

HOW TO MAKE AN APPLICATION FOR A PATENT.

Every applicant for a patent must furnish a model of his invention if susceptible of one; or, if the invention is a chemical production, 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 a draft on New York, payable to the order of Messrs. 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.

Patents are now granted for SEVENTEEN years, and the Government fee required on filing an application for a patent is \$15. Other charges 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.....\$30
On application for Re-issue.....\$30
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The Patent Laws, enacted by Congress on the 2d of March, 1861.

now in full force, and prove to be of great benefit to all parties who are concerned in new inventions.

Thelaw 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 (except in cases of designs) on the above terms. Foreigners cannot secure their inventions by filing a caveat; to citizens only is this privilege accorded.

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 is \$10. A pamphlet of advice regarding applications for patents and caveats is furnished gratis, on application by mail. Address MUNN & CO., No. 37 Park Row, New York.

REJECTED APPLICATIONS.

Messrs. MUNN & CO. are prepared to undertake the investigation and prosecution of rejected cases, on reasonable terms. The close proximity of their Washington Agency to the Patent Office affords them rare opportunities for the examination and comparison of references, models, drawings, documents, &c. Their success in the prosecution of rejected cases has been very great. The principal portion of their 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 MUNN & CO., on the subject, giving a brief history of the case, inclosing the official letters, &c.

FOREIGN PATENTS.

Messrs. MUNN & CO., are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business they have offices at Nos. 66 Chancery Lane, London; 29 Boulevard St. Martin, Paris; and 26 Rue des Eperoniens, Brussels. They think they can safely say that THREE-FOURTHS of all the European Patents secured to American citizens are procured through their agency.

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 MUNN & CO'S Agency, the requirements of different Government Patent Offices, &c., may be had, gratis, upon application at the principal office, No. 37 Park Row, New York, or any of the branch offices.

SEARCHES OF THE RECORDS.

Having access to all the official records at Washington, pertaining to the sale and transfer of patents, MESSRS. MUNN & CO., are at all times ready to make examinations as to titles, ownership, or assignments of patents. Fees moderate.

INVITATION TO INVENTORS.

Inventors who come to New York should not fail to pay a visit to the extensive offices of MUNN & CO. They will find a large collection of models (several hundred) of various inventions, which will afford them much interest. The whole establishment is one of great interest to inventors, and is undoubtedly the most spacious and best arranged in the world.

MUNN & CO. wish it to be distinctly understood that they do not speculate or traffic in patents, under any circumstances; but that they devote their whole time and energies to the interests of their clients.

COPIES OF PATENT CLAIMS.

MESSRS. MUNN & CO., having access to all the patents granted since the rebuilding of the Patent Office, after the fire of 1836, can furnish the claims of any patent granted since that date, for \$1.

THE VALIDITY OF PATENTS.

Persons who are about purchasing patent property, or patentees who are about erecting extensive works for manufacturing under their patents, should have their claims examined carefully by competent attorneys, to see if they are not likely to infringe some existing patent, before making large investments. Written opinions on the validity of patents, after careful examination into the facts, can be had for a reasonable remuneration. The price for such services is always settled upon in advance after knowing the nature of the invention and being informed of the points on which an opinion is solicited. For further particulars address MUNN & CO., No. 37 Park Row New York.

EXTENSION OF PATENTS.

Many valuable patents are annually expiring which might readily be extended, and if extended, might prove the source of wealth to their fortunate possessors. Messrs. MUNN & CO. are persuaded that very many patents are suffered to expire without any effort at extension, owing to want of proper information on the part of the patentees, their relatives or assigns, as to the law and the mode of procedure in order to obtain a renewed grant. Some of the most valuable grants now existing are extended patents. Patentees, or, if deceased, their heirs, may apply for the extension of patents, but should give ninety days' notice of their intention.

Patents may be extended and preliminary advice obtained, by consulting or writing to MUNN & CO., No. 37 Park Row, New York.

ASSIGNMENTS OF PATENTS.

The assignment of patents, and agreements between patentees and manufacturers, 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.

UNCLAIMED MODELS.

