

Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue

"U. S." metal polish. Indianapolis. Samples free.
Presses & Dies. Ferracuta Mach. Co., Bridgeton, N. J.
6 Spindle Turret Drill Presses. A. D. Quint, Hartford, Ct.

Glass grinding and polishing machinery wanted. Apply Tacony Iron and Metal Co., Tacony, Pa.
The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Stow flexible shaft. Invented and manufactured by Stow Mfg. Co., Binghamton, N. Y. See adv., page 254.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Lighth and Canal Sts., New York.

Centrifugal Pumps. Capacity, 100 to 40,000 gals. per minute. All sizes in stock. Irvin Van Wie, Syracuse, N. Y.

Guid & Garrison, Brooklyn, N. Y., manufacture steam pumps, vacuum pumps, vacuum apparatus, air pumps, acid blowers, filter press pumps, etc.

Split Pulleys at Low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Perforated Metals of all kinds and for all purposes, general or special. Address, stating requirements, The Harrington & King Perforating Co., Chicago.

To Let—A suite of desirable offices, adjacent to the Scientific American offices, to let at moderate terms. Apply to Munn & Co., 361 Broadway, New York.

Fine castings in brass, bronze, composition (gun metal), German silver. Unequaled facilities. Jas. J. McKenna & Bro., 424 and 426 East 23d St., New York.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4; Munn & Co., publishers, 361 Broadway, N. Y.

Competent persons who desire agencies for a new popular book of ready sale, with handsome profit, may apply to Munn & Co., Scientific American office, 361 Broadway, New York.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Notes & Queries

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 This is for our information and not for publication.
References to former articles or answers should give date of paper and page or number of question.
Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.
Books referred to promptly supplied on receipt of price.
Minerals sent for examination should be distinctly marked or labeled.

(4581) W. P. C. asks (1) what the Harden hand grenade for extinguishing fires are made of. A. Hand grenades for extinguishing fires are made by filling thin spherical glass bottles with a solution of calcium chloride, ammoniac or borax. 2. A good insulating material that I can mould out for insulating storage battery plates. A. Use gutta percha. 3. Are there any two acids mixed together that will cause an explosion? A. Yes. 4. Will sulphuric acid set fire to wood? A. Sulphuric acid will char wood by extracting the elements of water. 5. Will the spray from the storage batteries set fire to wood? A. We do not think it would set fire to wood.
(4582) O. S. asks: What is the chemical agency of ammonium chloride in the microphone battery? A. The reaction is supposed to be as follows: 2 NH4Cl + 2 MnO2 + Zn = ZnCl2 + 2 NH3 + H2O + Mn2O3. The ammonium chloride acts on the metallic zinc, forming zinc chloride and liberating ammonia.

NEW BOOKS AND PUBLICATIONS.

THE STANDARD ELECTRICAL DICTIONARY. A popular dictionary of words and terms used in the practice of electric engineering. By T. O'Connor Sloane, A.M., E.M., Ph.D. New York: N. W. Henley & Co. 1892. 12mo. Pp. 624. Cloth. Price \$3.

the world. Many words are given which, owing to the rapid strides of electrical science, are here defined for the first time. There is a clearness in the definitions which recommends the book particularly to the beginner, while the advanced electrician will find such subjects as the theory of dimensions and the dimensions of electrical units fully treated. The work is an invaluable addition to even the smallest of electrical libraries.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted October 25, 1892, AND EACH BEARING THAT DATE.

