

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion: about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Gold, Silver, Nickel, and Brass Plater wants position; 23 years' experience. Address Plater, Oakville, Conn.

Best popular Science Works, 15 cents. Catalogue free. J. Fitzgerald, 20 Lafayette Place, New York.

Second-hand Weston Dynamo-electric Machine for sale cheap. Address Chas. Ferrigo & Co., Groton, N. Y.

Graining and imitating woods, finely, rapidly, and easily. Stamp for catalogue. J. J. Callow, Cleveland, O.

Curtis Pressure Regulator and Steam Trap. See p. 78.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 78.

For Mill Mach'y & Mill Furnishing, see illus. adv. p. 76.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423. Pottsville, Pa. see p. 77.

Lightning Screw Plates, Labor-saving Tools, p. 78.

Hollar's Safe and Lock Co., York, Pa., manufacturers of improved Fire and Burglar-proof Safes, Bank and Safe Deposit Vaults and Locks. See adv. p. 61.

25' Lathes of the best design. Calvin Carr's Cornice Machinery. G. A. Ohl & Co., East Newark, N. J.

The Ide Automatic Engine, A. L. Ide, Springfield, Ill.

Brush Electric Arc Lights and Storage Batteries. Twenty thousand Arc Lights already sold. Our largest machine gives 65 Arc Lights with 35 horse power. Our Storage Battery is the only practical one in the market. Brush Electric Co., Cleveland, O.

Best Squaring Shears, Tinners', and Cannery Tools at Niagara Stamping and Tool Company, Buffalo, N. Y.

Lathes 14 in. swing, with and without back gears and screw J. Birkenhead, Mansfield, Mass.

The Best.—The Dueber Watch Case.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN Patent Agency, 261 Broadway, New York.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

Nickel Plating.—Sole manufacturers cast nickel anodes pure nickel salts, polishing compositions, etc. Complete outfit for plating, etc. Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Lists 20 30 & 31, describing 4,000 new and 2d-hand Machines ready for distribution. State just what machines wanted. Forsyth & Co., Manchester, N. H., & N. Y. city.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

"Abbe" Bolt Forging Machines and "Palmer" Power Hammers a specialty. Forsyth & Co., Manchester, N. H.

Railway and Machine Shop Equipment. Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

"How to Keep Boilers Clean." Book sent free by James F. Hotchkiss 84 John St., New York.

Wanted.—Patented articles or machinery to make and introduce. Gaynor & Fitzgerald, New Haven, Conn.

Water purified for all purposes, from household supplies to those of largest cities, by the improved filters manufactured by the Newark Filtering Co., 177 Commerce St., Newark, N. J.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock Mfg. Co., 80 to 88 Market St., Chicago, Ill.

Ice Making Machines and Machines for Cooling Breweries, etc. Pictet Artificial Ice Co. (Limited), 142 Greenwich Street, P. O. Box 3033, New York city.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

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

Supplement Catalogue.—Persons in pursuit of information on any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Improved Skinner Portable Engines. Erie, Pa.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 62.

Am. Twist Drill Co., Meredith, N. H., make Pat. Chuck Jaws, Emery Wheels, Grinders, automatic Knife Grinders, American Fruit Drier. Free Pamphlet. See ad., p. 94.

Brass & Copper in sheets, wire & blanks. See ad. p. 92.

The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa. can prove by 20,000 Crank Shafts and 15,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

Machine Diamonds, J. Dickinson, 64 Nassau St., N. Y.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Gear Wheels for Models (list free); Experimental Work, etc. D. Gilbert & Son, 212 Chester St., Phila., Pa.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 92.

Our goods speak for themselves, and a trial will convince the most skeptical of their superiority over all others. Lehigh Valley Emery Wheel Co., Lehigh, Pa.

Upright Self-feeding Hand Drilling Machine. Excellent construction. Pratt & Whitney Co., Hartford, Conn.

