

Notes & Queries

HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at the office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

(1) J. A. J. asks where aluminum can be bought and what it will cost. A. Aluminum can be purchased of most of the dealers in chemical apparatus or through any large wholesale druggist. Its value is about \$2.00 per ounce. SCIENTIFIC AMERICAN SUPPLEMENT No. 35 gives quite a complete description of the metal. Its manufacture is again described on page 3906 of SCIENTIFIC AMERICAN SUPPLEMENT, No. 245. On page 19 of the SCIENTIFIC AMERICAN for January 13, 1883, will be found an English patented process of recent date.

(2) J. de W. C. asks formula for preparing boroglycerin, or that substance asserted to have the power of preserving flesh. A. Pure glycerine, 92 parts, is heated to 300° F., and boracic acid, 62 parts, which should be prepared to facilitate the reaction, is added. For further details, consult SCIENTIFIC AMERICAN SUPPLEMENT, No. 332, page 5293.

(3) J. B.—Elastic paint is simply an ordinary paint to which a little rubber dissolved in benzine has been added. 2. Add to an ordinary paint sufficient Japan drier or a little manganese borate, and you will have a "siccative paint."

(4) I. T. & F. D. S. ask the rule to figure amount of power by belt, size of pulley, and speed. A. W. S. — H. P. 800

This for narrow belts, say below 4 inches. For wide belts make the denominator 600 instead of 800. 2. Please give us the usual rule for ascertaining how much power is being used in case of rental. A. There is no way of ascertaining, except by use of indicator or dynamometer. Formerly, says editor, had occasion to inquire of parties who rent power, and found they had no rule, but would say, "I will rent you power to drive that machine (whatever it may be) for so much;" the power can be approximated by the belt required to drive the machine.

(5) F. P. S. asks for a formula for coating cast iron with a glossy black color; one that will stand washing and heat. A. Take oil of turpentine and add to it strong sulphuric acid, drop by drop, while stirring, until a sirupy precipitate is formed and no more of it is produced on further addition of a drop of acid. The liquid is now repeatedly washed away with water, every time renewed after a good stirring, until the water does not exhibit any more acid reaction with blue litmus paper. The precipitate is next brought upon a cloth filter, and after all the water has run off, the sirup is fit for use. This thickish deposit is painted over the iron with a brush; if it happens to be too stiff, it is previously diluted with some oil of turpentine. Immediately after the iron has been painted, the paint is burnt in by a gentle heat, and after cooling, the black surface is rubbed over with a piece of linen stuff dipped in and moistened with linseed oil. See also "Varnishes for Protecting Iron," SCIENTIFIC AMERICAN SUPPLEMENT, No. 226.

(6) A. A. D. asks how to make a solution in which, if paper be soaked, and then dried, it will turn blue on exposure to sunlight. A. Use the following: 1. Potassium ferricyanide, 1 1/2 ounces, dissolved in 8 ounces water. 2. Ammonium iron citrate, 1 1/2 ounces, dissolved in 8 ounces water. These solutions are mixed, filtered, and preserved in a dark room. Soak the paper in the mixture, expose to sunlight, and wash off excess of solution. According to the length of exposure the blue color will be more or less intense.

(7) D. W. W. writes: Years ago I made an excellent black ink with a quarter of a pound of extract logwood, 90 grains bichromate of potash, and 15 grains prussiate potash. I recently made a couple of gallons for sample, which after standing a few days became thick and ropy, with a scum on the surface. What is the trouble? A. Your receipt is one of the forms of what is known as Runge's ink, concerning which an English writer says: "An ink prepared from these ingredients is not affected by acids or water, is black, forms no deposit, and is not acted on, nor does it act on the pen in using. Unfortunately, after it has been prepared for a time, it gelatinizes, in which condition it is totally unfit for use, nor have means yet been devised to prevent this change or to restore it, once it has taken place." A copying ink can be made by the addition of a slight quantity of sugar or glycerine to any ink.

