



HINTS TO CORRESPONDENTS. Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

(9157) R. A. N. says: 1. What apparatus is necessary to install telephone apparatus on a telegraph line? We wish to use only transmitters and receivers and such other as is necessary, using the telegraph battery as battery for the telephone.

(9158) M. E. C. asks: I wish to put a telephone line from our house to one of our greenhouses a distance of about 320 feet. Will you please tell me the best way of running the wires underground? Are the lead-in wires durable enough to be buried directly in the ground or should they be run through pipes?

(9159) A. H. F. says: I would like for you to answer these inquiries either by letter or through your Notes and Queries column. I would like to know at what speed a trolley can be run constantly or can it be run at the rate of 60 or 70 miles an hour, with stops at about 35 or 45 miles, without injury to the wires or trolley contacts, such as pulleys.

(9160) J. E. J. says: There are several gasoline engines in this town and the spark or battery gives us more trouble than a little. Will you please answer in Notes and Queries what is the best battery, liquid or dry, for a small (1 1/2 horse power) engine. Have you a SUPPLEMENT that gives full information? A. Dry cells are usually employed for sparking gasoline engines. See Hiscox's "Gas Engines" for a full treatment of the matter; price \$2.50 by mail.

NEW BOOKS, ETC.

CHEMISCH-TECHNISCHES REZEPTBUCH FUER DIE GESAMTE METALLINDUSTRIE. Von Heinrich Bergmann. Vienna: A. Hartleben. 1903. 12mo. Pp. 327. Price, \$1.50.

Mr. Bergmann has collected a great number of recipes which should be of value to the metallurgist, particularly since the recipes which he has gathered are such as have proven themselves of practical value.

EMERY GRINDING MACHINERY. A Text Book of Workshop Practice in General Tool Grinding and the Design, Construction, and Application of the Machines Employed. By R. B. Hodgson, A.M., I.M.E. London: Charles Griffin & Co., Ltd. Philadelphia: J. B. Lippincott Company. 1903. 12mo. Pp. 180.

An emery grinder is one of the most useful tools a shop can have, especially as a money saver. The present volume is an admirable contribution to the literature of money machine shop work. Unlike many English technical books, American practice is far from being neglected, and many of the best American types are shown.

WOOD. A Manual of the Natural History and Industrial Applications of the Timbers of Commerce. By G. S. Boulger, F.L.S., etc. London: Edward Arnold. New York: Longmans, Green & Co. 1902. 16mo. Pp. 369. 66 illustrations, 3 plates. Price, \$2.60.

About 750 woods are enumerated in this excellent book, including most of those which are practically known in general commerce. The information is of a very practical nature, dealing with the weights of wood, their hardness and color, odors and resonance, the defects of wood, seasoning of wood, the uses of wood, and a complete catalogue and an excellent bibliography.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending August 11, 1903,

AND EACH BEARING THAT DATE.

