

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 for 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 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. 66 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.

#### 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 1863, 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.

**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.

#### 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.



**Q. C., of Mass.**—You will find the formula for calculating the flow of water through pipes in "Nystrom's Handbook for Mechanics," page 228, published by J. B. Lippincott & Co., Philadelphia; but more full in Professor Rankin's work on "Prime Movers," page 102—a London publication.

**L. R., of Pa.**—There is no business directory for the State of New York published, so far as we know.

**G. S., of Pa.**—Aniline colors cannot be made from petroleum, by any known process, because it does not contain true benzole.

**E. J., of Mass.**—Skeleton leaves are prepared by macerating in soft water, and exposing them to the sun for several days, until they ferment, when the soft portions may be easily removed with the fingers, or a brush, leaving the fibrous skeletons perfect. To render them white, steep for a short period in a dilute solution of the chloride of lime, then wash and dry them.

**J. T. T., of Mass.**—Communicate with Charles Seely, editor of the *American Journal of Photography*, No. 244 Canal street, this city, respecting articles for the photographer, their cost, &c., and the other information which you desire.

**G. & T., of Ill.**—You state that your iron tanks are cylindrical, five-sixteenths of an inch thick and 60 inches in diameter, and you wish to know what pressure of steam they will bear. The practice is to allow about 52,000 pounds for the strength of a square inch of iron; divide this by the diameter (60) in inches of the tank, or boiler, and the quotient is the bursting pressure. It is customary to use steam at only one-third this pressure, and to allow one-third for the weakening effects of riveting. The pressure for your tanks should, therefore, not exceed 60 pounds on the iron; but if you were to hoop them with half-inch ring, eighteen inches apart, they would bear a pressure of 90 pounds.

**R. W. G., of Ill.**—Thomas Prosser, No. 28 Platt street, this city, will give you information, and furnish you with drawn steel rods.

**A. R. S., of Ohio.**—The Practical Draughtsman's Book of Industrial Design, published by Henry Carey Baird, Philadelphia, is the best you can obtain upon the designing of gearing. The art of cutting gear wheels, however, can only be learned by practice.

**J. M. Z., of Ill.**—We do not understand, from your letter, what kind of coating you desire for light hardware, such as door handles, latches, &c. The black coating usually consists of a black varnish, which is manufactured and sold for common use in nearly every city. Porcelain door handles are composed of Chinese clay, molded and baked under a high heat in porcelain kilns.

**G. W. S., of Boston.**—We have received your communication on the rights of authors and inventors to ideas, as permanent property, like real estate. Having fully investigated this subject many years ago, we consider that your conclusions are unsupported by sound reasoning. You will find the subject discussed on page 122 Vol. IX. (old series) of the SCIENTIFIC AMERICAN, and especially on page 237, Vol. II. (old series) of the SCIENTIFIC AMERICAN.

**D. J. T., of Ohio.**—There is no first rate work published on rifles and gunnery. At present gunnery is in a transition state. Experiment alone can determine the amount of pressure in front of a bullet moving in the barrel of a rifle. The total pressure of the atmosphere is only 15 pounds on the square inch.

**D. K., of N. Y.**—You will find it troublesome to work a low pressure engine of the size you mention. You had better let it work high pressure. A boiler 4 feet high, and 18 inches diameter, will do the work, providing it contains five flues one inch in diameter, and 3 feet long, or in that proportion. An old boiler flue will answer if you can get fire enough under it to make steam rapidly.

**E. G. C., of Mass.**—Mr. Gail Borden's address is 36 Elizabeth street, New York. We shall make use of your perpetual motion item.

**L. C., of Maine.**—We will send you one of our pamphlets of advice by mail. Generally, in doubtful cases, we advise parties to have preliminary examination made at the Patent Office.

**C. B., of N. J.**—The patent law provides that a design patent may be extended for seven years, upon the payment of \$100 to the Patent Office, and otherwise complying with the terms of the law. Our pamphlet fully explains all these matters.

**H. C., of Mo.**—War is always more or less a temporary calamity; but in measuring its consequences we must look beyond mere temporary issues, and contemplate its effects upon the ultimate interests of the nation. We regard disunion as the greatest calamity that could befall the country. It would insure the destruction of our Government, and promote endless border wars. We must be one people living under one Government; then we shall be great and powerful for all purposes.

