

DR. E. SCHUNCK, in a paper read before the Manchester Literary and Philosophical Society at the last meeting, described a new acid—anthraflavic acid—which occurs as a yellow coloring matter accompanying artificial alizarine. When crystallized from alcohol and dried, it has the appearance of a dark lemon yellow silky mass, which under the microscope is seen to consist of slender four-sided prisms. The acid is only slightly soluble in boiling water, and almost insoluble in cold. If pure anthraflavic acid be dissolved in an excess of caustic potash, and the solution be boiled down to dryness, a yellow residue is left, which after being carefully heated, almost to fusion, dissolves in water with a red color. By the action of caustic potash, anthraflavic acid is converted into alizarine, the process being doubtless one of oxidation.

MANUFACTURE OF CHLORINE.—A recent English patent consists in the employment of a column or tower, or a number of columns or towers connected together in a series, and made of iron or brickwork, or of both, filled with some active reagent or with tiles, bricks, or pieces of burnt clay, or other suitable material, soaked with a solution of such reagent. Through the columns or towers a heated mixture of hydrochloric acid gas and atmospheric air, or oxygen, is caused to pass, whereby chlorine is produced from the hydrochloric acid gas. The columns or towers may be surrounded by suitable coverings, or air spaces, or flues, for the purpose of preventing loss of heat, or of imparting or regulating the heat as the circumstances of the manufacture require.

Says a Late Issue

Of the Philadelphia City Item: "Ingenuity has been taxed to find the surest and most direct means of reaching the public, and the business man who would advertise a specialty, and get the greatest good out of the greatest number, in the shortest space of time, is compelled to go to Geo. P. Rowell & Co., of New York, for advice. Why to this house? Because it is the head and front of the advertising business. It is prompt, methodical and clear in its transactions, and possesses the confidence of all the houses which advertise most."

Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

Lubricators.—For swift-running or heavy machinery, bolt and screw cutting, looms, and sewing machines, Chard & Howe, 131 Maiden Lane, N. Y., have the cheapest and best. Send for sample and price list.

The paper that meets the eye of manufacturers throughout the United States—Boston Bulletin, \$4 00 a year. Advertisements 17c. a line.

Diamond Carbon Pointed Tools, especially adapted for paper and nail makers. J. Dickinson, 64 Nassau st., New York.

Narrow Gauge Railroads described and discussed in the RAILROAD GAZETTE.

"American Manufacturer's Review," Pittsburgh, goes over the whole country. Subscription, \$4. Advertisements, 15c. per line. Try it 1 year.

A Company, with large cash capital, wish to add to their business the manufacture of some small patented articles of hardware. Address, with full particulars, J. W. W., Box 1971, New York.

A Steam Gage Maker and Adjuster wants a situation. None but those who mean business need apply. For particulars address Robert Oliver, Box 611, Toronto, Ont.

Important to Painters, Grainers, etc.—New, quick, clean, and easy mode of wiping out the hearts, lights, crotches, knots, veining, etc., of all kinds of wood, through perforated metal plates cut from choice natural designs. Price of 10 plate set, \$40; 7 do., \$30; single plates, \$5 each. Rights for sale. Address J. J. Callow, Cleveland, O.

For Hydraulic Jacks, Punches, or Presses, write for circular to E. Lyon, 470 Grand st., New York.

Two or three young men who would like to learn the machine business, can hear of an opportunity by addressing P. O. Box No. 1, East Blackstone, Mass.

Wanted.—A man of experience and ability, in the construction of steam and water heating apparatus. Address Box 387, Cincinnati, O.

Architects and Carpenters, send for sample of Woodbury's Sash Lock and Catch, to Charleton & Woodbury, Madison, Wis.

Dickinson's Patent Shaped Diamond Carbon Points and Adjustable Holder for dressing emery wheels, grindstones, etc. See Scientific American, July 24 and Nov. 20, 1869. 64 Nassau st., New York.

