

be afraid of giving any calculus or mathematics, as I am a graduate of the course in civil engineering of Cornell University. A. Your inquiry regarding the value of the volt, ohm and ampere in C. G. S. units does not come within the scope of either of the valuable practical works you name, viz., "Hopkins' Experimental Science" or Thompson's "Dynamo Machinery." As well go to a cook book for the theory of digestion. The C. E. course in Cornell gives the answer to your question in second term, Sophomore year. You might have learned it then. Both our time and space are too valuable to give elementary instruction in the theory of electricity. We refer you to "The Elements of Physics," by Prof. Edward L. Nichols, of Cornell, Vol. 2, "Electricity and Magnetism," price \$1.50; "Absolute Measurements in Electricity and Magnetism," Gray; larger edition in 2 vols., price \$9.50. "Treatise on Electricity and Magnetism," J. Clerk Maxwell; 2 vols.; price \$8. This should be read with "Notes on Recent Researches in Electricity and Magnetism," by J. J. Thomson; price \$4.50; as this last is a sequel to Prof. Maxwell's book. We may point out the fact that your statement of the question is not correct. The volt is not equal to any number of dynes; but 1 volt = 10^9 absolute units of difference of potential, or E. M. F., and 1 absolute unit of difference of potential exists between two points when it requires 1 erg of work to bring 1 unit of + electricity from one point to the other against the electric force. You make a similar error of statement regarding the ohm. Your definition of 1 ampere is correct, since

1 ampere = 1 volt / 1 ohm = 10^9 / 10^9 = 10^-1.

The books named above give, as you request, the mathematical treatment of the subject, and are the best to be had in English.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

JANUARY 25, 1898,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing inventions with patent numbers, including: Acetylene generator, H. J. Bell; Advertising device, Smith & Isgrig; Air brake release rod, R. H. Catlett; Alarm, See Bicycle alarm; Alloy, manufacture of chrome steel, Wheeler & Slocum; Armature winding machine, C. Eickemeyer; Asphyxiator, C. B. Perry; Asphalt, treating, W. S. Wilkinson; Auger bit, S. Smith; Automatic brake, A. McGlathery; Automatic gate, M. C. Mason; Axle box, E. D. Anderson; Axle lubricating, G. M. Mather; Barrel head, J. D. Copperfield; Battery grids, manufacture of storage, W. W. Griscom; Beating engine bed plate, Maxfield & Lovejoy; Bed, O. S. Foster; Bedclothes clamp, L. M. Lowmes; Bedstead, L. Coburn; Bee catcher, E. Arrington; Bicycle, W. J. Pugh; Bicycle alarm, F. J. Heilborn; Bicycle lamp, E. D. Anderson; Bicycle brake and alarm, A. M. Schutz; Bicycle chain guard, W. S. Noyes; Bicycle dress guard, E. P. Turner; Bicycle gear, differential, Cohen & Wolf; Bicycle handle bar, adjustable, E. S. Hall; Bicycle lamp, E. D. Anderson; Bicycle propelling mechanism, H. Shippert; Bicycle racks, electrically actuated lock for, W. A. Strom & Erickson; Bicycle stand, E. H. Webster; Bicycle support, C. W. Rogers; Boasting compound, W. H. Ferguson; Boiler furnace, T. Weinhart; Boilers in case of rupture of pipe, apparatus for preventing escape of steam from, L. M. V. Blanc; Book holder, A. C. Bisbee; Book marker, clip holder, and paper knife, combination, E. A. Perley; Boot or shoe rack, S. L. Saunders; Bottle, antireflecting, L. Felumb; Bottle, non-refilling, D. A. Gilliom; Bottle stopper, E. T. Knight; Bottle stopper, G. Koch; Bottle stopper, E. R. Burnham; Bottles, stoppering device for preventing refilling, Midson & Schroeder; Bridge, draw, W. L. Sampson; Brush, G. B. Belder base; Brush holder, scrubbing, Putman; Burglar alarm system, electric, C. Coleman; Burial casket shipping case, C. O. Forbis; Button, tack fastened, Shipley & Hyde; Camera, roll holding, E. P. Pasquier; Can opener, W. R. Hayes; Can opener, E. J. Leifer; Can opener, rotary, W. Gregson; Canceled and postmarked, stamp, Holmes & Milam; Cane, etc., device for transporting and weighing, A. S. Halliday; Car and locomotive, repeller, G. A. Bull; Car brake, emergency, P. Casey, Jr.; Car brake, street or railway, J. A. Hughes; Car coupling, J. P. Runkel; Car coupling, J. F. Strable; Car fender, H. C. Spangler; Car fender, automatic, W. R. & W. H. Heywood; Car fender, street, J. E. Baker; Car safeguard, express, J. Lamborg; Car safety fender, street, W. B. Heywood; Carbody protector, F. O. Clapp; Card teeth grinding apparatus, E. Schweinefleisch; Cash register, D. N. Greer; Cash register, A. C. Hansen; Cattle guard, J. Hensley; Centering tool, W. E. Severance; Chair, See Invalid chair. Revolving chair; Chronograph, Wildermann & Mond; Churn, N. H. Ollinger; Churn, M. V. Ollinger; Churn and butter worker, combined, T. J. Howe et al.; Cigar box, W. A. Stickney; Cleaner, See Cotton cleaner. Dish cleaner; Clock center arbor, T. W. McCabe; Clock, pneumatic, L. Hahl; Clothes line pulley, S. S. Fairman; Clothing boiler, W. P. Rylander; Cock, gate, F. A. Huett; Cock, rotary plug, G. E. Martin; Cock safety gas, J. Dunlop; Coin controlled machine, H. T. Emeis; Collapsible stand, D. A. Lindsey; Combination lock, J. T. Eldridge; Consecutive view apparatus, H. Casler; Conveyor, bucket, A. J. Frith; Conveying material, D. D. Casler; Cooking, drying, or sterilizing by steam, H. Higgins; Cornshocker, W. C. Crowe;

