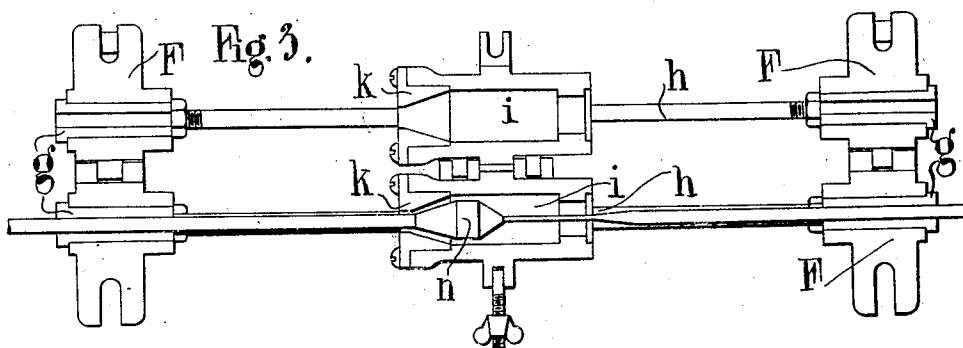
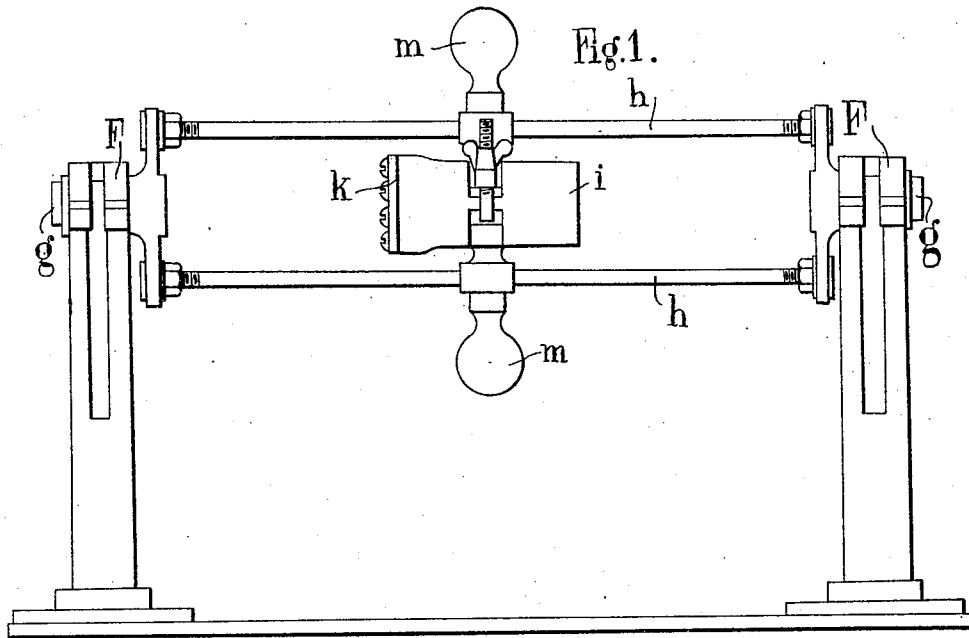


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1,531,437

H. HAVENITH ET AL
METHOD OF MAKING INSULATING COVERING FOR JOINTS AND
REPAIRED PLACES OF ELECTRICAL CONDUCTORS IN SITU
Filed June 26, 1924 2 Sheets-Sheet 1