Peck's Patent Drop Press. For circulars address the sole manufacturers, Milo, Peck & Co., New Haven, Ct.

The new Stem Winding (and Stem Setting) Movements of E. Howard & Co., Boston, are acknowledged to be, in all respects, the most desirable Stem Winding Watch yet offered, either of European or American manufacture. Office, 15 Maiden Lane, New York.

Belting that is Belting.—Always send for the Best Philadelphia Oak-Tanned, to C. W. Army, Manufacturer, 301 Cherry st., Phila.

Send your address to Howard & Co., No. 865 Broadway, New York, and by return mail you will receive their Descriptive Price List of Waltham Watches. All prices reduced since February 1st.

Balloons made to order, with instructions, by John Wise, Lancaster, Pa.

Wanted.—A Partner, with capital, to manufacture a valuable Agricultural Implement. Address Louis de Mortemer, Chaptico, Md.

Ashcroft's Low Water Detector, \$15; thousands in use; can be applied for less than \$1. Names of corporations having thirty in use can be given. Send for circular. E. H. Ashcroft, Boston, Mass.

Wanted.—A practical Mechanic, who thoroughly understands manufacturing Chairs, Bedsteads, and other Furniture, as manager. Must be able to take an interest in the business, now in operation. For particulars address "Mason," P. O. Box 2399, New York.

To Cotton Pressers, Storage Men, and Freighters.—35-horse, Engine and Boiler, with two Hydraulic Cotton Presses, capable of pressing 35 bales an hour. Machinery first class. Price extremely low. Wm. D. Andrews & Bro., 414 Water st., New York.

Use Rawhide Sash Cord for heavy weights. It makes the best round belting. Darrow Manufacturing Co., Bristol, Conn.

Brown's Coal-yard Quarry & Contractors' Apparatus for hoisting and conveying material by iron cable. W. D. Andrews & Bro., 414 Water st., N. Y.

American Boiler Powder Co., P. O. Box 315, Pittsburgh, Pa.

See advertisement of L. & J. W. Feuchtwanger, Chemists, N. Y. Carpenters wanted—\$10 per day—to sell the Burglar Proof Sash Lock. Address G. S. Lacey, 27 Park Row, New York.

Manufacturers' and Patentees' Agencies, for the sale of manufactured goods on the Pacific coast, wanted by Nathan Joseph & Co., 619 Washington street, San Francisco, who are already acting for several firms in the United States and Europe, to whom they can give references.

All parties wanting a water wheel will learn something of interest by addressing P. H. Watt, Sandy Hill, N. Y., for a free circular of his Hudson River Champion Turbine.

For mining, wrecking, pumping, drainage, and irrigating machinery, see advertisement of Andrews' Patents in another column.

Twelve-horse Engine and Boiler, Paint Grinding Machinery Feed Pumps, two Martin Boilers, suitable for Fish Factory. Wm. D. Andrews & Bro., 414 Water st., New York.

Improved Foot Lathes. Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Europe, etc. Catalogue free. N. H. Baldwin, Laconia, N. H.

Cold Rolled-Shafting, piston rods, pump rods, Collins pat. double compression couplings, manufactured by Jones & Laughlins, Pittsburgh, Pa.

For Solid Wrought-iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

The Merriman Bolt Cutter—the best made. Send for circulars. H. B. Brown & Co., 25 Whitney ave., New Haven, Conn.

Glynn's Anti-Incrustator for Steam Boilers—The only reliable preventive. No foaming, and does not attack metals of boilers. Price 25 cents per lb. C. D. Fredricks, 587 Broadway, New York.

For Fruit-Can Tools, Presses, Dies for all Metals, apply to Bliss & Williams, successor to May & Bliss, 118, 130, and 122 Plymouth st., Brooklyn, N. Y. Send for catalogue.

Presses, Dies, and Tinnors' Tools. Conor & Mays, late Mays & Bliss, 4 to 8 Water st., opposite Fulton Ferry, Brooklyn, N. Y.