**N. B., of Cal.**—The use of silk for wearing apparel may become more extensive in this country, but it will never supersede cotton and flax tissues. You are surprised at the elegant silks worn by all classes and sexes of Chinese in your State! You must remember that the silk worm and the mulberry are indigenous to China, and there are twenty persons there for one in America.

**A. T., of Mass.**—Between three and four feet is the usual quantity of rain that falls in a year; but this year there was nearly that much during the month of July, in some parts of the United States. During the same month (17th of July) it was so cold in England that a severe frost injured vegetation near London.

**C. H., of Pa.**—Many new American patented agricultural implements are now introduced to Cuban industry, by Don José Macéas, an enterprising Americanized islander, who has recently established a model farm near Matanzas. Connected with it, he has a stock farm, for raising the best breeds of useful farm animals.

**P. T., of Wis.**—The longest railway tunnel in the world is that between Lyons and Turin, under Mont Cenis: it is more than seven miles in length, and beats the famous Hoosac tunnel of Old Bay State, yet unfinished, through solid granite. The first special tunnel we have any account of, is that called the *Grotto di lipa*, near Naples, Italy, now used as a common roadway. It is through the *tufo* of a mountain spur, between Naples and Barce.

**E. R. S., of Md.**—You will find an article on petrole for the fuel of steamers on page 415, Vol. I, current series of the SCIENTIFIC AMERICAN. Whoever informed you that petroleum is cheaper than coal for generating steam, and that it is now used in boilers for fuel, must be mistaken.

**J. M. G., of Ill.**—We see nothing in your device which differs substantially from, or is of more practical value than the well-known hydrostatic paradox. The experiment would be simple and if you are in any doubt try it.

**C. C. R., of N. Y.**—You will find the price for binding volumes of the SCIENTIFIC AMERICAN on our advertising page.

**R. J. A., of Ill.**—There is no loss of useful effect by the transmission of work through the crank of an engine, except the friction on the crank pin. It is an erroneous notion entertained by many persons, that a crank consumes power.

#### Money Received

At the Scientific American Office, on account of Patent Office business, from Wednesday, Aug. 19, to Wednesday, August 26, 1863:—

A. G., of Pa., \$10; G. B. H., of N. Y., \$20; G. W. H., of Iowa, \$20; F. A. Jr., of Mich., \$20; S. T. S., of Mass., \$20; J. C., of N. Y., \$20; T. W., of Ill., \$20; N. B. B., of N. Y., \$20; W. E. N., of Conn., \$100; J. F., of N. Y., \$20; H. G., of N. Y., \$16; W. McK., of Pa., \$20; W. W., of Cal., \$45; S. & S., of Pa., \$20; W. B. R., of Mich., \$20; M. W. W., of Mo., \$20; C. M., of N. Y., \$25; H. W. C., of Vt., \$16; H. L., of Mo., \$25; W. D. H., of La., \$25; M. De C., of Ind., \$26; W. X. S., of Mass., \$16; G. G. H., of Conn., \$16; M. & S., of Vt., \$41; M. B. W., of Conn., \$25; T. T., of Pa., \$16; A. S. L., of N. Y., \$16; J. F., of N. C., \$15; H. J., of Conn., \$16; F. & P., of N. Y., \$16; R. W., of N. Y., \$16; M. M. C., of Ill., \$20; C. J. B., of Ill., \$26; H. F. & T. R. B., of Iowa, \$16; E. J. B., of Ill., \$16; J. W. Jr., of Wis., \$5; F. J. K., of Ohio, \$20; W. B. K., of Iowa, \$15; J. D. C., of Ill., \$15; H. & G., of Ill., \$20; C. F., of Ill., \$25; G. G. C., of N. Y., \$16; R. B. Z., of Ohio, \$15; D. I. S., of N. Y., \$25; G. M. L., of N. Y., \$12; W. H. G., of N. Y., \$25; H. K., of N. Y., \$45; J. D., of N. J., \$45; R. B., of Mich., \$45; L. S., of N. Y., \$25; J. S., of N. Y., \$25.

