

Moles & 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 This is for our information, and not for publication.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. W. K. wants (1) a receipt for making bronze paint for bronzing a bust. A. Boil 3 pounds pure linseed oil with 12 ounces finely powdered litharge; strain through a coarse canvas cloth, and allow to stand until clear, 15 ounces of this soap varnish mixed with 12 ounces metallic soap powder (made as follows: To a solution of soda soap in linseed oil, cleared by straining, add a mixture of 4 parts sulphate of copper solution and 1 pint sulphate of iron solution, which precipitates a metallic soap of a peculiar bronze hue; wash with cold water, strain, and dry to powder) and 5 ounces fine white wax, are to be melted together at a gentle heat in a porcelain basin by means of a water bath, and allowed to remain for a time in a melted state to expel any moisture that it may contain. It is then applied with a brush to the surface of the plaster, previously heated to 200° Fah., being careful to lay it on smoothly, and without filling up any small indentations of the plaster design. Place it for a few days in a cool place, and, as soon as the smell of the soap varnish has gone off, rub the surface over with cotton wool or fine linen rag, and variegated with a few streaks of metal powder or shell gold. Small objects may be dipped in the melted mixture, and exposed to the heat of a fire till thoroughly penetrated and evenly coated with it. 2. A good rubber cement for putting on wringer rolls. A. See answer to query 3 contained in the SCIENTIFIC AMERICAN for December 25, 1886. See also "Rubber Cement" in article on Cements contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 158.

(2) W. C. L., Michigan, asks: Why is the 4th of March taken for the inauguration of the President? A. The second Continental Congress provided, nine States having theretofore ratified the proposed new constitution, that the new government should go into operation on the first Wednesday of March, 1789, which was March 4.

(3) A. H., Richmond, Va., asks: How is lemon extract made? A. Expose 4 ounces of the exterior rind of lemons in the air until partially dry; then bruise in a Wedgwood mortar; add to it 2 quarts deodorized alcohol of 95°, and agitate until the color is extracted, then add 6 ounces recently prepared oil of lemon. If it does not become clear immediately, let it stand for a day or two, agitating occasionally. Then filter.

(4) L. W. B. writes: I have a lathe with a 21 in. balance wheel, 50 lb. weight. I wish to run a 4 in. circular saw. Will a fly wheel on saw arbor improve the power? A. It will do you no service where the cutting is continuous. It might equalize the speed for knotty stuff or short, quick cuts. You must add muscle to make the saw go.

(5) T. H. T., Buffalo, N. Y., asks: What will clean fly specks from hanging lamps? A. Old ale is excellent to wash any gilding with. It acts at once on fly specks. Apply with a soft rag.

(6) T. J. G. There are many kinds of lamps advertised as non-explosive. We think the non-explosive qualities depend more on burning high test oil than in any protective form of the lamp, although there is no doubt that some forms of lamp are safer than others. There is no lamp proof against explosion that has the wick communicating with the oil chamber. The Student lamp is considered safe from explosion in ordinary use, but is not safe to upset with low test oil.

(7) J. S. asks: Would a watch case of about 8 to 10 karats do for an anode to electroplate with? A. It will not do. It will contaminate the solution too much.

(8) R. L. D. asks: 1. Is it a fact that lightning never strikes a building with a tin roof, provided there is no ground connection? A. No; it is not a fact. 2. Is the field of a telescope finder artificially illuminated, so the hair lines can be seen? I have made one, but can't readily see the hair lines, unless the star is very bright. A. The hair lines are not essential in the finder, except for very high powers. Adjust the finder central with the telescope. The judgment of the eye is sufficient to cover the telescope field in the finder, or use white human hair, which gathers the light, and shows luminous on smaller stars better than colored hair. 3. Can I determine the efficiency of a dynamo by the amount of water it will decompose in a certain time? Must the points be platinum? A. It can be done, but not easily, from the difficulty of measuring the gases. Use platinum points.

(9) J. K. asks the best way to prevent the iron work of heaters in cellars from rusting? A. To whitewash them is the most simple way.

(10) E. H., Boston, asks: How can I make a sulphur bath? A. Use 4 ounces potassium sulphide and 1 ounce sulphuric acid dissolved in 30 gallons of water.

(11) D. J. N. asks the best composition of brass to withstand the corrosive effects of heat and coal gas. Brass is to be used for Argand burners, in a regenerative gas lamp. Zinc is said to cause a white

film on the glass, and must on that account be left out. A brass composed solely of copper and tin is so tough, that it can only be worked with difficulty. A. Copper 16 oz., tin 1 oz. makes a good turning metal. Copper 16 oz., tin 1/2 oz. makes a good stamping metal. Copper with a small portion of nickel is a good resistant to oxidation. Aluminum bronze is also a resistant. All the above are tough, and do not work as easy as common brass. You must not expect too much in labor saving from the higher grade of metals, which are necessary for severe service.

