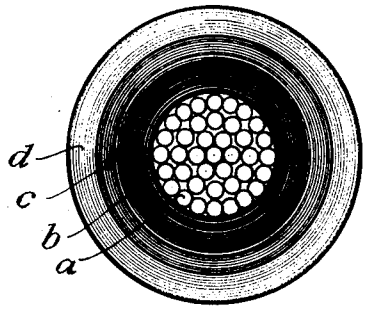
April 21, 1931. H. MEURER 1,802,030

INSULATING LAYERS OF DIFFERENT DIELECTRIC COEFFICIENT

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UNITED STATES PATENT OFFICE

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INSULATING LAYERS OF DIFFERENT DIELECTRIC COEFFICIENT

Application filed October 9, 1925, Serial No. 61,601, and in Germany January 27, 1925.

This invention relates to insulating layers of different dielectric co-efficient for the well known purpose of reducing the part voltages in the layers of higher dielectric co-efficient in non-homogeneous electric fields whereby an economy is effected in the total insulation if the succession of the layers takes place in the direction of decrease of the electric field intensity according to the decrease in the dielectric co-efficient. The impregnated paper insulation of high tension cables and of their junction boxes and end joints constitutes a particularly important field of application of the invention.

I have ascertained that the dielectric constant of paper insulation impregnated with an insulating substance is the greater the more the specific weight of the paper that is used is increased by rolling under pressure or by other pressure means.

According to the invention insulating layers of different dielectric constant containing paper are produced in such a manner that the gradation of the dielectric constant is attained by a corresponding gradation of the specific weight of the insulating paper produced by rolling under pressure or by other pressure means.

The insulation of high tension cables, junction boxes and end joints is effected according to the invention in such a manner that the dielectric constant of the insulating paper is increased by increasing the specific weight by rolling under pressure or by other pressure means, the more the nearer the corresponding layer lies with respect to the conductor carrying the current.

The accompanying drawing illustrates in cross section one form of single core cable constructed according to the invention. The conductor *a* is surrounded by a plurality of insulating layers *b*, *c*, *d*. The specific weight of the paper employed in the layer *c* has been increased by rolling under pressure or by other pressure means as compared with the paper employed in the layer *d* and similarly the specific weight of the paper employed in the layer *b* has been increased also by pressure with respect to the paper employed in the layer *c*.

What I claim is:—

An electric cable having a graded insulation on the conductor consisting of a plurality of layers of similar paper, the paper forming said layers being compressed to various densities to produce correspondingly different dielectric constants, the dielectric constants and the densities of the layers disposed nearest the conductor being the highest and gradually decreasing outwardly from the conductor.

In testimony whereof I have signed my name to this specification.

HANS MEURER.