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 19, to Wednesday, August 26, 1863:—

E. C., of N. Y. (4 cases); H. & C., of Conn.; W. C., of Ill.; M. & S., of Vt.; F. S. G., of Conn.; C. M., of N. Y.; D. J. S., of N. Y.; O. & F., of N. Y.; L. S., of N. Y.; P. Mc. G., of Iowa; T. J. K., of Ohio; O. F. H., of Mass.; M. B. W., of Conn.; J. C. L., of Mo.; W. D. H., of La.; M. D., of Ind.; C. F., of Ill.; C. C., of N. Y.; J. S., of N. Y.

#### 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.

**A PRACTICAL SOAP MAKER HAS TWO NEW** Soaps (Patentable) he wishes introduced to the public, there's in them. Address, with stamp for reply, WM. E. BOULGER, Chicago, Ill.

**WANTED.—PATENTEE.** ANY PERSON PAYING the expense of procuring the patent on a valuable improvement in a Window Sash Stop and Lock, can purchase the entire right when patented, very low, by addressing LOCK, box No. 541, Providence, R. I.

**PATENT FOR SALE.—FISHER'S LAWN OR YARD** Mower, Patented 1863. Vibrating cutters; lightest machine made, weighs 35 lbs.; a lady can mow with it. For further particulars, address HENRY FISHER, Alliance, Ohio.

**TO THE ENTERPRISING AND INTELLIGENT.**—I have the right of New Jersey on a Patented machine, which I wish to sell to a party of some means and energy. It is worth a fortune. I will sell it for two thousand dollars. For further information, call or address A. BARRETT, 186 William street, Hoboken, N. J.

**FOWLER'S ADDING MACHINE.—STATE AND COUN** try 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, address GEO. B. FOWLER & CO., 37 Park Row, Room 21, New York City, or Box 3212 Chicago, Ill. (See cut and description in SCIENTIFIC AMERICAN, No. 10, Vol. 9.)

ASSISTANT QUARTERMASTER-GENERAL'S OFFICE, PHILADELPHIA, 24th August, 1863.

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, 1863, and ending 30th September, 1864. Coal to be of the best quality Anthracite for use of steamers; to weigh 220 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 such quantities, 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 above stated. Twenty per cent. will be withheld from the amounts 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 to be the interest of the service to do so. Proposals must be endorsed "Proposal for Coal for the War Department," Signed, A. BOYD, Captain and Assistant Quartermaster U. S. Army.

OFFICE OF THE SIGNAL OFFICER, WASHINGTON, D. C., Aug. 8, 1863. Sealed Proposals will be received at this office until SATURDAY, August 29, 1863, at 4 o'clock, P. M., for furnishing for the Signal Department the following articles: 250 Two hundred and fifty sets Signal Equipments. 30 Thirty barrels Turpentine. 100 One hundred bales Wicking. 200 Two hundred Telescope Holders. 25 Twenty-five gross Wind Matches. 20 Twenty pounds Linen Thread. 2 Two gross Needles. 10 Ten Tap Boers. 20 Twenty Spigots. The first delivery to be made about the 15th of September, 1863, or as soon thereafter as Government may direct. The full name and Post-Office address of the bidder must appear in the proposal. If a bid is made in the name of a firm, the names of all the parties must appear, or the bid will be considered as the individual proposal of the party signing it. Proposals from disloyal parties, or where the bidder is not present to respond to his bid, will not be considered. Proposals must be addressed to "The Signal Officer of the Army," Washington, D. C., and should be plainly indorsed, "Proposals for Field Signal Equipments." The responsibility of the guarantors must be shown by the official certificate of the clerk of the nearest district court or of the United States District Attorney. The ability of the bidder to fill the contract, should it be awarded to him, must be guaranteed by two responsible persons, whose signatures are to be appended to the guarantee, and said guarantors must accompany the bid. Bonds in sums of double the amount involved in the contracts, signed by the contractor and both of his guarantors, will be required of the successful bidder or bidders, upon signing the contract. FORM OF GUARANTEE. We, of the county of \_\_\_\_\_ and State of \_\_\_\_\_, do hereby guarantee that \_\_\_\_\_ is able to fulfill the contract in accordance with the terms of his proposition, and that should his proposition be accepted he will at once enter into a contract in accordance therewith. Should the contract be awarded to him we are prepared to become his securities. (To this guarantee must be appended the official certificate above mentioned.) The right is reserved to reject all proposals, if the prices are deemed too high, or if, for any cause, it is not deemed for the public interest to accept them. Models will be on exhibition at the office of the Signal Officer for twenty (20) days from date.

