UNITED STATES PATENT OFFICE.

CARL CORDES, OF MAGDEBURG, GERMANY.

INSULATION OF CONDENSERS FOR TELEPHONE-CIRCUITS.

1,241,926. Specification of Letters Patent. Patented Oct. 2, 1917.

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To all whom it may concern.

Be it known that I, CARL CORDES, merchant, subject of the German Emperor, residing at Magdeburg, Germany, have invented certain new and useful Improvements Relating to the Insulation of Condensers for Telephone-Circuits, of which the following is a specification.

The insulating or impregnating materials hitherto employed for the condensers of telephones consist mainly of paraffin.

I have found, that it is more advantageous, to use for this purpose certain products of superior dielectric properties which are prepared from vegetable or animal oils by chemical or electro-chemical processes, which products are solid at ordinary temperature and which can be melted and cast. Such products are obtainable, for instance, from oleic acid, fatty acids resulting from manufacturing processes, or the glycerids of the same, that is to say fats and oils, by a reducing treatment in the presence of suitable catalytic substances. Any free acids which may be present in the products thus obtained should be neutralized and removed by suitable means.

An insulating or impregnating material specially suitable for my purpose may be obtained, for instance, by a process protected under German patent law (Patent 141029), from castor oil, by introducing into it a catalytic substance consisting of fine nickel powder or other finely divided metal, heating by means of an oil bath and introducing into the castor oil a strong current of hydrogen, the result being a solid product fusible by heat and suitable for the purpose described. —

The following may serve as an example of the practical application of the invention to telephone condensers. In manufacturing telephone condensers, long strips of paper are laid on strips of tin-foil, the two strips are then rolled up, and the coils thus formed are pressed into a rectangular shape and dried either with or without the use of a vacuum. The coils of paper and tin-foil are then mounted in frames, the frames with the coils thereon are placed in a vacuum-impregnating receptacle which is preferably of rectangular shape, and the coils are heated for which purpose the receptacle has a heating jacket which receives steam at a pressure of about two or two-and-one-half atmospheres. The heating of the coils in this way takes place in the presence of the solid product obtained by the reduction of, for example, castor-oil, which has been melted and previously introduced into the receptacle. The molten mass is in this way caused to penetrate between the paper and the tin-foil and the moisture is expelled by the heat in the form of bubbles. The vessel is subsequently closed or sealed hermetically by applying a suitable lid, and the extraction of moisture continues until the last trace thereof has been removed from the paper and the mass, this part of the process occupying from two to four hours. After the moisture has been thoroughly extracted, the admission of steam to the jacket of the receptacle is interrupted and cold water is introduced into the jacket, the mass being thereby cooled and solidified. The lid of the receptacle may then be removed, the frames containing the impregnated coils are taken out and placed in sheet metal cups, and a molten mass is cast thereon so as to seal the structure hermetically.

Owing to the high dielectric properties of the products derived from oils and fats, it is possible to obtain the same effects with condensers, which are only half as large as those necessary with the use of paraffin, and thereby to effect a considerable saving in expensive materials, such as tin foil, paper, cardboard, lacquers and tin plate boxes.

What I claim is:—

The application of the solid and easily fusible product, which has a higher insulating capacity than paraffin and is obtained from castor oil by treatment with hydrogen in the presence of finely divided catalytic metal with the aid of heat, as an impregnating material for telephone condensers.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CARL CORDES.

Witnesses:
ADOLPH GLANTZ,
ERICH BRANDES.