May 23, 1961 A. ROSS 2,985,708

ELECTRICAL CABLE TERMINATING AND SUPPORTING MEANS

Filed March 16, 1960

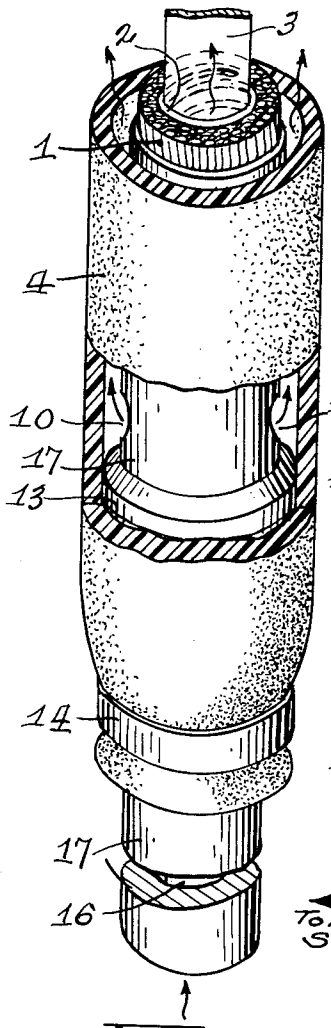


Fig. 1

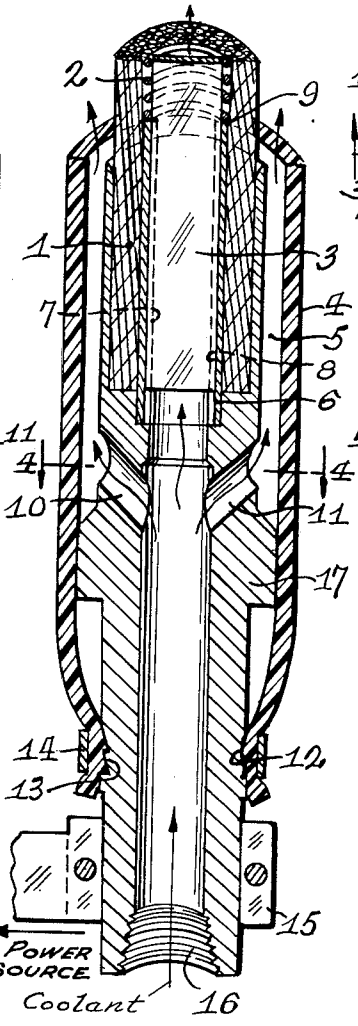


Fig. 3

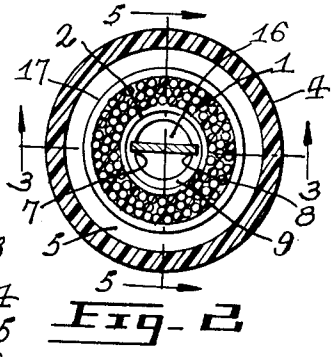


Fig. 2

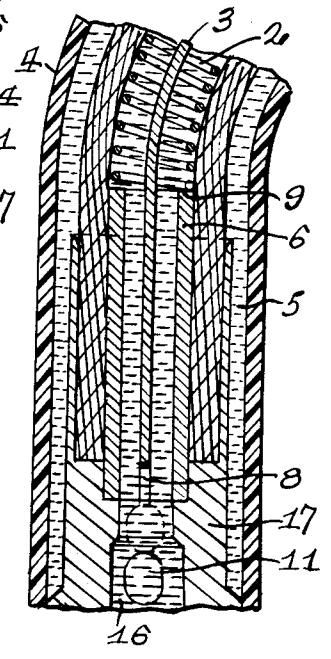


Fig. 5

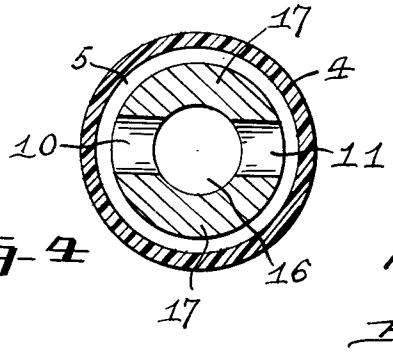


Fig. 4

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ELECTRICAL CABLE TERMINATING AND SUPPORTING MEANS

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2 Claims. (Cl. 174—19)

This invention relates to electrical cable terminating means and more particularly to a unitary terminating and supporting means for a fluid cooled cable.