PROPOSALS FOR CONSTRUCTING A BRICK TUNNEL under Lake Michigan, two miles long, for the City of Chicago. OFFICE OF THE BOARD OF PUBLIC WORKS, Chicago, August 13th, 1863. Sealed Proposals will be received at this office till Wednesday, September 9th, at 11 o'clock, a. m., at which time the Board will open the same, for doing all the work and furnishing all the materials required for the construction of a brick tunnel, five feet clear diameter, and extending from the present pumping works of the city, two miles out under the bed of Lake Michigan, and through what numerous borings invariably show to be a stiff blue clay soil, together with sand and lake shafts, and protecting cribs, in accordance with the plans and specifications for the doing of said work, to be found on file in the office of this Board on and after the 19th inst. The Board would prefer to let the entire work to one contractor or company, but will receive separate proposals for the tunnel proper and land shafts, for the protecting cribs, and for the cast-iron cylinders for lake shafts. The Board reserves the right to reject any or all bids, and to accept any one bid complying with the conditions of this advertisement. The bids must be sealed, and must be accompanied with a bond of the penal amount of \$200, blanks for which will accompany the specifications, guaranteeing the execution of a contract in accordance with the bid, in case the bid is accepted. Proposals must be directed to the Board of Public Works, and indorsed "Proposals for Lake Tunnel." Satisfactory security for the faithful performance of the work will be required of the parties whose bids may be accepted. G. SIBBLE, FRED LEVY, F. C. SHERMAN, Board of Public Works.

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REAPERS AND MOWERS INDEPENDENT AND "Combined." Parties desirous of engaging in the manufacture of those successful and popular machines, the "Cayuga Chief," "Cayuga Chief No. 2," or "Cayuga Chief, Jr.," can address the patentee, C. WHEELER, Jr., Poplar Ridge Cayuga County, N. Y. 10 8\*

DEAFNESS.—SOUND MAGNIFYING TUBES OR ARTIFICIAL EARS. Instantaneous relief. Send for a Descriptive Circular to E. HASLAM, 32 John street, New York. 10 2\*

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. 10 6\*

TO PRACTICAL BOLT AND NUT-MAKERS.—WANTED, a steady, reliable man who has had practical experience in making pressed bolts and nuts. A good situation, with prospect of advancement, will be assured. Address, stating terms and full particulars, B. D. H., Box 447, Pittsburgh, Pa. 7 4\*

LANE'S PATENT LIFTING JACK—VERY EASILY operated, compact, simple and cheap. For cut and description see page 405, Vol. VII. (new series), SCIENTIFIC AMERICAN. Sixty rights for resale. Communications in relation to rights or orders for Jacks may be addressed to J. G. LANE, Washington, N. Y. 10 8

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. B. HILLMAN, HOWARD ASSOCIATION, Howard Association, No. 2 South Ninth street, Philadelphia, Pa. 10 4

A VALUABLE WORK FOR INVENTORS, PATENTERS AND MANUFACTURERS.

The publishers of the SCIENTIFIC AMERICAN have just prepared, with much care, a pamphlet of information about Patents and the Patent Law, 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—Copyrights—Trade-marks—Assignments—Revenue Tax—Extensions—Interferences—Infringements—Appeals—Re-issues of Defective Patents—Validity of Patents—Abandonment of Inventions—New Modes of Introducing them—Importance of the Specification—Who are entitled to Patents—that 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 make 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.

MARINE STEAM ENGINE.—JUST PUBLISHED.—Questions on subjects connected with the Marine Steam Engine, and Examination Papers, with Hints for their Solution. By Thomas J. Main, M. A., Master, Prof. Royal Naval College, Portsmouth, and Thomas Brown, Chief Eng. R. N., attached to R. N. College. In one volume, 12mo., price \$1.50. On the appearance of some questions at the end of the second edition of the Marine Steam Engine, it was suggested to the Authors that a separate work, containing a more copious collection of examples of the same kind, systematically arranged, would be highly useful to many who have not the advantage of a tutor. To this end, the Authors have endeavored to arrange the following questions in order of difficulty; and have either given partial hints, or have worked out the question in detail wherever it has been thought necessary. Examination papers also have been added, that the student may test his own acquirements; but he is recommended not to attempt them until he feels confident in his knowledge of the subject.—Preface. Also published, A Treatise on Screw Propellers and their Steam-Engines. By J. W. Nyström. Illustrated by 32 large drawings, 8vo., cloth, \$3.50