Parties sending models to this office on which they decide not to apply for Letters Patent and which they wish preserved, will please order them returned as early as possible. We cannot engage to retain models more than one year after their receipt, owing to their vast accumulation, and our lack of storage room. Parties, therefore, who wish to preserve their models should order them returned within one year after sending them to us, to insure their obtaining them. In case an application has been made for a patent the model is in deposit at the Patent office, and cannot be withdrawn.

It would require many columns to detail all the ways in which the Inventor or Patentee 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.



A. S., of Md.—Several plants yield caoutchouc or india-rubber. In South America it is obtained chiefly from the jatropa elastica, and in the East Indies from the ficus elastica. The latter is the monarch of the forests wherein it abounds. One of the trees was found to be 74 feet in circumference. The poppy and lettuce also yield small quantities of caoutchouc. Gutta-percha is obtained from a large tree growing in the Malayan peninsula which has received the name Coumoutra gutta. Caoutchouc is a simple hydrocarbon with the composition, C8 H7, while gutta-percha is a hydrocarbon with the formula C40 H32, associated with two resins having the same formula, with the addition of two and four atoms of oxygen respectively.

W. H. S., of N. Y.—The size and weight of a fly-wheel must be in proper proportion to the machine which it is designed to regulate, and this is determined by observation and experience; it cannot be calculated by any mathematical rule. Within the limits usually adopted by mechanics our preference is for light wheels of large diameter, rather than for heavier ones of smaller diameter. The regulating power of fly-wheels is in proportion to their weight multiplied by the square of their velocity.

W. R. A. B., of Canada West.—The tin roof of your spire and church are doubtless sufficient conductors of electricity, and your 3-inch spouts we should suppose are also sufficient if carefully connected with the moist earth at their lower ends. But electricity is very apt to scatter, and if you wish to make very safe you might add one or two more conductors from the lower corners of the tin roof to the ground.

T. E. O., of Ohio.—You will find our views of perpetual motion fully set forth on pages 253 and 254, Vol. I, (new series) SCIENTIFIC AMERICAN. All matter in the universe is in constant motion. The term "perpetual motion" is applied in mechanics to all fallacies which suppose that an effect can be produced greater than the force employed.

C. R., of N. Y.—You will find information on wine in Colonel Harast'y's treatise on the subject. Alcoholimetry is treated at length in Ure's Dictionary.

B. S. T., of Ill.—The most volatile portions of petroleum, called benzine or naphtha by the dealers, will dissolve gutta-percha.

J. T. R., of N. Y.—There is no difficulty in confining air at a pressure of ten or fifteen atmospheres in iron vessels for weeks.

W. H. H., of Pa.—There is not the least novelty in your box valve arrangement. It is as old as the hills, and hundreds of them are in use in different parts of the country.

T. O. B., of Canada West.—We have never seen any offer by the British Government of a prize for trisection of angle by elementary geometry.

T. T., of D. C.—We always welcome any new matter from contributors, but your information in regard to the metal, mercury, has long been in books.

J. H. B., of Ohio.—Gerner's furnace, illustrated on page 344, Vol. IX, is said to consume the smoke.

E. B., of N. H.—We do not know that screw-heads have been made to countersink themselves.

F. W. B. & Co., of N. Y.—We advise you to advertise your steel belts in the SCIENTIFIC AMERICAN.

J. D. H., of Pa., and T. W. B., of Ohio.—We think our readers must have had enough of the subject of cycloid.

Money Received

At the Scientific American Office, on account of Patent Office business, from Wednesday, Nov. 9, 1864, to Wednesday, Nov. 16, 1864:—

- R. S. F., of N. Y., \$25; A. L., of N. Y., \$25; A. A., of N. Y., \$25; J. W. F., of Ill., \$45; H. B. M., of Mich., \$20; P. & W., of Cal., \$20; W. C. McE., of N. J., \$20; N. D. H., of Conn., \$20; J. J., of N. Y., \$45; C. R. M. W., of N. Y., \$40; T. B., of N. Y., \$20; A. S. M., of Ill., \$20; F. W., of Ill., \$20; M. B. & N. B. P., of Tenn., \$25; B. B., of Conn., \$15; L. B. T., of Mass., \$25; C. L. B., of Conn., \$15; D. C. H., of Pa., \$25; J. E., of Colorado, \$15; C. S. D., of Vt., \$25; J. W. D., of Mo., \$25; M. J. B., of Ky., \$16; P. & W., of Cal., \$20; W. T., of N. Y., \$40;

