

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 This is for our information, and not for publication.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. 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.

(1) F. McF. asks: 1. Do certain sounds produce silence? If so, how can it be illustrated? A. Two sounds may come from sources so situated that a deadening of both by interference will be produced. It is hard to produce absolute silence thus. Apparatus for the experiment is illustrated in text book. 2. Does sound exist without an ear to hear it, or is sound produced by vibrations on the ear? A. Scientifically speaking, it does. 3. Where can I get a thorough description with engravings of the combination lock? A. There are many patents on combination locks. 4. What, if any, is the present variation of the magnetic needle from the true north pole? A. In Boston in 1880, 11° 41' in New York, same year, 7° 24' 5. How many crematories in the United States, and where are they situated? A. We believe three crematories are now in operation, and several others proposed. 6. Are colors carried to the eye by vibrations, or is it by other means? A. Colors it is assumed are carried to the eye by vibrations of the luminiferous ether. It is all theory. 7. What is the office of the little cylinder on the right hand side of a locomotive, just in front of the cab? A. The cylinder is the air pump of the air brake. 8. Is the moon farther away from the earth when directly overhead than when just rising? Why does it look larger when rising than when setting? A. It is not. It is not known why the rising moon looks larger, unless by association and comparison with objects on the horizon, or between it and the observer.

(2) G. E. P. asks: 1. Are there any locomotive works in this country turning out as many as two complete engines in one week? A. Yes. In building a large number of locomotives there are shops that can turn out two locomotives a week, but they are not built from the raw material within the week that they are finished. The various parts may have been several weeks in passing through the various stages of the work. 2. Is there such a process as photo-electro, or photo-electrotype, for printing or copying? A. There is a process of engraving or reproducing prints or drawings by photo-electric manipulation, and is called "photo-electrotype" and "photo-engraving."

(3) M. L. W.—We recommend you to make a study of what has been done in the way of compressed air motors for street railways and other purposes. See SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 18, 176, 177, 238, 248, 309, 338.

(4) N. A. H. asks: Why does placing a vessel of water on a stove in a close room prevent a headache or feeling of closeness in the room? A. Any beneficial effect from placing a vessel of water on a stove is due to the imparting of moisture to the air.

(5) R. L. D. asks: 1. Can I make a telescope finder by putting hair lines across the diaphragm of a small spyglass? Do I want two or four lenses for the eyepiece? A. Yes, provided it has an eyepiece formed of convex lenses. 2. Can the dynamo in SUPPLEMENT, No. 161, be arranged so as to give a shuttle current by drilling the journals of the armature and running terminals from the armature through, so as to connect with contact springs? If so, how should these contact springs be connected? Would like it arranged so as to give either current by simply changing a switch. A. Excite the field magnet by means of a direct current from a battery or another dynamo. Connect one terminal of the armature wire with the armature shaft and attach the other terminal to a sleeve carried by the shaft, but insulated therefrom. One collecting brush or spring should press on the sleeve, the other should touch the shaft, or better, a brass or copper ring driven on the shaft. To secure a direct current you will need the ordinary two part commutator, which may be arranged beside the two rings for alternating currents. 3. Have you ever given directions for making a diagonal eyepiece for a telescope? If so, where will a small piece of mirror answer? A. A piece of mirror will not answer, as it will yield two images, one being reflected from the front, the other from the back of the glass. Use a plate of speculum metal or a glass plate silvered on its face.

(6) M. H. asks: 1. Can dynamo described in SUPPLEMENT, No. 161, be used for a motor as well as a dynamo? A. It can be done by making the total resistance of the motor equal to one of the lamps which it is to replace in the circuit. 2. If so, what size wire and how much should be used to wind armature and field magnets to make motor fit to run on ordinary Edison (100 volt) circuit? A. Wind the field magnet with 225 feet of No. 26 wire, Am. W. G., and the armature with about 500 feet of No. 32. Place the armature and magnet in series.

(7) J. B. K. asks: 1. Is there a dynamo made just big enough to furnish six to ten 16 candle power incandescent lamps? A. Any of the electric manufacturing companies can furnish such a machine. 2. Will dynamo described in SUPPLEMENT, No. 161, have power enough for 16 candle incandescent lights, and how many? A. It is not adapted to lamps of high resistance. 3. Could one man, with crank on large hand wheel, turn it for ten minutes fast

enough to make light? A. He could run it so as to light two or three candle lamps.

(8) H. A. D. asks what sheet metal, some inexpensive kind, say of thickness of about twice that of heavy writing paper, will bear the most bending at a given line without breaking. A. Soft Bessemer steel or copper.