(8) J. C. G. asks what to apply to iron patterns to make them smooth and prevent them from rusting. A. Shellac varnish is sometimes used, but for

a very fine pattern nothing is better than pure, hard yellow beeswax. Heat the pattern—preferably over a smoky fire of pine shavings. When sufficiently warm to melt the wax, apply the wax and allow the surplus to drain off. When the pattern is perfectly cold, smooth it with chisel shaped tools of hard wood, and lastly polish with a shoe brush.

(9) O. P. asks how to make indigo blue ink, such as used by paper rulers. A. 1. Dissolve basic or soluble Prussian blue in pure water. This is the most permanent and beautiful ink known. 2. Triturate to a perfectly smooth paste, six parts pure Prussian blue and one part oxalic acid, with a little water; then dilute with sufficient soft water to make it fluid. 3. Dissolve two-thirds ounce sulphate of indigo in 1 gallon of water.

(10) J. G. D. writes: Some time ago I put a piece of thin sheet brass between a magnet and a piece of steel (horse shoe magnet). The attractive power of the magnet for the steel was much diminished. Now, what I want to know is, what shall I put between the magnet and piece of steel to kill the attractive power of the magnet for the steel? A. The reason the brass diminished the magnetism is because the distance between the magnet and armature was increased. No insulator for magnetism has been discovered.

(11) A. E. W. asks: What is the best way to make carbon plates for batteries, other than sawing them from gas carbon? A. Select fine coke and pulverize it. Mix with it a small proportion of powdered bituminous coal. Ram into an iron mould. Place the mould in an iron box and surround it with powdered coke. Cover the box with an iron lid. Submit the box and contents to a red heat until the powdered bituminous coal is coked. Allow the box and contents to cool before opening. Remove the carbon, boil it in molasses thinned with water. Replace it in the box and surround it with powdered coke. Heat as before, and repeat this process until you are satisfied with the product.

(12) F. M. C. asks how to arrange an electric alarm clock. A. Place your battery and bell as you desire to have them. Lead the wires to the clock. Connect one of them with the clock movement, and connect the other with a light spring that the hour hand will touch when it reaches it in the course of its revolution.

(13) E. C. L. writes: I have a fifteen horse tubular boiler, located in a small addition to a two story frame building, which I contemplate heating with steam from this boiler. The water line in the boiler is situated 18 inches below the level of the first floor. Can I return the condensed water, which comes from the radiators, into the boiler without the assistance of a trap or any other mechanical appliances? A. It would not be very certain in its operation. Better trap off the water and return to boiler by pump or injector.

(14) W. M. B. asks: 1. How can I give or obtain a bright finish on walnut coffins, or furniture made of walnut, after neatly dressing with smoothing plane? A. Take pulverized asphaltum, put it in a jar or bottle, pour over it about twice its bulk of turpentine or benzol, put in a warm place and shake occasionally; when dissolved strain, and apply it to the wood with a cloth or stiff brush; should it prove too dark, dilute with turpentine or benzol. If desired to bring out the grain still more, apply a mixture of boiled oil and turpentine; this is better than oil alone. When the oil is dry, the wood can be polished with the following: Shellac varnish, 2 parts; boiled oil, 1 part; shake it well before using. Apply with a cloth, rubbing briskly. 2. How can I imitate walnut, as above of pine, of a dark brown or walnut color, with nice finish? A. Walnut stain: Water, 1 quart; washing soda, 1/2 ounces; Van-dyke brown, 2 1/2 ounces; potassium bichromate, one-quarter ounce. Boil for ten minutes. Apply with a brush in either hot or cold state.

(15) J. D. G. asks: What would I gain by using an automatic cut-off engine when I use all the exhaust steam under a pressure of 8 pounds per square inch? I do not have enough exhaust. I admit live steam in the exhaust pipe when pressure falls below 8 pounds. If I use a plain slide valve engine and take steam seven-eighths of stroke, do I lose any when I use all the exhaust? A. If all the steam which passes through your engine is required for other purposes, the gain would be little if anything, by adding an automatic cut-off.