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

Table of inventions with titles and patent numbers. Includes: Air cooler, return, H. B. Roelker; Alcohol from liquor casks, apparatus for and method of recovering waste, M. Hickey; Animal trap, M. Johnston; Antifriction clasp, W. L. Black; Baby tender and crib, combined, A. Baird; Bag, See Nursery bag; Baker's and confectioner's depositing apparatus, R. Megson; Baling press, C. E. Whittman; Baling press feeder, Kruse & Shipley; Batteries, finishing grids for secondary, A. F. Madden; Batteries, standard cell for electric, H. S. Carter; Battery, See Secondary battery; Bearing machinery, J. D. Brown; Bearing roller, S. B. Bartlett; Bed bottom, L. Hinkle; Beer, treating, A. Kreisler; Belt, link, D. S. Stewart; Berry picker, A. E. Clark; Bicycle, Dey & Griswold; Bicycle, A. H. Kempe; Bicycle brake, R. C. Fay; Bicycle support, J. J. Muller; Bill holder, S. F. Woody; Bit, See Drill bit; Bit, See Drill bit; Blind, inside window, J. W. T. Gilliam; Block, See Ceiling block. Differential block. Board, See Game board; Boiler, J. Cahall; Boiler, H. H. Nieman; Boiler setting, M. F. Eaton; Boiler tube cutter, J. W. Fleming; Boilers, expanding device for use in making wash, Anderson & Huntington; Book-back, folding, W. H. Sugg; Book, binding, J. J. Olfield; Bottle closure, G. Olander; Bottle, nursing, O. K. Newell; Bottle stopper, J. De Mars; Bottle stopper, B. F. Sanborn; Box, See Core box. Egg box. Hat box. Letter box; Box strap, metal, S. C. Cary; Brake, See Bicycle brake. Car brake; Brake handle, Fosburgh & Milligan; Brake shoes, art of and apparatus for making, C. T. Schoen; Brick and the machine, J. J. Kulage; Brick press, J. J. Kulage; Bridges, expansion bearing for, G. S. Morison; Bridge bit, L. F. Brown; Buckets, automatic latch opener for, C. P. Dole; Burette, G. La Chapelle; Burean, N. H. Clark; Burglar alarm, F. A. Goelze; Butter from milk, separating, C. G. P. De Laval; Butter package, C. L. Kneeland; Button, H. M. Nester; Button, A. E. Newcomb; Button casing, etc., tool holder for, F. H. Beckwith, Jr.; Button fastening, E. A. Giles; Button machine, A. Phelps; Button setting machine, A. G. Wilkins; Cable crossing, H. A. Benedict; Calibrating machine, C. Osborn; Calipers, inside, R. C. Nugent; Can, See Paper can. Shipping can; Can, C. C. Lockstaedt; Cape and cap, combined, A. T. Aldrich; Car brake, G. R. Elliott; Car brake, F. I. Rego; Car brakes, slack adjuster for, W. H. Marshall; Car coupling, W. B. Clark; Car coupling, Johnson & Olander; Car coupling, W. Mizgitt; Car coupling, F. C. Oakes; Car coupling, F. T. Russell; Car coupling, A. Schroeder; Car door, S. W. Gross; Car driving mechanism, C. W. Hunt; Car fender or guard, W. W. Baxter; Car heating and ventilating system, J. A. Healy; Car seat, A. P. Travis; Car slack adjuster, W. H. Marshall; Car, sleeping, S. M. Charles; Carbonating liquids, art of and apparatus for, C. A. & J. Schneible; Carburizing machine, F. Osborn; Card playing, J. W. Bryant; Carding engine, W. P. Canning; Carding engine flats, protector for the ends of the clothing of, W. P. Canning; Carriages, lock for the wheels of children's, J. A. Bierber; Carrier, See Egg carrier. Hose pipe carrier; Thrashing machine straw carrier; Carriage crimping machine, M. A. Twitchell; Cash indicator and recorder, G. R. Burt; Cash register and indicator, E. H. Murook; Cash register and indicator, F. J. Webster; Ceiling block, J. J. Green; Chain making machine, F. J. Ellis; Chocolate, etc., apparatus for automatically compressing, P. Guerin; Cigarette machine, V. H. Bazerque; Cistern cleaning device, E. C. Davis; Clamp, See Rubber clamp clasp; Clamp, See Anti-friction clasp; Clothes drier, F. P. Hendricks; Coin-controlled machinery, W. H. Dutton; Condenser and feed water heater, C. Grohman; Electric generator, magnet, S. Evershed; Converter, See Balancer; Cooler, See Air cooler. Liquid cooler; Core box, M. A. Mills; Corn husking machine, S. E. Morral et al.; Cotton gin, roller, Montague & Pross; Coupling, See Car coupling. Whiffletree coupling; Wire coupling; Cover for kettles, etc., J. Doty; Cover, kettle, J. Shilling, Jr.; Crane, S. S. Babbitt; Crib, folding, J. Perry; Culvat, a W. S. Miller; Cultivator, Perkins & Cronenberg; Cultivator shovel, S. M. Graumlick; Current generators, regulation of alternating, G. Pfannkuche; Curry comb, A. C. Decker; Cut-out, automatic, E. Sanford; Cutter, See Roller tube cutter. Meat cutter; Cycle wheel, R. C. Fay; Dampier, W. H. Packham; Decanting bottles, apparatus for, F. Moog; Dental instrument, C. W. Jones; Differential block, H. W. Rausgrove; Digger, See Potato digger; Diving dress and helmet, A. E. Stove; Door spring and check, J. Wolf; Draught equalizer, C. S. Ruef; Draught equalizer, S. H. Tinsman; Drawing maps and plots of ground, apparatus for, A. Boding; Drier, See Clothes drier. Garbage drier; Drying apparatus, H. W. Rappeley; Egg box, D. Neefus, Jr.; Egg carrier and holder, C. W. Costellow; Electric converter, L. Gutmann; Electric generator, magnet, S. Evershed; Electric search light, L. Hills; Electrical switch, G. Binswanger; Electrolytic process and apparatus, H. Blackman; Elevator, Hanson & Bergman;

