Notes & Queries

J. C. will find directions for stereotyping by the paper process on p. 363, vol. 30.—W. N. can French polish his pianoforte by following the directions on p 11, vol. 32.—J. N. will find that paraffin varnish is a good non-conductor of electricity. See p. 91, vol. 21.—J. C. W. will find some information as to the nature of electricity on pp. 195, 228, vol. 36.

(1) C. S. asks: How long is it since the first chilled plow moldboard was cast? A. A patent for chilled plowshares was taken out in England in 1803. In making them, they are cooled as rapidly as possible.

(2) I. D. & Co. say: We have a home telegraph line, and use 1 gallon stone jars for batteries. We fill with water to within 1 inch from the top. The vitriol will soon form a coating over the entire outside of the jar; it has the appearance of coming over the top of the jar. Can you tell us how to prevent it? A. There is no perfect remedy except frequent attention. Telegraph men usually paint a ring around the inside of the jar at the top; this mitigates the trouble in a measure. Some greasy substance is best.

(3) C. F. S. asks: Can small iron castings, such as sewing machine parts, be case-hardened with prussiate of potassa? My machinist says it cannot be done. I say it can. Which is right? A. You are.

(4) J. S. D. says: I wish to construct an electro-magnetic motor, for the purpose of running a jig saw. The magnet to be 7 inches long and 3 inches wide, and ⅛ inch thick, revolving in coils, the opening in which will be 7½ inches long, 1¼ inches wide, and 7 inches deep. The outer coils and those surrounding the magnet will be composed of 4,000 feet copper wire, No. 21, American gage. The machinery is to be run by 3 cells Bunsen's battery. Will it give me sufficient power to run a jig saw at 600 strokes per minute? A. You had better use larger wire, say about No. 16. But it is doubtful if three ordinary cells will do the work.

(5) K. & D. say: 1. Can electricity be conducted into a cylinder to be discharged at will? A. Yes; the Leyden jar is used for this purpose. 2. Can a glass be invented that will enable a person to see through a fog? A. No. The electric light, however, can be advantageously employed during fogs.

(6) F. E. B. says: What is the horizontal force of terrestrial magnetism for New York, in magnetic measure? I have worked it out (by a formula given in Kohlrausch's "Physical Measurement") by the galvanometer, and make it 2·33, and desire to know whether this is correct, and if there is much difference between New York and other places in the United States, say Chicago or San Francisco. It is a question of some importance; for if there is a great difference, the values by a given galvanometer would vary in proportion at different places. For instance, the horizontal force at some places in Europe is only 1·88, or nearly half what I make it. A. Kohlrausch's table is hardly applicable to this hemisphere. Measurements made last summer at Newport made the horizontal force for that point, approximately, 1·65 in the meter-second system. We have just learned, also, that recent determinations at Philadelphia (measurements made this month) place it at 1·88 or 3·92 in English units. You can probably get full information from the Coast Survey Bureau.

(7) A. H. asks: What is the difference between a low and a high pressure boiler? A. A boiler with less than 21 lbs. of steam is usually called a low pressure boiler. With a pressure above that figure, it is called a high pressure boiler.

(8) I. M. H. says: Please give me the recipe for applying nitrate of copper to small castings (to represent a bronze) with the battery? A. Brown bronzing of various shades may be obtained by coating the object with copper and then proceeding in one of the following ways: (1) Moisten with water, to a wineglass of which five or six drops of nitric acid are added, allow it to dry, and then heat till the desired shade is obtained. (2) Rub well in and cover with finely powdered peroxide of iron (jeweler's rouge and red hematite ore); heat till nearly red. (3) Darker shades may be obtained by mixing the peroxide of iron with black lead, ground to a fine paste with spirits of wine. The copper is to be brushed well. When the color is obtained, the objects should be warmed and polished with a cloth which contains a little beeswax, and all excess of this removed with a clean cloth. A very good effect is also obtained by first bronzing to a deep color and then lightening the projecting parts by touching with a piece of leather moistened with ammonia.

