

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line.

For the Development of New Ideas, try Anderson Bros., Peekskill, N. Y.

Apply to J. H. Blaisdell for all kinds of Wood and Iron Working Machinery.

Sweetland & Co., 126 Union St., New Haven, Conn., manufacture the Sweetland Combination Chuck.

Burgess' Non conductor for Heated Surfaces; easily applied, efficient, and inexpensive.

Safety Linen Hose for hotels, factories, and stores, with or without couplings.

Lubricene, Gear Grease, Cylinder and Machinery Oils. R. J. Chard, 6 Burling Slip, New York.

Power, Foot, & Hand Presses for Metal Workers. Moderate prices.

The Brown Automatic Cut-off Engine; unexcelled for workmanship, economy, and durability.

Corrugated Traction Tire for Portable Engines, etc. Sole manufacturers, H. Lloyd, Son & Co., Pittsburg, Pa.

For the best Stave, Barrel, Keg, and Hoghead Machinery, address H. A. Crossley, Cleveland, Ohio.

For Alcott's Improved Turbine, see adv. p. 270.

Collection of Ornaments.—A book containing over 1,000 different designs, such as crests, coats of arms, vignettes, scrolls, borders, etc.

Best Oak Tanned Leather Belting. Wm. F. Forepaugh, Jr., & Bros., 531 Jefferson St., Philadelphia, Pa.

National Steel Tube Cleaner for boiler tubes. Adjustable, durable. Chalmers-Spence Co., 40 John St., N. Y.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Vocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Removal.—Greene, Tweed & Co. have removed from 18 Park Place to 118 Chambers St., New York.

Stave, Barrel, Keg, and Hoghead Machinery a specialty, by E. & B. Holmes, Buffalo, N. Y.

Solid Emery Vulcanite Wheels—The Solid Original Emery Wheel—other kinds imitations and inferior.

Sheet Metal Presses. Ferracute Co., Bridgeton, N. J.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, Importers Vienna lime, crocus, etc.

Wright's Patent Steam Engine, with automatic cut-off. The best engine made.

Presses, Dies, and Tools for working Sheet Metal, etc. Fruit & other can tools.

Electrical Indicators for giving signal notice of extremes of pressure or temperature.

Instruction in Steam and Mechanical Engineering. A thorough practical education, and a desirable situation as soon as competent, can be obtained at the National Institute of Steam Engineering, Bridgeport, Conn.

Hydraulic Jacks, Presses and Pumps. Polishing and Buffing Machinery. Patent Patches, Shears, etc.

Portable Forges, \$12. Roberts, 107 Liberty St., N. Y.

Eclipse Portable Engine. See illustrated adv., p. 284.

Loud Speaking Telephones, \$5 a pair. Circulars for stamp. Agents wanted. Wm. R. Brooks, Phelps, N. Y.

Wanted—A Specialty to Manufacture. Good Machine Shop. Wood Working Tools and Foundry.

How to Lay Out the Teeth of Gear Wheels. Price 50 cts.

Familiar as household words—the names of Esterbrook's celebrated steel Pens—Falcon, Bank, and Easy Writer.

Rollstone Mac. Co.'s Wood Working Mach'y ad. p. 300.

Improved Work Holder for Lathes, Gear Cutting, Attachments for Lathes, Tyson Vase Engine, Small Steam Motor.

Artificial Ice Manufacturers and Brewers will find Anhydrous Liquid Ammonia, made by Larkin & Scheffer.

Steel Figures, \$1; Letters, \$3 a set. York & Smith, Cleveland, Ohio.

Geared Power Press, cost \$450, for \$300. York & Smith, Cleveland, Ohio.

4 to 40 H. P. Steam Engines. See adv. p. 285.

A 60 to 80 H. P. Tubular Boiler, for cash, is wanted by John Hall, Fort Ann, N. Y.

15 H. P. Engines, complete order, \$150. York & Smith, Cleveland, Ohio.

AUBURN, N. Y., March 1, 1878. H. W. Johns Mfg Co., 87 Maiden Lane, New York.

DEAR SIR: In answer to your inquiry as to how we like your Paint, we are more than entirely satisfied with it.

Your Roof Paint is unsurpassed; we used one coat on a tin roof, and to-day it looks as fresh and the color is as bright as when first applied.

Manufacturers of Woolen Goods and Carpetings. We take pleasure in referring by permission to the above firm, and would caution the public against worthless imitations of our Asbestos Paints.

Forsyth & Co., Manchester, N. H., & 207 Centre St., N. Y.