Table of inventions with titles and patent numbers. Includes: Engine, See Rotary engine. Traction engine; Evaporating apparatus, O. B. Stillman; Excavator, See Fruit evaporator; Excavator, H. P. Bennett; Excavator, H. W. Leamy; Feed trough, I. S. Sweetland; Feeding salt to animals, device for, T. B. Stephens; Fence, H. J. Beam; Fender, See Car fender; File and penetrating appliance, combined portable drill and letter, W. Grantland; Files, means for and method of designating documents, G. H. Ball; Filter, W. M. Deutsch; Filter, faucet, G. F. Ashton; Finger ring, L. H. Hotz; Finger ring, means for marking or stamping, W. H. Peckham; Fireplace, gas log, F. E. Backus; Flour bin and sifter, Davis & Harwell; Fly frame stop motion device, W. Canning; Fly frame, bottom cone lifting device for, W. P. Canning; Folding machine, S. C. McKinney; Forceps and tractor, combined, E. J. Howe; Forks, apparatus for cleaning, F. Lehmann; Fruit cutting machine, J. Burns; Fruit press, W. P. Giltman; Game apparatus, E. Dungey; Game board, J. L. Conkling; Garbage drier and burner, F. Cain; Garment supporter catch, J. M. Rabitte; Gas generating apparatus, C. W. Isbell; Gas machine, J. Phelps; Gate, See Swinging gate; Generator, See Electric generator. Steam generator; Glassware, ornamental pressed, J. Haley; Glove and garment fastener, F. E. Hall; Gold and other metals from their ores, separating, G. J. Atkins; Grain binder, E. M. Kellogg; Grater, nutmeg, H. G. Gilbert; Grinding mill, G. Sopok; Gun, repeating, W. E. Gilson; Grip device for machinery, intermittent, T. J. Reamy; Hammer, power, J. Canning; Handle, See Brake handle; Hanger, See Pipe hanger; Harrow, W. Sobey; Harrow and pulverizer blade, R. L. Lukens; Harvester discharge mechanism, Stroud & Corey; Hat box, H. J. Newman; Hat rack, A. L. Van Benschoten; Heater, See Portable safety heater. Steam heater; Heel blank beveling machine, F. E. Wilder; Hinge, spring, J. Wolf; Hoisting device, self-locking, O. Hillerscheid; Hook, See Bill holder. Label holder. Penholder. See Wood box. Ticket holder; Hook, See Snap hook; Horseblanket, E. Chamberlain; Horse boot, C. A. Rahn; Horseshoe nails, machine for making, D. F. Williams; Hose fastening apparatus, J. C. Muhlstein; Hose pipe carrier, J. M. Harper; Hymn indicator, J. H. Buchanan; Ice cutting machine, W. J. Pine; Ice manufacturing apparatus, J. Ruckner; Incrustation preventer, W. H. Wilson; Indicator, See Cash indicator. Hymn indicator; Inhaler, M. S. Woodward; Ink well, W. E. Lewis; Insect trap, W. Amos; Insulator, C. T. Lee; Insulator for electric railway conductors, C. T. Lee; Intrenching tool, M. A. Luther; Invalid's adjustable back-rest, J. Parker; Iron from ore, separating, H. H. Eames; Ironing board cover, M. S. Everett; Ironing machine, E. H. Brown; Irons or vessels, self-fastening rim for, H. Cone; Kettle, steam jacketed, S. H. Emmens; Kneading machine, dough, L. Durand; Knife for cutting the roped used in boring artesian and oil wells, W. A. Lloyd; Knitting machine, G. M. Sprohles; Knitting