20,000 Duc Spherical Elevator Buckets, sizes 3 1/4 to 17 inches, constantly on hand. Telegraphic orders filled. T. F. Rowland, sole manufacturer, Brooklyn, N. Y.

First Class Engine Lathes, 20 inch swing, 8 foot bed, now ready. F. C. & A. E. Rowland, New Haven, Conn.

Woodwork'g Mach'y. Rollstone Mach. Co. Adv., p. 92.

Steam Pumps. See adv. Smith, Vaile & Co., p. 93.

Straight Line Engine Co., Syracuse, N. Y. See p. 92.

NEW BOOKS AND PUBLICATIONS.

THE STRAINS IN FRAMED STRUCTURES. By A. Jay Du Bois, C.E., Ph.D., Professor of Dynamic Engineering in the Sheffield Scientific School of Yale College. John Wiley & Sons, New York, 1883.

This work is intended as a practical guide to the civil engineer as well as a text book to the student. It gives the principles of all calculations for framed structures, whether of wood or iron; applies these calculations by examples to existing specimens of work; shows simple and combination construction of bridge and roof girders; treats on the continuous girder, pivot or swing bridge, and braced arch; considers the suspension system of bridges at length, and contains a full appendix for the advanced student and the engineer. Illustrated by plates and accompanied by mathematical calculations. A specimen contract for a railway bridge, with specifications, will be found of use.

THE IROQUOIS BOOK OF RITES. Edited by Horatio Hale, M.A., author of the "Ethnography and Philology of the United States Exploring Expedition." D. G. Brinton, Philadelphia.

The object of this volume, which is "No. 2 of Brinton's Aboriginal American Literature," is to show that the Indian races on this continent have a history; or at least that in the confederacy of the five nations—afterward the six nations—existed the materials for an unbroken history; almost if not quite connecting the present Indians with the mound builders. The compiler of these Indian fragments of an unwritten history endeavors to show that what otherwise would have degenerated into corrupted tradition, became, by the usages of the Huron-Iroquois people, reliable and credible history, the oral records being repeated in public on stated occasions, each special and separate event being symbolized by a string of wampum of particular arrangement of colors, which was exhibited at the time of the recitation, thus forming a system of mnemonics subject to public criticism. These nations also allowed the equal legal rights of women, according them an important part as to duty and privilege in public affairs and far more freedom in domestic life than is given to the women of some European countries in our day. These six nations had a federal system quite similar in important particulars to our own, and like the union of the States capable of indefinite expansion. In fact, the book is full of interesting facts about a people whose posterity and representatives have received scant justice at our hands either as individuals or as survivors of a social and political system worthy the attention of ethnologists.

DIE KRIEGSSCHIFFBAUTEN, 1881-1882. By J. F. Von Kronenfels. A. Hartleben, Wien, Pesth, Leipzig, 1883.

This work is a continuation of a former work by the author on the "Floating Craft of the Naval Powers;" and in this continuation he describes the men of war, torpedo boats, etc., built by the several powers during the years 1881 and 1882. The naval powers are arranged alphabetically, and receive more or less attention according to the greater or less number of vessels built during these two years. England, Italy, and Russia take the lead, as they have increased their navies more than any of the other nations. The author has also devoted considerable space to the navy of the United States, giving a description of the partly completed vessels, and the construction and armament of the new steel cruisers, contracts for which are about to be given out. This work is provided with eighty-two wood cuts.



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) F. E. B. asks for a receipt for a stone color whitewash for an asphalt pavement, the color of which is objectionable. Will white Portland cement stick if made into a wash? A. A thin coat of Portland cement is, probably, the best thing. It must be applied of such consistency that it will not flake.

(2) G. L. M. asks: 1. Are the binding posts of the electrical machine described in SUPPLEMENT 161 insulated? A. Yes, they are insulated by the wooden base of the machine. 2. How are the wires connected with the posts? A. Clamped by means of screws entering the posts from the bottom. 3. Is the soft iron used for electro magnets common cast iron? A. Soft gray cast iron.

