



J. A., Jr., of Ill.—As a general rule we have very little faith in the published modes of destroying insects. Any fertilizer which induces a vigorous growth in the plant aids in enabling it to overcome the effects of insect bites, and in this way sulphate of ammonia might be useful, but it would be too costly for Illinois, where you do not cart your barn-yard manure to your fields.

D. E., of N. Y.—We know of no plan for making friction matches commercially for market without phosphorus. Thorough ventilation is the best preventive yet discovered for the terrible disease which is induced by exposure to the fumes of phosphorus.

P. D., of Pa.—You will find the comparative value of petroleum and coal for fuel fully discussed in another column. The right to a patent can be assigned before the patent is obtained. We prepare such assignments; the cost is \$3.

G. W. H., of N. Y.—Rock-oil naphtha is not adapted for making varnish, as it is a very poor solvent for gums. Coal-tar naphtha is an excellent solvent for some gums, though not for gum shellac. This would answer your purpose if you could obtain it. It has been sold somewhat below the present price of alcohol.

J. M., of Iowa.—When strata of rocks or clay slope down from hills or mountains, the water sometimes gets between the layers, which hold it from rising up in the valleys. If the strata above the seam of water are bored through, the water is forced up through the hole by the pressure of that in the upper portion of the seam. Artesian wells can be made therefore only in the vicinity of higher ground. Address Prof. Henry at the Smithsonian Institution in relation to their publications.

P. E., of N. Y.—The resistance spoken of in a falling body is that of inertia, which is in proportion to the weight. This is the principal resistance in dense bodies. The resistance of the air would be greater, as you say, in small spheres than in large ones in proportion to the weight, and would cause them to fall with less velocity.

F. G. W., of Mass.—The Giffard's injector is manufactured by Wm. Sellers & Son, of Philadelphia, and if you will write to them they will doubtless give you all the information that you want.

D. K., of R. I.—We have received your communication on "the drill and its office," but we have already published so many articles on that subject that we must decline your favor. Your ideas are good. Write again on some other subject and we shall try to give you a hearing.

A. V. S., of N. Y.—The Rubber Company to which you refer control the right to make, use, and sell and vend to others the same rights, the particular article protected by their patents; whenever the article passes into the market and is sold, the Company will have realized their legal tariff upon it, and any subsequent purchaser has a right to use it freely. The Company can collect but one tariff, and this they did at the first sale of the article.

S. C. & Co., of Ohio.—The travel of piston in feet of a steam engine is twice the stroke multiplied by the revolutions; or the length of stroke multiplied by the number of single strokes. Your 18-inch cylinder with a steam pipe only 3 inches diameter, is defective. The pipe should be five inches at least, and well covered to guard against radiation. It is more probable that the valve motion of your engine is defective, and if you will send us a diagram of it and the work the engine has to do, we can probably remedy the trouble.

E. W. S., of R. I.—You could not obtain a situation as an assistant engineer unless you had some knowledge of the business.

I. B. B., of N. Y.—A balloon rises in the air because the gas in the balloon is lighter than the air around it; the attraction of the earth draws the heavier air down under the balloon and thus pushes it up. The buoyancy of a balloon consequently depends upon the specific gravity of the gas with which it is filled. The lightest gas is hydrogen; it is $14\frac{1}{2}$ times lighter than air. About 13 cubic feet of air weigh one pound and about 188 feet of hydrogen. In round numbers 14 cubic feet of hydrogen will raise one pound in the air, and it will take 7,000 cubic feet to raise 500 pounds. As the density of the air diminishes rapidly with the altitude, the size of the balloon must be increased for any considerable ascent. A horse-power is that which will raise 33,000 pounds one foot per minute; a half-horse power would therefore raise 82½ pounds 200 feet per minute. It is possible that a steam engine might be made weighing less than 200 pounds, which could be worked up to a half-horse power.

G. J., of N. Y.—Your criticism of our views in regard to some English notions may appear to you to be just. Upon this point we will not enter into controversy. Your style of refuting our ideas is, to say the least, somewhat below the standard of genuine politeness. When, however, you seek to correct our orthography, we have only to say that you are certainly not well informed. In our frequent use of words we are quite as likely to spell them correctly, as one whose business does not necessarily teach him either good manners or good spelling. If you will take the trouble to turn to Webster's Dictionary, which is the standard here, you will find that tun, traveler, center, theater, etc., are spelled correctly by us.

S., of Pa.—The Commissioner does not return the first installment of the patent fee in case the application is rejected. When the patent is allowed, \$20 additional must be paid within six months, before the Letters can issue.

J. C. T., of Minn.—We are not aware that Paine's engine has been introduced, but you can ascertain by addressing Mr. Archibald, at the British Consul's office, in this city.

Money Received.