(16) C. P. R. asks what are the advantages and disadvantages of the two forms of rail now in use by street car companies, and known as the "side bearing" and "center bearing," and which form is considered best for ordinary traffic on a cedar block paved street? A. The side bearing rail is least obstructive to ordinary vehicles, and affords good facilities for wagons of all kinds to run on the flat web. It is much preferred by vehicle owners. The center bearing rail is preferred by the railway companies. It is self-cleaning, stands a little higher, wagons cannot run on it, and so wear it out; it obstructs ordinary vehicles more than the side bearing rail.

(17) G. F. P. asks: How can I prevent giving out wet steam from a coil? A. Add a steam chamber or superheater.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

H. M. M.—1. Quartz containing mica and pyrite (probably nickeliferous). 2. Quartz with calcite and chondrodite. 3. Quartz with pyrite rock.—W. N.—The specimens hardly resemble tin ore, and it would be impossible to express a positive opinion without first assaying them, the expense of which would be \$5.00, and a larger quantity of the ore would be desirable for proper sampling.—S. B. E.—The specimen is quartz containing a little pyrite very finely divided, and may carry gold.—R. H. G.—The specific gravity of gold is 19.3 and that of lead is 11.35; hence gold is the heavier metal.

ERRATUM.—On page 298, SCI. AM., Nov. 10, 1883, Notes and Queries (57), \$80 to \$90, should read \$80 to \$90.

INDEX OF INVENTIONS For which Letters Patent of the United States were Granted October 30, 1883.

AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.]

