

he must furnish samples of the ingredients of which his composition consists, for the Patent Office. These should be securely packed, the inventor's name marked on them and sent, with the Government fees, by express. The express charge should be pre-paid. Small models from a distance can often be sent cheaper by mail. The safest way to remit money is by draft on New York, payable to the order of MUNN & CO. Persons who live in remote parts of the country can usually purchase drafts from their merchants on their New York correspondents; but, if not convenient to do so, there is but little risk in sending bank-bills by mail, having the letter registered by the postmaster. Address MUNN & CO., No. 37 Park Row, New York.

The revised Patent Laws, enacted by Congress on the 2d of March, 1861, are now in full force, and prove to be of great benefit to all parties who are concerned in new inventions.

The duration of patents granted under the new act is prolonged to SEVENTEEN years, and the Government fee required on filing an application for a patent is reduced from \$30 to \$15. Other changes in the fees are also made as follows:—

On filing each Caveat.....	\$10
On filing each application for a Patent, except for a design.....	\$15
On issuing each original Patent.....	\$20
On appeal to Commissioner of Patents.....	\$20
On application for Re-issue.....	\$30
On application for Extension of Patent.....	\$50
On granting the Extension.....	\$50
On filing a Disclaimer.....	\$10
On filing application for Design, three and a half years.....	\$10
On filing application for Design, seven years.....	\$15
On filing application for design, fourteen years.....	\$30

The law abolishes discrimination in fees required of foreigners, excepting natives of such countries as discriminate against citizens of the United States—thus allowing Austrian, French, Belgian, English, Russian, Spanish and all other foreigners except the Canadians, to enjoy all the privileges of our patent system (but in cases of designs) on the above terms. Foreigners cannot secure their inventions by filing a caveat; to citizens only is this privilege accorded.

During the last seventeen years, the business of procuring Patents or new inventions, in the United States and all foreign countries has been conducted by Messrs. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN; and as an evidence of the confidence reposed in our Agency by the inventors throughout the country we would state that we have acted as agents for at least TWENTY THOUSAND inventors! In fact, the publishers of this paper have become identified with the whole brotherhood of inventors and patentees at home and abroad. Thousands of inventors for whom we have taken out patents have addressed to us most flattering testimonials for the services we have rendered them, and the wealth which has inured to the inventors whose patents were secured through this office, and afterwards illustrated in the SCIENTIFIC AMERICAN, would amount to many millions of dollars! We would state that we never had a more efficient corps of Draughtsmen and Specification Writers than those employed at present in our extensive offices, and we are prepared to attend to patent business of all kinds in the quickest time and on the most liberal terms.

REJECTED APPLICATIONS.

We are prepared to undertake the investigation and prosecution of rejected cases on reasonable terms. The close proximity of our Washington Agency to the Patent Office affords us rare opportunities for the examination and comparison of references, models, drawings, documents, &c. Our success in the prosecution of rejected cases has been very great. The principal portion of our charge is generally left dependent upon the final result.

All persons having rejected cases which they desire to have prosecuted, are invited to correspond with us on the subject, giving a brief history of the case, inclosing the official letters, &c.

CAVEATS.

Persons desiring to file a caveat can have the papers prepared in the shortest time by sending a sketch and description of the invention. The Government fee for a caveat, under the new law, is \$10. A pamphlet of advice regarding applications for patents and caveats, printed in English and German, is furnished gratis on application by mail. Address MUNN & CO., No. 37 Park Row, New York.

FOREIGN PATENTS.

We are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business we have offices at Nos. 56 Chancery lane, London; 29 Boulevard St. Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we can safely say that THREE-FOURTHS of all the European Patents secured to American citizens are procured through the Scientific American Patent Agency, No. 37 Park Row, New York. Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

Circulars of information concerning the proper course to be pursued in obtaining patents in foreign countries through our Agency, the requirements of different Government Patent Offices, &c., may be had gratis upon application at our principal office, No. 37 Park Row, New York, or any of our branch offices.

ASSIGNMENTS OF PATENTS.

Assignments of patents, and agreements between patentees and manufacturers are carefully prepared and placed upon the records at the Patent Office. Address MUNN & CO., at the Scientific American Patent Agency, No. 37 Park Row, New York.

It would require many columns to detail all the ways in which inventors or patentees may be served at our offices. We cordially invite all who have anything to do with patent property or inventions to call at our extensive offices, No. 37 Park Row, New York, where any questions regarding the rights of patentees will be cheerfully answered.

Communications and remittances by mail, and models by express (prepaid), should be addressed to MUNN & CO., No. 37 Park Row, New York.

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 board 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.

TO OUR READERS.

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.

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.

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 inclosing \$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.

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* acknowledgment of our reception of their funds.

NEW PAMPHLETS IN GERMAN.—We have just issued a revised edition of our pamphlet of *Instructions to Inventors*, containing a digest of the fees required under the new Patent Law, &c., printed in the German language, which persons can have gratis upon application at this office. Address MUNN & CO., No. 37 Park-row, New York.



R. P., of Ohio.—We don't know that any proof positive has been brought up against the *edanthus* tree, to cause its universal extirpation in cities. The unpleasant odor emanating from its bloom made it many enemies, though there may be nothing poisonous in the exhalations. Its tropical foliage and racemes of brown seed capsules make it a fine ornamental tree. We would suggest the catalpa as a substitute suitable to the climate of your latitude.

J. S. M., of C. W.—We have no record of the fastest time made by screw steamships.

E. W., of Pa.—The quantity of water per horse-power required for a steam boiler depends on the pressure of steam and other circumstances, such as leakage, priming, &c. About one cubic foot per hour is allowed for the feed to the boiler of a high pressure engine; but Professor Rankine states that 347 of a cubic foot of feed water may suffice for the indicated horse power per hour of an expansive working engine.