English and American Cotton Machinery and Yarns, Beam Warps and Machine Tools. Thos. Pray, Jr., 57 Weybosset st. Providence, R. I.

Taft's Portable Hot Air, Vapor and Shower Bathing Apparatus. Address Portable Bath Co., Sag Harbor, N. Y. (Send for Circular.)

Winans' Boiler Powder.—15 years' practical use proves this a cheap, efficient, safe prevention of Incrustations. 11 Wall st., New York.

To Ascertain where there will be a demand for new machinery or manufacturers' supplies read Boston Commercial Bulletin's Manufacturing News of the United States. Terms \$4 00 a year.

Answers to Correspondents.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 1'00 a line, under the head of "Business and Personal."

ALL reference to back numbers must be by volume and page.

ANNEALING STEEL.—F. A. K. asks for the best way of annealing steel. The method I use is: Heat the steel slowly to a bright cherry red, in a charcoal fire, then put it in charcoal dust till cold.—W. F., of Ill.

DIAMETER AND PITCH OF TOOTHED WHEELS.—Rule: Multiply the pitch by the number of teeth, and you will have the circumference at the pitch line; divide the result by 3.1416, and you will have the diameter near enough for any practical purpose. To determine the pitch, the diameter and number of teeth being given: Multiply the diameter by 3.1416, and divide the result by the number of teeth.—W. F., of Ill.

PITCH AND DIAMETER OF TOOTHED WHEELS.—Let J. W. multiply the number of teeth in the wheel, by the number of 32nds of an inch in the pitch, and cut off the two right-hand figures as decimals. Example: Wheel of 84 teeth, spaces on pitch line 27.32 of an inch; 84 x 27 = 2268 inches in diameter. If any one can give as simple a rule as this, giving a closer approximation to exactness, I would like to see it.—G. W. P., of N. Y.

D. T., of Cal.—In regard to enamel surfaces for writing, we gave, in the item you refer to, all the information we have yet obtained in regard to it.

W. D., of Ill., asks if a dam six miles below rapids, if it sets the water back to the foot of the rapids, will affect the flow above the rapids, the rapids having six feet fall? Practically it would not. Also, he wishes to know whether if an intermediate dam, one mile above the first, should be erected, the water being all returned to the river, it would lessen the power at the lower dam? Answer: No.

POLISH FOR WOOD IN THE LATHE.—Let W. H. B. dissolve sandarac in spirits of wine (alcohol) in the proportion of one ounce of sandarac to half a pint of spirit; next, shave beeswax one ounce, and dissolve in turpentine to make it into a paste; add the former mixture by degrees to it; then, with a woolen cloth, apply to the work while it is in motion in the lathe, and polish it with a soft linen rag. It will appear as if highly varnished. I find this recipe in the "Cabinet Maker's Companion."—J. B., Jr., Ohio.

M. R. & Co., of —, wish to know which is the most economical for them, an eighty horse power engine, or two engines of forty horse power each? They need to use eighty horse power only half the time; and the other half, only about forty horse power is required. As a matter of economy there would be little difference. The large engine would lose less by radiation in proportion to power, while it would lose more by friction in proportion to power, when running at only half its capacity. Again, the two engines at forty horse power would together lose more by friction in proportion to power, when running to their full capacity, than one engine giving the same power, when all other things are equal. The question is rather one of convenience than economy.

CASE HARDENING.—E. B. T., would like to know how to case-harden iron. Here is one way, although there are over a dozen: Take a sheet-iron box, and put in the iron you want to harden, and at the same time put in small pieces of old leather, horn, bones, or cuttings from horses' hoofs, as found at any blacksmith's shop, and then cover the box with a good coat of fire clay, so as to make it air tight. Put it in a fire where you can heat it to a good red heat; keep it so for an hour, then take it out and throw it into cold water, box and all, and your iron will be turned into steel, that is, the surface will be, for about one eighth of an inch in thickness.—A. R., of Ill.