Table listing inventions and their patent numbers, including items like Adjustable reclining chair, Aerial railway, Alarm, Amalgamating apparatus, Ammonia from bone-black retorts, Axle box, Axle, vehicle, R. W. & W. Hubbard, Axle, wagon, J. & P. Herrmann, Bag fastener, C. W. Bradford, Bag or satchel, C. W. Jenks, Battery, Beits, tool for connecting and disconnecting the ends of, G. H. Clark, Bicycle, S. A. Potter, Bicycles, ball bearing for, A. E. Schaaf, Bit, E. Hall, Blind and shutter, H. L. Page, Block facing machine, J. Y. Simons, Board, See Ironing board, Boiler, See Locomotive boiler, Boiler and steam vacuum pump, combined, C. L. Riker, Bolting machine, centrifugal, F. Stetter, Box, See Axle box. Packing and storing box, Brace, See Railway rail brace, Breast strap fender, J. C. Look, Brick kiln, G. F. Cotton, Brick kiln, F. L. Hall, Brick, manufacture of, F. W. Meeker, Brush for cleaning milk cans, J. J. Quinn, Bucket, milk, Rogers & Wolf, Burglar alarm, detonating, W. H. Reiff, Can filling apparatus, A. Rockfellow, Candy heater, T. Burkhard, Car coupling, J. Brown, Car coupling, Brown & Poole, Car coupling, T. Gates, Car coupling, J. E. McMurtrey et al., Car coupling, R. T. Morrison, Jr., Car coupling, A. Muller, Car coupling, E. H. C. Tompkins, Car coupling, White & Ruddell, Car, dumping, W. Fallon, Car, dumping, J. T. Goodwin, Car replacer, J. T. Fosdick, Car replacer, W. Toombs, Car roofing, W. H. Paige, Car seat, street, W. Don, Car spring, N. H. Davis, Car wheel, D. Connell, Car wheel truing machine, J. H. Gowan, Cars, plow for unloading, J. McMullin, Carbonizing mould, T. A. Edison, Carding machine, R. F. Barker, Carpet stretcher and tack driver, combined, Morris & Finck, Carriage jack, A. J. Church, Carriage top, H. M. Bowden, Carrier, See Trac carrier, Cartridge closing machine, Leet & Northall, Cartridges, can for holding blasting, C. C. White, Case, See Extension case. Spectacle case. Type case, Caster attachment to rockers, W. C. Ranney, Casting copper, apparatus for, Durfee & Eggleston, Chain for bracelets, etc., C. A. Muller, Chimney cap, F. H. Leonard, Clasp pivot pin, W. W. Anderson, Claw bar, Moore & O'Leary, Cleaner, See Trac cleaner, Clock pendulum, I. B. Woodruff et al., Clothes rack, J. H. French, Clothes wringer, C. K. Stinson, Cock, gauge, L. B. Fulton (r), Collar rim plate, horse, W. L. Bellis, Cotter, rolling, H. M. Skinner, Combing machine, I. Best, Copying composition, H. S. Myers, Cork puller or screw, F. Cappel, Corn sheller, G. Pritchard, Corset clasp fastening, W. F. Gilbert, Cotton and hay press, W. D. Slauson, Coupling, See Car coupling. Shaft coupling, Cover, pan, S. C. Dowdell, Crubbing plate, A. Quinque, Cultivator, W. A. Knowlton, Cultivator and harrow teeth, securing, E. Fulmer, Cultivator spring, J. B. Neff, Cup, See Salt and pepper cup, Curtain roller, spring, L. L. Sawyer, Cutter, See Nail machine cutter, Damper, F. C. Davis, Decorative fabric, E. Baron, Dental engine hand piece, J. W. Gilbert, Dental engine hand piece, W. A. Johnston et al., Desk, C. Ignatius, Desk, L. P. Ross, Detector, See Time detector, Die press, G. E. Meeker, Dish cover, baking, A. A. Curtis, Dish draining rack, M. Raughtigan, Dressing machine, A. Cook, Dressing or excavating machine, H. E. Hawk, Drier, See Fruit drier, Drill, See Grain drill, Eccentric, C. W. Barnaby, Eccentric, C. Johnson, Electric alarms, circuit closer for, L. A. Brigel, Electric battery, A. F. Delafield, Electric circuits, safety catch for, C. Goddard, Electric distribution, system of, T. A. Edison, Electric generator, dynamo or magneto, F. Bain, Electric lighting systems, indicator for, W. P. Freeman, Electric machine, dynamo, F. Bain, Electric machine, dynamo, T. A. Edison, Electric machine, dynamo or magneto, F. Bain, Electric machine, dynamo or magneto, T. A. Edison, Electric machine, dynamo or magneto, J. E. Giles, Electric machine, dynamo or magneto, P. P. Nungesser, Electric machine regulator, dynamo, T. A. Edison, Electric machine regulator, dynamo, G. J. Murock, Electric machines, wiper for the commutators of dynamo, R. Holbon, Electric regulator, T. A. Edison, Electrical conductors, junction for, C. Goddard, Electrical distribution, regulator for systems of, Edison & Clarke, Electrical distribution, system of, T. A. Edison, Electrical testing, C. S. Bradley, Elevator, See Grain elevator. Safety elevator, Elevator lock, Grover & Warden, Engine, See Gas engine. Gas or vapor engine. Road engine. Traction engine, Evaporator, T. W. Weller, Evaporator for making sugar from saccharine juices, etc., O. B. Jennings, Excavating machine, W. S. Morton, Excavator, D. Harper, Extension case or box, W. Reetz, Feather renovator, J. Baur, Fender, See Breast strap fender, Fertilizers, packing and shipping, A. Edwards, Fifth wheel, vehicle, J. S. Klapperich, Fifth wheels, die and blank for the manufacture of, F. P. Bates, File blanks, machine for grinding and dressing, A. Weed, Filter, oil, Clark & Beecher, Fire alarm, A. & A. Iske, Fire alarm apparatus, electric, W. C. Gordon, Firearm, breech-loading, J. Turner, Firearm stock, G. R. Vickers, Jr., Fire escape, C. F. Bierbach, Fire escape, A. J. Heavner, Fire escape, C. Ives, Fire escape, J. A. Miller, Fire escape, N. J. Powell, Fire escape, W. H. Welsh, Fire escape, F. R. Woodward, Fire indicator, thermostatic, R. N. Dyer, Fire kindler attachment for stoves and grates, C. F. Allis, Fireproof partition block, M. Laperonnerie, Flatiron, electric, Dyer & Seely, Flax puller, A. C. Lamar, Folding table, J. Tuill, Food, manufacture of medicated, C. I. Flaschoen, Foot power, H. W. Posz, Frame corner plate, H. M. Jones, Fruit drier, J. H. Hunter, Fruit picker, J. Sealmey, Furnace, L. P. French, Furnace and working the same, J. Henderson (r), Furnace for glass factories, etc., J. D. Putnam, Furnaces, air injector for, J. W. Bonta, Furnaces, combustion device for steam boiler, W. Harman, Furnaces for receiving the dump, attachment for cupola, H. W. Fayette, Gauge, See Pressure gauge, Gas and coke kiln, H. H. Hall, Gas engine, G. H. Reynolds, Gas or vapor engine, G. B. & W. B. Gray, Gaskets, machine for cutting oval, J. H. Burnett, Gate, See Railway crossing gate, Gear wheel, B. F. Ortman, Generator, See Electric generator. Ozone generator. Steam generator, Gilling and backing machines, tooth for, W. Crabb, Glass products, manufacture of decorative, H. F. Miles, Governor attachment, steam engine, W. J. Buchanan, Grain binder, C. Lidren, Grain binding apparatus, C. Lidren, Grain cutting machine, R. L. Phelps, Grain drill, A. & M. Runstetter, Grain elevator, W. Watson, Grain meter, Griffith & Ramsey, Grain screen, C. E. Gage, Grain separator, H. Campbell, Grinding and polishing machine, E. R. Ware, Grinding apparatus, portable, M. Lennon, Grinding roll feeder, G. B. Root, Gun barrels, machine for turning, C. A. King, Hair springs, manufacture of, J. Logan, Hame, J. A. Outlaw, Harrow and clod breaker, rotary, B. Smith, Hat bodies, machine for hardening and sizing, W. H. Behrens, Hatchway, elevator, W. Stevens, Hay and cotton press, E. C. Worthen, Hay and grain apparatus for unloading, R. Griswold, Hay elevator track, J. Ney, Heater, See Andy heater, Heel lifts and taps, manufacturing, G. A. White, Heel nailing machine, F. F. Raymond, Heeling machine, D. Whitlock, Holder, See Necktie and scarf holder. Rein holder. Scissors holder. Ticket holder. Umbrella holder. Whip and rein holder, Hoop flaring machine, J. Z. Gifford, Horse checking and unchecking device, D. O. Cox, Hub, metallic, J. Douglass, Hydrant, fire, W. H. Leonard, Ice plows and markers, guide for, F. J. Fischer, Ice tongs, G. J. Dickson, Indicator, See Pressure gauge, Insect destroyer, A. Newkirk, Insulated electric conductor, G. W. McGill, Insulated electric conductor, H. O. Phillips, Iron, See Flatiron. Waffle iron, Ironing board, P. F. Weber, Jack, See Carriage jack. Lifting jack, Kettle for rendering fats, boiling soap, etc., Jacketed steam, H. W. Dopp, Key rack, W. H. Camp, Kiln, See Brick kiln. Gas and coke kiln, Lamp extinguisher, A. Koegel, Lamp, incandescing electric, T. A. Edison, Lamp, plummet, J. Roach, Lamp shades with silver, apparatus for coating, J. Dable, Lamps, incandescing conductor for electric, T. A. Edison, Lamps, manufacturing incandescing electric, T. A. Edison, Latch, door, E. N. Porter, Lathe, turning, G. D. Hayden, Lathe, wood turning, H. & J. Keily, Letter sheet and envelope, combined, B. Loewenbach, Lifting jack, J. W. Hawkins