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

Table listing inventions with names and patent numbers. Includes: Acids, apparatus for making sulphuric or other, J. G. Graham 736,087; Advertising novelty, W. A. Demmon 735,720; Aerator liquid dispensing apparatus, J. J. McLaughlin 736,000; Air brake automatic safety stop, Hughes & Roche 736,262; Air brake connection, Feust & Wright 735,735; Air brake, railway, P. Jacobson 735,981; Air compressor cylinder water jacket, J. H. Herron 736,254; Air compressor governor, J. H. Herron 736,253; Air inlet for sanitary ventilation of the drainage systems of houses, buildings, etc., fresh, G. Cody 736,220; Allmentary paste drying apparatus, J. Alloatti 735,931; Alloy and making same, A. Ramsdell 735,819; Ammunition holst for ordnance, Dawson & Horne 736,075; Amusement device, A. Seyfried 736,075; Anchor stowing mechanism, ship, J. Kidd 735,985; Anesthetics, device for administering, G. L. Bennett 736,059; Animal trap, G. F. Eberhard 735,957; Atmosphere, apparatus for automatically controlling the humidity of, O. E. Boggs 735,856; Atomizing and carbureting device, W. Sams 736,157; Automobile driving gear, K. G. Johnston 735,774; Axle, vehicle, J. T. Kenter 736,984; Awning operating mechanism, M. F. Wiedemann 736,046; Ball ear, vessel, J. F. Vogt 736,179; Baking iron, water, Rifkin & Getzoff 736,155; Baling straw, G. J. Freese 736,084; Ball See Golf ball 736,229; Balls, making hollow, C. Davis 735,828; Banana shipping case, F. Schmitz 735,940; Bank, E. W. Buechling 735,940; Bark removing machine, J. Moreau 735,793; Bath seat, W. H. Silver 736,032; Bathing apparatus, portable, L. V. Gray 736,089; Batteries, treating lead plates for use in secondary, C. J. Reed 735,820; Battery electrolytes, composition of matter for, Peto & Cadett 735,808; Battery plate and making same, secondary, A. F. Clark 736,217; Battery separator, secondary, A. F. Clark 736,216; Bed, C. A. Needham 736,139; Bed, J. Wyssa 736,188; Beehive, F. Danzenbaker 736,228; Beet digger, T. F. Fitzsimmons 735,736; Bending machine or tool, B. S. Peard 736,145; Bicycles, etc., variable gearing for, F. Mitchell 736,129; Binder, W. C. Walker 735,847; Binder, temporary, M. P. Jackson 735,879; Binder, temporary, J. W. Harsha 735,973; Blotting pad, W. A. Murray 736,289; Blowers or pumps, impeller for rotary, H. A. Walwright 736,039; Boiler or other furnace, G. C. Way 735,849; Boiler superheater, C. Gottwald 735,571; Bolting machine, undulatory, E. R. Draver 735,730; Book, index, Seldenticker & Neligh 736,159; Books, etc., machine for trimming, E. B. Stimpson 736,166; Boot calk, A. B. Lipscomb 736,121; Boring machine, A. M. Newell 735,896; Bottle cap, E. Norton 736,001; Bottle filling and sealing machine, E. D. Schmitt 735,911; Bottle, hot water, J. Hollan 736,876; Bottle, nursing, M. Cantwell 735,707; Bottle soaking machine, S. Volz 736,037; Bottle washing machine, Busch Guil & Barry 736,209; Bottle washing machine, V. Lapp 736,272; Bow, J. J. Adams 736,051; Bowls, manufacture of integral stems and bases for blown, C. G. Drew 735,732; Box, A. Gallo 736,244; Box or receptacle, L. H. Rogers 736,221; Bracket, See Shade and curtain bracket; Brake coupling, automatic fluid pressure, Kelley & Colvin 735,884; Branding iron, A. A. Phipps 736,149; Bricks, etc., apparatus for drying, C. Berhenke 736,060; Brooder, E. Schill 735,827; Broom hanger, W. S. De Woody 735,725; Brush, M. McCarthy 735,797; Brush, automatic screen, M. R. Crofoot 735,713; Brush-back drilling and filing machine, C. E. Klemming 735,737; Brush, electric, C. T. Richmond 736,154; Building block, H. E. Goodwin 735,870; Buildings, construction of hospitals, sanatoriums, or other, D. Sarason 736,158; Burglar alarm and sash lock, Handy & Hosford 735,872; Burial receptacle, J. C. F. McGriff 735,998; Camera back, reversible, F. B. Case 736,212; Camera feeding device, magazine, Fyfe & Odquist 735,746; Camera focusing hood, La May & Whitlock 736,271; Camera, photographic, F. B. Case 736,211; Camera, sketching, Beebe & McFarland 735,697; Camera, connection for the swinging elements of, F. B. Case 