Portable Railroads, Sugar Mills, Horizontal & Beam Steam Engines.

Fire Brick, Tile, and Clay Retorts, all shapes.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa.

Diamond Tools. J. Dickinson, 64 Nassau St., N. Y.

The Improved Hydraulic Jacks, Punches, and Tube Expanders.

Valve Refitting Machine. See adv., page 300.

Blake Lion and Eagle Imp'd Crusher. See adv. p. 301.

The E. Horton & Son Co., Windsor Locks, Conn., manufacture the Sweetland Improved Horton Chuck.

For Superior Steam Heat. Appar., see adv., page 301.

Special Wood-Working Machinery of every variety. Levi Houston, Montgomery, Pa.

The best Truss ever used. Send for descriptive circular to N. Y. Elastic Truss Co., 683 Broadway, New York.

Comb'd Punch & Shears; Universal Lathe Chucks.

For Mill Mach'y & Mill Furnishing, see illus. adv. p. 317.

Hydraulic Cylinders, Wheels, and Pinions, Machinery Castings; all kinds; strong and durable;

For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St., N. Y.

Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever.

Ore Breaker, Crusher, and Pulverizer. Smaller sizes run by horse power.

Lathes, Planers, and Drills, with modern improvements. The Pratt & Whitney Co., Hartford, Conn.

Hand Fire Engines, Lift and Force Pumps, for fire and all other purposes.

NEW BOOKS AND PUBLICATIONS.

AROUND THE WORLD WITH GENERAL GRANT. By J. Russell Young.

Parts nineteen and twenty of this very interesting narrative of General Grant's tour around the world are just out, which complete the series.

SMITHSONIAN INSTITUTION. BUREAU OF ETHNOLOGY. INTRODUCTION TO THE STUDY OF SIGN LANGUAGE AMONG THE NORTH AMERICAN INDIANS, AS ILLUSTRATING THE GESTURE SPEECH OF MAN-KIND.

An exceedingly important paper, intended at once to indicate the scope and purpose of a work upon sign language in preparation by the Bureau of Ethnology of the Smithsonian Institution.

Correspondents whose inquiries do not appear after a reasonable time should repeat 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.

(1) W. H. K. asks if a blow pipe is operated by a force pump having a metal condensing chamber, will it blow a steadier stream, and also stronger, if the condenser is made of elastic rubber?

(2) J. L. asks: If a boiler has two safety valves, namely, two inches and three inches, and both weighted alike (half inch), which would blow off first, and why?

(3) L. W. D. asks: What is the best material for filling the space between inside and outside boards of a refrigerator?

(4) H. A. S. asks: Which is the cheapest boiler that can be made to run an engine 4 inches stroke by 2 inches bore?

(5) A. V. asks if there is any means of removing stumps other than by the use of machinery.

MODERN OBSERVATIONS ON RIFLE SHOOTING, WITH AN IMPROVED SYSTEM OF SCORE BOOK. By Edwin A. Perry.

This is the third edition, with additions, of Captain Perry's "Green Book," so widely and favorably known to long range riflemen.

ENGINEER'S AND MECHANIC'S POCKET BOOK. REVISED AND ENLARGED. By Charles H. Haswell.

There are few intelligent mechanics and fewer engineers in the United States who need to be told of the existence and practical usefulness of "Haswell."

THE SLIDE VALVE PRACTICALLY EXPLAINED. By Joshua Rose, M.E. Philadelphia: Henry Carey Baird & Co., Cl., pp. 100. Price \$1.

Offers to practical men a clear explanation of the operations of each element in a slide valve movement, the effects of variations in their proportions being illustrated by numerous examples from recent successful practice.

PRACTICAL KERAMICS FOR STUDENTS. By C. A. Janvier. New York: Henry Holt & Co. 12mo, cl., pp. 258. Price \$2.50.

The author has brought together, chiefly from authorities not easily accessible to students, a large amount of practical information touching the history, composition, manufacture, and decoration of all sorts of pottery, by which term is included all terra-cottas, earthenwares, stonewares, and porcelains.

BRAIN AND MIND; OR, MENTAL SCIENCE CONSIDERED IN ACCORDANCE WITH THE PRINCIPLES OF PHRENOLOGY AND IN RELATION TO MODERN PHYSIOLOGY. By Henry S. Drayton, A.M., and James McNeill. Illustrated. Cloth, 12mo, pp. 334. Price \$1.50.

The authors have given with considerable ability a review of the system of mental science known as phrenology, with the relations of mind to anatomy and physiology as understood by phrenologists.