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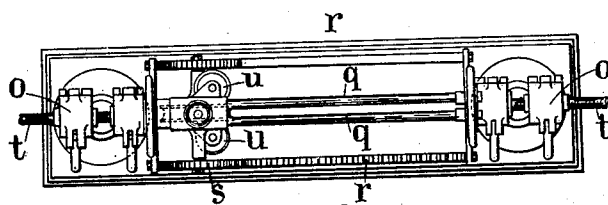
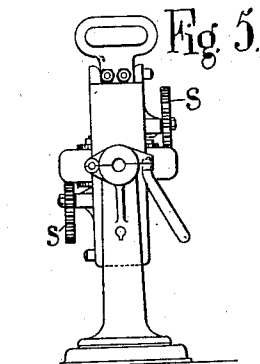
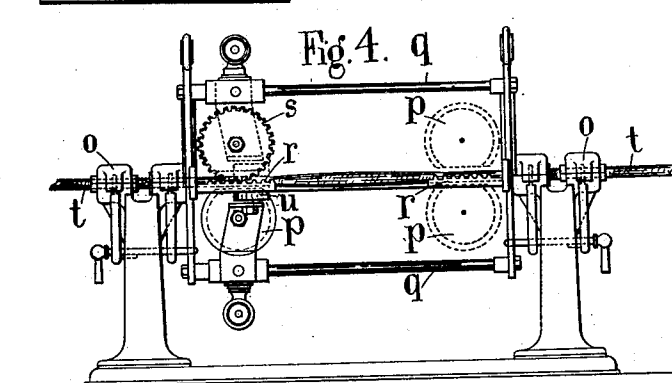
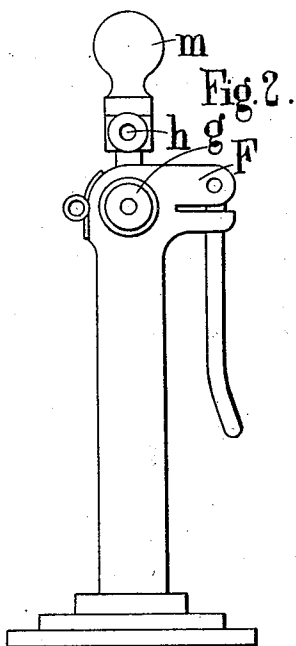


Fig. 6.

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UNITED STATES PATENT OFFICE.

HERMANN HAVENITH AND ERNST STUDT, OF NORDENHAM ON THE WESER, GERMANY, ASSIGNORS TO NORDDEUTSCHE SEEKABELWERKE AKTIENGESellschaft, OF NORDENHAM ON THE WESER, GERMANY.

METHOD OF MAKING INSULATING COVERING FOR JOINTS AND REPAIRED PLACES OF ELECTRICAL CONDUCTORS IN SITU.

Application filed June 26, 1924. Serial No. 722,598.

To all whom it may concern:

Be it known that we, HERMANN HAVENITH, a citizen of the German Republic, and residing at 1 Elisabethstrasse, Nordenham on the Weser, Germany, and ERNST STUDT, a citizen of the German Republic, and residing at 14 Hafenstrasse, Nordenham on the Weser, Germany, have invented certain new and useful Methods of Making Insulating Covering for Joints and Repaired Places of Electrical Conductors in situ, of which the following is a specification.

When the dielectric parts of electric conductors insulated with guttapercha or the like at the soldered and repaired places are jointed by hand, as is done in most cases at the present time, such places sooner or later frequently prove to be electrically weak or even develop faults. Apparatus proposed for carrying out this work (for instance German Patent 8897) have not been generally adopted owing to various disadvantages from which they suffer.

The object of the present invention is to overcome these disadvantages by a new method and the use of forming means and the like, which ensures the making of an insulation by mechanical means, which is reliable and durable under all conditions, at the dielectric joints (soldered and repaired places and the like). According to the invention the insulating material is applied to and distributed over the stationary piece of cable, which is held between securing means, at the place to be insulated by drawing or rolling by means of distributing devices, which are closed around the cable and are adapted to be moved longitudinally of the same. It has already been proposed in the manufacture of electric conductors to provide such conductors with a continuous insulating cover by means of drawing or rolling devices. But the methods and apparatus for this purpose can only be used with advantage for such continuous covering of long lengths of conductors during their manufacture, but not for insulating short pieces lying between already insulated parts (for instance in the case of cables already laid), to which the present invention relates.

