

Business and Personal.

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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 This is for our information and not for publication.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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. 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.

(7844) J. A. C. writes: I connected the Wheatstone bridge with rheostat on one side and a small piano wire about two feet long on the other. The current used was from a small storage battery of four cells. When the piano wire is plucked or bowed so that it vibrates, giving out a musical note, the needle of the galvanometer turns in a direction indicating decreased resistance in the wire. Will you please explain the cause? I was trying to prove that the wire would be warmed by vibrating, but get the opposite result. A. We have verified the statement of this correspondent, and find the same result, with a bridge sensitive to 1000 ohm. When the wire is stretched it shows greater resistance due to its elongation, as it should. When the wire was allowed to vibrate, its behavior seemed to vary with the material. A steel wire showed a decrease of resistance while a German silver wire showed little or no perceptible alteration. Now since the temperature coefficient of German silver is very small, and that of steel is quite large, we suggest the theory that the decrease of resistance is due cooling while vibrating.

(7845) W. M. B. asks: What will preserve gill nets (made of fine gill twine) used in catching shad in the waters of Delaware Bay? We have been using lime water as recommended, but it does not seem to have the desired effect, as the nets become rotten before one season is ended. A. The following treatment is said to preserve nets for a long time in a good condition: Soften 1 pound good glue in cold water, then dissolve it in 10 gallons of hot soft water, with 1/2 pound curd soap. Wash the nets in soft water, then boil them in this for two hours, press out excess of the liquid and hang up over night. The second bath consists of alum, 2 pounds; water, 5 gallons; heat nearly to boiling, and immerse the nets in this for about three hours, then press and transfer to a strong decoction of oak bark or a solution of sumac in warm water (water, 5 gallons; sumac, 8 pounds), and let them remain immersed in this for forty-eight hours or longer, if convenient.

(7846) W. D. H. asks: 1. What is the smallest E. M. F. and current which will produce an arc? A. The counter E. M. F. of the arc is 35 volts. Hence a voltage greater than this is necessary. For direct currents at least 40 volts must be had. For alternate currents, 30 volts is the minimum. Five amperes may perhaps be taken as the minimum current. 2. I would like to produce a small arc light with the smallest possible size of dynamo, using the best and most efficient materials, and built into the most compact form; what would be the approximate size and weight of such a machine? Please give me an estimate, at least, of the size of such a machine. A. The dynamo which would light such a lamp, would require about a half horse power to drive it, and may be taken as of about the size of a half horse power motor. 3. What current is required for the manufacture of calcium-carbide at about 60 volts? A. In the electrical furnaces of the carbide works at Niagara many thousands of amperes are used. We do not know the minimum current for producing carbide. Twenty-five amperes will enable some work to be done. 4. Which is the most suitable for this, the direct or alternating? A. The direct current.

(7847) H. H. S. asks the cause producing "Jack-O-Lantern." A. The ignis fatuus is thought to be due to the spontaneous ignition of a small jet of phosphoreted hydrogen, when it comes into contact with the air. This gas is evolved by the decomposition of matter in swampy places and rises to the surface of the water where it takes fire and burns with a pale light. In the night this may be seen from quite a distance. It has always alarmed the timid and superstitious, but it is in reality a very pretty chemical experiment.

NEW BOOKS, ETC. AMERICAN TELEPHONE PRACTICE. By Kemster B. Miller M. E. New York: American Electrician Company. 1899. 8vo. Pp. 458. Price \$2.

There is quite a literature on the telephone but most of them are hopelessly out of date and the practice they stand for is archaic. The present work deals with the subject in a masterly way and tells exactly what the electrician wishes to know about switch-boards and other perplexing points in telephone work. It is an admirable book and is profusely illustrated by diagrams and half-tones taken from the objects themselves. No phase of the subject seems to be neglected.

A MODERN SAFETY BICYCLE. By H. A. Garratt. London: Whittaker & Company. New York: The Macmillan Company. 1899. 16mo. Pp. 224. Illustrations and plates. Price \$1.

The literature in book form upon the bicycle is far from being extensive. The present work was intended to help riders to understand their machines and with the aid of the working drawings, mechanics can build their own machines if they desire to do so. The principles underlying the construction are clearly expressed.

