

I also claim the combination of the auxiliary roller, I, its chamber, N, and its adjustable scraper, M, with the mold carriage, A, the rollers, G H, the case, E, and the scrapers, K L, arranged together and within the case, E, substantially as specified.

I also claim the arrangement of the mold wheel, A, the case, E, the shaft, H, the roller, I, the chamber, N, and the mechanism of operating the rollers, G H, and the mold carriage, A.

I also claim the combination and arrangement of the annular rail, d, and the series of friction rollers, e, with the mold carriage and the series of plungers thereof.

I also claim the combination and arrangement of the series of lifters, c, and their cams, B C D, with the rotary mold carriage, A, the rail, d, and the series of friction wheels c.

46,056.—Machine for Punching Metal.—E. R. Hollands, Northampton Square, England :

I claim the combination of the tool holder with the movable wedge, the mechanism for moving it, the rollers and the inclines, or their equivalents, operating substantially as hereinbefore set forth.

46,057.—Machine for Making Cords, Ropes, etc.—Jules O. Methieu, of Paris, France. Patented in France, Feb. 12, 1863 :

I claim the arrangement of the flyer and bobbins or spools with their described intermediary connecting and operating parts, when constructed, arranged and operating as and for the purpose herein described and represented.

46,058.—Apparatus for Measuring and Testing Spirits and other Distillates.—Edward Payne, London, England :

I claim, in connection with a still or distillery, the combined use in one instrument, of a measuring and of a sampling apparatus, substantially as herein described, whereby small quantities of the spirit that passes over or through the apparatus, is retained for an after test of its proof, and beyond the reach of the operator, whilst the measured bulk or quantity passes through to any common receiver.

46,059.—Lamp.—Guiseppe Antonia Tremeschini, Vicenza, Austria :

I claim, first, The arrangement of the copper cone, A, and deflector, T, in relation to each other and to the disk, Q, and its air openings, T, for the purpose of admitting air from below the disk, deflecting it against the copper cone to be highly heated, and thence carried to supply combustion at the slot, at its upper end, as described.

I also claim the arranging of the wicks, b f g, within a tube E, that is, movable, within an outer stationary tube, B, and an intervening air space between them, as and for the purpose described.

I also claim securing the heads of the lamp to the bowl by means of a conical shank on the former, and a conical socket on the latter, the two making a tight metallic ground joint, substantially as described.

I also claim filling the lamp through an opening in the side of the neck thereof, by means of an instrument substantially such as described, that will flow off the excess of burning fluid beyond a given height, as described and represented.

46,060.—Composition for Lining Barrels for holding Petroleum.—Henry Lowenberg, New York City, assignor to himself and Emile Granter, Paris, France. Ante-dated Dec. 10, 1864 :

I claim a substitute for india-rubber or composition made of the ingredients herein specified, and mixed together in about the proportion and substantially in the manner set forth.

RE-ISSUES.

1,854.—Curry Comb.—Cyrus W. Saladee, Putnam, Ohio. Patented Dec. 27, 1864 :

I claim, first, The two metallic handles, A' A', or their equivalent, secured to the sides or ends of the curry comb, in the manner and for the purpose substantially as shown and described.

Second, I claim the frame or plate, A, rivets, B B B, studs, D D D, figure 1, projections, figure 3, in combination with the adjustable handles, A' A', in the manner and further purpose, substantially as shown and described.

1,855.—Folding Table.—Joseph W. Wayne and Joseph R. Miller, Cincinnati, Ohio. Patented Jan. 12, 1864 :

I claim the folding table, having one pair of legs, B B', hinged to the top, A', and another pair of legs, D D', pivoted to and intersecting with the first pair, the upper ends of the legs, D D', being, in the standing condition of the table secured to the top by sockets, a a', and catches, E E', or their equivalents, and being wholly disconnected from the top for folding, as herein explained.

DESIGNS.

2,025 to 2,026.—Carpet Patterns.—Elemir J. Ney (Assignor to the Lowell Manufacturing Company), Lowell, Mass. Two Cases.

Office was transacted through your agency; and that I have ever found you faithful and devoted to the interests of your clients, as well as eminently qualified to perform the duties of Patent Attorneys with skill and accuracy. Very respectfully, your obedient servant, Wm. D. Bishop.

THE EXAMINATION OF INVENTIONS.