At the Scientific American Office, on account of Patent Office business, from Wednesday, June 22, 1864, to Wednesday, June 29, 1864:—

A. J. P., of N. Y., \$25; D. F. M., of N. Y., \$30; F. A. H., of N. Y., \$41; F. B., of Ill., \$20; G. H. S. D., of N. Y., \$48; D. A., of N. Y., \$16; G. A., of Iowa, \$20; D. H. S., of Iowa, \$20; P. & T., of Pa., \$20; J. D. B., of N. Y., \$20; W. M., of Ohio, \$18; M. A. W., of Cal., \$55; W. W. P., of Ill., \$16; F. R., of N. Y., \$25; L. O. C., of Pa., \$16; A. M. G., of N. H., \$16; D. W., of Pa., \$16; S. J. M., of Mo., \$15; H. S., of Tenn., \$31; W. J., of N. Y., \$26; R. B. M., of Ohio, \$16; P. H. R., of Ind., \$16; N. S. W., of N. Y., \$25; I. B., of N. Y., \$25; J. M. McL., of Mich., \$16; J. B. G., of Ky., \$40; H. U., of Conn., \$50; J. S. T., of N. Y., \$30; P. W., of Ill., \$25; F. G. A., of Mass., \$25; S. H. K., of Pa., \$25; J. G. L., of Ohio, \$17; A. W. H., of N. Y., \$25; C. L. G., of N. Y., \$100; W. C. M., of N. Y., \$20; C. C. C., of Iowa, \$41; J. H., of N. Y., \$22; L. H., of N. Y., \$30; P. C. R., of Mass., \$20; J. L., of N. Y., \$16; W. L. P., of N. Y., \$45; B. M. F., of N. Y., \$20; F. J. B. H., of N. Y., \$20; J. M., of Mass., \$45; G. S., of Vt., \$16; H. H., of N. Y., \$25; J. W., of Ind., \$16; W. H., of Conn., \$16; C. W. & J. P. W., of Ill., \$16; J. C. C., of Nebraska Territory, \$31; T. & J. W. W., of Ill., \$35; J. W. N., of Mass., \$44; F. C. L., of Iowa, \$25; S. & B., of Ohio, \$24; J. E. T., of Pa., \$16; P. & K., of N. J., \$16; D. & N., of Maine, \$25; C. A. B., of Cal., \$16; N. V., of N. J., \$16; C. W. & B., of Pa., \$35; C. B., of Pa., \$25; I. L., of Russia, £3; B. W., of Ill., \$25; H. C., of N. Y., \$16; R. T., of Wis., \$16; C. A. M., of Ohio, \$15; H. S., of N. Y., \$25; M. G., of N. Y., \$20; A. M. W., of Mass., \$20; T. W. C., of N. Y., \$20; W. K., of N. Y., \$16; F. S. G., of N. Y., \$16; W. A. J., of La., \$20; H. & F. J. L. B., of Ohio, \$20; T. V., of Cal., \$50; O. C. P., of N. Y., \$20; B. E. M., of Ill., \$20; H. J., of Mass., \$45; E. W., of N. H., \$16; R. B., of N. Y., \$25; E. G. W., of Minn., \$25; J. P. C., of N. Y., \$16; J. L. W., of Ohio, \$25; S. & H., of Ohio, \$26; M. H. M., of Ohio, \$31; A. & T., of Mass., \$35; H. H., of Iowa, \$25; T. L. P., of Ohio, \$25; F. G. S., of Mass., \$15; H. N., of Pa., \$20; E. M. K., of Ohio, \$25; N. S., of Mich., \$25; T. S., of N. J., \$22; F. L., of La., \$25; E. S., of Pa., \$16; E. P. B., of N. Y., \$25; F. F., of Minn., \$25; D. & B., of N. Y., \$48; J. L. B., of Pa., \$15.

Persons having remitted money to this office will please to examine the above list to see that their initials appear in it and if they have not received an acknowledgment by mail, and their initials are not to be found in this list, they will please notify us immediately, stating the amount and how it was sent, whether by mail or express.

A. J. P., of N. Y.; A. W. H., of N. Y.; K. S., of N. Y.; D. F. M., of N. Y.; F. A. H., of N. Y.; C. C. C., of Iowa; J. H., of N. Y.; H. H., of N. Y.; R. B., of N. Y.; F. K., of N. Y.; W. J., of N. Y.; T. L. P., of Ohio; S. & B., of Ohio; G. C. P., of Cal.; A. K. F., of N. Y.; O. W. & J. P. W., of Ill.; J. L. W., of Ohio; J. C. C., of Nebraska; S. & H., of Ohio; T. & J. W. W., of Ill.; F. C. L., of Iowa; H. S., of Tenn.; N. S. W., of N. Y.; D. & N., of Maine; E. M. K., of Ohio; C. B., of Mich.; A. & T., of Mo.; F. L., of La.; H. W., of Conn. (2 cases); J. S. T., of N. Y.; C. B., of Pa.; H. H., of Wis.; F. F., of Mich.; J. N. C., of Ohio; E. P. B., of N. Y.; P. W., of Ill.; B. W., of Ill.; F. G. A., of Mass.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office, from Wednesday, June 22, 1864, to Wednesday, June 29, 1864:

TO OUR READERS.