VACCINATION TRACTS. London: William Young. 16mo, cl., pp. 320.

This volume comprises 1 to 14 of the anti-vaccination tracts, issued apparently by or for the Anti-Vaccination Society of England.

THE FRUIT GROWER'S FRIEND: AN EASY GUIDE FOR THE RAISING OF FRUITS FOR PLEASURE OR PROFIT. By R. H. Haines.

A practical manual, arranged for ready reference, giving the newest and most successful ways of growing large and small fruits.

SPONSOR'S ENCYCLOPEDIA OF THE INDUSTRIAL ARTS, MANUFACTURES, AND COMMERCIAL PRODUCTS. Part 11. Treats of Coal Tar Products, Cocoa, and Coffee. 64 pp. Price 75 cents.



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.

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.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office.

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(6) R. E. G. asks: Is there any way of drilling a small hole in glass? I wish to suspend a pane of glass by means of a thread or fine string.

(7) E. B. asks: How are glass water gauges cut off to proper lengths without breaking?

(8) A. & P. ask how to make a good tooth wash. A. Take sugar of milk 100 parts, pure tannin 15 parts, lake 10 parts, oils of mint, anise-seed, and orange flowers, sufficient quantity.

(9) T. L. C. asks how to make common polish boot blacking? A. Ivory black 1 part, molasses one-half part, sweet oil one-eighth part.

(10) C. U. B. writes: I am building a flat bottomed, stern wheeled boat, 60 feet long and 16 feet beam at the water line, drawing 18 inches.

(11) A. G. writes: Cambridge Physics, article Philosophy, by Rolf & Gillet, says, page 243: "But very few substances expand when they become solid."

(12) E. L. M. asks: 1. In what numbers of the SUPPLEMENT can directions for making a Bell telephone be found? 2. Will it work without battery, through No. 17 iron wire, over a distance of 500 or 600 feet?

(13) S. E. J. asks why the axles and boxes to wagons, etc., are made on a taper, or smaller on the outer end than on the inside end of bearing.

(14) O. R. L. writes: 1. In the SCIENTIFIC AMERICAN of October 11, 1879, you have a cut of the steamer Pellworm, dimensions as follows: Length 75 feet, beam 12, draught 3 1/2, boiler 25 horse power.

(15) H. H. M. writes: In SCIENTIFIC AMERICAN of March 6, page 159, is an article on etching on glass with diluted fluoric acid.

(16) J. M. asks (1) for the proportions for making rubber waterproof solution. How much rubber, how much bisulphide of carbon, and how much absolute alcohol? A. Caoutchouc (gum rubber) 1 oz., carbon disulphide, about 1/2 pint rubber, and vice versa.

(17) R. D. asks: What is peroxide of manganese composed of, and where can I obtain such as is used for filling the porous cup of a Leclanche battery? A. It is a compound of the metal manganese with oxygen.

(18) H. D. C. asks for a recipe of rubber cement that will cement together the edges or overlaps of thin sheet rubber. A. The rubber cement is prepared by dissolving finely cut pure gum caoutchouc in a sufficient quantity of naphtha.

(19) H. M. asks: What dye is strong enough and cheap enough to use as a test of suspected communication between a cesspool and a well? Can you suggest any better method than the use of a dye to learn if any communication does exist between the cesspool or well? A. The coal tar dyes magenta and fluoresceine have been employed successfully for similar purposes.

(20) G. W. H. asks how to make a good cement for wood with a light color. A. Dissolve best white glue in a sufficient quantity of strong hot acetic acid.

(21) J. H. F. asks: Do you know of any method whereby gray iron castings can be coated with brass to a thickness of one-sixteenth or more of an inch? A. We know of no better way than that of brazing on a shell of the requisite thickness.

(22) W. L. asks where to find information in regard to the distillation of turpentine and resin. A. Consult Knight's New Am. Mech. Dictionary, also Johnson's and Appleton's Encyclopedias. We know of no book on the subject.

(23) E. H. K. asks: What work on assaying could you recommend to me? Or is there anything in your paper that would give satisfactory information on metallurgy? A. Consult Percy's Metallurgy and Rickett's "Assaying and Assay Schemes."

(24) D. H. C. asks for the name or names of some complete and reliable book or work on assaying gold and silver, etc., from all kinds of quartz and rock and ore. I want some complete work on the above giving full details of the latest and best methods, giving materials, etc., used; name of book, price, address where to be had. A. See reply to E. H. K., this page. You should address booksellers who advertise in this paper for their catalogues and price lists.