A Handbook for Locomotive Engineers and Machinists. By Septimus Norris, C. E. New edition, illustrated, 12mo., cloth, \$1.50. Contents on the Steam Engine, including a Description of its Structure, &c. Illustrated, 12mo., cloth, 75 cents. Practical Examiner on Steam and the Steam Engine. By William Templeton. 12mo., 75 cents. The above, or any of my books, sent by mail free of postage. Every reader of the SCIENTIFIC AMERICAN is particularly invited to send for a catalogue, which will be sent free of postage. HENRY LARKY BARR, Publisher of Practical and Scientific Books, 406 Walnut street, Philadelphia. 8 3

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 on hand. Bread made in this manner contains nothing but flour, salt, water, and 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 all yeasty particles, is more digestible and not so likely to create flatulency or turn acid on weak stomachs as fermented bread apt to do, and, when of the finest quality, it is beneficial to those who suffer from headache, acidity, flatulency, 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 your tin, it will not get the cake with sour milk, nor the quality. For sale by store-keepers generally or at the manufactory, Nos. 34 to 74 Washington street, New York. 25 ct

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 38 Park Row, New York. 4 1/2

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FIBER-CLEANING MACHINE.—THIS VALUABLE machine, the invention of Eduardo J. y Patullo, and illustrated on page 388, last volume, SCIENTIFIC AMERICAN, is now on exhibition, where the public are invited to examine it, at the establishment of TODD & RAFFERTY, No. 15 Day street, New York. 2 15

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Improved Nail Plate Feeder.

In the accompanying engravings Fig. 1, represents a perspective view, and Fig. 2, a vertical, longitudinal section of a machine invented by Mr. J. S. Fisk of Youngstown, Ohio, for feeding nail plates, from which blanks are to be cut by the shears. In cutting nail blanks, it is necessary, in order to form the head, point, and required taper of the nails, to change the relative positions of the nail plate with the shears after every cut. The taper will then be made alternately in opposite directions across the

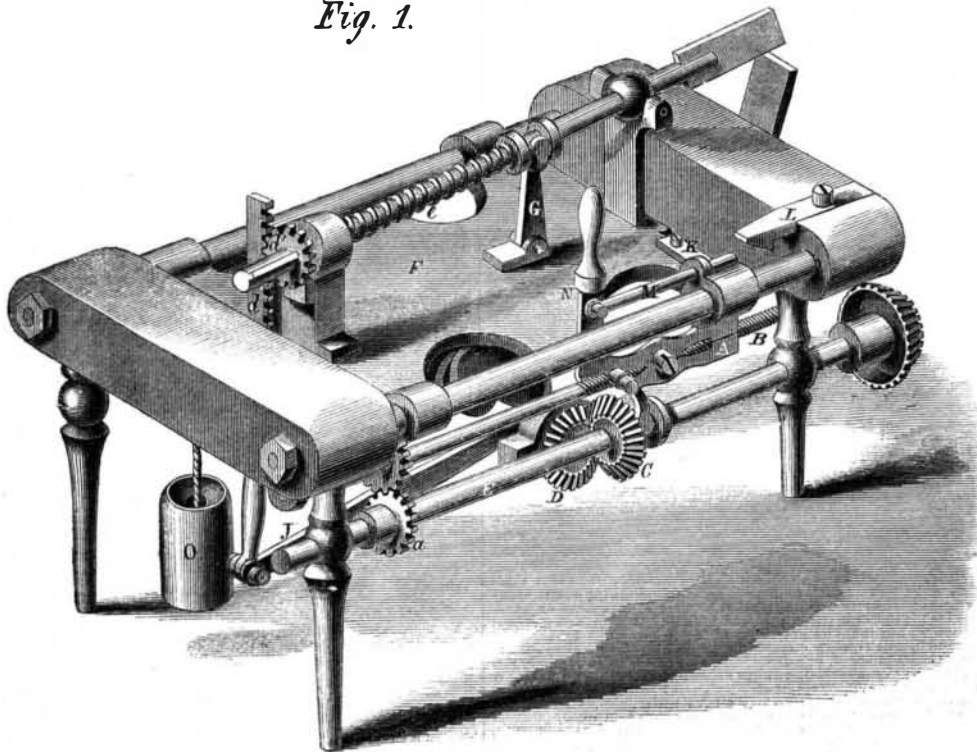
retracts the plate rod, H, and the cam, b, depressing the inner end of the lever, I, raises the forward end of the said rod preparatory to the inversion of the plate. The cam, c, then depresses the inner end of the lever, J, which, acting through the medium of the rack and pinion, d d, turns the plate rod one half round, so as to invert the nail plate. The cams, b and b', then release their respective levers, and the springs, e and f, restore the plate rod to its lower and forward position; the motion of the carriage having, in the mean time, advanced the plate far

gear, and the work proceeds as long as plates are furnished.