machine, warp, G. Buhmann; Knob attachment, W. A. G. Ashley; Knob attachment Doebler & Bryant; Knob attachment, F. H. Richards; Label holder, E. E. Smith; Lamp, incandescent, F. S. Smith; Lamp, self-extinguishing hydrocarbon, S. A. Johnson; Lantern, magic, E. I. S. Hart; Lantern, signal, J. Wall; Leaf spring, W. F. Talbot; Letter box house door, J. H. Wolfsheimer; Light, See Electric search light; Liquid cooler, H. C. Gardner; Liquids with gases, apparatus for treating, G. Lunge; Locomotive feed apparatus, I. H. Raynor; Loom, looper, E. B. Johnson; Loom shedding mechanism, G. W. Stafford; Mash stirrer, G. Schock; Match heading composition, J. Klein; Measuring device, liquid, W. H. Beecher; Metal strip, W. Wheel and Snow; Metal strips, apparatus for hardening, Logan & Stevens; Meter, See Air or gas meter; Mill, See Grinding mill. Rolling mill. Windmill; Mirror, portable, W. O. Prewitt; Miter cutting machine, D. H. Brenner; Mixer, See Paint mixer; Moulding machine presser foot or bar, F. L. Creighton; Mosquito canopy, A. T. Vernon; Multiple control board systems, test circuit for, C. E. Scribner; Net making machine, W. J. Hooper; Nickel, treating minerals containing, J. DeCoppet; Nursery bag, M. J. Forshaw; Nut lock, E. Johnson; Nut lock, E. Johnson; Ore separator and amalgamator, F. J. Hoyt; Ore treating apparatus, H. B. Meech; Organ, cabinet, M. Clark; Padlock, E. A. Judd; Paint mixer, P. J. G. Palmer; Paint pigment from ores, producing, Smith & Ludwig; Pan, See Grinding pan; Paper bag machines, etc., mechanism for delivering bags from, A. C. Getten; Paper can, A. T. Carewinski; Paper can, machine for the manufacture of, B. Karfiol; Paper pulp digester, Curtis & Jones; Paper weight and calendar, combined, A. D. Palmer; Pen holder, perforated, F. M. Libby; Picker, See Fairful; Picker; Pin, See Tent pin; Pin fastening, T. Fahrner; Pipe elbow, O. H. Lawrence; Pipe hanger, M. J. Hanna; Pipes and pipe fittings, joint or coupling for, C. R. Schuchman; Planter, corn, O. Boll; Plastic materials, machine for shaping and moulding, O. R. Chase; Plow attachment, C. B. Thornton; Portable safety heater, J. House; Potassium carbonate, making, P. Romer; Potato digger, A. A. Pratt; Potato digger, S. N. Washburn; Press, See Baling press. Brick press; Printer's quoin, A. Cameron; Printer's rules and leads, machine for cutting, F. Wesel; Projectile, J. J. McIntyre; Pulley split, C. C. Lockstaedt; Pulp producing apparatus, J. B. Carter; Pump, J. F. Lahm; Punch, M. Fairfull; Puzzle, C. H. Rickert; Rack, See Hat rack; Radiator, W. Scott; Rail fastening, T. W. Fay; Railway cross tie, W. M. Hewitt; Railway fish plate, set screw, and nut lock therefor, J. P. McGuire; Railway grip mechanism, cable, J. H. Robertson; Railway point and signal apparatus, interlocking, F. A. Atkinson; Railway system, electric, J. H. Penleton; Railway truck, combined, A. A. Whipple; Railway apparatus for carrying ships, etc., upon, W. R. Knipple; Railways, closed conduit for electric, B. F. Sutton;