Fluid cooled cables for electrical furnaces which include supporting means, for the conductor utilized therewith, consisting of a ribbon type element inserted within a resilient member with the conductor disposed around the resilient member are known, a cable of this nature being disclosed in U.S. application Serial No. 574,773, filed March 29, 1956, now abandoned, by T. D. I. Ker.

It is an object of this invention to provide a unitary terminating and supporting means for a fluid cooled electrical cable.

Another object of this invention is to provide a unitary terminating means having the above properties with an improved method for directing the coolant through the cable.

These and other objects of this invention are attained by providing a unitary terminating and supporting means for a fluid cooled cable, having supporting members therefor consisting of a ribbon type element disposed within a resilient element the conductor for the cable lying on and surrounding the resilient element, consisting of a tubular element having longitudinal grooves extending therewithin adapted to receive in contactional engagement the end portion of the ribbon type element and to support the end of the resilient element on its edge with means to secure, in conductive relation, the conductor for the cable to the outer face of the unitary means and to connect the source of energy thereto.

A better understanding of the invention may be attained by referring to the following description taken in conjunction with the drawings in which like numbers refer to like parts, in which:

Fig. 1 shows the cable assembly with a portion cut away to illustrate part of the internal structure thereof;

Fig. 2 shows a top plan view taken at top of Fig. 1;

Fig. 3 shows a section taken through 3—3 in the direction of the arrows of Fig. 2;

Fig. 4 shows a section taken through 4—4 in the direction of the arrows of Fig. 3; and

Fig. 5 shows a section taken through 5—5 in the direction of the arrows of Fig. 2.

Considering the drawings, there is shown a cable having a hollow conductive core 1, preferably in strand form,

a resilient member 2, such as a helical spring, disposed concentrically within the conductive core 1, a restraining member 3, disposed within the conductive core 1, extending in juxtaposition longitudinally with the resilient member 2, disposed therewithin in sliding engagement therewith, a flexible, fluid-tight member 4 surrounding the conductive core 1 with a fluid space 5 between the conductive core 1 and the fluid-tight member 4.

Also shown in the drawing is the unitary terminating and supporting means 6 having grooves 7, 8 extending longitudinally therewithin adapted to receive the end portion of the restraining member 3 in contactional engagement therewith, and its end 9 arranged to support the resilient member 2 on its end 9. The body 17 is provided with the apertures 10, 11 extending through its wall and corrugations 12, 13 adapted to clamp the fluid-tight member to body 17 by a suitable clamp 14 and a suitable clamp 15 to secure the source of energy supply to the body 17, the lower end of the body 17 being provided with the threaded opening 16 adapted to connect the coolant supply for the cable thereto.

What is claimed is:

1. A self supported electric cable unit having a terminating and supporting means comprising in combination: an elongated hollow core conductor, and elongated resilient member disposed concentrically within the hollow core, a restraining member in ribbon form extending in juxtaposition longitudinally with the resilient member, disposed therewithin and in sliding engagement therewith, a flexible fluid-tight member surrounding the hollow core conductor and spaced thereapart to provide a fluid passage therebetween, the restraining member being traversely rigid so as to maintain the resilient member in a predetermined longitudinal form whereby the assembled cable is inherently resilient to bending in a predetermined direction and at the same time resistive to bending in a direction at right angles to said predetermined direction; a tubular member having grooves extending longitudinally on the inside face thereof, adapted to receive the end portion of the restraining member in contactional relation and to support the end of the resilient member on its end, means to secure the conductor to the outside face of the tubular member and to connect a source of energy thereto and to supply a cooling fluid to the tubular member.

2. A self supported electric cable in accordance with claim 1 in which said last-mentioned means is provided with a predetermined number of apertures adapted to convey the cooling fluid through the cable.

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