(12) W. H. asks: How do you temper brass for springs, etc., after the temper has once been taken out for shaping? A. Only by hammering. There is no chemical or heat process for hardening any other metal than steel.

(13) C. F. R.—There is no better way of softening lead than recasting. If it is pure, it should be soft. Otherwise use it for other purposes and take new lead for gaskets. Boiling hot water and potash should clean your sewer connecting pipes thoroughly.

(14) W. G.—Locomotives commonly carry from 100 to 125 pounds steam pressure. The exhaust is very variable, and according to the conditions of running. With throttle and link wide open, there may be as much as 20 pounds back pressure.

(15) W. M., Pittsburg, Pa.—The ring piston packing devices referred to were invented and constructed on the principle of expansion by the steam pressure in the cylinder.

(16) T. K. & Co. ask the best varnish or grease for protecting barbed fence wire. A. Common coal tar, with a little tallow melted and thoroughly mixed, is probably the best. All dry varnishes and coal tar alone crack off in handling the wire. If necessary to have it dry enough to handle without marking the hands, a mixture of coal tar and boiled linseed oil (mix hot) may better answer your purpose.

(17) M. A. G. asks why the electric light gives out so little heat, if it is true that the temperature of the arc in the arc light is unequaled by any other artificial heat. A. In a gas or lamp flame an exceedingly small portion of the heat develops light. Hence a production of a relatively great quantity of heat is necessary for the development of a given quantity of light. In the electric arc the temperature is so high that a much more favorable ratio of heat to light appears. For a given unit of light a very small quantity of heat (compared to the same factor in an ordinary flame) is needed.

(18) E. W. S. asks: In what way should two or more electro-magnets be connected in the same circuit, so as to give the greatest amount of power? If two magnets are connected, will each magnet have as much power as one of them would have if the other were left out of the circuit? A. The best way to connect magnets in a battery circuit for power is in series. Each magnet as introduced in the circuit will reduce the strength of the remaining ones.

(19) Accountant writes: I am using an ink on a set of books; it thickens very quickly, and I have found that a little ammonia water will thin it and amalgamate the particles as nothing else (water or fluid) will. Does the use of the ammonia impair the ink in any way or endanger the record in time? A. We can only surmise as to the effect of ammonia or an ink of unknown composition. From what you say we imagine it would not injure the ink. Test two samples, one with and one without ammonia, by writing with each and exposing to strong sunlight.

(20) Ch. asks: Does the crystal which is formed by the freezing of water contain water of crystallization? That water crystallizes when it freezes is plain enough, but does such a crystal contain water of crystallization? A. Ice contains no water of crystallization, as far as known. If so, there would be an uncrystallized or amorphous condition of ice, which has so far never been observed.

(21) C. B., Hartford, asks: 1. Is there any kind of glue or paste that will answer for putting labels on the side of flower pots when in use and filled with soil more or less damp? Suspending a label of white paper is used, is there any way it can be treated by varnishing or some other method, so that it can be washed and made clean? A. Use thin paper for label, and attach with white gelatine in solution, to which has been added 1 per cent of bichromate of potash. This must be done in a dark or obscure room. Then expose the labels to sunlight. After writing, varnish with solution of shellac in alcohol.

(22) H. P. asks: 1. How can I make wine of coca? A. Take of the fluid extract of coca 1 ounce, magnesium carbonate 1 drachm; mix and add of simple elixir and of rectified alcohol each 1 ounce, and 16 ounces wine, then filter. Port or sherry wine may be used. 2. Is it considered a good remedy for dyspepsia? A. A good remedy for some people is not good for others. Better consult a physician.

(23) G. S., Chicago, writes: 1. What is a good receipt for gluing pearl to wood? A. Dissolve 1 part isinglass and 2 of white glue in 30 of water, strain, and evaporate to 6 parts. Add one-thirtieth part of gum mastic dissolved in 1/2 part of alcohol, and add 1 part of zinc white. When required for use, warm and shake up. 2. A reflector in form of a cube, concave on each of the four sides, has recently made its appearance. It divides the original flame into four small flames, placed so as to reflect from each of four sides of the cube reflector that has been placed on the gas jet. Can these reflectors be of any value in the center of a room? A. Any reflector that does not, by creating draughts or otherwise, interfere with the production of the flame is, as a general thing, useful in directing the light where most wanted. 3. Will steam forced into iron pipes make the pipes hot enough to ignite paper or cloth? A. It is claimed that long action of such heat will, under favorable conditions, effect such ignition, and many fires have been attributed thereto.