(25) F. B. W. asks if Richard Trevithick, of Merthyr Tydvil, South Wales, ran an engine on rails before an engine was run on the Stockton and Darlington road, England. A. Yes, in 1803, in South Wales.

(26) A. M. R. asks: What is the composition of the gelatine transfer pad? A. See p. 235, Vol. 41, SCIENTIFIC AMERICAN.

(27) A. D. writes: I am desirous of using vulcanized India rubber for moulding purposes. Will you tell me the best method of reducing rubber to the proper consistency for that purpose, and if anything is required to harden it again? A. Vulcanized rubber cannot be reworked in the way you propose. See pp. 48 and 105, Vol. 39, SCIENTIFIC AMERICAN.

(28) C. W. V. writes: In your issue for February 28, 1880, Vol. 42, page 133, you give a receipt for gutta-percha cement. What kind of pitch do you mean; that made from coal or that made from the pine tree? A. Pine pitch. The addition of shellac will harden it.

(29) S. L. H. asks for a receipt for making a solution to be used as sizing on white paper so as to prepare it for varnishing with alcohol varnish. A. Have you tried thin aqueous solution of glue?

(30) H. T. writes: 1. A piece of floor oil-cloth has been laid and in use several months and still remains sticky to such a degree that chairs, tables, etc., placed upon it will adhere to it more or less. What is the cause, and how can it be remedied? A. Try the application of a moderately strong wash of acetate of lead in hot water. 2. By what process can the polish of black marble, such as cases of French clocks are often made of, be restored after having become dull by age or handling? A. Use fine moist rouge and chamois skin. 3. I have a piano of excellent quality in every way except that it will not remain in tune longer than about one week after tuning, owing, as I believe, to the tuning pins being too small or thin for their sockets. Can I remedy this defect by the application of any such substance as glue or resin or anything of that nature to the pins or sockets; if so, which is the best, and how should it be applied to obtain the best result? A. Get a new set of tuning pins of large diameter. 4. In our climate the felt with which the dampers and hammers of pianos are covered is generally damaged, materially within a short time by moths. Could not this felt, before application, be impregnated with some chemical that would prevent the attack of the moths and that would not

at same time produce deleterious effects upon the glue with which the felt is fastened to the hammers, or upon the strings where they are struck or touched by it? A. A little camphor sprayed on in alcoholic (absolute) solution does very well.

(31) J. R. C. asks how to remove castor oil and balsam fir from a camel's hair brush. A. Use oil of turpentine or ether.

(32) H. B. G. writes: In the Science Record of 1874, page 20, is a recipe for destroying hair. One of the ingredients is sulphhydrate of sodium. Now, is there another or common name for it, for I have been to every druggist in this vicinity; some say that they do not know what it is; others say that there is no such thing. A. Use ordinary chemically pure sulphide of soda (sodium sulphide), sold by dealers in laboratory supplies.

(33) W. P. writes: I have spilled a lamp full of coal oil on a Brussels carpet. How can I remove the spot or stain? A. Spread over the spot, above and beneath, warm pipe clay, and allow it to remain 24 hours; then brush it off and beat out the adhering portions with a light sifter.

(34) L. F. asks: 1. What advantage is it in the gravity battery to have the copper on the bottom instead of having it suspended from a yoke? A. It is so placed because the cuprous solution is strongest at that point, and as a matter of convenience. 2. If you silverplate first with a striking solution and strong battery, why do you not finish with the same also; or what advantage is there to use a richer solution and weaker battery? A. A weak bath and strong battery, because a strong bath or long exposure in a weak one is apt to act upon the uncoated metal and render the deposit uneven; a weak current and stronger bath, because such a current produces a more regular and "freer" coating, and such a bath has less resistance and requires a smaller exposure of anodes and less attention. 3. Your receipts for striking solutions have to 1 gallon of water from 1/4 oz. of AgCy, Vol. 40, page 124, 4; and 5 oz., Vol. 42, page 59, 4; and from 1 lb. of KCy, Vol. 40, page 124, 4; to 2 1/2 lb. of KCy, Vol. 42, page 59, 4. A. As a rule, the former gives the best results, especially with the more positive metals; the latter works more rapidly and quite satisfactorily with copper and German silver, if the battery is rapid enough and the work properly trussed.