In the accompanying drawings:

Fig. 1 is a side elevation,

Fig. 2 an end elevation and
Fig. 3 a plan view of one constructional form and

Fig. 4 a side elevation,
Fig. 5 an end elevation and
Fig. 6 a plan view of another constructional form of an apparatus for carrying out the new method, only the essential parts being shown.

In the apparatus for applying and distributing the material over the soldered joint by drawing, shown in Figs. 1 to 3, the previously heated insulating material, which is for instance applied at one end of the joint, is drawn over the place to be insulated by a die consisting of two hinged parts and having a removable bush, the bore of which corresponds to the thickness of the conductor being covered. The die is positively guided for keeping it central and is previously heated up to the required temperature. The ends of the applied covering are wiped in the usual manner.

In the apparatus shown hinged bearings F, F mounted on a frame are provided with suitable bushes *g, g* for various diameters of conductors, in which the part of the conductor to be insulated is gripped. The die *i* with an inserted part *k* is adapted to slide on the guide bars *h, h* along which it can be drawn by means of knobs *m, m*, whereby the previously applied insulating material *n* is drawn over the place to be insulated. After the conductor has been removed from the apparatus, the unimportant operation of smoothing down the portions of the applied covering, which does not in any way affect the electric strength, is carried out.

In the apparatus for applying and distributing the material by rolling, shown in Figs. 4-6, a pair of positively guided rollers are provided, the peripheries of which are grooved in accordance with the shape of the part of the conductor to be insulated. *o, o* are the grippers for gripping the conductor, which are fitted with interchangeable bushes, *p, p* are the profiled rollers, which are positively guided by the bars *q, q*, the racks *r, r* and the toothed wheels *s, s*, a segment of said rollers being cut away for preventing the conductor *t, t* being damaged, when being inserted into the system of rollers. Laterally of the said profiled rollers

p, p is a pair of rollers u, u , which prevents the insulating material escaping laterally when being pressed on to the conductor and feeds the said material to the profiled rollers p, p . For enabling the part of the conductor, which is to be insulated, to be introduced between the rollers, the apparatus consists of two parts, which can be taken apart. The joint or repaired place of the conductor, is covered with the insulating material, by the system of rollers being moved to and fro over the joint or repaired places by means of the knobs V, V . The insulating material, which has been applied to the conductor, is rolled down firmly by the pressure of the rollers on to the place to be insulated and is given the required shape by the grooves in the periphery of the rollers.

What we claim is:—

1. A method of making a durable dielectric connection at the soldered joints and repaired places of electric conductors insulated with guttapercha and the like, consisting in holding the part of the cable containing the soldered joint or repaired place between gripping members, applying insulating material in a heated state at one end of the place to be insulated and passing a distributing device, which embraces the said material, along it, whereby the insulating material is spread over the part of the cable to be covered, as set forth.

2. A method of making a durable dielec-

tric connection at the soldered joints and repaired places of electric conductors insulated with guttapercha and the like consisting in holding the part of the cable containing the soldered joint or repaired place between gripping members, applying insulating material in a heated state at one end of the place to be insulated and passing a die, which embraces the said material, along it, whereby the insulating material is drawn over the part of the cable to be covered, as set forth.

3. A method of making a durable dielectric connection at the soldered joints and repaired places of electric conductors insulated with guttapercha or the like, consisting in holding the part of the cable containing the soldered joint or repaired place between gripping members, applying insulating material in a heated state at one end of the place to be insulated and passing a rolling device, which embraces the said material, along it, whereby the insulating material is rolled on to the part of the cable to be covered, as set forth.

In testimony whereof we have signed our names to this specification.

HERMANN HAVENITH.
ERNST STUDDT.

Witnesses:

FRANCIS J. DUGAN,
L. A. GRESHAM.