(24) S. D. K., Providence, R. I., asks: Is there anything which will dissolve mica so it can be used in a liquid form and afterward be evaporated,

leaving a coating of mica on any article which has been covered while in solution? A. No. The nearest you can come to it is to powder the mica and mix and apply with a transparent varnish, giving something of an aventurine effect.

(25) Miss S. G., South Carolina, asks: 1. What is simplest method of etching on glass? A. See article on this subject in SCIENTIFIC AMERICAN SUPPLEMENT, No. 7, also on page 231 of this paper. 2. How can I stain willow chairs mahogany, rosewood, or cherry? A. For mahogany, take nitric acid, dilute with ten parts water and wash the wood with it. For rosewood, alcohol 1 gallon, camwood 2 ounces. Set them in a warm place, then add extract of logwood 3 ounces, nitric acid 1 ounce, and when dissolved. For cherry, boil 4 ounces annatto in 3 quarts rain water, till the annatto is dissolved, then add a piece of potash and boil for 30 minutes longer. 3. How can I clean willow furniture? A. Soap and water will remove dirt, and sulphur fumes will bleach the willow.

(26) M. F. S. asks: What is a good receipt for a good gold wash for a watch? A. Wash thoroughly 1/2 ounce chloride of gold, then add to it a solution of 2 ounces cyanide of potassium in a pint of clean rain water; shake well and let it stand until the chloride is dissolved. Add 1 pound prepared Spanish whiting, expose to the air until dry. In applying, make into a paste with water, and rub it on the surface of the article with a piece of chamois skin or cotton flannel.

TO INVENTORS.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

March 22, 1887,

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 Advertising card, Air brake, Alarm, Album, Aluminum chloride, Automatic brake, Awning, Axle for railway cars, Bag holder, Banjo, Bar, Barrel carrier, Basket cover, Battery, Battery zinc, Bed, Bedstead, Bedsteads, Bicycle, Bicycle backbone, Bicycle brace, Bicycle wheel, Bicyclists, Blacking box, Boat, Boiler, Boiler, M. J. Galligan, Boom, B. Boutell, Box, Watch movement box, Brace, Brake, Brick machine, Bridges, Brush for the use of jewelers, Brush trimming machine, Buckle, G. F. Atwood, Buckle, G. W. Moores, Buckle, W. Seabrook, Bushing mould, Bustle, M. O. Canfield, Bustle, S. B. Gray, Butter worker, B. B. Beers, Button, P. W. Tillinghast, Button fastening machine, G. W. Prentice, Button or stud, W. G. Hopkins, Cake mixer, M. D. Platner, Camera drop shutter, L. A. De Ribas, Can, Refrigerator dairy can, Car brake, J. Bryan, Car brake and starter, T. Miller, Car brake, automatic, Latham & Agnew, Car coupling, D. J. Caldwell, Car coupling, A. O. Dietze, Car coupling, N. T. Dundore et al., Car coupling, A. J. Elliott, Car coupling, C. C. Haskin, Car coupling, J. Rancevau, Car coupling, Stetler & Klingler, Car coupling, A. Z. Swingle, Car fare boxes, conveyor for street, G. R. Brownrigg, Car, railway, C. W. M. Smith, Car ventilating apparatus, W. D. F. Jarvis, Cars, cable grip for, T. Kerr (r.), Cars, device for supporting and operating street, A. G. Bierbach, Cars, method of and apparatus for ventilating railway, M. R. Adams.