(3) W. M. M. asks: 1. What weight will two air tight boxes carry; the boxes being 6 x 10, 12 feet long? A. 45,000 lb., including their own weight. 2. Also, the weight required to sink them one foot in water? A. 7,500 lb.

(4) A. M. J. asks: Will you give a simple method for bleaching straw? A. The cheapest method for bleaching straw consists in exposing the material in a closed chamber to the fumes of burning sulphur. A more expensive way is to dip the straw in caustic soda, and then treat with Javelle water or calcium chloride.

(5) H. E. W. writes: I have about 25 gallons of copper solution, spoiled by putting it in a pitched vat, the pitch becoming dissolved in the solution. Can you tell me through the columns or your paper a way to extract the pitch or in any way utilize the solution, and will you please tell how to prevent nickel salts from crystallizing on the anodes and from settling at the bottom of the vat? A. The copper can be recovered by precipitating it with iron, or by throwing it down by the battery. The nickel salts should not settle to the bottom, nor should they crystallize on the anodes. It is probable that your current is too strong. Consult article on nickel plating, SCIENTIFIC AMERICAN SUPPLEMENT, No. 310.

(6) J. F. writes: I have a lot of candle wick on hand of which the preparation has evaporated in course of time, and now it does not consume while burning. I wish to make it useful; can you give me a receipt for preparing bleached wick for beeswax candles? A. There are various solutions used. Among others, 1 lb. of boracic acid dissolved in 75 pints of water; in this the wicks are soaked for about three hours. See article of "The Manufacture of Candles," SCIENTIFIC AMERICAN of December 17, 1881.

(7) L. P. S. asks: 1. In running two balance wheels, one weighing one ton and the other two tons, but so arranged that each would have the same amount of friction in the boxes and in the air, and both of same speed and diameter, which would require most power? A. Having the same friction, not in proportion to weight, but total amount, and the same air resistance, there would be no difference in power. 2. In doubling the speed of a balance wheel, how much is gained in momentum? A. To double the velocity of your fly wheel increases its "regulating power" or momentum four times; the regulating power is as the square of the velocity.

(8) C. R.—Zinc has the greatest degree of expansion of any of the metals. A bar 9 inches long will expand to 9 1/2 inches when heated from 32° to 212°, and in proportion for intermediate amounts of change in temperature. It melts at 740° Fahr.

(9) J. E. M. asks if it is injurious to lumber to keep it in a dry house at 90° after it is dried. A. A temperature of 90° Fahr. does not affect lumber for a short time, but will make it brittle and hard to work after several months.

(10) A. W. W. writes: I have a boiler I desire to test; please inform me if the test by water expanded by heat is good, and to what extent I should carry it to insure 100 pounds steam. A. We do not recommend the testing of boilers by the expansion of water at temperatures up to 212°. If there is the least leak, you have no means of supplying the loss. If you heat the water hot enough to supply leakage by the generation of steam, you will run all the risk that will occur in raising steam to the required test. The best way is to test with a pump to a pressure 50 per cent greater than the working pressure.

(11) A. K. writes: We have a round discharge pipe 60 feet long, of 40 inches diameter. A head of three feet of water can be maintained, without any fall at discharging end. What kind of a wheel would be most convenient and powerful, and what equivalent in horse power could be obtained? A. If you have no fall at the discharging end, you can only use a current or flutter wheel. With such a wheel you will not be able to obtain more than 3 to 4 horse power.

(12) D. A. O. writes: Cistern builders here wall them up with brick, laid in cement, but they invariably crack and leak. I have heard of cisterns being made by cementing on the earth, using no brick except at top, which gave good results; please give me a method for building the cement cistern. A. Brick cisterns leak because they are not well backed up with cement puddle and rammed, so that the pressure does not gradually bulge the walls out. Build cement cisterns with a puddle of sharp coarse sand and cement rammed between the crib and the earth wall. A cistern with the earth walls plastered with cement is not reliable. In the brick cisterns the brick wall may be only 4 inches thick, and only act as a crib, which must be thoroughly backed. The face plastering of cement helps, but is not alone reliable for tightness.