- J. S., of N. Y., \$20; J. P. B., of Wis., \$30; T. R., of Chill, \$30; C. J. R., of Cal., \$100; R. K., of Ill., \$25; P. & R., of Vt., \$30; J. H. P., of N. Y., \$25; W. T., of N. Y., \$50; S. E. T., of N. Y., \$25; S. F. W., of Ohio, \$20; A. L. A., of N. Y., \$10; A. E. K., of Pa., \$45; E. F. W., of N. J., \$20; M. F., of Conn., \$45; N. H. B., of N. Y., \$20; T. W. K., of N. Y., \$15; N. M., of N. Y., \$30; L. A., of N. Y., \$20; B. A. H., of Cal., \$50; W. T. H., of Maine, \$25; J. S., of N. Y., \$25; J. T. R., of Pa., \$15; H. A. P. & Co., of Mass., \$30; G. K. W., of Conn., \$10; T. J. K., of Ohio, \$35; G. W. S., of N. Y., \$16; R. K., of Tenn., \$25; C. H. R., of Maine, \$25; J. Y., of N. Y., \$15; W. B. C., of R. L., \$40; R. McC., of Ill., \$12; A. M. O., of Ill., \$15; K. & W., of Ohio, \$40; W. K. L., of Mass., \$20; H. & A., of N. Y., \$25; D. L. M., of N. J., \$40; S. & C., of N. Y., \$25; W. S., of Ohio, \$45; R. W. P., of Mass., \$45; H. W. A., of N. Y., \$20; G. E. W., of N. Y., \$15; C. B., of Mich., \$35; J. G. F., of Mass., \$45; H. & A., of N. Y., \$15; J. M. F., of Wis., \$30; J. W. C., of N. Y., \$20; L. & S., of N. J., \$40; C. A. A., of Maine, \$16; J. L. J., of Mass., \$30; J. N. P., of N. Y., \$25; S. & H., of Mass., \$40; G. N. B., of Mich., \$10; T. & T., of Mass., \$30; A. M. O., of Ill., \$25; F. H., of Ill., \$16; G. W. B., of R. I., \$30; J. D., of N. Y., \$15; J. T. P., of N. Y., \$40; J. L. R., of Ohio, \$25; D. Z., of Ill., \$25; D. S., of Mass., \$46; E. R., of Mich., \$37; O. E. R., of Maine, \$30; T. W. K., 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, stating 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, Nov. 9, 1864, to Wednesday, Nov. 16, 1864:— R. S. F., of N. Y.; A. L., of N. Y.; A. A., of N. Y.; G. N. L., of Nevada; S. & H., of Mass.; T. J. K., of Ohio; L. B. T., of Mass.; C. S. D., of Vt.; W. T. H., of Maine; A. S. W., of Mass.; G. W. B., of R. I.; R. McC., of Ill.; J. P. B., of Wis.; H. & A., of N. Y.; J. H. P., of N. Y.; W. T., of N. Y.; S. E. T., of N. Y.; J. W. F., of Ill.; P. L. H., of N. Y.; R. K., of Tenn.; A. M. O., of Ill.; J. S., of N. Y.; C. H. W., of Wis.; J. N. P., of N. Y.; W. T., of N. Y.; J. S. R., of Ohio; T. R., of Chili; T. W. K., of N. Y.; D. L. M., of N. J.; S. & C., of N. Y.; L. & G., of England; L. & S., of N. J.; J. & W. C. S., of Cal.; D. C. H., of Pa.; J. W. D., of Mo.; J. L. J., of Mass.; J. M. T., of Mass.; C. H. R., of Maine; A. W. L., of N. Y.; D. & Z., of Ill.