Persons having conceived an idea which they think may be patentable, are advised to make a sketch or model of their invention, and submit it to us, with a full description, for advice. The points of novelty are carefully examined, and a written reply, corresponding with the facts, is promptly sent, free of charge. Address MUNN & CO., No. 37 Park Row, New York.

As an evidence of the confidence reposed in their Agency by inventors throughout the country, Messrs. MUNN & CO. would state that they have acted as agents for more than 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 they have taken out patents have addressed to them most flattering testimonials for the services rendered them; and the wealth which has inured to the individuals whose patents were secured through this office, and afterwards illustrated in the SCIENTIFIC AMERICAN, would amount to many millions of dollars! Messrs. MUNN & CO. would state that they never had a more efficient corps of Draughtsmen and Specification Writers than those employed at present in their extensive offices, and that they are prepared to attend to patent business of all kinds in the quickest time and on the most liberal terms.

PRELIMINARY EXAMINATIONS AT THE PATENT OFFICE.

The service which Messrs. MUNN & CO. render gratuitously upon examining an invention does not extend to a search at the Patent Office, to see if a like invention has been presented there; but is an opinion based upon what knowledge they may acquire of a similar invention from the records in their Home Office. But for a fee of \$5, accompanied with a model, or drawing and description, they have a special search made at the United States Patent Office, and a report setting forth the prospects of obtaining a patent, &c., made up and mailed to the inventor, with a pamphlet, giving instructions for further proceedings. These preliminary examinations are made through the Branch Office of Messrs. MUNN & CO., corner of F and Seventh streets, Washington, by experienced and competent persons. Many thousands of such examinations have been made through this office, and it is a very wise course for every inventor to pursue. Address MUNN & CO., No. 37 Park Row, New York.

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 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 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 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 (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 Eperonniers, Brussels. They thing 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 assignment 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 to 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.

PATENTS
GRANTED
FOR SEVENTEEN YEARS.
MUNN & COMPANY,

In connection with the publication of the SCIENTIFIC AMERICAN; have acted as Solicitors and Attorneys for procuring "Letters Patent" for new inventions in the United States and in all foreign countries during the past seventeen years. Statistics show that nearly ONE-THIRD of all the applications made for patents in the United States are solicited through this office; while nearly THREE-FOURTHS of all the patents taken in foreign countries are procured through the same source. It is almost needless to add that, after seventeen years' experience in preparing specifications and drawings for the United States Patent Office, the proprietors of the SCIENTIFIC AMERICAN are perfectly conversant with the preparation of applications in the best manner, and the transaction of all business before the Patent Office; but they take pleasure in presenting the annexed testimonials from the three last ex-Commissioners of Patents.

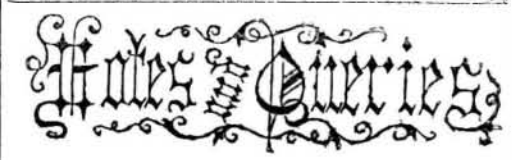
MESSRS. MUNN & CO.—I take pleasure in stating that, while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE CAME THROUGH YOUR HANDS. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the office, a marked degree of promptness, skill, and fidelity to the interests of your employers. Yours very truly,
CHAS. MASON.

Judge Mason was succeeded by that eminent patriot and statesman, Hon. Joseph Holt, whose administration of the Patent Office was so distinguished that, upon the death of Gov. Brown, he was appointed to the office of Postmaster-General of the United States. Soon after entering upon his new duties, in March, 1859, he addressed to us the following very gratifying letter.

MESSRS. MUNN & CO.—It affords me much pleasure to bear testimony to the able and efficient manner in which you discharged your duties as Solicitors of Patents, while I had the honor of holding the office of Commissioner. Your business was very large, and you sustained (and I doubt not justly deserved) the reputation of energy, marked ability, and uncompromising fidelity in performing your professional engagements. Very respectfully, your obedient servant,
J. HOLT.

Hon. Wm. D. Bishop, late Member of Congress from Connecticut, succeeded Mr. Holt as Commissioner of Patents. Upon resigning the office he wrote to us as follows:

MESSRS. MUNN & CO.—It gives me much pleasure to say that, during the time of my holding the office of Commissioner of Patents, a large proportion of the business of inventors before the Patent



J. G. C., of Iowa.—1,000,000 parts of cast iron at 62° Fah., become, at 212°, 1,000,833. The expansion of wrought iron with the same increase of heat is from 1,000,000 to 1,000,984.