I. J., of Pa.—The weight of an iron plate 6 feet in length, 24 inches wide and 4 inches in thickness, is about 1,948 pounds.

W. P. N., of Mo.—We have received your letter and sketch of a wind-vane attached to a circular carriage, and you inquire if it would not be a perpetual motion—keep moving of itself after it was started. It would not. After the first impulse was removed, its motion would gradually be reduced, owing to the friction of its parts. A perpetual motion is a mechanical fallacy.

H. H. W., of Ohio.—A comparison of durability between a box placed in a fire with a stream of cold air passing through the box, and one without that protection is almost unnecessary; the difference would be trifling and in favor of the cold one.

W. T., of N. Y.—We cannot answer your inquiries about Kinsella's balloon, and do not care to open our columns to a discussion of its merits. They are probably obvious to most of our readers who have examined it. You had better open a direct correspondence with him on the subject.

G. H. M., of N. Y.—You have found a mare's nest. The item you have taken so much pains to explain to us alludes to the sanitary benefit to be derived from getting up and going to bed at the time specified; which would doubtless be equal to the addition of 10 years to a man's life.

W. R., of Ohio.—A machine which will start of itself and run until its parts are worn out is a perpetual motion. When all England was crazy about the "South Sea bubble" in 1720, a prize was offered for a perpetual motion, but the offer ended the next year with the explosion of the bubble. You ask us "what such an invention is worth?" Just as much as it will bring.

W. B., of Md.—Petroleum is supposed to be shale oil, formed by a natural subterranean process. It has recently become an extensive article of export from the United States. The principal wells are in Western Virginia, Pennsylvania and New York. The most noted oil region is in Venango Co., Pa., near the Allegheny river; a town has sprung up there, within a short time, equal to the new gold region towns in California. It has its newspaper and railways, its churches and schools, its adventurers and gamblers, just like any other modern city.

A. C. W., of Ky.—How simple a thing is when once known. To make paper adhere to tin, paste, gum, wax, or glue will not effect it, unless the surface is well rubbed with acetic acid or strong vinegar. Many other acids will answer, but vinegar is always cheapest and most convenient. Such knowledge is almost invaluable in domestic economy.

E. T. D., of Pa.—We have already given you all the information we possess—on page 133, current volume of the SCIENTIFIC AMERICAN—respecting Laveissiere's mode of forming hollow ingots for brass tubes.

A. L. S., of Ohio.—You ask why Americans do not use more fruit at their meals. The reason is, simply because they have not time, they are such a busy people. It would be more healthy to use more vegetables and fruit at meals; but you can't force them to do so, though your State does produce the best in the world. Flower gardeners might want them to feed on flowers, if they could then sell their flowers higher. Apropos of eating flowers: there is a flower, common to the Bahama Islands, of which a sub-acid pleasant-tasted sauce is made, equally as palatable as tamarind or plum jelly. It is called *sorrel*; the bud with seed-capsule is stewed and sweetened, and is then ready for immediate use. In most countries of Southern Europe you see fruit on the table at every meal: the people are not such meat-eaters as we Americans.

E. D., of Mass.—No reliable accounts of the process of manufacturing Russian sheet iron has ever been published, so far as we know. Notices have appeared several times in public prints, that the secret of making such iron had been obtained by some of our American engineers who had been in Russia; but we have always discredited these statements. If any of our people had obtained the secret, they would have made use of it here before this. You will find a notice of American imitation Russian sheet-iron on page 38, Vol. IX. (old series) of the SCIENTIFIC AMERICAN.

W. B., of Maine.—We cannot say why tiles are not more in use for roofing houses in this country. They are said to be cooler than shingles, slate or tin. The old Spanish tiles only seen in some of the old towns of Texas, Louisiana and Florida. They are made of common red clay, in the form of a half cylinder, 18 inches long and 6 wide, and are baked in a kiln like bricks. There is a new, French, flat tile, now coming into use in the West Indies, South America and Mexico, which makes a very handsome and durable roof. Encaustic tiles are flat, enameled, variegated earthen squares, or lozenges, much used and very appropriate for floors in warm countries. The floors of the Capitol, in Washington, are laid with them; and the halls of most of our aristocratic mansions, in Fifth avenue, are paved with the same material. They can be made here, but the best are imported from England.

C. S., of Pa.—Asks how to keep cool this hot weather. Let us ask him if he ever hears of an out-door laborer complaining of heat. The way to keep warm in winter is the best way to keep cool in summer—by exercise, sufficient to keep up a free circulation and a liberal perspiration. It is warmer to sit in the shade, drink iced juleps and fanning one's self, than it is to work in the sunshine and refresh the inner man by drinking tepid water. Any haymaker or harvester can tell you that. Now, if you don't believe it, try the experiment and you will find out.

S. N., of Mich.—Your inquiry about the asphaltum pavements is easily answered. It is a Belgian invention, used only for side-walks and public promenades, and not for carriage roads, as many erroneously suppose. Stones, gravel, sand and coal-tar, are the materials commonly used in the composition of asphaltum. Stones, the size of a hen's egg, are placed upon the graded street-walk, and rolled even with a heavy roller; a mixture of gravel and coal-tar is then spread over this; and finally, coarse sand and tar forms the superstratum, made even by the heavy roller. It makes a nice smooth walk, very common now in France and Belgium! Its dark color makes it more agreeable than brick or stone; but it does not absorb the rain like bricks, and of course, does not dry so soon, unless the surface is convex to lead off the water.