THE SEA HORSE.—A correspondent sends us a dried specimen of a very curious appearance, asking what it is. We reply, it is a sea-horse—a small fish, found on our Southern coasts, and it swims in upright position, neck and head resembling a horse. Altogether, it is a very singular fish. We shall shortly represent it by an engraving.

H. C. M., of Me.—There is a difference of opinion as to which is the best published method of short-hand writing. We like Pitman's Phonography the best. There is a system called Tachigraphy, but it will not do for reporting.

T. H., of Mich.—If you are not accustomed to chemical manipulation, you will not be very likely to succeed in making a good article of gun cotton. Twine of gun cotton, is not, so far as we are aware, kept for sale. You could twist it for yourself, with proper care, if you had the gun cotton. This you can order, cheaper than you can make it, from any dealer in photograph materials.

CLEANING GUNS.—I have been using a rifle gun for fifteen years, and have to wipe or clean it yet for the first time; and I have fired it as much as 100 rounds in a day. All I do is to rub the patch on some tallow, placed in the box, on the butt of the gun. My gun is in better order today than it was when I brought it from the shop. If this be of any use to G. D. and others, they are welcome.—F. S. S., of Ohio.

J. A. F., of Mo.—Condensation never changes sensible heat to latent. Steam in the low pressure engine does not condense itself, but is condensed by having its heat extracted. Heat always aids the expansion and the extraction of heat always assists the compression of gases.

L. C. M.—There has, so far as we know, been no limit discovered to the contraction of iron by cold. A bar of iron is shorter at -40° than at zero. The weights of different bodies do not affect their rates of descent by gravity. Bodies of different weights rolling down one incline, and starting from the same point, will, all else being equal, reach the bottom at the same instant, and would then roll up another inclined plane to the same point before stopping.

NEW BOOKS AND PUBLICATIONS.

THE LIFE AND LETTERS OF HUGH MILLER. By Peter Bayne, M.A., author of "The Christian Life," etc. In two volumes. Boston: Gould & Lincoln, 59 Washington street. New York: Sheldon & Co.; Cincinnati: Geo. S. Blanchard & Co.

We venture to say the year has not yet given to the world a book of greater general interest than this. The inner life of a great man, as Hugh Miller unquestionably was, is always a useful and entertaining study. In no other way can we get such an insight into private and domestic character as through letters. In them we find innumerable clues to heart secrets, to habits of thought, to impulses and emotions, which we seek in vain in the elaborate writings or public speeches of prominent men. No man will read these letters of Hugh Miller without increased respect for the author. They show that he sought earnestly for truth; that he was charitable, honest, and fearless in the expression of opinion; that in his domestic relations he was kind and affectionate, and endowed with all those qualities which secure esteem and love. The author and publishers have done the world a real service in the production of these volumes. No man, woman, or child can read them without being improved. The printing, binding, and general style of the work are all first class.

PATENT LAWS AND PRACTICE OF OBTAINING LETTERS PATENT FOR INVENTIONS, IN THE UNITED STATES AND FOREIGN COUNTRIES, including Copyright and Trademark Laws. By Charles Sidney Whitman, of the Supreme Court of the United States. Washington: W. H. & O. H. Morrison, Publishers.

This is an octavo volume of over 700 pages, in binding of the usual style of law books. The title sufficiently sets forth the character of its contents, which are copiously indexed. While it contains but little not found in other works, it has condensed in a convenient manner a great deal of information important to inventors and patentees.

A CORRECTION.—We regret that in our notice of "Specimens of Engraving on Wood," by S. S. Kilburn, of No. 96 Washington street, Boston, Mass. published on page 252, current volume, a printer's error gave the address as Brooklyn.

The Phrenological Journal, for May, contains a biography of Edward Harris, the eminent manufacturer of Woonsocket, R. I., as its first article. This interesting article is followed by the usual variety of entertaining and instructive reading, monthly provided in this popular journal. Samuel R. Wells, publisher, 389 Broadway, New York.