736,213; Can bodies, manufacture of key-opening tongued tearing strip, B. H. Larkin 735,783; Cans, manufacture of key-opening tongued tearing strip, G. W. Weber 735,850; Candle, ornamental, multiple, W. S. De Woody 735,724; Candy, pulling, C. Thibodeau 736,313; Cap or cartridge receptacle, J. W. Grubbs 735,757; Car-coupling, P. Baker 735,695; Car coupling, W. S. Yee 735,888; Car coupling, J. C. Yelser 736,330; Car loader, D. H. Claudon 735,858; Car sign, removable street, Coleman & Harner 735,946; Car wheels, molding, A. F. Howe 736,102; Carbon tetrachlorid, C. Combes 735,948; Card holder, S. H. Owens 735,802; Carriage top operating device, J. H. King 735,779; Cartons or the like, machine for setting up and filling, W. H. Doble 736,237; Cast steel wheel, T. B. Zell 736,190; Caster, C. Stengel 735,838; Centering, hanger for temporary, G. B. Waite 736,040; Cetyl-galacyl and making same, M. W. Beylik 736,061; Chain and sprocket wheel therefor, drive, F. V. Hetzel 736,256; Change making apparatus, J. W. Munson 736,133; Check and sales slip holder, W. Morton 736,288; Chocolate manufacturing machine, E. P. F. Magnez 735,890; Circuit breaker, E. P. Warner 736,041; Clamp, for Turck 736,174; Clipper, hair, M. S. Black 736,198; Cloth cutting machine, E. M. Waring 735,848; Clothing hanger, T. D. Sugrue 735,171; Clutch, friction, R. M. Phillips 735,811; Clutch, hoisting machine, P. F. Dundon 735,862; Coal holst, G. Gillroy 735,965; Coal or other materials, classifying apparatus for, F. Blanc 735,855; Coffee concentrate and making same, S. Kato 735,777; Coil spring, V. Meyer 736,333; Coin detective, G. W. Brown 735,702; Coin holder, P. C. Fish 736,080; Coke conveyor, E. G. B. Korting 736,115; Coke oven door, G. D. Macdonald 736,281; Collar shield, horse, B. F. George 735,747; Collar throat brace, horse, J. H. Miller 736,128; Combing machine, wool, Jackson & Thompson 735,980; Commutator brush, C. Wirt 736,048; Concentrator, I. Sutton 736,309; Concrete building blocks, machine for manufacturing hollow, Borst & Groscoep 735,938; Concrete construction, steel, W. W. Guest 735,759; Concrete mixer, L. G. Haase 735,970; Conveyor, A. J. Webster 735,921; Conveyor apron, S. G. Toustone 736,315; Cooker steam, E. C. Peters 735,806; Copy holder, W. H. Peak 735,005; Cork retainer, W. E. Brown 736,202; Corn fodder shredder, W. H. Beidler 736,196; Corset, N. Temple 735,843; Corset, T. Schottlander 736,029; Cotton gin, A. M. Dastur 736,227; Cover, culinary vessel, J. Stone 736,169; Crate, folding, B. K. Boyd 735,939; Crossing and double slip switch with movable center point, combination, Lee & Moore 736,119; Crusher, See Ore crusher; Cultivator, arm rest, H. S. Cole 736,072; Cultivator, S. P. Kimball 735,886; Cultivator, W. R. Knaub 736,113; Cultivator, vineyard or orchard, I. B. Kilgore 735,986; Current motor, alternating, F. L. O'Bryan 736,292; Cutters, mechanism for driving and adjusting rotary, C. R. Gabriel 736,243; Demonstration and instruction strip, combined, F. A. Glidden 735,749; Dental mixing tablet, J. N. Woolverton 735,929; Dental mouth prop mirror, and tongue projector, W. Hare 735,762; Dental tool, G. E. Hough 736,101; Desk, portable, J. B. Elliott 735,665; Desk, support for attachment to, W. J. Bell 735,853; Dish washer, J. Straltzer 735,840; Display cabinet, J. L. Tandy 736,311; Display rack, T. Rabe 736,296; Display stand, C. F. Nye 736,141; Diving apparatus, Petrie & Martin 735,809; Door check and spring, O. C. Rixson 735,822; Door locking attachment, W. H. Gartz 735,962; Door, sliding, J. J. Hennessey 735,766; Door, sliding, E. E. Manter 736,124; Double and single tree, A. C. James 735,982; Draft equalizer, F. Bahler 736,191; Draft gear, friction, A. Christanson 736,071; Dress suit cases or trunks, strap holder for, L. Bienenstock 735,698; Dress supporting pin, C. Mettern 736,108; Drier, J. H. Morong 735,896; Drying apparatus, laundry, J. Lingco 736,274; Drill device bearing, O. A. Poirier 735,815; Drilling machine, A. Marek 736,284; Dust collector, W. A. Derby 735,954; Dust collectors, etc., dust proof joint packing for, H. C. Draver 