Money Received

At the Scientific American Office, on account of Patent Office business, from Wednesday, Aug. 26, to Wednesday, Sept. 2, 1863:—

- T. A. H., of N. Y., \$56; J. S., of N. Y., \$41; W. & M., of Mass., \$32; P. G., of Mo., \$20; F. B. P., of Mass., \$25; C. E. M., of Vt., \$26; A. W., of N. Y., \$250; S. J. A., of Cal., \$125; T. B., of Ohio, \$25; P. S. F., of N. Y., \$16; R. & H., of Mass., \$178; S. B. W., of Kansas \$16; H. S. W., of Mich., \$16; A. B., of N. J., \$20; W. R., of Cal., \$20; J. W. B., of N. Y., \$20; H. & Co., of N. Y., \$62; H. C. D., of Mass., \$20; D. C., of N. Y., \$25; E. F. & J. H., of N. Y., \$10; T. R. T., of N. Y., \$41; J. D. C., of Ill., \$15; E. M., of N. Y., \$16; G. W. L., of Ohio, \$26; K. C. & R., of Wis., \$25; E. W., of Mich., \$15; J. L. L., of Pa., \$16; L. C., of N. Y., \$25; R. R. C., of N. Y., \$16; A. K., of Pa., \$16; H. & S., of Pa., \$16; V. G., of N. Y., \$28; E. C., of N. Y., \$41; R. K., of Mass., \$40; G. S. H., of N. Y., \$45; N. L., of Ill., \$48; A. H., of Ohio, \$20; H. G., of N. Y., \$25; G. R. B., of R. I., \$25; D. A. H., of N. Y., \$16; W. H. G., of N. Y., \$25; J. O., of Ill., \$26; J. H., of Mass., \$16; A. H., of Ill., \$16; E. J. Y. P., of Guatemala, \$310; J. C., of N. J., \$16; C. B. D., of Ind., \$17; W. G. I., of Mass., \$16; W. G. S., of N. Y., \$29; H. A., of N. Y., \$25; A. F. C., of Conn., \$16; W. H. H., of N. Y., \$20; F. J., of Minn., \$20; D. & K., of N. J., \$16; A. G., of N. Y., \$16; A. B., of Vt., \$45; E. D. B., of N. Y., \$20; S. L. H., of N. Y., \$16; W. L. F., of N. J., \$20; G. T., of Maderia, \$15; N. H., of N. Y., \$30; A. C. C., of N. Y., \$45; C. L. G., of N. Y., \$100; T. P. R., of Mass., \$20; J. E., of N. Y., \$20; Y. & C., of N. Y., \$31; C. S., of N. Y., \$31; R. J. M., of N. Y., \$20; R. W. & D. D., of N. Y., \$20; W. M., of N. Y., \$20; W. C. H., of Ohio, \$20; N. C. S., of Conn., \$20; C. W., of N. Y., \$20; G. S., of Ill., \$40; J. W. C., of N. Y., \$25; T. S., of N. Y., \$20; C. L. A., of N. Y., \$20; J. B. C., of Conn., \$20.

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, and inform us the amount, and how it was sent, whether by mail or express.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office from Wednesday, August 26, to Wednesday, Sept. 2, 1863:— T. A. H., of N. Y.; D. C., of N. Y.; H. G., of N. Y.; J. S., of N. Y.; G. R. B., of R. I.; E. F. & J. H., of N. Y.; T. R. T., of N. Y.; D. A. H., of N. Y.; G. B., of England (2 cases); D. A. H., of N. Y.; W. H. G., of N. Y.; V. G., of N. Y.; H. S. W., of Mich.; H. & K., of Ind.; H. A., of N. Y.; W. G. S., of N. Y.; T. B., of Ohio; S. J. A., of Cal.; J. O., of Ill.; P. L., of Cal.; K. C. & R., of Wis.; C. E. M., of Vt.; L. K., of N. Y.; G. W. L., of Ohio; T. H., of Cal.; J. W. of Wis.

Back Numbers and Volumes of the Scientific American VOLUMES I., II., III., IV., V., VII. AND VIII. (NEW SERIES) complete (bound) may be had at this office and from periodical dealers. Price, bound, \$2.25 per volume, by mail, \$3.—which includes postage. Every mechanic, inventor or artisan in the United States should have a complete set of this publication for reference. Subscribers should not fail to preserve their numbers for binding. VOL. VI. is out of print and cannot be supplied.

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.

ASSISTANT QUARTERMASTER GENERAL'S OFFICE, PHILADELPHIA, 21st August, 1893.

SEALED PROPOSALS WILL BE RECEIVED AT THIS Office until Tuesday, 15th September next, at 12 o'clock, M., for furnishing Anthracite Coal for the War Department, to be delivered during the year commencing the 1st October, 1893, and ending 30th September, 1894. Coal to be of the best quality Anthracite for use of steamers; to weigh 2240 lbs. to the ton, and to be subject to inspection. The Coal is to be delivered on board vessels in the ports of Philadelphia and New York in New York City, and at such times as may be required, furnishing, if demanded, one thousand tons per day. In case of failure to deliver the coal in proper quantity, and at the proper time and place, the Government reserves the right to make good any deficiency by purchase, at the contractor's risk and expense. The price must be for the coal delivered on board vessels on the terms and conditions stated. Twenty per cent. will be withheld from the amount of all payments, which reservation is not to be paid until the contract shall have been fully completed. Payments of the remaining eighty per cent., or balance due, will be made monthly, or when the Department is in funds for that purpose. Each offer must be accompanied by a written guarantee, signed by one or more responsible parties, that the bidder or bidders will, if his or their bid be accepted, enter into obligation with good and sufficient sureties to furnish the supplies proposed. No proposition will be considered unless accompanied by such guarantee. Two or more sureties, in the sum of one hundred thousand dollars, will be required to sign bonds for the faithful performance of the contract, and their responsibility will be certified by a U. S. District Judge, U. S. District Attorney, or Collector. The right is reserved to reject all the bids, if considered in the interest of the service. Proposals must be endorsed "Proposal for Coal for the War Department." Signed, A. BOYD, Captain and Assistant Quartermaster U. S. Army.