DESIGNS.

Banner, J. M. Joy; Bowl, sugar, H. Berry; Box cover, S. D. Lux; Carriage body, C. H. Palmer, Jr.; Curtain pole bracket, G. W. Smith; Curtain roller bracket, M. J. Matthews; Finger ring, J. H. Fink; Glove, J. Kayser; Handle for spoons, etc., A. H. Ullrich; Match box, S. Zinn; Perfumer, J. H. Markell; Potato digger fork, H. O. Putnam; Spoon, E. M. Black; Tablecloth, F. S. Pinks; Valve for basins and bath tubs, W. H. Graham; Wall paper, C. Booz;

Table of designs with titles and patent numbers. Includes: Refrigerating apparatus, D. L. Holden; Refrigerating compound, W. C. Trussell; Register, See Cash register; Ring, See Finger ring; Rolling mill, H. Leamy; Rolling mill guide device, H. Aiken; Rolling mill plant, E. L. Clark; Roofing compound, S. Herbert; Rotary engine, F. M. Bailey; Rubber dam clamp, N. Kuns; Saddle harness, F. Baileys; Saddle, harness, S. Kurtz; Sash holder, J. B. Okey; Saw gin, B. F. Browne; Scraper, wheeled, P. M. Broadfoot; Screen, See Window screen; Secondary battery, W. Main; Separator, See Ore separator; Sewage purifying apparatus, E. E. Scruby; Sewing machine, boot or shoe, Gooding & Keith; Sewing machine quilting attachment, J. C. Gal-loway; Sewing machine take-up, Stitzer & Kuehn; Sewing machine thread unwinding device, M. B. Reigh; Shades to rollers, attaching window, E. F. Harts-horn; Shearing and punching machine, combined, G. Van Wageningen; Shipping cart, reinforced, F. Westerbeck; Ships, construction of, A. F. Bliven; Show stand, F. M. Morrow; Shutter worker, Nickerson & Fleet; Sifter, flour, L. Scruggs; Slate shaving machine, H. E. Kurtz; Smelting or reducing plant, J. Rourke; Snap hook, F. J. Herrick; Soap, J. Niese; Soda-water apparatus, W. H. Collins; Soldering, electric, E. E. Ries; Speaking tube, L. Strouse; Spring, See Door spring; Stable feed, D. Hailey; Stand, See Show stand. Wash stand; Steam generator or evaporator, G. W. Baird; Steam heater, T. Fearon; Stockings, knitted, L. N. D. Williams; Stone or body spreading plant, J. Jacobson; Stopper, See Bottle stopper. Leak stopper; Stove, cooking, J. Marc e; Strap, See Box strap; Surgical instruments, etc., sterilizer for, E. Boeckmann; Suspensory apparatus, J. G. Truesdell; Swinging gate, C. M. Clary; Switch, See Electrical switch; Syringe, vaginal, T. H. Maddux; Table, J. R. Jordan; Tag making machine, A. C. North; Tag maker, J. H. Harty; Telephone support, G. V. Benjamin; Telephonic transmitter, A. T. Collier; Tent pin, A. S. Comstock; Thermal circuit changer and protective appliance, H. A. Rhodes; Thrashing machine straw carrier, J. H. Fulton; Ticket holder, A. P. Dewey; Tie for bags, boxes, etc., D. G. Stone; Tie plate, W. Goldie; Tin from tin plate waste, separating, H. C. W. Williams; Tire, cycle, Fane & Lavender; Tire, vehicle wheel, L. K. McClymonds; Tobacco, hand of leaf, G. Falk; Tongue support, W. B. Johnson; Tool, J. Boatner; Torpedo net, W. W. Winship; Torpedo placer, Peifer, Jr., & Johnston; Toy, S. F. Estell; Tray