

PHYSICS

(Paper No. 46 was presented at the meeting of 1921 Paper No. 47 was presented at the 1922 meeting.)

XLVI. A NEW TYPE OF NON-INDUCTIVE RESISTANCE WINDING

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A new type of non-inductive winding has been devised which lends itself to the commercial production of resistances in the form of current carrying rheostats for general laboratory use as well as precision standards of high ohmic resistance. The conductor is supported on two parallel rods or cores which may be at any convenient distance from each other. It is in this respect that the new winding is superior to the so-called Curtis coils which must be wound upon cores separated by only a narrow slit. The winding follows the formula:

... OXOXOXOXOXOXOXOXOXOXOXO ...

in which "o" indicates that the conductor is carried from one support to the other without crossing through the space between the supports while "x" indicates that the conductor is carried across the space between the supports when passed from one to the other. Any group of eight operations produces one "unit" of the winding.

A rough sketch, made according to the formula, is useful in showing the characteristics of the winding. It will be found that every part of the conductor is closely adjacent to a similarly placed part carrying the current in the opposite direction. Thus a very small coefficient is secured. The capacity is also small as there is but one layer of wire and the potential difference between adjacent strands is small. For the same reason it is possible to use oxide-covered wire for rheostats.