PATENT FOR SALE.—FISHER'S LAWN OR YARD Mower, patented 1863. Vibrating cutters; lightest machine made, weighs only 45 lbs. in man with it. For further particulars, address HENRY FISHER, Alliance, Ohio.

NOTICE TO MANUFACTURERS.—THE UNDERSIGNED have the sole agency of the United States for the sale of rights, and for manufacturing the celebrated Excelsior Reaping and Mowing Machine extensively used in New York and Pennsylvania, for the superiority of which we hold several State and County medals and hundreds of certificates. In order to supply the demand and introduce them generally, I wish to negotiate with manufacturers and parties desirous of purchasing or leasing State and County Rights for the construction of a portion of thirty-five hundred machines (half of each) in their respective localities. We will have our machines on exhibition at the N. Y. State Fair, held at Utica Sept. 15th. Address JOHN J. FULLER, General Agent, Schenectady, N. Y.

POLYTECHNIC COLLEGE, WEST PENN SQUARE, Philadelphia, for thorough professional training in the principles and practice of Mine, Civil and Mechanical Engineering; Analytical and Industrial Chemistry, Metallurgy and Architecture. Practice in the Smelting and Analysis of Ores; in Mechanical, Topographical and Architectural Drawing; in the Modelling of Stone Arches, Stairways, etc. in Clay and Plaster; and in the use of Engineering Instruments in the Field, complete the instruction of the class and lecture rooms. The course on Military Engineering includes Field Fortifications, Siege Operations, Strategy and Tactics. The Eleventh Annual Session begins Sept. 15, 1893. For Catalogue and further information address Dr. ALFRED L. KENNEDY, Pres. of Faculty.

WILLIAMS & PAGE'S PASSENGER CAR LAMP, for Kerosene or Coal Oil. These lamps, now in use on a large number of Railroads, are very neat and ornamental, and, being enclosed in a brass case, which is firmly secured to the side of the cars, entirely avoid the dripping of oil on passengers and cars. The light is very strong and brilliant, requiring no reflectors, and lighting up the cars so as to give them that bright and cheerful appearance so much desired by roads for the pleasure and comfort of their passengers. These lamps are strong and durable, and are as easily taken care of as any in use. A full-sized drawing sent, when requested. For cars with high or raised roofs we make these lamps with arms to suspend in any required manner. Manufactured and for sale by WILLIAMS & PAGE, 67 Water street, Boston, Mass.

H. BLOOMFIELD, MECHANICAL ENGINEER, NO. 10 Brown's Building, Buffalo, N. Y. Plans and drawings of Marine and Stationary Engines, Mills and machinery furnished. Iron Manufacturers, Iron Bridge, Engine and Machinists' Tool Builders and all machinery builders and owners of inventions connected with Navigation, Engines, Mills, Manufactories, etc., desiring an Agent at this point, can address as above. References given on application.

FOR SALE.—THE WHOLE OR PART OF A PATENT granted on July 21, 1883, and described in the present number of the SCIENTIFIC AMERICAN. A Saw Set—at once the best, most simple, and effective ever invented—it will set the teeth of a saw of any size, from the smallest to the largest—easily and perfectly. Address WILLIAM NASH, Watertown, N. Y.

NOTICE.—NYSTROM'S POCKET BOOK OF MECHANICS and Engineering, published by J. B. Lippincott & Co., Philadelphia, is now in its eighth edition, revised and improved. Engineers have frequently requested that this book should be noticed in the SCIENTIFIC AMERICAN whenever a new edition is out, to enable them to be supplied, and keep up with the progress of engineering knowledge. Shipbuilders will find this book a most valuable assistance in constructing ships. Address J. B. LIPPINCOTT & CO., Philadelphia, Pa.

COATING FOR WOOD OR IRON SEA-GOING VESSELS.—Highly recommended by ship-owners and others. For circulars, detailing the qualities of the above, and application for the purchase of rights and interests therein, address THOMAS HODGSON, 251 Broadway, New York.

WILBER'S EUREKA MOWER.—THE GREATEST INVENTION in mowing machines of the day—may be seen now at the American Institute and at the N. Y. State Fair. J. D. WILDER, Pleasant Plains, N. Y.

STUMP EXTRACTOR.—WANTED, A FIRST CLASS one. Inventors and makers please address with description and price. Box 321, P. O., East Saginaw, Michigan.

STOVE POLISH.—A FIRE-PROOF ARTICLE. Q. & SON, 114 John street, N. Y.

A VALUABLE WORK FOR INVENTORS, PATENTEES AND MANUFACTURERS.

The publishers of the SCIENTIFIC AMERICAN have just prepared, with much care, a pamphlet of information about Patents and the Patent Laws, which ought to be in the hands of every inventor and patentee, and also of manufacturers who use patented inventions. The character of this useful work will be better understood after reading the following synopsis of its contents:

The complete Patent Law Amendment Act of 1861—Practical Instructions to Inventors, how to obtain Letters Patent, also about Models—Designs—Caveats—Trade-Marks—Assignments—Revenue Tax—Extensions—Interferences—Infringements—Appeals—Re-issues of Defective Patents—Validity of Patents—Abandonment of Inventions—Best Mode of Introducing them—Importance of the Specification—Who are entitled to Patents—What will prevent the Granting of a Patent—Patents in Canada and European Patents—Schedule of Patent Fees; also a variety of miscellaneous items on patent law questions.