Table listing inventions with patent numbers, including: Cornice bracket, Engstrom & Nix; Cotton cleaner and condenser, Int. H. W. Southworth; Cotton gin, roller, F. L. Montgomery; Counter seat, J. P. Prentiss; Coupling, See Car coupling. Pipe coupling. Yoke coupling; Cultivating machine, corn, W. Evert; Cultivator, E. A. Ovenshire; Cultivator and planter, C. B. Webster; Cupboard, window, B. Ives; Curd agitator, G. D. Pohl; Curtain pole support, adjustable, O. E. Wagener; Curtain roller, J. W. Morpeth; Cutter forming machine, O. L. Noble; Cycle, S. E. French; Cycle canopy, L. D. Goodwin; Cycle driving mechanism, J. Dredge; Decorating apparatus, J. M. MacDonald; Dish cleaner, M. D. Colbath; Disinfectant holder, D. N. Calkins; Disinfecting apparatus, F. Carman; Disinfecting apparatus, E. D. Lewis; Ditching jack, H. Heer, Jr.; Door, See Door lock. Door handle; Door check and closer, F. T. Russell; Door check, pneumatic, W. K. Henry; Door lock, recording, E. L. Smith; Door or transom stop, H. C. Chaplin; Drainage trap, E. Martin; Drilling machine, B. D. Strong; Dust pan, H. Kohlmyer; Dyeing, etc., apparatus for, L. Hwass; Dye stuff, black substantive cotton, M. H. Isler; Eaves trough ends, implement for forming, W. W. Warren; Electric cable, L. J. Hill; Electric furnace, C. S. Bradley; Electric furnace, W. S. Horry; Electric meter, G. Kapp; Electric switch, J. L. Hinds; Electric switch, J. R. Newell; Electrical distribution system, H. Linton; Engine, See Explosion engine. Explosive engine. Gas engine. Rock drill engine. Rotary engine; Envelope, safety, A. & W. Grupe; Explosion engine, S. Rolfe; Explosive engine, B. D. Strong; Eyeglasses, W. N. Blanchard; Faucet, A. B. Edmonds; Feeder, steam boiler, J. Kirkwood; Fence machine, wire, J. W. Allen; Fence post, R. Oliver; Fender, See Car fender. Car safety fender; Filtering apparatus, C. Prevot; Firearm, box magazine, T. C. Johnson; Firearm, magazine, T. R. R. Ashton; Fire extinguishing tank, P. 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