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PATENT EXCHANGE.—AMERICAN AND FOREIGN Patents introduced and sold on commission. Consignments respectfully solicited. Terms given upon application. Address ORWIG & CO. (late Snyder & Walter), 229 Broadway, New York. REFERENCE.—John McKewen, Importer, 65 Maiden Lane; Hon. Ed. Smith, Secretary Commonwealth, Pennsylvania; J. W. Kirby, Metropolitan Bank, New York.

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It will contain a great variety of Practical and Scientific Information on the various branches of Farm Husbandry, including the views and experiences of hundreds of able Contributors and Correspondents, reports of State and County Fairs, Discussions etc. It will also embrace a distinct Department devoted to

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Conducted by the Hon. HENRY S. RANDALL, LL.D., author of "The Practical Shepherd," "Sheep Husbandry in the South," and other valuable works. Dr. Randall is conceded to be the best authority on the subject in this country, and his department is alone worth the price of the paper to anyone engaged in Wool-growing or Sheep Breeding.

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SEALED PROPOSALS WILL BE RECEIVED AT this office until 12 o'clock M. on Monday, the 28th of November next, for supplying the Schuylkill Arsenal with the following articles:

- 3-4 or 6-4 sky-blue kersey, army standard.
Infantry great coats, deliveries to commence in ten days from date of award, army standard.
Blue bunting, deliveries to commence in 10 days from date of award, army standard.
Kite drawers, deliveries to commence day after award. Samples required.
Black Silesia, deliveries to commence day after award. Samples required.
4-4 Leavy unbleached muslin, deliveries to commence day after award. Samples required.
27 or 30-inch heavy drilling, deliveries to commence day after award. Samples required.
Brown holland, deliveries to commence day after award. Samples required.
Dark blue thread, No. 35, deliveries to commence day after award. Samples required.
3-4 or 6-4 dark blue flannel, deliveries to commence in 10 days from date of award, army standard.
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Samples of such articles as are required to be army standard can be seen at this office.

Each bid must be guaranteed by two responsible persons, whose signatures must be appended to the guarantee, and certified to as being good and sufficient security for the amount involved by some public functionary of the United States.

Bids from defaulting contractors, and those that do not fully comply with the requirements of this advertisement, will not be considered.

Blank forms for proposals, embracing the terms of the guarantee required in each bid can be had on application at this office, and none other which do not embrace this guarantee will be considered, nor will any proposal be considered which does not strictly conform to the requirements therein stated.

The bids will state the number and quantity of each kind of article proposed to be delivered.

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trampled upon, a very common occurrence. Another use for this plate is shown at B. Cavalrymen generally put a small piece of leather on the heel of their boots, to prevent the spur from slipping down. This plate renders such makeshift unnecessary, and serves as a most efficient bootjack in addition. For drawing off the boots alone it is a very convenient little article. It is made of either brass or japanned iron, and is entirely hidden by the pantaloons. The screws hold the several parts of the heel together, so that

weigh about 3 tons, which would give for the pressure upon the step, if the whole weight of water was reckoned, about 20 tons.

The facts exemplify the formation of coal under pressure, combined with moisture and a moderate heat, and with very slow motion—*Siliman's Journal*

Swiss Passenger Cars.

In Switzerland nothing can be more convenient than a railway carriage, to which the traveler gains access by ascending a few steps, leading to a sort of platform or balcony for smokers. Here a door opens into the interior, fitted up like a saloon, with a table in the middle, and seats all round; the passengers, instead of being cramped by sitting for hours in the same posture, can walk about, or write, or play at chess or whist, if they please. The seats are made so as to face opposite points of the compass, and everything is arranged on the most comfortable plan, with the only exception that the traveler desirous of solitude is not alone—a questionable comfort, which, as we but too well know, is fraught with danger.—*Engineer.*

GRAPES have ripened well in the open air at Quebec this year.

(THE

Scientific American,**FOR 1864!****VOLUME ELEVEN**

NEW SERIES.