(9) W. S. B. asks: 1. In a dynamo having only electro magnets, what first generates the current in the field magnet coils to cause them (the field magnets) to become electro magnets, there being no permanent magnets in the machine? A. The magnet cores retain a little "residual" magnetism, which is enough to start the current, which then increases until it reaches the maximum. 2. What is the difference of arranging electric lamp in parallel and in series? A. In parallel arrangement the current is divided among a number of lamps; in series it goes successively through the lamps.

(10) E. L. B. asks: 1. Can you give me a receipt for making a solder that may be used without acid or resin? A. We cannot give any receipt for a solder that will work satisfactorily without a flux. 2. How many Fuller batteries will it take to run a 16 candle power lamp? A. It would take about 100 cells of Fuller battery to give satisfaction. 3. Is the Fuller battery well adapted to electro plating? A. The Fuller battery is not recommended for plating purposes.

(11) T. E. K. asks: 1. How can I make a simple and good hair pomade? A. Take 1/2 ounce each good washed lard and clarified beef suet, balsam of Peru 1/2 ounce, melt them together in a pot placed in boiling water, stirring the mixture all the while, adding 1/4 fluid drachm oil of nutmeg or a little oil of lavender. When thoroughly mixed pour the mixture into pots while hot. 2. How to make the right kind of paper hanger's paste, something that will stick on white-washed or calcimine walls? A. Any way of pasting over whitewash or kalsomine is tedious, and may turn out unsatisfactory. Better soak and scrape off to the plaster and on this good flour paste will stick.

(12) H. M. E. asks how to treat wood for cells so that it will satisfactorily resist the action of electricity? A. Use white wood boiled in paraffine. 2. How should steel be tempered and otherwise treated in making compass needles and other small magnets? A. Steel for magnets should be of good quality, such as used for tools, and made hard by heating to a cherry red and dipping in water. For compass needles or any magnet always plunge endwise, to avoid springing. They may be draw-tempered to a straw color and sprung straight if required. 3. How to pronounce dynamo? A. Accent on the first syllable.

(13) J. M.—You cannot harden cast iron to be of any value. It has already too much carbon. Wrought iron that has been cleaned from scale will only take a very thin hard surface by heating with ferro-cyanide of potassium, covering the surface before the article is hardened hot and has gathered a scale. Treatment with shavings of horse hoof, with the ferro-cyanide in an iron box, in which the article to be case-hardened is placed, and heated red hot for an hour, is better.

(14) F. W. B. asks how the black is put on parts of optical instruments, as on the inside of telescopes. A. Very thin shellac varnish and lampblack are used for this purpose. Mix the lampblack with alcohol and add a few drops of shellac varnish, not enough to make it shine when dry.

(15) F. M. asks: Can a fly wheel 32 feet in diameter be speeded to 100 revolutions per minute with safety. Can the shaft and bearings be made strong enough to stand it? A. Any shaft and bearings that will carry the fly wheel at any speed is strong enough for 100 revolutions per minute, provided the wheel is balanced and strong enough in the rim to resist centrifugal force with a large factor of safety. Such a speed is high for so large a wheel. See article on the Strength of Fly Wheels in SCIENTIFIC AMERICAN SUPPLEMENT, No. 574. We do not know the size of the largest fly wheel in the world.

TO INVENTORS.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

December 28, 1886,

AND EACH BEARING THAT DATE.

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

Table listing inventions with names and dates, including Adjustable hanger, Air, drying compressed, Air or other fluid under pressure, apparatus for exhausting or delivering, Alarm, Alarm, J. R. Bruden, Alloy, M. A. Wheeler, Animal trap, E. S. Hotchkiss, Baby walker, S. E. Gleason, Bag, See Paper bag, Barber's pole, M. H. Wilson, Bark cutter, R. C. Kirby.