PATENT CLAIMS.—Persons desiring the claim of any invention which has been patented within thirty years, can obtain a copy by addressing a note to this office, stating the name of the patentee and date of patent, when known, and enclosing \$1 as fee for copying. We can also furnish a sketch of any patented machine issued since 1853, to accompany the claim, on receipt of \$2. Address MUNN & CO., Patent Solicitors, No. 37 Park Row, New York.

INVARIABLE RULE.—It is an established rule of this office to stop sending the paper when the time for which it was pre-paid has expired.

MODELS are required to accompany applications for Patents under the new law, the same as formerly, except on design patents, when two good drawings are all that are required to accompany the petition, specification and oath, except the Government fee.

RECEIPTS.—When money is paid at the office for subscriptions, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a *bona-fide* acknowledgement of our reception of their funds.

Binding the "Scientific American."

It is important that all works of reference should be well bound. The SCIENTIFIC AMERICAN being the only publication in the country which records the doings of the United States Patent Office, it is preserved by a large class of its patrons, lawyers and others, for reference. Some complaints have been made that our past mode of binding in cloth is not serviceable, and a wish has been expressed that we would adopt the style of binding used on the old series, *i. e.*, heavy oarboard sides covered with marble paper, and morocco backs and corners.

Believing that the latter style of binding will better please a large portion of our readers, we commenced on the expiration of Volume VII, to bind the sheets sent to us for the purpose in heavy board sides, covered with marble paper and leather backs and corners.

The price of binding in the above style is 75 cents. We shall be unable hereafter to furnish covers to the trade, but will be happy to receive orders for binding at the publication office, No. 37 Park Row, New York.

RATES OF ADVERTISING.

TWENTY-FIVE CENTS per line for each and every insertion, payable in advance. To enable all to understand how to calculate the amount they must send when they wish advertisements published we will explain that ten words average one line. Engravings will not be admitted into our advertising columns, and, as heretofore, the publishers reserve to themselves the right to reject any advertisement they may deem objectionable.

JUST FINISHED AND FOR SALE A 28-INCH INDEX Cutting Engine. Address JOHN C. REED, Providence, R. I. 2 2*

ARMY CLOTHING AND EQUIPAGE OFFICE,
Cincinnati, Ohio, June 22, 1864.

PROPOSALS ARE INVITED BY THE UNDERSIGNED until Thursday, July 7th, 1864, at 2 o'clock P. M., for furnishing this Department (by contract) with—

Trowsers, Footmen's—Standard.
Samples of which may be seen at the Office of Clothing and Equipage in this city.

To be delivered free of charge, at the U. S. Inspection Warehouse in this city, in good new packages, with the name of the party furnishing, the kind and quantity of goods distinctly marked on each article and package.

Parties offering goods must distinctly state in their bids the quantity they propose to furnish, the price, and the time of delivery. Samples when submitted, must be marked and numbered to correspond with the proposal, and the parties thereto must guarantee that the goods shall be, in every respect, equal to Army Standard, otherwise the proposal will not be considered.

A guaranty signed by two responsible persons, must accompany each bid, guaranteeing that the bidder will supply the articles awarded to him under his proposal.

Bids will be opened on Thursday, July 7, 1864, at two o'clock, P. M., at this office, and bidders are requested to be present. Awards will be made on Friday, July 8th.

Bonds will be required that the contracts will be faithfully fulfilled. Telegrams relating to proposals will not be noticed.

Blank forms of proposals, contracts, and bonds, may be obtained at this office.

The right to reject any bid deemed unreasonable is reserved. By order of Col. Thomas Swords, A. Q. M. G.

C. W. MOULTON, Captain and A. Q. M.

WANTED.—TO CORRESPOND WITH PERSONS who have seamed lumber—pine, oak, and ash—and who are prepared to build seed-planters. Address A. M. PENISTON, care of Nanson, Damerren & Co., St. Louis, Mo. 2 2*

DUDGEON HYDRAULIC JACKS AT NEW YORK prices. For sale by ENEAS DUDGEON, corner of Eighth and Minna streets, San Francisco, Cal. 2 3*

HUNTINGTON & ROBERTSON'S PATENT SAFETY Valve Regulator acts automatically, and engineers who have used it for over three months certify that it is perfectly reliable, and never fails to relieve the boilers of excessive pressure instantly. It can be arranged to work at any desired pressure, and no boiler can explode from sudden generation of steam or excessive pressure with the regulator attached. Address WM. S. HUNTINGTON, Alexandria, Va. 2 2*