(9) E. A. McG. asks: 1. How are razors ground and polished? A. Razors are first ground on grindstones, and then polished on emery wheels and buff wheels with crocus. 2. Is a rubber polishing belt the best for the purpose? A. Leather is better than rubber.

(10) P. S. says: I have made a Rhumkorff coil, with 160 feet No. 20 plain copper wire for the primary, which I insulated by winding with cotton twine, insulating each succeeding layer. For the secondary, I put on ½ lb. No. 35 cotton-covered copper wire. I have insulated the secondary from the primary coil with oiled linen. The core consists of a bundle of fine soft iron wire, about ¾ inch in diameter. I get only a little shock from it, and no spark. Must the fine wire be wound regularly and even, like thread on a spool? A. The length of secondary is hardly sufficient to give a spark of any size, but you should get a fair spark with proper battery power. The wire of the primary might be heavier and the insulation lighter.

(11) J. S. F. says: In your issue of June 3, Mr. Rose calls the tool illustrated on p. 357. vol. 34, a bevel square. Is not a sliding bevel the correct name? Is there such a thing as a bevel square? A. When the blade stands square, the tool is a square; when otherwise, it is a bevel.

What is black coffee? A. Black coffee is a very strong infusion of coffee, taken without milk.

(12) F. C. J. says: I built a model engine of the four cylinder pattern; but thinking it of no use, I took it apart and destroyed all but the cylinders. The cylinders were 2 x 3 inches, with reversible link motion. All the machinery was entirely ought of sight, with no joints except those needed for the reverse gear. My boiler was upright, 18 x 36 inches, with 151 ¾ tubes, 9 inches long. My intention was to put it into a steam carriage. Would it do for this purpose? A. The machinery would probably answer, if the boiler is strong enough for a high steam pressure.

(13) H. N. asks: 1. What does a buff consist of, and how is it made? A. Buff wheels are made of wood covered with leather, or of solid leather, such as walrus hide. Wheels are sometimes made of loose disks of cloth or rag. 2. Is there any secret about polishing tinware? A. The wheel of disks of rag would probably answer the purpose, if used with some dry polishing material and run at a high speed.

(14) E. S. N. says: 1. We wish to carry steam 1,500 feet to run a 13 inch cylinder. Is a 3 inch pipe large enough? The piston will run at about 400 feet per minute. A. A 3 inch pipe will probably do, though a 6 inch one would be better. 2. It is proposed to return the exhaust steam in a 5 or 5½ inch pipe, surrounding the 3 inch steam pipe, the whole enclosed in a wooden box containing some non-conducting material. I say that the exhaust steam will necessarily have a lower temperature than the live steam, notwithstanding its protection, and will therefore condense the live steam. I tell them to put them both in the same box, but keep them separate. Will you please give your opinion? A. Your view is correct.

What part of the area of a slide valve is to be considered in balancing the valve? A. The area of a slide valve requiring to be balanced depends largely upon its shape, size, and fit to its seat.

(15) C. M. N. asks: Is a bent magnet, with the ends of core at right angles with the main part of core, more apt to hold its magnetism after the current of electricity is broken than a straight core magnet? It is for a telegraph sounder. A. No.

(16) F. A. (query No. 42, July 15) is informed that the ordinary lifting injectors, of Nathan and Dreyfus, this city, draw water from 18 to 20 feet perpendicularly.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

On the Quadrature of the Circle, etc. By W. H. W.

On Locusts. By ——.

On Meteors. By E. B.

Also inquiries and answers from the following:

P. L.—D. H. W.—N. W. O.—J. D. K.—C. H. H.—C. S.—D. C.—T. C. B.—B.—E. L. C.—H. E. B.—C. S.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Enquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are sent; "Who makes phosphor-bronze castings? Who sells water rams? Who sells machines for molding paper boxes from pulp? Who sells artificial tobacco leaves?" All such personal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

[OFFICIAL]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

June 27, 1876,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

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