The Southern Magazine, a new contemporary, has reached its fifteenth number. It bids fair to rival, in interest, its older competitors. Its table of contents for May is varied and entertaining, embracing tales, essays, and poems, with an editorial *melange* as dessert, entitled the "Green Table." Published by Murdoch, Browne & Hill, 166 Baltimore street, Baltimore, Md.

Lippincott's Magazine, for May, contains a poem by Margaret F. Preston, entitled, "Victoria Colonna to Michael Angelo," a fine essay on the "Monuments of Ancient America," by Charles Morris; "Curiosities of the 'Pay Streak,'" by Prentice Mulford; an instalment of the interesting story "Rookstone," by Katherine S. Macquoid, and much other matter of interest and value. Published by J. B. Lippincott & Co., Philadelphia; New York Agency, 25 Bond street.

The Atlantic Monthly, for May, opens with a most readable article, entitled the "Descent of Fire," by John Fliske. Among the heavier articles which follow, is a thoughtful one on the "Organization of Labor," by Richard F. Hinton. Longfellow contributes a short poem, "Vox Populi," Clarence King gives us an entertaining sketch of "Mountaineering in the Sierra Nevada," and Dr. Williams continues to instruct us in the matter of "Eyes, and How to Use them." This strong framework is gracefully adorned by lighter articles and tales. The number is more than usually excellent. Fields, Osgood & Co., Boston, Publishers. New York and Brooklyn office, 713 Broadway, New York.

Wood's Household Magazine, published by S. S. Wood, Newburgh, N. Y. is a ten cent monthly, which gives as much for the price as any published, as a glance at the May number will prove.

Drake's Magazine for Boys and Girls, is a tastefully illustrated monthly, full of entertaining reading for the little folks; combining, in a skillful manner, instruction with amusement. J. W. Burke & Co., Macon, Ga.

The New York Medical Journal, for April, published by D. Appleton & Co., fully sustains its character as a leading exponent of medical progress. No journal of this kind published on this continent has more able contributors, and the style in which the magazine is printed is an honor to medical literature.

Among other medical journals which come to us as exchanges, the following are all good live publications: The *Chicago Medical Journal*, W. B. Keen & Cooke, 113 and 115 State street, Chicago, Ill.; the *Northwestern Medical and Surgical Journal*, Alexander J. Stone, editor and proprietor, St. Paul, Minn.; the *Journal of Materia Medica*, Tilden & Co., New Lebanon, N. Y.; the *Richmond and Louisville Medical Journal*, E. S. Galliard, M.D., editor and proprietor, Louisville, Ky.; the *Ohio Medical and Surgical Reporter*, L. H. Witte, 17 Monumental Park, Cleveland, Ohio (a bi-monthly); the *Atlanta Medical and Surgical Journal*, Drs. W. F. and J. G. Westmoreland, editors, Atlanta, Ga.; the *Medical and Surgical Reporter* (a weekly) S. W. Butler, proprietor, 115 South Seventh street, Philadelphia, Pa.; office in New York, Z. P. Hatch, 137 Broadway.

No. 3 of the *Workshop*, E. Steiger, publisher, 22 and 24 Frankfort street New York, sustains its fine reputation as a repository of industrial design.

Hall's Journal of Health, for May, published by Hurd & Houghton, 13 Astor Place, New York, is a spicily written collation of short essays on health topics mainly, moral health as well as physical receiving attention. If not always correct in its statement of facts, it is always readable.

The Herald of Health and Journal of Physical Culture, published by Wood & Holbrook 13 and 15 Light street, New York, is doing good work in imparting a general knowledge of the principles of hygiene. It is one of the most readable of this class of publications.

Good Health: A Journal of Physical and Mental Culture. Alexander Moore, publisher, Boston, Mass. This journal makes a distinctive feature of describing, in a popular style, such diseases as are most common, and which may be avoided by reasonable prudence. It also publishes many useful articles upon collateral subjects and is altogether a publication well adapted to family instruction.