FAIRBAIRN ON IRON.—IRON, ITS HISTORY, Properties, and Processes of Manufacture. By Wm. Fairbairn. One vol. 12mo. cloth, \$4 50. For sale by D. VAN NOSTRAND, 192 Broadway, New York. 1

T. J. WELLS'S PATENT SELF-FEEDING AND Portable Circular Hand Saw indispensable as a tool for Carpenters and all other Wood-workers. See cut in Vol. 8, No. 8, SCIENTIFIC AMERICAN. General Depot No. 55 Liberty street, New York. 2 2*

FOR SALE.—STATE RIGHTS IN MY NEW AND valuable Coal Scuttle, now in successful operation, patented April 12, 1864; illustrated in the SCIENTIFIC AMERICAN June 11. Business men or others with small capital will find this an opportunity seldom offered. The cost of manufacture is from \$1 to \$1.25 each, whereas common scuttles sell for \$1, and the scuttles now in use from \$2 to \$3.50 each, thus leaving a very large margin for profit in favor of my scuttle, besides its convenience, durability, etc., above all other articles now used for a similar purpose. The capital required for the business is small, a drop or screw press with dies being the chief requisite for its manufacture. This is an article that must and will find its way into every family where coal is used as fuel. For full particulars send for circular, addressing the inventor, OTHO N. CHASE, Boston, Mass. 1*

KING ON STEAM.—LESSONS AND PRACTICAL Notes on Steam, the Steam Engine, Propellers, etc., etc., for young Engineers, Students, and others. By W. H. King, U.S.N. Ninth edition, revised by Chief Engineer J. W. King, U.S.N.

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STATE AND COUNTY RIGHTS FOR SALE FOR Troop's Self-regulating Wind Power, the best in market. Also Troop's Stave Jointer. I defy its equal. Being capable of jointing for all kinds of casks. Little power. Not liable to get out of order, and making a better joint than can be made by hand. Send for Circular. J. TROOP, Erie, Pa. 2 3*

MACHINERY.—S. C. HILLS, No. 12 PLATT STREET, New York, dealer in Steam Engines, Boilers, Planers, Lathes, Chucks, Drills, Pumps; Mortising, Tenoning and Sash Machines; Woodworth's and Daniels' Planers, Dick's Punches, Presses and Shears; Cob and Corn Mills; Harrison's Grist Mills; Johnson's Shingle Mills; Belting, Oil, &c.

GREAT MEN, LIVING AND DEAD—HANCOCK, SEDGWICK, WADSWORTH, HAWTHORN, MURILLO, President of Colombia S. A., and the DYING GLADIATOR: Who shall be our next President? Portraits, Character, and Biographies, in the July Illustrated PHRENOLOGICAL JOURNAL. All newsdealers have it. Double No.; 20 cents, or \$2 a-year. FOWLER & WELLS, 389 Broadway, New York. 1 2

CARPENTER'S AND WOODWORKER'S WHO USE Talpey's Patent Self-feeding Hand-sawing Machine are doing three times the work, with the same number of hands, that they used to with the common hand saw, do it better, do it easier and do it with less waste of stuff and labor in dressing up. Send for a circular to HOAG & HAMPSHIRE, 96 Maiden Lane, New York. 1 3*

INDEPENDENT JAW CHUCKS.—L. D. FAY, MAN-ufacturer of Machinists' Small Tools, No. 11 Cypress street, Worcester, Mass. 1 3*

VENTRILLOQUISM.—IS IT A GIFT, OR AN ART? Fortune Telling—how it is done. Popular Superstitions—effects on character, complexion, and temper, of being born in certain months, from January to December. Large, Dark, Voluptuous Eyes, Has he been Struck? Is it You? An Aristocratic Mint. Money. Curiosities of Currency. How Coins are made. The mint. In July Illustrated PHRENOLOGICAL JOURNAL. Double No. 20 cents, by first post, or \$2 a-year. Newsmen have it. FOWLER & WELLS, 389 Broadway, New York. 1 2

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INVENTORS AND MANUFACTURERS OF AGRICULTURAL implements will find it to their advantage to send descriptive lists, prices, and references, to Box 257, Lyons, N. Y. 25 3*

HUMAN SKULLS.—ETHNOLOGY, A STUDY OF the Races. The Greek, Egyptian, Roman, and others compared. Indian Heads. The African Races, wherein they differ. Influence of Food on Man. Circulation of the Blood. Whisky. Stomach, Body, Brain, Soul. With the Physiology of Life, in the Illustrated PHRENOLOGICAL JOURNAL, for July. Double No. 20 cents. New Vol. \$2 a-year. Newsmen have it. FOWLER & WELLS, No. 389 Broadway, New York. 1 2