Table listing inventions and their patent numbers, including items like Carburetor, Card grinder, Carding engine, Carpet cleaner, Carriage curtain fastener, Carriage top joints, Carrier, Cart, road, W. Whitaker, Case, See Watch case, Cash carrier apparatus, D. Lippy, Caster, C. V. Pleukharp, Casting and finishing type, machine for, L. & A. Foucher, Casting plumbers' traps, apparatus for, G. W. Wicks, Castings, apparatus for the production of sound, J. Irwin, Jr., Cellular furnace for baking carbons, J. Hill, Chair, See Railway chair, Chair brace, J. F. Sargent, Checking apparatus, P. Everitt, Churn, J. Keller, Churn, Mitchell & Rosser, Churn, S. J. Sullivan, Clamp, J. M. Basinger, Clamp, E. Shaw, Cleaner, See Carpet cleaner, Clock, alarm, A. Runge, Clock and watch balances, manufacture of, L. Murray, Clock, pneumatic, R. C. Wittmann, Clock system, hydropneumatic, C. A. Mayrhofer, Closet, See Water closet, Cock, lock, W. M. Deming, Coin packet, W. K. Bellis, Conveyor apparatus, G. C. Blickensderfer, Core stand, J. Barnett, Corn knife, green, M. K. W. Wilcox, Corset cover and bustle, G. D. Nichols, Cotton gin, scale, and press, P. E. Williamson, Cotton waste, etc., machine for cleaning and separating, H. A. Davis, Coupling, See Car coupling, Thill coupling, Crosshead pushing device, W. McIntosh, Crushing and grinding mill, W. M. Bane, Cultivator attachment, M. H. Fulton, Cultivator for listed corn, harrow, R. Woods, Cultivator shield, W. M. McGaugh, Cup, See Umbrella drip cup, Curtain fixture, Shinn & Fagley, Cutlery handles, manufacture of, I. E. Moody, Cutter, See Wire cutter, Cutting rags, etc., machine for, A. A. Coburn, Dental engine hand piece, W. B. Mann, Dental vulcanizing apparatus, Chidester & Har-mount, Digger, See Potato digger, Ditching and tile laying machine, steam, D. Wilde, Ditching machine, J. A. Wells, Door securer, C. J. Sargent, Door, sliding, C. Dyer, Draught equalizer, J. Beal et al, Drill jar, R. C. Elliot, Driving spring, flexible, A. W. Browne, Dyeing skeins, apparatus for, Meadowcroft & Denanhouer, Ear protector, I. B. Kleinert, Egg beater, W. J. Johnson, Egg carrier, A. Felmer, Eggs, apparatus for preserving, L. A. Hapgood, Electric battery, K. Pollak, Electric circuit regulator, J. A. Powers, Electric conductors, coupling for, F. C. Plume, Electric currents, underground conduit for powerful, G. B. Pennock, Electric lighting system, F. A. Cheney, Electric machine, dynamo, R. J. Sheehy, Electric machine, dynamo, N. Tesla, Electric machine regulator, dynamo, C. L. Buckingham, Electrical conductor, E. M. Johnson, Electrical synchronous escapement, J. F. McLaughlin, Engine, See Carding engine, Gas engine, Steam engine, Engines, device for draining the cylinders of, J. Briscoe, Excelsior, machine for making, J. A. Adams, Extension table, G. Schmitt, Eyeglasses, E. De Celles, Fanning mill, H. Summerfeld, Fastener, metallic, J. Feibel, Faucet for oil cans, G. W. Banker, Feed grinder, I. & J. C. Jay, Feed rolls, top pressure for, G. W. Church, Feed water heater, A. M. Rowe, Fence, J. A. Devore, Fence building machine, W. H. M. Fauber, Fence, flood, A. Buracker, Fence post, J. H. Buscher, Fence post, A. W. Newton, Fence, wire, J. F. Hanna, Fences, machine for weaving wire, Brown & Blake, Fire alarm, A. Sewel, Fire and burglar alarm, electric, S. Taussig, Firearm, breech-loading, J. M. & M. S. Browning, Firearms, rear sight for, J. C. Kelton, Fire box lining, A. S. Newby, Fire escape, Stanhope & Esty, Fire extinguisher, J. M. Palmer, Fireplace, D. P. Lewis et al, Floors, etc., covering for, R. F. Nenninger, Flour packing machine, J. B. Allfree, Folding seat, S. W. Knott, Foot guard, Spalding & Adams, Fountain trap, G. W. Wicks, Frame, See Lamp frame, Umbrella frame, Frame for portable structures, A. W. Tourgee, Fruit jar, J. Perkins, Fruit picker, B. D. Eaton, Furnace, See Cellular furnace, Hot air furnace, Furnaces, attachment for smelting, E. R., Jr., & O. R. Moffet, Game board, A. E. Seliger, Game counter, C. W. Le Count, Garment supporter, R. J. Kyle, Garment supporter, F. W. Lowe, Gas engine, L. T. Cornell, Gas pressure regulator and cut-off, M. J. Hyams, Gas pressure regulator and cut-off, Sollenberger & Woody, Gate, See Swinging gate, Gate, J. Roberts, Sr., Gate, P. Steele, Glass, forming letters on, W. H. Maxwell, Glass panes, machine for polishing, J. Schnater, Glove fastener, F. J. Kraetzer, Gold, concentrating, J. W. Parmelee, Grain binder cord holder, J. F. Gordon, Grinding machines, attachment for, G. H. Smith.