C. B., of Mich., asks how a man is to obtain redress against an infringer of his patent. Answer—Bring a suit. An infringer is liable to imprisonment if he does not, when ordered by the Court, desist from making a patented machine. All persons who use a machine without the consent of the inventor are liable for damages.

F. W. L., of Vt.—You will find it a dangerous experiment to attempt filling cartridges with fulminating mercury unless you know something of its properties and how to handle it.

T. F. of Wis.—A liquid glue is made in the following manner: white glue, 16 ounces; white lead, dry, 4 ounces; soft water, 2 pints; alcohol, 4 ounces. Stir the ingredients together and bottle while hot.

L. H. W., of Mass.—The owner of a patent is not, by law, compelled to put the patented article on sale.

J. P., of N. J.—One bulk of sulphuric acid to ten of water is said to be the usual pickle for removing sand from iron castings.

W. F. R., of Pa.—A good alloy for journal boxes is 24 copper, 24 tin and 8 antimony. Melt the copper first, then the tin, then add the antimony. It should be run into ingots and cast in boxes afterward.

R. H. M., of Pa.—Messrs. J. R. Brown & Sharpe, or Providence, R. I., will furnish you with a machine for cutting scales or indices on circles, squares, polygons, or figures of any known form.

J. M. A., of Canton.—We have received no former communication from you. When you write again inform us in what State you reside.

E. T., of D. C.—If your amendments to the patent law should be adopted we suspect that you would find in the practical operation difficulties and evils that you do not anticipate. It is a pity that all people will not respect the rights of others, then we should need no laws. When we attempt to make them do this by means of laws we find it a very difficult task, as all experience shows. When individual interest is enlisted men are exceedingly adroit in eluding the vigilance of statutes. It is probable that no law was ever enacted which did not prove less efficient for good and more productive of evil than its originator anticipated. The amendment proposed we consider impracticable. No Government would thus interpose to make positively valid the acts of men who are not infallible.

J. D., of N. Y.—There is no rule for showing the loss of power by the crank motion, because there is no loss. You will find this question very fully discussed in back numbers of this journal.

H. L., of Conn.—You will find in various hand-books of the steam engine for the last twenty years the information you require about the history of steam boilers. If you can have access to a library of mechanical works you can compile what you require readily, but you will find it difficult to get at anything satisfactory or reliable by desultory research. It is a long story to tell in a lecture.

J. W. C., of Wis.—You can use superheated steam for drying and boiling purposes with economy, provided the heat which the steam absorbs is otherwise wasted, or passes off unused. You can boil in any vessel that the steam surrounds, or dry on any apparatus which contains the steam.

A. H. C., of R. I.—Superheated steam may be at the temperature of red heat at a pressure of ten pounds, or two pounds to the square inch, or at any other pressure below that of saturated steam at that temperature. In the place spoken of it is employed to carry the air into a forge furnace.

J. R. N.—The attractive power of a magnet diminishes in proportion to the square of the distance, measuring from a point a little within the end. The powers of magnets vary with so many circumstances that no general rule can be given. There is a magnet in this city that supports seven men, and would probably support many more.

J. H., of Ohio.—The power of a magneto-electric machine is obtained by the slow combustion of zinc, which is worth 20 cents per pound—\$400 per ton, while coal for a steam engine is worth only \$10 per ton. The cost of power in a magneto-electric machine is at least forty times greater than in a steam engine.

T. V., of Ind.—We have several recipes for water-proof cement. One is, incorporate thoroughly eight parts of melted glue, of the consistency used by carpenters, with four parts of linseed oil, boiled into varnish with litharge. It hardens in about forty-eight hours. It is also said that a compound of glue with one-fourth its weight of Venice turpentine, made as above, serves to cement glass water-tight. We should be pleased to hear from some correspondent, who knows by practical experiment, of a good cement for aquaria.

S. R. H., of Md.—A steel bar can be divided into any required number of degrees; so fine, in fact, that the naked eye can distinguish them. Messrs. J. R. Brown & Sharpe, of Providence, R. I., have machinery for this purpose.

