

20. MISCELLANEOUS APPLICATIONS OF ELECTRICITY

A. ELECTROCHEMISTRY AND METALLURGY

DEPOSITING VATS IN "SERIES"

H. B. Slater

Vol. i—1884, pp. 1-4, paper No. 11

Description of practical experience in modification of electroplating vats, so as to double useful output of given generator.

Discussion, pp. 4-7, by Messrs. H. B. Slater, W. D. Sargent, N. S. Keith, E. A. Sperry and Jas. Kelly.

General remarks on methods of connecting electrolytic vats.

AUTOMATIC ELECTRIC WELDING MACHINES

Hermann Lemp, Jr.

Vol. vii—1890, pp. 288-303

Requirements of repeat welding processes. Mode of operating Thomson welders. Methods of regulating the e. m. f. and current. Design of welding transformers.

No discussion.

ELECTRICITY IN THE PRODUCTION OF ALUMINIUM

Alexander S. Brown

Vol. viii—1891, pp. 131-146

Brief résumé of the history of the development of commercial processes of manufacturing aluminium, with short description of Hall, Cowles and Heroult processes and of the Oerlikon dynamos used in the Heroult process at Boonville, N. J.

Discussion, pp. 147-157, by Messrs. M. G. Farmer, Francis B. Crocker, F. L. Pope, E. T. Birdsall, Alexander S. Brown, Townsend Wolcott and Albert Stetson.

Historical notes on the development of aluminium processes. Estimate of actual cost of production of aluminium. Mechanical and chemical properties of aluminium. Solder flux for aluminium.

THE PRACTICAL ASPECTS OF ELECTRIC WELDING

Frederic A. C. Perrine

Vol. viii—1891, pp. 246-257

Brief sketch of the representative uses of electric welding processes, as exemplified in various actual installations, followed by short discussion of limitations and difficulties of the process.

Discussion, pp. 257-265, by Messrs. Elihu Thomson, W. J. Hammer, W. M. Maver, Jr., and Thos. D. Lockwood.

General remarks on characteristics of electric welding processes. Methods of avoiding difficulties with certain metals. Working and cutting of glass with electric heat.

THE FUTURE OF THE ALUMINIUM PROBLEM FROM THE CHEMICAL STANDPOINT

William H. Wahl

Vol. viii—1891, pp. 396-412

Analytical discussion of the metallurgical methods of reducing alumi-

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nium, with special reference to the case as compared with electric processes.

Discussion, pp. 412-419, by Messrs. Elihu Thomson, Thos. D. Lockwood, William H. Wahl, P. H. Vander Weyde, ——— Waldo, Edw. Weston and Oberlin Smith.

General remarks on the properties of aluminium and some of its alloys.

PRACTICAL NOTES ON THE ELECTROLYTIC REFINING OF COPPER

F. B. Badt

Vol. ix—1892, pp. 508-524

Description of American practice in electrolytic refining of copper, based on patents and experience.

No discussion.

LOCAL ANNEALING OF HARD FACED ARMOR PLATES

Herman Lemp, Jr.

Vol. xii—1895, pp. 529-540

Description of method of annealing surface hardened plates with Thomson welding apparatus. Photographs of the apparatus.

Discussion, pp. 540-545 and 576-577, by Messrs. F. B. Crocker, E. P. Thompson, A. E. Kennelly, Herman Lemp, Jr., E. A. Pattison, W. W. Ker, Nelson W. Perry, Townsend Wolcott, A. V. Abbott and Samuel Rodman, Jr.

B. MINING

ELECTRICITY IN BITUMINOUS MINING

Elmer A. Sperry

Vol. ix—1892, pp. 375-400

Brief résumé of the early mechanical methods of working mines. Description of electric drills, cutters, hoisting machinery and locomotives for use in coal mining.

Discussion, pp. 400-406, by Messrs. Frank J. Sprague, C. E. Emery, N. W. Perry, E. A. Sperry and H. Ward Leonard.

Experience with mining locomotives.

NOTES ON ELECTRICITY IN MINING WORK

Sydney F. Walker

Vol. viii—1891, pp. 431-446

General discussion of English practice with reference to the installation of signals, shot firing appliances, telephones, lighting systems, electric pumping and haulage systems.

Discussion, pp. 446-450, by Messrs. Hollon C. Spaulding and H. Ward Leonard.

Sharp criticisms of the practice outlined in the paper.

THE ELECTRIC PERCUSSION DRILL IN THEORY AND PRACTICE

Harry N. Marvin

Vol. ix—1892, pp. 407-422

Description of the development and construction of reciprocating electro-magnetic drill.

Discussion, pp. 422-424, by Messrs. E. A. Sperry, H. N. Marvin and C. S. Bradley.

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ELECTRICITY IN COAL MINING

John P. Jackson and Frank P. Thompson

Vol. xvi—1899, pp. 449-457

Uses for energy in soft coal mining. Examples of mines operated by steam, compressed air and electricity. Brief discussion of experience in electric mine haulage, coal cutting and pump operation.

Discussion, pp. 457-459, by Messrs. E. A. Sperry, W. S. Aldrich and A. D. Adams.

Coal mining plant operated by electricity.

C. INDUSTRIAL POWER

ELECTRIC POWER IN FACTORIES AND MILLS

F. B. Crocker, V. M. Benedikt and A. F. Ormsbee

Vol. xii—1895, pp. 298-310

Report of tests made to determine power required to drive different types of machine tools. General description of typical cotton mill electric installation. Outline of advantages of electric drive.