It has been the design of the publishers to not only furnish, in convenient form for preservation, a synopsis of the Patent Law and Practice, but also to answer a great variety of questions which have been put to them from time to time during their practice of upwards of seventeen years, which replies are not accessible in any other form. The publishers will promptly forward the pamphlet by mail, on receipt of six cents in postage stamps. Address MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, No. 37 Park Row, New York.

B. T. BABBITT ON MAKING BREAD, WITH FULL directions on each package of Salaratus, showing how to make the best of bread from materials that farmers, always have at hand. Bread made in this manner contains nothing but flour and common salt and water; it has an agreeable taste; keeps much longer than common bread; is more digestible and much less disposed to turn to acid. Common bread, like every thing that has been fermented, ferments again to the great discomfort of many stomachs, and not only so, but acting as a ferment, it communicates to all food in contact with it. The bread being free from yeast particles, is more digestible and not so likely to create flatulence or turn acid on weak stomachs as fermented bread is apt to do, and, when of the finest quality, it is beneficial to those who suffer from headache, acidity, flatulence, eructations, a sense of sinking at the pit of the stomach, distension or pains after meals, and to all who are subject to gout or gravel; it is also useful in many affections of the skin; a saving of 25 pounds of flour per barrel is effected by this process. Be sure and get that with B. T. BABBITT'S name on, or you will not get the recipe with your milk, nor the quality. For sale by store-keepers generally or at the manufactory, Nos. 64 to 74 Washington street, New York.

REAPERS AND MOWERS INDEPENDENT AND Combined.—Parties desirous of engaging in the manufacture of the successful and popular machines, the "Cayuga Chief," address the patentee, C. WHEELER, Jr., Poplar Ridge, Cayuga County, N. Y.

DEAFNESS.—SOUND MAGNIFYING TUBES OR ARTIFICIAL EARS. Instantaneous relief. Send for a Descriptive Circular to E. HASLAM, 32 John street, New York.

DISCHARGED SOLDIERS AND OTHERS ARE MAKING enormous wages in the Stencil business. Don't fail to send for a free Catalogue containing full particulars. Address MILLIKEN & DAVIS, Brandon, Vt.

LANE'S PATENT LIFTING JACK—VERY EASILY operated, compact, simple and cheap. For cut and description see page 406, Vol. VII. (new series), SCIENTIFIC AMERICAN. Send rights for sale. Communications in relation to rights or orders for Jacks may be addressed to J. G. LANE, Washington, N. Y.

NERVOUS DISEASES AND PHYSICAL DEBILITY. arising from Specific causes in both sexes—new and reliable treatment, in Reports of the Howard Association—sent in sealed letter envelopes, free of charge. Address Dr. J. SKILLIN HOUGHTON, Howard Association, No. 2 South Ninth street, Philadelphia, Pa.

VULCANIZED RUBBER.—Adapted to mechanical purposes.—MACHINE BELTING, STEAM PACKING, VALVES, HOSE, EMERY VULCANITE WHEELS, &c. &c. Directions, prices, &c. can be obtained on application to the NEW YORK BELTING AND PACKING COMPANY, Nos. 37 and 39 Park Row, New York.

TO STEAMSHIP AND STEAMBOAT OWNERS AND BUILDERS.—For sale—Two Low-pressure Beam Engines—one 11-foot stroke and 72-inch bore-cylinder, and the other a double-cylinder engine, formerly used in the steamer Backus, on Lake Erie. The outside cylinder is 81-inch bore, and the inside cylinder 36-inch bore and 12-foot stroke, and was, when in use, remarkable for its great economy in fuel. Both engines are in good order. For further particulars or information address E. B. WARD, Detroit, Michigan.

FIBER-CLEANING MACHINE.—THIS VALUABLE machine, the invention of Eduardo J. y Patullo, and illustrated on page 368, last volume, SCIENTIFIC AMERICAN, is now on exhibition, where the public are invited to examine it, at the establishment of TODD & RAFFERTY, No. 13 Dey street, New York.

WANTED.—SCRAP IRON, OLD BOILERS, AND OLD Iron Machinery.—The subscribers will pay cash for any quantity of Wrought or Cast Scrap Iron, Old Boilers, and Old Iron Machinery, delivered at their warehouse, 28, 30, and 32 Terrace street, Buffalo, or at their Rolling Mill and Nail Factory, Black Rock, N. Y. Buffalo, July, 1893. PRATT & CO.

FAN BLOWERS.—DIMPPEL'S, ALDEN'S, MCKENZIE'S and others, for Steamboats, Iron Works, Foundries, Smith Shops, Jewellers, &c. on hand for sale by LEACH BROTHERS, 86 Liberty street, New York.

IRON PLANERS, ENGINE LATHES, DRILLS AND other machinists' tools, of superior quality, on hand and finishing, for sale low. For description and price address NEW HAVEN MANUFACTURING COMPANY, New Haven, Conn.

PAYE'S PATENT FORGE HAMMER.—ADAPTED TO both heavy and light forgings, with an adjustable stroke of from one inch to three feet, on hand for sale by LEACH BROTHERS, 86 Liberty street, New York.

FOWLER'S ADDING MACHINE.—STATE AND COUNTY Rights, and Machines for sale. This Machine has no equal on the American continent. Cheapness and simplicity, combined with accuracy and speed, is what I claim for it over all others. For further information, send for circular to GEO. B. FOWLER & CO., 37 Park Row, Room 21, New York City, or Box 3213 Chicago, Ill. (See cut and description in SCIENTIFIC AMERICAN, No. 10, Vol. 9.)