INDEX OF INVENTIONS For which Letters Patent of the United States were Issued for the Week Ending MARCH 13, 1900. 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 items like Accumulator, Acid boring tower, Adhesive compound, Adjusting device, Advertising bombshell, Advertising device, Air compressor, Alarm mechanism, Amalgamation separator, Applian ce for women's wear, Auker, post hole, Back pedaling brake, Bag holder, Baking vessel or mold, Basket, fruit, Bath cabinet, Bath tub, portable, Bearing, anti-friction, Bearing, sleeve, Redstead attachment, Bell striker, Bicycle, fruit, Bicycle, Lounsbury & Winn, Bicycle brake, Bicycle driving mechanism, Bicycle fan attachment, Bicycle, folding, Bicycle gearing, changeable, Bicycle support, Binder, uniting tablet, Bismuth or antimony from their sulfid ores, Blanket retaining means, Bobbin holder, Boiler, See Steam boiler, Bolt operating device, automatic, Book leaves flexible, rendering blank, Book scrap, Books, binding, Boot or shoe, Boots, shoes, etc., fastening for, Boring drill, Bottle, En Earl & Critchlow, Bottle neck forming machine, Bottle washer, Brake, See Back pedaling brake, Car brake, Vehicle wheel brake, Brake indicator, Briquet, C. F. Hood, Brooch, J. W. Simmonds, Brow band attaching device, Brush, F. G. Farnham, Buckle, shaft and harness, Button, E. W. Silsby, Button, collar, J. H. Finley, Button, collar, W. A. Locke, Button, cuff, C. H. Allen, Button, lapel, M. R. Brueche, Calcium carbide, apparatus for treating, Camera, kinetographic, Camera, panoramic, Camera registering mechanism, Can, See Oil can, Can cleaning machine, Car, Richard A. T. Beckley, Car brake, J. H. K. McCollum, Car coupling, W. McBride, Car coupling, E. F. Pendexter, Car coupling, J. Timmus, Car door, L. A. Hoerr, Car, motor, W. Scheu, Car seat, reversible, W. L. Schellenbach, Car seat, walk over, Deverell & Lake, Car tippie for mines, automatic, Car wheel, railway band, Cars, electric lighting apparatus for railway, Preston & Gill, Cars, electric lighting apparatus for railway, W. C. Richards, Carbon sheet holder, J. MacFarland, Carburetor, E. A. McAllister, Carbureting, E. A. McAllister, Carriage, child's, C. F. Dittmar, Case, See Clock case, Packing case, Case for tools, C. A. Tucker, Caster, A. B. Dix, Cattle guard, R. V. Wallace, Cattle, to prevent fighting and butting, etc., device to be worn on the heads of hornless, Centerboard, boat, Chain, watch, Chair and tablet, combined, Chopper, See Cotton chopper, Cigar, R. Kingsley, Cigar branding machine, Cigar finishing and shaping machine, Cigar, See Cigarette holder, Cigarette mouthpiece applying machine, Cleaner, See Grain cleaner, Clock case, T. W. McCabe, Clock frame, Woodruff & McCabe, Closet, See Dry air closet, Closet seat, B. Holz, Cloth cutter, A. G. Saberg et al, Clutch, friction, De Dion & Bouton, Clutch, friction, J. Monkhouse, Cook, conical water, Coin controlled apparatus, Coin delivery device, Coin detector, Cold storage apparatus or system, Collapsible tube, Combing machine, Composition of matter, Concentrator, Confectionery display and dispensing case, Cooker, feed, F. Rippley, Corkscrew register, Corn husker, Cornet stay or stiffener, Cotton apparatus for unbalancing and blending raw, Cotton chopper, Cotton chopper, D. C. Davis,

"Star" Foot and Power Screw Cutting Lathes FOR FINE, ACCURATE WORK SENFCA FALLS MFG. CO. 695 Water Street. Seneca Falls, N. Y., U. S. A.

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MAGNETO BELLS ALL KINDS PARTS OF TELEPHONES ELECTRICAL SUPPLIES SEND STAMP MIANUS ELECTRIC CO. 32 MIANUS, CONN. FOR CATALOGUE

