opening therein.

According to the provisions of the patent statutes, I have explained the principle of my invention and described one embodiment thereof, but I desire to have it understood that within the scope of the appended claim the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

In combination with an electric device having a straight portion and an extension at each end thereof and having a notch therein adjacent to one end extension, and an insulator mounted upon said straight portion adjacent to each end extension, whereby a coil may be wound upon said straight portion between the insulators, each insulator being formed of comparatively rigid sheet insulation material having a central opening therein to receive said straight portion and a comparatively flexible tongue at one side of said opening to permit the insulator to be passed over one of said end extensions, said notch receiving the tongue as the insulator is moved from said one extension onto said straight portion.

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The following references are of record in the file of this patent:

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