WOODWORTH PLANERS.—IRON FRAMES TO PLANE 18 to 24 inches wide, at \$100 to \$120. For sale by S. C. HILLS, No. 12 Platt-street, New York.

R. J. IVES, BRISTOL, CONN., MANUFACTURES all kinds of machine and fancy screws. Address as above.

A MESSEURS LES INVENTEURS.—AVIS IMPORTANT. Les inventeurs non familiers avec la langue Anglaise, et qui préféreraient nous communiquer leurs inventions en Français, peuvent nous adresser dans leur langue natale. Envoyez nous un dessin et une description concise pour notre examen. Toutes communications seront reçues en confiance. MUNN & CO., Scientific American office, No. 37 Park Row, New York.

THE CHEAPEST MODE OF INTRODUCING INVENTIONS.

INVENTORS AND CONSTRUCTORS OF NEW AND useful Contrivances or Machines, of whatever kind, can have their Inventions illustrated and described in the columns of the SCIENTIFIC AMERICAN on payment of a reasonable charge for the engraving.

No charge is made for the publication, and the cuts are furnished to the party for whom they are executed as soon as they have been used. We wish it understood, however, that no second-hand or poor engravings, such as patentees often get executed by inexperienced artists for printing circulars and handbills from, can be admitted into these pages. We also reserve the right to accept or reject such subjects as are presented for publication. And it is not our desire to receive orders for engraving and publishing any but good Inventions or Machines, and such as do not meet our approbation in this respect, we shall decline to publish.

For further particulars address— MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, No. 37 Park Row, New York City

OIL! OIL! OIL! For Railroads, Steamers, and for Machinery and Burning. PEASE'S Improved Engine and Signal Oil, indorsed and recommended by the highest authority in the United States. This Oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough and practical test. Our most skillful engineers and machinists pronounce it superior to and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The SCIENTIFIC AMERICAN, after several tests, pronounces it "superior to any other they have ever used for machinery." For sale only by the Inventor and Manufacturer, F. S. PEASE, No. 61 Main street, Buffalo, N. Y. N. B.—Reliable orders filled for any part of the United States and 24 1/2

GUILD & GARRISON'S CELEBRATED STEAM Pumps—Adapted to every variety of pumping. The principal styles are the Direct Action Excelsior Steam Pump, the Improved Balance Wheel Pump, Duplex Vacuum and Steam Pumps, and the Water Propeller, an entirely new invention for pumping large quantities at a light lift. For sale at Nos. 55 and 57 First street, Williamsburgh, and No. 74 Beekman street, New York. GUILD, GARRISON & CO

VALUABLE DOCK PROPERTY FOR SALE.—THE subscriber offers for sale a valuable plot of ground on Newtown Creek, near Penny Bridge, in the city of Brooklyn. The property is very desirably situated in the Seventeenth Ward, Meeker avenue, a great thoroughfare, forming the southern boundary of the premises, a valuable dock privilege of over 400 feet on Newtown Creek, renders the property very desirable for large manufacturing or storage purposes. Vessels of six or eight feet draft can navigate the creek at low tide, and of much greater capacity at high water. The upland and water privilege comprise about nineteen acres, and will be sold very cheap, and the terms of payment made liberal. For further particulars, address J. B. BULLOCK, attorney for the owners, No. 59 Nassau street, New York.

SAVING OF FUEL TO PARTIES USING STEAM.—DAMPER REGULATORS. Guaranteed to effect a great saving in fuel, and give the most perfect regularity of power. For sale by the subscribers, who have established their exclusive right to manufacture damper regulators, using diaphragms or flexible vessels of any kind. CLARK'S PATENT STEAM AND FIRE REGULATOR COMPANY, No. 5 Park Place, New York. 16 26 1/2

PORTABLE STEAM ENGINES.—COMBINING THE maximum of efficiency, durability and economy with the minimum of weight and price. They are widely and favorably known, more than 200 being in use. All warranted satisfactory or no sale. Large stock on hand ready for immediate application. Descriptive circulars sent on application. Address J. C. HOADLEY, Lawrence, Mass.

250 RARE RECEIPTS—FOR MECHANICS AND their wives—tells what to do and how to do it. The book sent free for fifteen cents. HUTCHINSON & CO., Publishers, 442 Broadway, New York. 7 7 1/2

BLACK DIAMOND STEEL WORKS, PITTSBURGH Pa. PARK, BROTHER & CO., manufacturers of best quality Refined Cast Steel, square, flat and octagon, of all sizes. Warranted equal to any imported or manufactured in this country. Office and Warehouse, Nos. 149 and 151 First street, and 120 and 122 Second street, Pittsburgh, Pa. vol. 8 11 1/2

POWER LOOM WIRE CLOTHS AND NETTINGS, superior in quality and at low prices, by the CLINTON WIRE CLOTH COMPANY, Clinton, Mass. N. B.—Our trade-mark "Power Loom Wire Cloth." vol 8 24 31

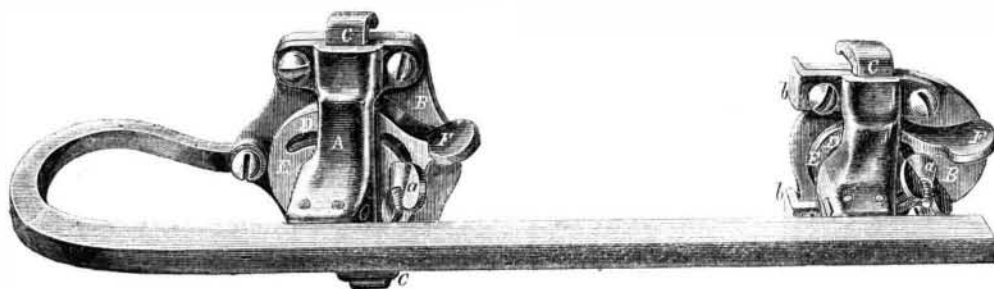
BOLTS, NUTS AND WASHERS OF ALL SIZES CONSTANTLY ON HAND FOR SALE BY LEACH BROTHERS, 86 Liberty street New York. 1 13 1/2

