

5. ELECTRIC CONDUCTORS

UNDERGROUND WIRES

William Callender

Vol. i—1884, pp. 1-8, paper No. 3

Description of methods of applying Bitite (vulcanized bitumen) to the insulation of underground conductors as used in English built-in conduit systems.

Discussion, pp. 9-12, by Messrs. W. D. Sargent and Wm. H. Preece.

General remarks on the feasibility of operating underground circuits.

EARTH WIRES; OR, THE EARTH AS AN ELECTRIC CIRCUIT COMPLETER

Thos. D. Lockwood

Vol. i—1884, pp. 1-8, paper No. 8

Account of earliest uses of earth as return conductor and the first application of the earth as common return in telegraph systems. Brief statement of electric conductor theories of earth return. Description of methods of making various kinds of ground connections in telegraph work.

REPORT OF COMMITTEE ON STANDARD WIRE GAUGE

Vol. iii—1886, pp. 144-157

After discussion, the adoption is postponed.

Report of the Committee on monthly meeting is adopted and steps taken to call a meeting the following month.

ON THE DIFFERING TEMPERATURE COEFFICIENTS OF THE DIFFERENT COILS OF A FINE RHEOSTAT

W. A. Anthony

Vol. iv—1887, pp. 137-140

Account of resistance variations in precision rheostat due to temperature, and suggestions for design of rheostat so as to reduce such errors to a minimum.

Discussion, pp. 140-148, by Messrs. ——— Wallace, W. A. Anthony, Frank L. Pope, Geo. B. Prescott, Jr., S. S. Wheeler, C. O. Mailloux, T. C. Martin, J. A. Powers, O. E. Michaelis, G. A. Hamilton and Elihu Thomson.

Brief reference to Weston's experiments on German silver.

Effect of winding strains on resistance of wire.

LEAD ENCASED CONDUCTORS

David Brooks

Vol. iv—1887, pp. 201-205

References to early attempts to use lead covered conductors and troubles encountered in cable insulation. Fundamental discovery that made lead covered insulated conductors practicable. Advantages of lead covered cables.

No discussion.

NOTE ON THE MOLECULAR MOVEMENTS IN A CONDUCTOR

A. E. Dolbear

Vol. ix—1892, pp. 95-97

Experimental demonstration of rotation of molecules in conductor.

Discussion, pp. 97-100, by Messrs. C. O. Mailloux, Townsend Wolcott, A. E. Kennelly, M. I. Pupin, Harold Binney, F. B. Crocker, Carl Hering, Samuel Sheldon and Charles J. Kintner.

THE ACTION OF CONTINUOUS AND ALTERNATING CURRENTS ON FUSE METALS

C. P. Matthews

Vol. x—1893, pp. 251-265

Development of Preece's law of fusing currents and résumé of some of his experiments giving constants for various materials. Experimental study of cooling effect of terminals, time element in fusing action and effects of alternating currents on fusing point of commercial fuses.

Discussion, pp. 266-269, by Messrs. E. J. Houston, C. P. Matthews, Elmer G. Willyoung, E. L. Nichols and Milton C. Canfield.

General remarks on fuse testing.

UNDERWRITERS' RULES

William A. Anthony

Vol. xii—1895, pp. 170-173

Protest against resolution passed by New York Board of Fire Underwriters approving "Attix" tube.

Discussion, pp. 174-214, by Messrs. C. O. Mailloux, William J. Hammer, H. Ward Leonard, Franklin S. Holmes, James Hamblet, W. J. Jenks, James I. Ayer, C. J. H. Woodbury, Fremont Wilson, Clark C. Haskins, W. H. Merrill, Jr., Arthur Frantzen, L. Gutmann, B. J. Arnold, William L. Puffer A. E. Kennelly, W. A. Anthony and C. T. Hutchinson.

General remarks on electric code for fire underwriters. Account of experiments on current-carrying capacity of insulated wires under various conditions.

PROPERTIES OF FUSE METALS WHEN SUBJECTED TO SHORT CIRCUITS

Walter E. Harrington

Vol. xii—1895, pp. 226-234

Experimental investigation of fusing currents for different metals under various conditions. Tables of fusing currents for copper, aluminium and lead and zinc composition metals. Preece's law and constants for various metals.

Discussion, pp. 234-244, by Messrs. Leonard Waldo, Charles P. Steinmetz, F. B. Crocker, C. J. Reed, W. A. Anthony, Elihu Thomson, Geo. W. Blodgett, Allan V. Garratt, Walter E. Harrington, Carl Hering and Wm. Brophy.

Physical operation of fuses. Function of fuses.

THE RATING AND BEHAVIOR OF FUSE WIRES

W. M. Stine, H. E. Gaytes and C. E. Freeman

Vol. xii—1895, pp. 546-564

Account of tests of fuse wire, showing the influence of material, dimensions, time, terminals, prolonged load, etc., upon the operation of the fuse.

Discussion, pp. 564-575, by Messrs. F. B. Crocker, C. E. Emery, A. E. Kennelly, Townsend Wolcott, R. T. Lozier, Wm. Stanley, J. W. Howell, A. V. Abbott, W. M. Stine and Ludwig Gutmann.

General remarks on the performance of fuses.

THE NATIONAL ELECTRICAL CODE

Vol. xiv—1897, pp. 489-511

Report on the National Electrical Code, p. 514.

Discussion, pp. 515-546, by Messrs. M. J. Hammer, Joseph Sachs, A. E. Kennelly, Gano S. Dunn, C. O. Mailloux, C. M. Goddard, Cary T. Hutchinson, Alex. Henderson, S. Dana Greene, F. B. Crocker, A. S. Hibbard, R. H. Pierce, A. V. Abbott, S. G. McMeen, R. E. Richardson, W. H. Merrill, C. G. Burton and W. M. Stine.

INSULATION AND CONDUCTION

Reginald A. Fessenden

Vol. xv—1898, pp. 119-151

Theory of the conduction of electricity in solids, liquids, and gases. Requirements of an insulating material. Dielectric properties of various types of insulating materials.

Discussion, pp. 151-160, by Messrs. F. B. Crocker, W. S. Franklin, M. I. Pupin and R. A. Fessenden.

General remarks on the theory of insulation and conduction.