Money Received

At the Scientific American Office, on account of Patent Office business, from Wednesday, January 12, to Wednesday, January 25, 1865:—

- H. C. K., of N. Y., \$25; J. W. H., of N. Y., \$25; T. & J. B., of N. Y., \$25; W. E. R., of N. Y., \$40; S. Van S., of N. J., 0; H. B., of N. Y., \$15; R. E., of N. Y., \$30; W. & W., of Pa., \$22; W. L. F., of N. Y., \$22; S. J. A., of Me., \$20; P. R., of Conn., \$30; J. G. M., of N. J., \$15; H. J. H., of N. Y., \$20; M. B. D., of N. Y., \$40; P. L., of N. Y., \$15; J. L. T., of Me., \$20; A. M. O., of Ill., \$40; T. S. S., of N. Y., \$40; P. & B., of N. Y., \$15; C. L. B., of Conn., \$20; J. J. R., of Ohio, \$20; A. P., of Hanover, \$40; J. M. C., of N. Y., \$15; W. S., of Mich., \$20; D. C. A., of Iowa, \$20; J. H., of N. Y., \$20; R. & C., of Conn., \$20; J. V. W., of N. Y., \$15; W. E. R., of N. Y., \$40; R. C. & M., of N. Y., \$55; J. T. S., of N. J., \$40; V. W. McK., of N. J., \$15; A. M. H., of N. Y., \$40; W. R., of N. J., \$45; L. D., of N. Y., \$25; S. C. B., of N. Y., \$45; S. B., of N. J., \$20; C. N., of N. Y., \$20; G. F. J. C., of N. J., \$20; D. S., of N. Y., \$15; Mrs. L. E. S., of Ill., \$20; W. S. W., Jr., of Ill., \$45; J. N. E., of N. Y., \$10; H. J., of N. Y., \$20; S. S. S., of N. Y., \$15; J. B., of N. Y., \$15; T. R. T., of N. Y., \$416; J. S. A., of N. Y., \$100; W. G. W. J., of Md., \$10; H. B., of Pa., \$22; A. M. H., of Conn., \$15; T. R., of N. Y., \$20; A. H. N., of Mass., \$15; W. T., of N. Y., \$30; W. C., of Ohio, \$25; O. K., of C. W., \$37; T. I. B., of Tenn., \$20; V. W. B., of Vt., \$35; L. S., of Pa., \$233; W. E. R., of Ill., \$25; E. & B., of Me., \$25; H. P. A., of Ohio, \$15; H. F. H., of Ill., \$20; P. B., of N. Y., \$15; T. & M., of Ind., \$25; C. L. McD., of Iowa, \$16; C. C. T., of Me., \$16; C. C. C., of Ill., \$16; L. D. W., of Conn., \$15; J. A. B., of Ill., \$40; B. F. W., of Ind., \$25; H. & Z., of Pa., \$16; J. P. B., of Me., \$6; A. Bro., of Conn., \$25; S. B. H., of Pa., \$16; D. G. H., of Mass., \$65; J. W., of Mich., \$20; M. B., of Conn., \$15; L. R., of N. Y., \$16; V. C., of Ohio, \$16; J. H. M., of Mo., \$16; R. & J., of Ill., \$16; S. S., of N. Y., \$25; J. L. G., of Mass., \$15; R. L. S., of N. Y., \$30; J. K. & C. B. C., of Iowa, \$25; D. & H., of Wis., \$10; J. C. & G. S., of Mass., \$30; A. M., of N. H., \$25; E. S. H., of Mass., \$16; J. L. S., of Ind., \$20; J. E. P., of N. Y., \$25; F. J. R., of Ill., \$45; P. E., of N. Y., \$15; B. & H., of N. Y., \$15.

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

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office, from Wednesday, Jan. 13, to Wednesday, Jan. 25, 1865:—

- H. C. K., of N. Y.; J. H. H., of N. Y.; E. A. P., of Wis.; P. & J. B., of N. Y.; W. E. R., of N. Y.; S. Van S., of N. J.; H. B., of N. Y.; H. L. H., of N. Y.; H. B., of N. Y.; R. E., of N. Y.; W. & W., of Pa.; W. L. F., of N. Y.; P. F., of Conn.; M. B. D., of N. Y.; R. C. & M., of

- N. Y.; J. T. S., of N. J.; A. M. H., of N. Y.; L. D., of N. Y.; S. C. B., of N. Y.; W. E. R., of N. Y.; W. C., of Ohio; W. W. T., of N. Y.; W. E. R., of Ill.; J. L. B., of Pa.; E. & B., of Me.; W. H. C., of Ind.; W. B. D., of Conn.; W. P. & M. A., of Conn.; T. & M., of Ind.; V. W. B., of Vt.; R. F. W., of Ind.; J. C. & G. S., of Mass.; R. L. S., of N. Y.; S. H., of Ohio; A. M., of N. H.; S. S. S., of N. Y.; I. C. P., of Ill.