cannon, C. W. Lucius; Traction engine, D. S. Stewart; Trap, See Animal trap. Insect trap; Trolley pole catcher, M. M. Wood; Trough, See Feed trough; Trousers, pattern for draughting, A. F. Mead; Tube, See Speaking tube; Type finishing machine, T. M. Kenney; Umbrella, E. B. Eames; Valve and joint, C. S. Bayer; Valve, engine slide, J. D. Stark; Valve, globe, W. J. Quinn; Valve levers, stop for throttle, G. E. Messer; Valve, steam-actuated, T. G. Laney; Vaporizer, G. H. Ennis; Vehicle, C. Comstock; Vehicle starter, J. W. Lee; Ventilating machine, coin-controlled, G. L. Slater; Vent for liquid receptacles, F. W. Polle; Ventilation, system of house, F. P. Smith; Ventilator, C. Redpath; Violin bow frog, J. A. Houlihan; Wagon brake lever, G. P. Riestler; Waist, Z. Demarest; Warmer, body, G. D. Baily; Wash stand, G. W. H. Deane; Wash stand, A. Janzon; Washing machine, J. H. Bates; Washing machine, G. Gardner; Washing machine, J. C. Thomas; Watch balances and hair springs, mechanism for tuning and adjusting, G. E. Hunter; Watch balances and hair springs, system for adjusting to temperature, G. E. Hunter; Water closet flush valve, E. Hergegen; Water closet tank siphon, Wilkins & Blesch; Wells, sand trap for artesian, B. F. Smith; Wheel, See Cycle wheel; Wheel rim trimming machine, R. Hoopes; Wheel scraper, T. L. Aveling; Whiffletree coupling, B. D. Druen; Wick raising device, H. L. Smith; Windmill, E. J. Barber; Windmill, G. H. Putnam; Windmill, B. T. Stauber; Window screen, J. Rich; Wire, barbed, J. D. Curtis; Wire coupling, W. E. Banta; Wire netting machines, detector stop motion for, E. B. Johnson; Wire stretcher, L. W. Stokely; Wire stretcher and splicer, J. F. Price; Woven fabric, elastic, M. Picot; Wrench, C. Cook; Wringer gear guard, Momburg & Dallmann;

TRADE MARKS.

Table of trade marks with titles and patent numbers. Includes: Cigarettes, National Cigarette and Tobacco Company; Cigars, C. Baehn; Cigars, Hollenden Hotel Company; Cigars, Silver State Cigar Company; Electro-curative apparatus, Electrolibration Company; Italian cloth, ready-made, and similar goods, J. W. Goddard & Sons; Oil for bicycles, lubricating, A. Cook's Sons; Painter's smalt, W. C. Estes; Pianos, F. G. Smith; Pine, straight, Plume & Atwood Manufacturing Company; Pipes, earthen sanitary, H. Knowles; Sewing machines, New York Sewing Machine and Manufacturing Company; Spoons, forks, knife handles, and the like, metal, F. C. Lamy;

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1863, will be furnished from this office for 25 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway, New York.

Canadian patents may now be obtained by the inventors for any of the inventions named in the foregoing list, provided they are made at a cost of \$40 each. If complicated the cost will be a little more. For full instructions address Munn & Co., 361 Broadway, New York. Other foreign patents may also be obtained.