Table listing various mechanical and electrical items with prices. Includes items like Cotton gin, roller, Cotton piece goods, Coupling, Cream separator, Cultivator plow attachment, Culvert, M. C. Trumbull, Cup, Current meter, Current motor, Cut off and light extinguishing apparatus, Cut off, automatic, Cutter, Cycle seat, Cyclometer, Cyclometer or registering mechanism, Dashboard, lined, Defacing apparatus, Defining machine, Dental broach, Dental separator, Desk, school, Detector, Disinfectants to water closets, float attachment, Display rack, Door hanger, Door, sliding, Drawing board rest, Dress shield fastener, Drill, Dry air closet, Drying apparatus, Dust collector, Educational appliance, Electric circuit breaker, Electric lighting, producing incandescent materials suitable for, Electric meter, Electric metering system, Electric motor control, Electric motor control, Electric motor control, Electric motors, apparatus for control of, Electric motors, starting asynchronous and synchronous monophasic, Electrically treating materials, Electrode, battery, Electrotype machine, Elevator, See Sign elevator, Enameling table, Enameling table or machine, End gate, Engine, Rotary engine, Steam engine, Engine igniter, explosive, Engines, automatic cut off for, Engraving machine table, Engraving machine tool grinder, Excavator, A. P. Merrill, Excavator, self loading, Eyeblades, E. M. Thompson, Eyelet, L. A. Roberts, Fabric, See Woven fabric, Fans, hanger for electric ceiling, Faucet, measuring, Fence post, File, newspaper, File, newspaper, B. R. Green, Filter, C. I. Simpson, Filter, J. F. Ziegler, Firearm, rapid breech loading, Fire kindler, Fireman's helmet, Fireman's mask, Flour bolt, Flour bolt brush operating mechanism, Folding machine, Foot power, Friction saw, Furnace, See Electrotype's furnace, Heating furnace, Reverberatory furnace, Furnace, W. C. Johnson, Furnaces, smoke consumer for steam boiler, Gage, See Tank gage, Gage, W. E. Jones, Galvanizing metals, Garment hanger, Garment supporter, Gas burner attachment, Gas generator, Gas generator, J. E. Evans, Gas generator, C. Cameron, W. Ross, Gas meter, T. H. J. Leckband, Gas regulator, Gas valve, pressure, Gate, Hatfield & Tarr, Gate, A. Lindquist, Hat cutting machine, Heater, Generator, See Gas generator, Steam generator, Glass articles, apparatus for producing hollow, Glassware engraving machine, Glove washing, B. Potter, Grinding machine, road, Grain cleaner, S. H. Trombanhauser, Grain cleaner, self leveling, Graphite, manufacturing, Grease cup or lubricator, Grinding machine, S. Brown, Grinding machine, F. F. Fawcett, Grinding mill feed mechanism, roller, Hanger, See Door hanger, Garment hanger, Harness, C. B. Oisen, Harness breeching straps, shaft attachment, Harvesting machine, Hat fastener, Hat or cap rack, Heater, Heater, See Tank heater, Heating furnace, S. T. Wellman et al., Hinge spring, J. Jackson, Hog scraping machine, Hook and eye, Horse heel spreader, Horseshoe, cushion, Horses, protector against insects for, Hose coupling, Hose supporter, Husker, Ice cream, etc., cutter gagefor, Indicator, See Brake indicator, Office indicator, Street indicator, Injection, R. Sticker, Ink well, E. Oldenbusch, Iron, refining, Iron, refining, F. W. Hawkins, Jack, See Wagon jack, Jar closure, fruit, Jar holder, fruit, Jewelry, G. Lincks, Jewelry fastener, B. C. Egan, Joint, See Rail joint, Railway rail joint, Tube joint, Kettle tipping handle and cover holder, E. Morrison, Kiln, J. & C. Lengsholz, Kite, E. B. & F. W. Merriman, Knife, See Paring and slicing knife, Knitting machine, Lamp, W. C. Homan, Lamp burner, W. K. Thompson, Lamp, electric arc, W. Vogel, Lamp, gas, M. P. Stevens, Lamp globes, manufacturer of incandescent or other, W. C. Fusner, Lamp wick raising and controlling device, Wai-bel & Meyrott, Lamps, fastening device for heads of electric glow, J. Kremenezky, Lantern, C. H. Koster, Lath, J. R. Dowding, Lathe turning attachment, G. Reynolds, Leaching vat, bark, Leak stopper for vessels, external, Leather, coloring, S. K. Felton, Jr., Leather dressing, A. R. Dawley, Leather, treating, R. B. Arthur, Level, J. W. Brodhead, Level, plumb, B. C. Morgan, Lighter, pocket, C. M. Campbell, Linotype machine, J. S. Thompson, Linotype machine casting mechanism, C. Holliwell, Linotype machine quad forming attachment, W. H. Doolittle,