TO OUR READERS.

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

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

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

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.

Back Numbers and Volumes of the "Scientific American."

VOLUME IV., AND VOLUME XI. (NEW SERIES) complete (bound) may be had at this office and from periodical dealers. Price, bound, \$3.00 per volume, by mail, \$3.75 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. **VOLS. I., II., III., V., VI., VII., VIII., IX.** and X., are 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 eight 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.

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THUS, SAFETY AND COMFORT

go hand in hand.

They received the PRIZE MEDAL at the

CRYSTAL PALACE EXHIBITION,

while all other matches were excluded from the building, and the committee were right, for in the

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follow closely those triplicate evils,

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GOOD AND CHEAP READING.

The best reading of the day is found in the Monthly Magazines. The high price of books limits their circulation; and the magazines form a good substitute. Of these magazines the most desirable is the **ATLANTIC MONTHLY**,

which employs the first talent in the country, and furnishes its readers with **THE BEST STORIES, THE BEST ESSAYS, THE BEST POEMS,** which American talent can supply. The price is only \$4 a year. Club rates liberal. A specimen number and circular for 25 cents. Address **TICKNOR & FIELDS, Boston.**

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other impurities, from the grain before the latter passes into or between the stones.

“This improvement,” says the inventor, “separates these impurities from the grain, by passing it through or over the shoe in small quantities, just previous to entering into the eye of the stone. A represents the shoe, which is hung or suspended underneath the hopper of millstones. This shoe may be constructed and hung in the usual way.

“The novel parts are a round opening in the bottom of the shoe, underneath which there is another open-

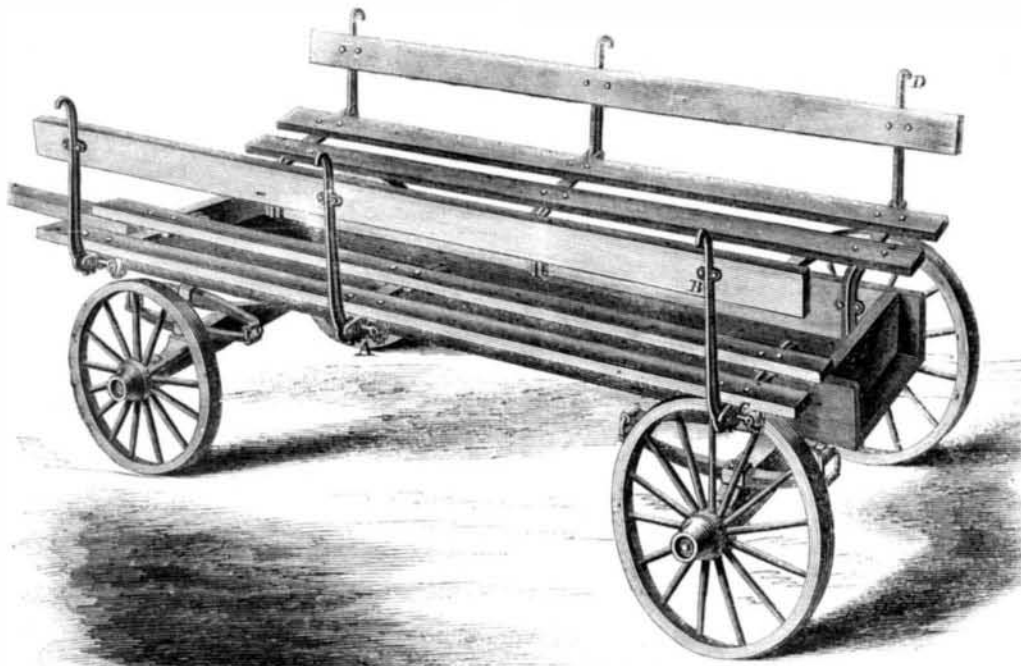
screen, B, and are discharged through the opening and spout, C. The oblong hole in the front end of the screen is designed for the ches to pass through.

“The device performs its work well, the shoe cannot become choked or clogged, or rendered inoperative by small sticks or like impurities.”