COTTON GINS! COTTON GINS!! THE NEW YORK Cotton Gin Company manufacture and offer for sale the Excelsior Roller Gin for Sea Island or long staple cotton; also Brown's celebrated Double-cylinder Saw Gin for upland or short staple. The above Gins are acknowledged to be without their equal; they do more work and produce a better sample than any offered in the market. We also manufacture a large variety of hand Gins, both for long and short staples. Persons intending to order for the coming crop of cotton will do well to do so soon, in order to secure their Gins in season. FRANKLIN H. LUMMUS, General Agent, No. 82 John street, New York. 25 13 1/2

Zur Beachtung für deutsche Erfinder. Die Unterzeichneten haben eine Anstalt, die Erfindern das Verhalten anzeigt, welche ihre Patente zu sichern, drauzugeben, und verarbeiteten lassen, gratis anfordern. Erfinder, welche nicht mit der englischen Sprache bekannt sind, können ihre Mittheilungen in der deutschen Sprache machen. Sagen den Erfindern mit kurzen, deutlich gezeichneten Verfertigungen, welche man zu erhalten an MUNN & Co., 37 Park Row, New York. Auf der Office wird deutsch gesprochen. Dasselbe ist zu haben. Die Patent-Gesetze der Vereinigten Staaten. nebst den Regeln und der Geschäftsführung der Patent Office und Anweisungen für den Erfinder, um sich Patente zu sichern, in den Ver. St. sowohl als in Europa. Ferner Auszüge aus den Patent-Gesetzen fremder Länder und darauf bezügliche Nachrichten; ebenfalls nützliche Hinführungen und solche, welche patentieren wollen. Preis 20 Cts., per Post 25 Cts.

**Improved Skate.**

Tripping the light fantastic toe in the measures of the dance is to some persons delightful pastime; but when the sport is transferred from the drawing room to the ice, tripping is no longer desirable, but a sense of security is demanded, if skating is to be enjoyed to its fullest extent. A good skater seldom loses his balance, unless from some extraneous circumstance; such as loosening of the skate or an obstruction on the ice; but in all cases it is necessary, as a matter of the first importance, that the skate should be firmly fastened to the foot. Since this pastime has obtained such popularity among us, innumerable varieties of mechanically-fastened skates have been invented, each differing from the other. We here-



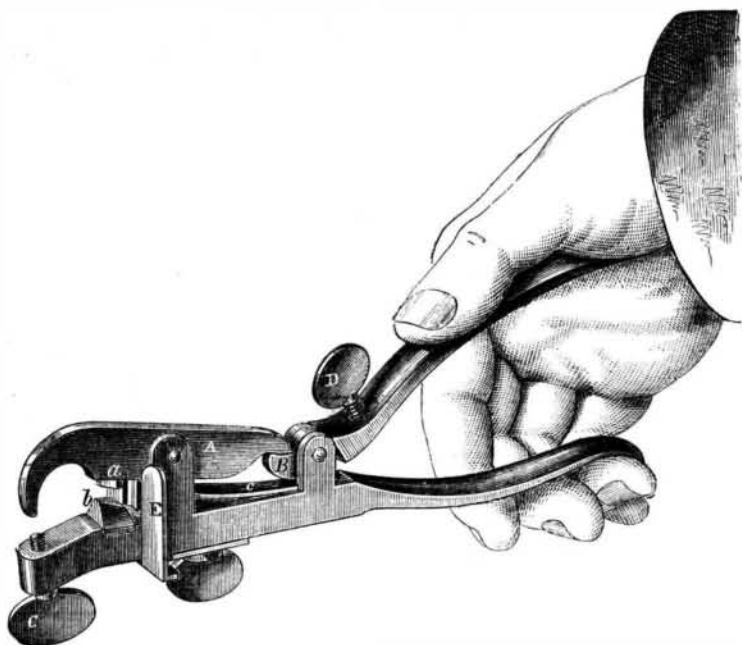
**DAY'S PATENT SKATE.**

with illustrate still another one—a claimant for public favor in the same line. The skate will be easily understood by referring to the letters and subjoined explanation of it. The iron is rivetted to the standards, A, which carry on their upper faces the heel and foot plates, B; these plates are secured by brackets, between which the clamps, C, work. The opposite ends of these clamps have strong pins in them, which slide in the eccentric slots, D, in the plate, E; these are the whole details. The manner of adjustment is obvious. When the skate is applied to the sole of the boot, the clamps, C, are moved up to it by taking hold of the thumb-piece, F, and turning the plate; by this means the clamps are brought into close contact with the boot, and the thumb-screw, a, is then screwed up tight, so as to prevent the plate from moving and loosening the clamps. The same plan is pursued with the heel