The publishers of the SCIENTIFIC AMERICAN respectfully give notice that the Eleventh Volume (New Series) commenced on July 24, 1864. This journal was established in 1845, and is undoubtedly the most widely circulated and influential publication of the kind in the world. In commencing the new volume the publishers desire to call special attention to its claims as

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FROM THE STEAM PRESS OF JOHN A. SPATZ & GREEN.

**PENNEY'S ADJUSTABLE WRENCH.**

takes in the ratchet teeth on the back of the head. This wrench cannot be used as a hammer, which is a very good feature. Wrenches are intended to screw and unscrew nuts and bolts, and hammers are for another and distinct purpose, but reckless men frequently ruin good screw and monkey wrenches by pounding with the hammer-head. When so used the shank gets bent and the jaw broken off; this wrench is liable to no such contingency, and is a very useful tool.

It was patented on Oct. 11th, 1864, by J. W. Penney, through the Scientific American Patent Agency, and assigned to Penney & Thurston. Address them for further information at Mechanic's Falls, Me.

New Boot-drawer and Pantaloons' Guard.

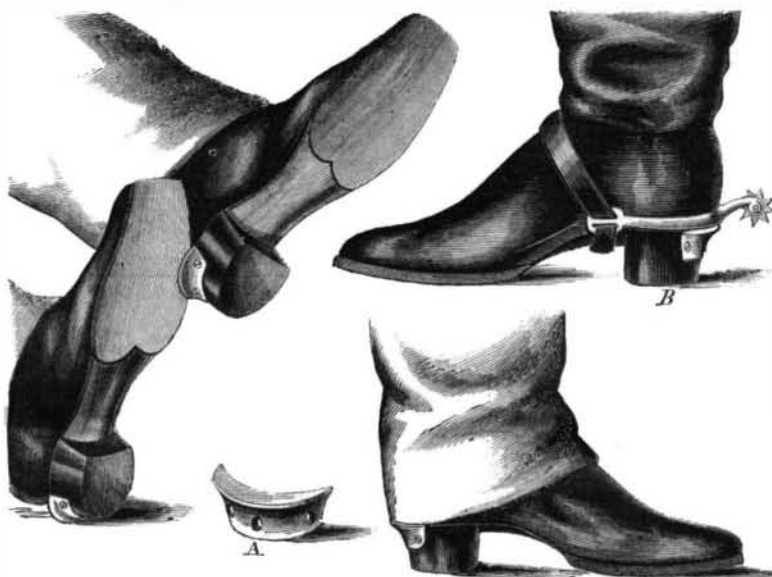
The difficulty experienced in pulling off a wet or tight boot is very much enhanced by the want of a

there is no danger of pulling it off, as with a boot jack.

A patent has been allowed on this article through the Scientific American Patent Agency. For further information regarding the sale of rights, etc., address the inventor, Egbert P. Watson, Box No. 773, N. Y. Post-Office. See advertisement on another page.

Charcoal having the Solidity and Texture of Mineral Coal formed under pressure.

We have received from Mr. Robert Safely, of Cohoes, New York, an account of the conversion of a portion of the wooden step of a turbine water-wheel into a very compact coal resembling closely in texture and appearance ordinary mineral coal, along with a specimen of the coal. The step was of oak, and about 10 inches through; and when taken out, the whole surface was covered with a layer of coal.

**NEW BOOT-DRAWER AND PANTALON'S GUARD.**

foothold, or something to push against. Bootjacks supply this want when they are at hand, but people do not carry bootjacks about with them, and very often, as in traveling, or in camp, no such article can be found. This simple appliance to the heel of a boot is always in its place and available. It is fastened to the heel of a boot by screws, as shown in the separate views, and in detail at A. When not in use as a boot-drawer it supports the lower hem of the pantaloons and prevents them getting under the heel and

The charring was a consequence of the water pipe which lubricated it becoming clogged with dirt. Mr. Safely states further, that the fall of water to which the wood was subjected when it was converted into coal, was exactly 25 feet; and as the diameter of the wheel is 5 feet 7 inches, the pressure on the wheel would be measured by a column 5 feet 7 inches in diameter and 25 feet high, less what is due to the water striking the bucket at a small angle to the lane of the wheel. The gearing, wheel, shaft, etc.,