This invention was patented on Nov. 8, 1864, by H. P. Crouse, of Hartland, Mich., whom address for further information.

PROFESSOR CHURCH, of the Royal Agricultural College, Cirencester, has recently been describing a new mineral from Australia. It is a sort of combustible shale, which occurs near the river Morsey, north side of Tasmania, and from it Professor Church has extracted a substance which he calls tasmanite. It seems to resist the action of all but sulphuric and nitric acids; alcohol, ether, and other powerful dissolvents have no action upon it, even on the application of heat, and its composition chiefly consists of carbon, hydrogen, and sulphur. When tasmanite is heated in the air, it burns readily with a very smoky flame and offensive odor, recalling that of some specimens of Canadian petroleum.

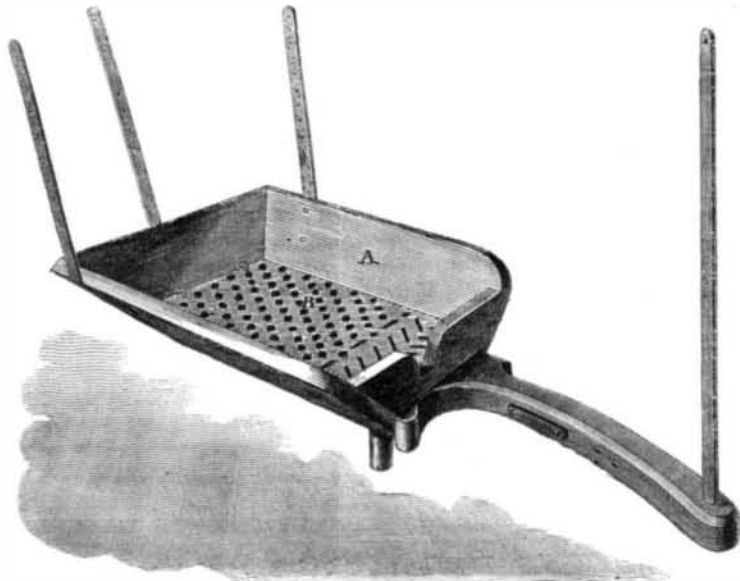
JOSEPH WHITWORTH, of England, asserts that he makes, or has made, musket barrels of steel so thoroughly annealed that they bulge when overloaded instead of bursting.

**REED'S RIGGING FOR HAY CARTS.**

screw for each arm, to hold it in place. Many farmers having but one wagon to do all their work with are thus saved the trouble of taking off a cumbersome rigging and putting on a heavy box to go to mill or church, and vice versa. As the rigging is made of iron there can be no question as to its durability. There is an adjustable arm, A, at the end of the projecting arm, so that the vertical arm, B, may be set at any required angle, by inserting a pin, as at C, between the cogs on the end of the arm.

“The old method of binding with a pole is obvi-

ing to conduct the impurities from the shoe into any receptacle prepared to receive them. Second, A screen, B, is placed within the shoe, one end of which is attached to the rear end of the shoe by joints, while the opposite end rests on a shoulder or ledge. At the front part of the shoe a space of a proper depth is allowed between the screen, B, and the bottom of the shoe. To the screen, B, there is attached a transverse strip, not shown, which is inclined, and forms a partition, or barrier, within the shoe. This partition has two openings or notches made in its

**CROUSE'S MILL SHOE.**

ated by the use of this arrangement, and the load is held more securely by passing a rope from the hooks, D, at the tops of the vertical arms, from side to side, over the hay. This comprises the principal features.”

This invention was patented by Osmond Reed, on May 20, 1862. Further information can be had by addressing Reed & Chesebro, Grand Rapids, Mich. See advertisement on another page.

Improved Mill Shoe.

This invention consists in providing the shoe to the hopper of a millstone, with a screen arranged in such a manner as to effectually separate sand, cockle and

lower edge, and in the front end of the screen there is also an opening.

“The shoe, A, has the usual vibrating movement communicated to it by means of the ordinary damsel, and the grain falls from the hopper upon the screen, B, and passes down said screen, owing to an inclination given to the partition or barrier, which arrests the progress of the grain, and causes it to be evenly distributed over the screen, the grain finally passing through the opening or notches before mentioned, and out through the opening in the front end of the shoe, and falling into the eye of the stone. The sand, cockle, smut, ches, etc., pass through the

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