(13) C. R. I. asks how to remove the tarnish from German silver drawing instruments. A. Use very fine emery paper, or crocus paper.

(14) E. H. D. asks for a wash or size that can be applied to whitewashed walls to make wall paper stick, or else something to soften the whitewash so that it will readily scrape off. I have used nearly all of the sizes common to paper hangers; but my work is almost entirely on ceilings, and generally they have about an eighth of an inch of whitewash on them, which is very hard and sometimes impossible to get off. A. Wet the walls, and remove the whitewash by scraping.

(15) F. H. asks: What will destroy cockroaches in pantry, commodes, or in any place where care that anything dangerous to the persons occupying house should be taken? A. It is said that powdered sugar and borax strewn about the places frequented by the cockroaches will destroy them.

(16) J. H. G. writes: I have an electro medical battery. It has a current so strong that a man cannot hold it, but it can be made lighter at will. Can I use this battery current for gold, silver, and nickel plating? How can I make a gold or silver solution? A. Your battery disconnected from the coil might answer for plating small articles. The current you mention as being so strong that a man cannot bear it, is not adapted to plating. For instructions in plating, see SUPPLEMENT No. 310.

(17) C. E. A. asks: What can be put on perforated cardboard, so as to render the same impervious to ink? I wish to use the cardboard as a stencil to make very small round dots. A. Try paraffin.

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

J. H. P.—The specimen is pyrite (iron sulphide). It may carry gold.—A. S. B.—No. 1 is an alloy, probably lead and zinc. No. 2 is iron pyrites (iron sulphide). No. 3 is quartz carrying the pyrite; it probably carries gold. No. 4 is the rock in which the pyrite occurs; it is of slaty nature.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

July 31, 1883

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

Table listing various inventions and their patent numbers, including items like Abrasive disk holder, Ague remedy, Amalgamator, Animal trap, Atomizer, Axle box, Bag, Baling press, Balloon or aerial machine, Bar, Barber's chair register, Battery, Beehive, Bell, Bell pull, Bell sleigh, Belt fastener, Billiard tables, Blasting self-setting tamp, Blower injector, Boiler explosions, Boiler for generating steam, Bolt, Bolt and nut package, Bolt heading machine, Boot and shoe heel breasting machinery, Boot and shoe holding jack, Bootstrap, metal, Boots and shoes, Boring brace, Box in imitation of a cigar, Box self-adjusting, Brace, Bracelet, Brake, Brake band for hoisting machinery, Bran, process of and apparatus for packing, Brush, Buckle, harness, Bueckle, tug, Burial case, Burner, Button attaching instrument, Buttonhole linings, Calender box, Can washing machine, Candelabrum, Candle mould, Cane mill, Car brake, Car coupling, Car railway, Car unloading apparatus, Carriage, Carriage body hanger, Carriage coupling, Carriage curtain strap fastening, Carriage curtain window, Carrier, Carrying system, Case, Cash and parcel carriers, Cash carrier, Cash carrier automatic, Caster, Castings, pattern and flask for producing, Catamenial sack, Ceiling, Celluloid, Center board for boats, Chain, Chain, ornamental, Chair, Chair, cot and bed, combined, Charring timber, apparatus for, Check book, office, Chimney cap, Churn, Churn, W. W. Kitchen, Churn, J. N. Renfro, Churn, W. F. Southard, Churn, D. B. Wooster, Churn motor, Clear and cigarette holder, Cigar cutter, Clamp device, Clasp, Cleaner, Cloth shearing machine, Cockle machine, Coke oven and kiln, Collar, horse, Compass surveyor's, Convertible chair, Cooling and ventilating buildings, apparatus for, Corn drill, Cornet tremolo attachment, Cornice and curtain pole, combined, Cotton separator and cleaner, seed.