Discussion, pp. 311-325, by Messrs. C. E. Emery, H. Ward Leonard, Gano S. Dunn, Geo. W. Blodgett, C. R. Van Trump, Harry Alexander, S. S. Wheeler and William Brophy.

General discussion of the advantages of electric motor drive. Experience with factory installation.

THE LIMITATIONS OF POWER SUBDIVISION BY ELECTRIC MOTORS IN MANUFACTURING ESTABLISHMENTS

Vol. xvi—1899, pp. 145-181

Topical discussion of motor drive for factories and shops. Group versus individual arrangement of machines.

Discussion, by Messrs. Gano S. Dunn, R. T. E. Lozier, F. M. Pederson, George Hill, H. B. Coho, Oberlin Smith, Townsend Wolcott, James Hamblet, H. Ward Leonard, Douglass Burnett, Arthur Williams, James M. Smith and A. E. Kennelly.

D. MEDICINE

A BRIEF GLANCE AT ELECTRICITY IN MEDICINE

W. J. Morton

Vol. x—1893, pp. 555-602

Résumé of practice of electrotherapeutics, covering the healing properties of electrical energy in various forms: continuous current, pulsating current, alternating current, high and low frequency currents, high and low potential high frequency currents. Description of apparatus and methods of treatment.

No discussion.

DISCUSSION OF SURGICAL VALUE OF RONTGEN RAY

James Burry

Vol. xiii—1896, pp. 79-82

Discussion by Prof. W. M. Stine.

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E. MISCELLANEOUS

PRESIDENT'S ADDRESS

Vol. iv—1887, pp. 122-128

Brief statistical outline of electrical industry.

THE ABDANK MAGNETIC CALL AND THE ABDANK INTEGRAPH

B. Abdank-Abakanowicz

Vol. vi—1889, pp. 13-17

Description of electro-magnetic generator for call bell, and analysis of wave form of its e. m. f. Brief description of integraph.

Discussion, pp. 17-24, by Messrs. William E. Geyer, B. Abdank, Townsend Wolcott, Carl Hering, Alfred M. Mayer, Elihu Thomson, H. P. Vander Weyde, C. O. Mailloux and T. C. Martin.

Description of melographe and melotrope-electric piano player.

THE IMPROVED GRAMAPHONE

Emile Berliner

Vol. viii—1891, pp. 19-29

Account of early developments in the art of sound reproduction. Description of the Berliner flat disk gramophone. Its underlying principles and advantages.

No discussion.

NOTES ON RECENT ELECTRICAL ENGINEERING DEVELOPMENTS IN FRANCE AND ENGLAND

H. Ward Leonard

Vol. xii—1895, pp. 36-53

Account of observations of European practice in manufacturing and engineering, synchronous converters, steam engines, Parsons and DeLaval turbines, electric railways, central stations. Description of equipment and mode of operating and tests of Heilman self-contained electric locomotive.

Discussion, pp. 54-77, by Messrs. Townsend Wolcott, John W. Lieb, Jr., Chas. E. Emery, Herbert Lloyd, A. E. Kennelly, Wm. Maver, Jr., M. N. Forney, Cary T. Hutchinson, W. L. Bliss, Richard Fleming, Joseph Sachs, F. B. Crocker, E. J. Houston, H. Ward Leonard, B. J. Arnold, W. M. Stine, C. K. MacFadden, L. L. Summers and A. V. Abbott.

General data on Berlin central stations. Discussion of the Heilman locomotive performance and probable usefulness.

ELECTRIC ELEVATORS WITH DETAILED DESCRIPTION OF SPECIAL TYPES

Frank J. Sprague

Vol. xii—1896, pp. 3-22

Comparison of electric with hydraulic elevators. Detailed description of Sprague-Pratt multiple screw elevator.

Discussion, pp. 23-33 and 37-67, by Messrs. C. P. Steinmetz, Cary T. Hutchinson, James Hamblet, George Hill, Frank J. Sprague, Charles E. Emery, H. Ward Leonard, C. O. Mailloux, F. S. Holmes, F. B. Crocker,

R. H. Pierce, Frank B. Rae, B. J. Arnold, W. M. Stine, S. G. Meiler, J. F. Stevens, Albert Scheible, J. W. Lieb, Jr., and John D. Ihlder.

Comparison of electric and hydraulic elevators as to operation and maintenance. Test of electric elevator plants and heating required in various buildings. Economics of application of storage battery to elevator plant.

THE RONTGEN RAY, AND ITS RELATION TO PHYSICS

Vol. xiii—1896, pp. 403-441

Topical discussion, by Messrs. Henry A. Rowland, Elihu Thomson, M. I. Pupin, A. E. Kennelly, Max Osterberg, Louis Duncan, W. M. Stine, C. O. Mailloux and C. T. Rittenhouse.

General remarks on the theory and properties of Röntgen rays. Brief history of development of knowledge of the Röntgen ray.

THE ECONOMY AND UTILITY OF ELECTRICAL COOKING APPARATUS

John P. Jackson

Vol. xiv—1897, pp. 481-486

Results of tests upon the energy consumption and cost of cooking with electric energy.

Discussion, pp. 487-488, by Messrs. Elihu Thomson, R. B. Owens and C. P. Steinmetz.