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METHOD OF REMOVING ENAMEL FROM ELECTRICAL CONDUCTORS.

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This invention relates to the treatment of electrical conductors.

An object of the invention is to facilitate the soldering of insulated conductors.

A related object of the invention is to provide an efficient and inexpensive method of removing enamel or similar insulation from electrical conductors.

The invention is particularly applicable to telephone switchboard cable and distributing frame wire, which are used extensively in telephone exchanges.

Conductors of this type commonly consist of tinned copper wire, insulated with a layer of black enamel, and provided with one, two, or even three wrappings of fibrous material, such as cotton or floss silk, to secure a high insulation resistance. A suitable enamel which has been employed for insulating conductors of this type, and a method of applying the enamel to the bare conductor, are disclosed and claimed in Patent No. 1,101,281 to H. B. Holmes and J. W. Harris, issued June 23, 1914. The process of making the insulating coating or enamel described therein generally consists in dissolving a solid hydrocarbon and castor oil solvent, applying the solution to an article to be coated and then subjecting the coating to a temperature approximating 260° to 270° C.

Before soldering such insulated conductors to the terminals of apparatus in a telephone exchange, it is customary to dip the conductors in a beeswax compound bath of about 50% beeswax with 50% paraffin by weight to thoroughly impregnate the fibrous insulation adjacent the exposed ends in order to prevent the ingress of moisture and to prevent fraying of the insulation. A portion of the fibrous insulation is then removed from the conductor, usually by employing a pair of long-nose pliers to crush the insulation at the desired point and in the same operation stripping or skinning the insulation from the conductor. Ordinarily, the hard layer of enamel is not affected by the stripping operation, although in rare cases a portion of the enamel may come off with the fibrous insulation.

When the desired length of fibrous insulation has been stripped from the conductor without removing the enamel, it is then necessary to remove the enamel before or during the soldering operation. Heretofore, attempts have been made to remove the enamel by mechanically scraping it from the wire, or else by means of a hot soldering iron or by using a special enamel removing flux within the core solder. When either of the last two methods is used, however, a portion of the enamel may remain in the joint and, being covered with solder, result in a defective contact, difficult to locate by visual inspection. Moreover, enamel softening fluxes frequently give off poisonous and other obnoxious gases which are a serious health hazard.

The difficulties outlined above are overcome by this invention which consists, briefly, in the application to the wire before soldering of a material or materials which will serve to soften the enamel sufficiently so that, after the usual beeswax compound treatment, the enamel is removed with the fibrous insulation at the time of stripping, thus presenting a clean surface free of enamel which may be soldered by ordinary methods.

The preferred method of carrying out the invention consists in immersing the conductor or conductors for about five minutes in monochlor-benzol at room temperature. The conductor or conductors so treated may then be dipped in the beeswax compound, until the fibrous insulation is thoroughly impregnated, and are then stripped in the manner described above, with the result that the enamel is readily removed with the fibrous insulation.

Other enamel softening solutions which may be used successfully are saturated solutions of salicylic acid in monochlor-benzol and of benzoic acid in alcohol. Stearic acid, rosin, and rosin oil may be used in some cases, but each of these materials requires heating to a temperature which may result in injury to certain kinds of fibrous insulation.

An important advantage is obtained by removing the enamel before the soldering operation inasmuch as it precludes the possibility of enamel being present in the joint, which usually occurs when an enamel removing flux is used at the time of soldering.

It is to be understood that the invention is also capable of other modifications and adaptations not specifically referred to but

included within the scope of the appended claim.

What is claimed is:

The method of treating an electrical conductor insulated with a layer of enamel-like material comprising a solid hydrocarbon and a non-drying vegetable oil subjected to destructive distillation and a wrapping of fibrous material, which comprises treating the conductor with monochlor-benzol for a period of time sufficient to soften the enamel, immediately thereafter impregnating the fibrous insulation with wax, and stripping the fibrous insulation and enamel from the conductor.

In witness whereof, I hereunto subscribe my name this 8th day of February, A. D., 1926.

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