The engraving represents the plate retracted, elevated, and in the act of turning. A patent for this invention was procured through the Scientific American Patent Agency, on June 30, 1863; further particulars can be obtained by addressing the inventor, Mr. J. S. Fisk, or Messrs. Van Brocklin & Jones, at Youngstown, Mahoning county, Ohio.

It is officially reported that out of those persons usually employed in the mills in the cotton districts of England, about 234,642 are now in full work, 125,097 on short time, and 180,729 out of work; against 192,527 full time, 129,741 on short time, and 215,512 out of work some months since.

Fig. 1.

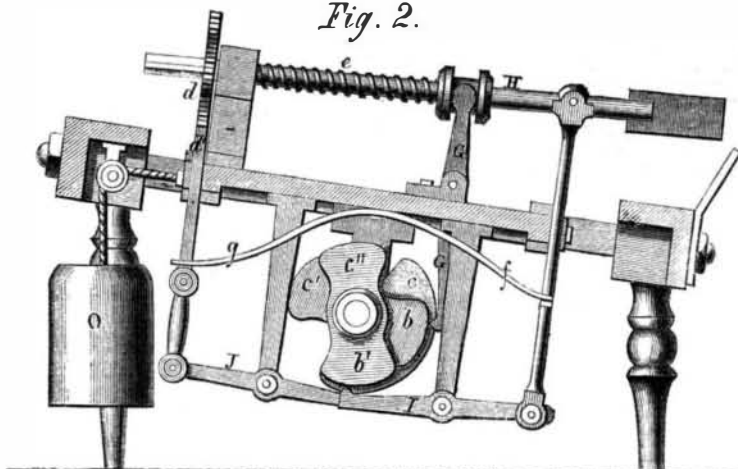


FISK'S PATENT NAIL PLATE FEEDER.

plate, and the latter worked up evenly to the end. This may be effected by turning either the shears or the plate in a horizontal plane, after each motion; but more practicably by feeding the plate in a uniform direction, slightly oblique to the shears, and inverting the plate after each nail is severed. Before the plate can be inverted, it must be drawn back and elevated to clear it from the shears. The object of the present invention is to produce these various complicated motions, including the regular feeding forward of the plate, by automatic machinery. The construction of the machine by which this result is

enough for the separation of another blank. While this is being effected, the continued pressure of the cam, c, upon the lever, J, holding the rack stationary, keeps the plate from turning; and it is so held until the cams, c' c'', again act upon the levers G and I, so as to elevate and retract the plate rod as before explained. This done, the cam c, releases the lever, J, and the spring depressing its outer or rear end, draws down the rack, d'; this again inverts the plate, and holds it until it has been again restored to position for cutting, and another blank severed; after which the work proceeds as before explained.

Fig. 2.



attained will be understood from the following description of its operation.

The divided nut, A, being in gear with the screw, B, and the bevel pinion, C, being in gear with the pinion, D, as shown in Fig. 1, rotation is imparted to the shaft, E, by steam or any other suitable power. This communicating through the gearing, a, to the screw shaft, B, working within the nut, A, advances the carriage, F, at a regular speed. When a nail blank has been severed, the cam, b (see Fig. 2), bearing against the lower end of the lever, G,

When the carriage reaches its forward position, and a plate has been used up, the spring catch, K (see Fig. 1), passing under the stationary cam, L, is retracted from the rod, M; upon which a spring throws back the lever, N, and opens the hinged nut, A, permitting the weight, O, to draw the carriage, F, back, and at the same time throws the bevel pinion, D, out of gear with its pinion, C. The machine then remains at rest until a new plate has been supplied to the rod and the lever, N, restored to its forward position; which throws the whole apparatus into

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