**Improved Saw Set.**

The subjoined engraving represents a new and convenient tool for setting saws. Some instruments of this class are already in public use, but they work upon wholly different principles; this one is very neatly arranged in its several parts with reference to the work required of it; a simple closing of the hand being sufficient to perform the operation. Our artist has so clearly depicted the construction of the tool that it may be seen at a glance. It consists of a metallic bar, A, mounted on a joint, and worked by the toe, B, through the agency of the hand; in this bar, and upon the one below it, there are steel dies, a and b, which come in contact with the saw teeth and bend them to any off-set desired; this is accom-

plished by the set screws, C and D. When the saw is inserted, the dies bear on each side of the tooth; when pressure is applied the tooth being the weakest part, is forced down by the die until the end of the bar, A, touches the set screw, C, and the screw, D, bears upon the lower bow; the set can thus be regulated for large and small teeth with the greatest ease; when the hand is relaxed, the spring, c, throws the set open again and the operation goes on until completed. The gage, E, is secured by the set screw at the bottom, and affords a means of adjusting the saw blade in its place, and also prevents the teeth from catching in the several parts. We regard this as a very convenient implement; it always sets the teeth exactly uniform, and will not break them as in sets that work by percussion or by nipping the teeth. A patent for this invention was granted to William Nash, assignee of Oliver Newton, through



**NEWTON'S PATENT SAW SET.**

plate, on which there are two additional projections, b, which prevent the foot from working forward. The inventor claims that this skate is exceedingly simple in its construction, not liable to accidental derangement, is easily and speedily put on, or taken off, requires no straps, springs, or screws, and that the same freedom of movement is obtained as in walking. The invention was patented by C. T. Day, of Newark, N. J., on Aug. 11, 1863, through the Scientific American Patent Agency. The entire patent is for sale; further information can be had by addressing the inventor as above.

the Scientific American Patent Agency, on July 21, 1863; further information can be had by addressing William Nash, at Watertown, N. Y. See advertisement on page 175.

**American Mechanics in France.**

There is at Montargis, in France, about three hours' ride by rail from Paris, a grand india-rubber factory, operated by steam, and employing from 600 to 700 work people. The establishment was built by the father of Louis Phillippe, and with the dwellings of those employed in it, is said to resemble a sort of

baronial estate. The factory is managed by Mr. Hiram Hutchinson, formerly a citizen of Newark, N. J., and President of the Newark India-rubber Company; while the two chief foremen are also Americans—Canfield of Connecticut, and Mix, formerly of the Newark Rubber Company. The establishment is owned by a corporation, who have a factory in Paris and another in Germany, and their enterprise has not only made them enormously rich, but been of very great advantage to France. The fact that three American mechanics hold the chief places in the employment of this great French firm at Mortargis, speaks eloquently in favor of the mechanical skill of our countrymen.

The total export of sherry from Cadiz for the half year ending the 30th of June last, was 30,360 butts, against 26,180 in 1862. Of port wine the export from Oporto for the half year was 6,590 pipes.



OF THE

**SCIENTIFIC AMERICAN.**

THE BEST MECHANICAL PAPER IN THE WORLD.

NINETEENTH YEAR!

VOLUME IX.—NEW SERIES.

The publishers of the SCIENTIFIC AMERICAN beg to announce that on the fourth day of July, 1863, a new volume commenced, and it will continue to be the aim of the publishers to render the contents of each successive number more attractive and useful than any of its predecessors.

The SCIENTIFIC AMERICAN is devoted to the interests of Popular Science, the Mechanic Arts, Manufactures, Inventions, Agriculture, Commerce, and the Industrial pursuits generally, and is valuable and instructive not only in the Workshop and Manufactory, but also in the Household, the Library and the Reading Room.

The SCIENTIFIC AMERICAN has the reputation, at home and abroad, of being the best weekly journal devoted to mechanical and industrial pursuits now published; and the proprietors are determined to keep up the reputation they have earned during the eighteen years they have been connected with its publication.

*Chemists, Architects, Millwrights and Farmers!*

The SCIENTIFIC AMERICAN will be found a most useful journal to them. All the new discoveries in the science of chemistry are given in its columns, and the interests of the architect and carpenter are not overlooked; all the new inventions and discoveries appertaining to those pursuits being published from week to week. Useful and practical information pertaining to the interests of millwrights and mill-owners will be found published in the SCIENTIFIC AMERICAN, which information they cannot possibly obtain from any other source; subjects in which planters and farmers are interested will be found discussed in the SCIENTIFIC AMERICAN; most of the improvements in agricultural implements being illustrated in its columns.

*To the Inventor!*

The SCIENTIFIC AMERICAN is indispensable to every inventor, as it not only contains illustrated descriptions of nearly all the best inventions as they come, but each number contains an Official List of the Claims of all the Patents issued from the United States Patent Office during the week previous; thus giving a correct history of the progress of inventions in this country. We are also receiving, every week, the best scientific journals of Great Britain, France and Germany; thus placing in our possession all that is transpiring in mechanical science and art in those old countries. From those journals we shall continue to transfer to our columns copious extracts of whatever we may deem of interest to our readers.

*To the Mechanic and Manufacturer!*

No person engaged in any of the mechanical pursuits should think of doing without the SCIENTIFIC AMERICAN. It costs but six cents per week; every number contains from six to ten engravings of new machines and inventions which cannot be found in any other publication. It is an established rule of the publishers to insert none but original engravings, and those of the first class in the art, drawn and engraved by experienced artists, under their own supervision, expressly for this paper.

**TERMS.**

To mail subscribers:—Three Dollars a Year, or One Dollar for four months. One Dollar and Fifty Cents pay for one complete volume of 416 pages; two volumes comprise one year. A new volume commenced on the fourth day of July, 1863.

**CLUB RATES.**

Five Copies, for Six Months.....	36
Ten Copies for Six Months.....	10
Ten Copies, for Twelve Months.....	32
Fifteen Copies, for Twelve Months.....	34
Twenty Copies, for Twelve Months.....	40

For all clubs of Twenty and over the yearly subscription is only \$2 00. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

Western and Canadian money or Post-office stamps taken for for subscriptions. Canadian subscribers will please to remit 25 cents extra on each year's subscription to pre-pay postage.

**MUNN & CO., Publishers.**

o. 7 Park-row, New York.