735,731; Dye, substantive sulfur, Julius & Reubold 735,775; Dynamo gearing for railway vehicles, H. Weston 736,183; Edging for open work goods, S. Borton 736,200; Egg beater, Smith & Sherwood 736,101; Electric brake, H. Halsey 735,971; Electric braker, G. A. Le Fevre 736,120; Electric circuit, mercury safety attachment for, E. Miles 736,127; Electric coil, R. Varley 736,319; Electric currents for electrolysis, apparatus for the generation and application of, F. E. Elmore 736,331; Electric distribution regulating system, L. Lyndon 736,280; Electric heater, J. F. McElroy 735,798; Electric motor control, F. A. Merrick 735,893; Electric switch, H. O. Swoboda 735,841; Electric switch, C. C. Gould 735,968; Electrical coil, R. Varley 736,177; Electrical distribution regulating system, L. Lyndon 735,990; Electrical machine synchronizing apparatus, P. M. Linn 735,786; Electrical switch, R. L. Border 736,083; Electricity, generating, J. H. Reid 736,016; Electromagnet, A. Green 735,755; Elevator frame, S. K. Dennis 735,722; Elevator gate opening device, H. J. Guth 736,090; Embossing or punching machine, H. Casler 735,709; Embossing press, C. Seybold 735,830; Engine controlling means, Duryea & White 735,863; Engine igniting attachment, explosive, J. D. McFarland, Jr. 735,997; Engine sparking device, gas, J. M. Wilson 735,923; Engines, rebound preventing device for gas, C. Schrotz 735,912; Envelop, L. W. Pritzkow 736,014; Eyelet setting machine, E. B. Stimpson 736,164; Fastener, E. B. Stimpson 736,165; Fastener, E. B. Stimpson 735,794; Faucet, mixing, Ross & Tollinger 736,023; Feed mechanism, automatic, White & Duryea 736,325; Feed water heater and purifier, R. D. H. Anderson 735,693; Feed water heater and purifier, C. K. Cunningham 735,715; Feet, device for preventing flat, C. L. Darby 735,860; Fence, D. F. Beard 735,195; Fence feeder and crimper, wire, M. D. Taylor 735,842; Fence post, J. & W. H. Beazley 736,058; Fence post, F. J. Peterson 736,147; Fence post, J. M. Warner 736,323; Fence stretcher, wire, I. M. Warner 736,083; Fencing, wire, W. Gratton 736,088; File, account, E. T. Randle 735,907; File cabinet, C. Kline 736,288; File, paper, S. Chiger 735,710; Filter, L. B. Skinner 735,834; Filter, G. W. Johnston 736,107; Fire escape, E. Banhael 736,056; Fire ladder and escape means, combined, W. Hubartt 736,104; Fires, automatic sprinkler for extinguishing, J. G. Grimley 735,756; Firearm sight, C. Huber 735,771; Fish opening and cleaning machine, T. Morris 735,914; Floor construction, J. Trunzer 736,316; Flooring, boarded ceiling, etc., separable, P. B. Guibon 735,969; Flue scraper, P. F. Vogt 735,846; Fluid pressure engine, M. N. Forney 735,739 to 735,741; Fluid transfer switch, E. A. July 735,741; Folding box or crate, J. W. Prasky 735,996; Folding chair, T. W. Washburn 736,180; Freezing the ground, C. SooySmith 736,308; Fruit gatherer, L. Scarborough 736,028; Fuel, manufacturing artificial, H. C. B. Forester 736,083; Furnace distributor, blast, J. Cook 736,074; Furnace door, J. S. Cooper 736,272; Furnaces, apparatus for feeding pulverized fuel to, J. E. Baldwin 735,932; Furnaces, etc., attachment for, A. G. Ingalls 735,772; Furniture fixture, C. Franck 735,961; Fuse apparatus, protective, W. L. Richards 736,019; Fuse box, electric, J. J. Wood 736,049; Fused substances, apparatus for the electrolysis of, C. W. Roepper 736,020; Gage, See Track gage; Gage, F. T. Cable 736,067; Game and toy, W. Maxwell 735,789; Game apparatus, C. M. Mumford 735,995; Garment hanger, I. Scott 736,030; Garment hanger, M. E. Pike 736,150; Gas battery, J. H. Reid 736,017; Gas engine, H. H. Mulherin 736,132; Gas engine, E. B. & L. S. Cushman 736,224; Gas fixture, Smith & Warburton 735,837; Gas furnace, P. S. Harvey 736,285; Gas generator, acetylene, J. McLean 735,800; Gas generator, acetylene, W. F. Bolly 735,937; Gas heated comb, R. D. O. Johnson 736,266; Gas heater, J. C. Goodwin 735,751; Glass making, wire, Swearer & Toynebe 736,310; Glass ornamenting machine, J. M. Conroy 735,949; Glass, working, O. A. Mygatt 735,796; Glassware, apparatus for making, M. H. Hart 735,764; Gold