(35) S. E. T. writes: I am using water from a well at the bottom of which there is quicksand. The suction pipe is two or three feet from the bottom; yet there seems to be a sort of fine mud or sand-like deposit around and on the water gauges. I blow out about a foot of water from the boiler every other day. The water which comes out is clear and free from a deposit. I do not see why there should be an apparent deposit around and from the water gauges and still the water seem so clear. Can you help the difficulty by any explanation? Do you think there is any great amount of depositor scale-forming material collecting on the interior of the boiler? When we are running the planer the water in the boiler seems to rise up or foam. Is there any remedy for it? A. The water should be first pumped into a setting tank and drawn from that to deliver to the boiler; two setting tanks used alternately will be necessary, except one tank be large enough for a day's work, and is filled in the evening, and the water allowed to settle through the night. We can give no opinion about the scale forming, without knowing the character of the water. The foaming may proceed from bad water, bad circulation, or scant steam room. The residue consists chiefly of a very fine, light silicious clay and lime.

(36) A. F. O. writes: In pouring the composition for my gelatin printing pad I am troubled with little bubbles, which leave troublesome depressions. How can they be avoided? A. Warm the vessel in which the composition is to be poured, and skim the surface by drawing a sharp edged piece of metal or cardboard over it immediately after pouring.

Table listing various mechanical items and their prices, such as 'Arm rest for writers, H. H. McElroy', 'Artist's canvas stretcher, J. G. Fletcher', 'Auger, earth, D. P. Cudd', etc.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated: F. L. S.—It is micaceous hematite. Its precise value here could only be ascertained by an analysis. Distance from railroad or navigable route, etc., must also be taken into consideration.—H. W. B.—It is chalcocopyrite, an ore of copper—found in sufficient quantity, of some value.—A. L. F.—1. Clay slate containing iron pyrites. 2 and 3. Porphyry. 4. Iron pyrites in altered dolerite.

COMMUNICATIONS RECEIVED.

- On Mercury in Vulcanite Plates. By T. H. C.
On Ice boats. By T. D.
On the Power Used in Driving a Foot Lathe. By M.
On Ice Boats. By J. P. C.
Astronomical Notes. By W. R. B.
On Water Supply for Washington. By C. L. F.
On Repairing Spiral Springs. By E. N. M.

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending April 13, 1880, AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.] A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, 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. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Table listing various mechanical items and their prices, such as 'Photo-relief engraving, G. C. Bell', 'Photograph burnisher, M. W. Jenks', 'Photographic stand and album, L. Dubernet', etc.

DESIGNS.

- Clock case, G. Havell. 11,730
Coffin handles, Bailey & Brainard. 11,723
Gimp, J. Graham. 11,737
Handkerchief, J. Grimshaw. 11,728 to 11,726
Newel post, J. I. Healey. 11,736
Ornamental pin, A. Vester. 11,735
Pen and pencil cases, barrels for, J. C. Aikin. 11,737
Spoon or fork handle, C. T. Grosjean. 11,728
Stocking fabric, ornamental, J. E. Hanifen. 11,729
Umbrella handle, F. J. Kaldenberg. 11,731 to 11,734

TRADE-MARKS.

- Beer, lager, Schmitt & Koehne. 7,876
Cigars, cigarettes, and smoking and chewing tobacco, C. G. Emery. 7,870
Galloons, doubles, Prussian bindings, braids, shoe laces, etc., R. Thorp & Sons. 7,877
Guanos, superphosphates, and fertilizing compositions, R. W. L. Rasin & Co. 7,872, 7,873
Hats, felt, Crofut & Knapp. 7,875
Scarfs for men's wears, made up, Fisk, Clark & Flagg. 7,871
Soaps, S. W. Bell & Co. 7,874

English Patents Issued to Americans.

- From April 9 to April 13, 1880, inclusive.
Boot nailing machinery, A. Knowlton, Boston, Mass.
Churn, W. Earle, Philadelphia, Pa.
Cocoon oil, refining of, A. P. Ashbourne, Boston, Mass.
Grinding mills for wood pulp, G. King, Oswego, N. Y.
Hat brushes, J. Peters et al., Philadelphia, Pa.
Heat, utilizing from furnaces, A. H. Hearington, Rochester, N. Y.
Organs and apparatus for playing, G. H. Chinnock et al., Brooklyn, N. Y.
Printing press, J. L. Firm et al., N. J.
Saw sharpening machinery, G. W. Dudley et al., Wayneborough, Va.
Screws threads, machinery for cutting, F. Armstrong, Bridgeport, Conn.
Telegraphic cables, manufacture of, M. M. Manly et al., Philadelphia, Pa.