Table listing inventions with names and dates, including Barrels, means for attaching heads to, T. P. Walsh, Basket, floating minnow, D. B. Weightman, Beating and mixing machine, F. V. Raymond, Beltgearing, Wittmann & Yingling, Bit stock, A. W. Morgan, Blast engine, hot and force, M. Hamm, Blind, inside, W. A. Holbrook, Blind, inside window, J. Auld, Blinds, spring strip for inside, W. A. Holbrook, Block, See Fodder block, Blower, pressure, W. C. Winfield, Boiler, See Steam boiler, Bolt, See Track bolt, Bolt machine, A. W. Rose, Book, copying, I. E. Whiton, Books with metallic staples, machine for attaching, W. J. Brown, Jr., Boot and nailing machine, H. S. Bacon, Boot or shoe stretcher, J. Donovan, Box, See Journal box, Music box, Musical box, Spice box, Bottle, mullers, E. R. Cahoon, Bottle stopper, T. G. Master, Bottle washer, P. A. Bennett, Brace, See Heel brace, Bracket, See Wall bracket, Bracket, L. E. Hastings, Braid roll and case therefor, J. Keiber, Brake, See Car brake, Broom, Smith & Yaeger, Broom, wire bound, Smith & Yaeger, Broom wiring machine, Smith & Yaeger, Brush shield and binder, W. L. Barnes, Buckle cover, J. P. Scollay, Bung for cans, O. H. Perkins, Bunga tin cans, implement for inserting, Perkins & Transom, Buoy or beacon, J. M. Foster, Burglar alarm, H. Ferris, Burner, See Gas burner, Butter, machine for printing or moulding, P. I. Kimball, Butter package, G. W. Bradley, Button, H. B. Robinson, Button attaching machine, J. C. F. Dick, Buttonhole stitching and barring machine, Reed & Beale, Buttons, implement for making covered, T. G. Roebuck, Cabinet, filling, P. J. Schlicht, Cabinet for holding spools of thread, etc., J. A. Law, Cane, cutting sugar and sorghum, H. A. Hughes, Capsule cutting machine, T. C. Mers, Car brake, L. Dube, Car brake attachment, R. Quatermass, Car brake, automatic, E. H. H. Leitwender, Car coupling, H. C. Horlish, Car coupling, H. A. Jukes, Car coupling, H. Kees, Car doors, adjustable attachment for freight, T. H. Duran, Car driving mechanism, E. Dederick, Car, dumping, S. B. Spence, Car spring, G. W. Morris, Car, stoking, O. Newell, Carpet holo, C. H. Cole, Carpet sweeper, W. T. Johnston, Carpets, etc., roll stick for Davis & Rath, Jr., Carriage curtain fastening, W. S. Dunn, Carriage seat, S. M. Hardenbergh, Carrier, See Trace carrier, Cart and weighing scale, combined coal, Artzaga & Del Valle, Cart, delivery, G. Kipp, Cart, road, W. R. Church, Cartridge, resting implement for, T. G. Bennett, Case, See Packing case, Show case, Ticket case, Cask, L. Minch, Casks, head attaching device for, T. P. Walsh, Caster, S. T. Lamb, Casting machine, type, (1) Reitz, Centrifugal extractor, W. & C. L. Cairns, Chair, See Nursing chair, Tilting and swivel chair, Chart for draughting garments, E. Gartland, Cheese cutter, S. P. Hodgen, Cholera, remedy for, A. T. Estabrook, Chuck lathe, J. C. Williams, Cigar wrapper, L. D. Bailey, Circuit closer, W. B. Manny, Cloth cutting machine, P. Howe, Cloth cutting machines, sharp-point mechanism for, P. Howe, Cloth laying and cutting machine, A. J. Tower, Clothes drier, J. J. Bissel, Condenser, steam, T. Blass, Condenser, steam, J. McIntyre, Conveyor, spiral, R. Birkholz, Coop, folding, A. Gamard, Corn sheller, C. Roberts, Corn sheller elevator, C. Roberts, Corset fastener, M. Seltzer, Corset stays, machine for covering, Nettleton & Littlejohn, Corset stays, machine for covering, W. A. Nettleton, Cotton gin cylinder, C. R. Valk, Coupling, See Car coupling, Shaft coupling, Thill coupling, Creamer, centrifugal, C. A. Backstrom, Cultivator and plow, combined wheel, C. Wahrmond, Jr., Cultivator, wheel, J. C. Schwall, Culvert or water-way, J. C. Goodridge, Jr., Cutter, See Bark cutter, Cheese cutter, Cigar wrapper, cutter, Cutting or severing device, J. A. Bunnell, Decortiating machine, E. Lyan, Dental flexible support, G. L. Meid, Dish washer, centrifugal, A. G. Ingalls, Dish washing machine, J. G. Cochran, Door, L. S. Enos, Door and window casing, H. Lucht, Door check, Hinkle & Jeffery, Dough raiser, G. A. Williams, Draught equalizer, A. M. Livelberger, Draught equalizer, J. F. Talt, Dredging apparatus, hydraulic, A. B. Bowers, Dredging machine, pneumatic, W. P. Lewis, Drier, See Clothes drier, Malt drier, Drill, See Rock drill, Drum tightener, B. Buchanan, Dyeing machine, J. Hancock, Ear ring, ear wire for, L. Dreyfus, Egg beater, F. A. Houck, Egg beater, H. Chipp, Electric machine, dynamo, R. A. Sperry, Electric motor, H. M. Payne, Electrical conductor, underground, F. B. Crocker, Electro-therapeutic appliances, J. Charles