crowns, apparatus for swaging, Brewer & Bureind, reissue 12,143; Golf ball, C. Davis 736,230 to 736,233; Governor, N. Lombard 736,276; Governor, centrifugal, N. Lombard 736,277; Governor, engine, W. O. Worth 735,930; Grain cleaning and scouring machine, H. C. Jeffers 736,264; Grinding or polishing cone, L. G. Koening 736,114; Grinding tracers and tools for engraving machines, machine for, B. Barr 736,193; Gripping device, B. W. Truscott 736,173; Gums from trees, collecting, J. G. Gardner 735,869; Halter and hitching rope, combined, J. M. Little 736,275; Hammer, Jinks & Davis 736,265; Hand, artificial, H. Patton 736,144; Harmonium stop key mechanism, C. Hesse 736,255; Harvester binding mechanism, grain, S. K. Dennis 735,721; Harvester, broom corn, I. O. Baxter 735,690; Harvester, broom corn, J. W. Peifer 735,835; Hat or the like, S. H. Meerza 735,790; Hatch fastener, T. B. Armstrong 736,053; Header, E. A. Johnston 735,983; Heat, device for effecting the radiation of, F. T. Clark 735,945; Heater, G. W. Brunner 736,203; Heating apparatus, D. M. Horton 736,099; Hemoglobin preparations, making, F. Hansen 736,250; Hide fleshing machine, Lombard & Luce 736,278; Hoisting machine, L. W. Delp 736,224; Hopple, J. Fenstermaker 735,866; Horses' eyes, apparatus for covering, C. A. P. von Winkler 735,924; Hose and pipe coupling, A. Beatty 736,057; Hose clamp, F. T. Lippincott 735,988; Hose coupling, G. P. Jones 736,108; Hose coupling, J. Whiteford 736,184; Hose handle and clamp, T. McGill 735,799; Hotel register, C. H. Harger 735,972; Hydraulic drill, J. Higgin 735,768; Hydrocarbon burner, Jordan & Waller 735,769; Hydrocarbon burner attachment, F. A. Reynolds 736,153; Hydrocarbon vapor generator, J. F. Shelton 735,831; Incubator, C. B. Kenyon 735,885; Incubator, O. W. Randolph 736,015; Indicator lock, P. Yoe 736,189; Ingots from molds, mechanism for stripping, W. H. Morse 735,795; Inhaling apparatus, T. Kautz 736,111; Instand, J. W. Jacobson 736,155; Internal combustion engine, F. H. Gille 735,964; Jack, See Logging jack; Jewelry and producing same, W. A. Maliet 735,891; Jewelry cluster setting, H. Levin 736,273; Knitting frame, T. Lieberknecht 735,988; Knitting machine, automatic rib, G. W. Ruth 735,910; Knob, C. O. Noack 736,290; Lace fastener, J. H. O'Brien 736,142; Lace fastener, shoe, E. D. Smith 736,306; Lacing device for boots or shoes, etc., G. W. Johnston 736,106; Lamp, electric arc, T. L. Carbone 735,708; Lamp, electric incandescent, C. H. Carter 736,089; Lamp, gas, W. G. Midgley 736,287; Lamp glowers, apparatus for treating electric, M. W. Hanks 735,761; Lamp glowers, making electric, M. W. Hanks 735,760; Lamp sockets, making fiber insulating linings for incandescent, O. E. Kennedy 735,778; Lantern, magic, S. Hamburger 736,092; Latch, gate, H. C. Carter 735,857; Lathe speed changing mechanism, automatic, J. P. Brophy 735,701; Lattice or truss girder, etc., F. Visintini 735,920; Leather finishing machine, C. Shepard 736,160; Leather ornamenting, Slade & Goldstein 735,836; Lemon squeezer, R. L. Dorsey 735,728; Lens carriage, laterally adjustable, F. B. Case 736,214; Level and plumb, D. F. Colcutt 736,073; Liquid cooler, M. A. Connor 736,221; Liquid from liquid containing same, apparatus for separating volatile, Erben & Wass 736,240; Liquids, apparatus for drawing off or dispensing aerated or other, J. Fletcher 735,867; Liquors, purifying alcoholic, J. Howden 736,098; Load retaining or releasing means for vehicles, D. McLaughlin 736,138; Load retaining or releasing means for vehicles, E. H. B. Knowlton 736,289; Locomotive air feeding apparatus, F. P. Busiel 736,066; Logging jack, J. G. Owen 736,087; Loom shuttle, weaver's, E. G. Ferreira 736,079; Loom warp stop motion, J. E. Lemyre 735,785; Lubricant and making same, S. A. Smith 736,182; Lubricator, H. James 735,983; Mail bag fastener, J. W. Shallenberger 735,914; Manure gatherer and loader, J. Peterson 735,807; Mapping instrument, J. F. D. Schrader 735,829; Massage implement, J. J. Grobe 735,968; Measure, combination, E. H. Darsie 735,951; Measure, tailor's tape, J. M. Adamson 736,052