

muslin, or an equivalent fabric, having a smooth white surface coated with transparent varnish, for the purpose specified.

1,928.—Revolving Fire-arm.—Rollin White, Springfield, Mass. Patented April 13, 1858 :

I claim in that class of arms consisting of a fixed barrel with a rotating cylinder having a series of parallel chambers, which are brought in succession in line with the barrel to be fired, making a recess or aperture through the breech, and communicating with, but of less area than the rear end of the chamber, and of a form, substantially as described, suited to and in combination with the hammer, or the equivalent thereof, to strike through such recess against the rear end of the cased cartridge which contains the fulminate priming, as set forth.

1,929.—Tobacco Pipe.—The Tobacco Pipe Company, Baltimore, Md., assignees by mesne assignment of Andrew J. Bowen. Patented June 10, 1862 :

We claim, First, The two tubes or channels, a and b, in the stem, in combination with the bowl, c, and cup or receptacle, d, as herein set forth.

Second, The device by which the cup or receptacle, d, is attached to the bowl, c; i. e., the male screw in the latter and the female screw in the former, or their equivalents, in combination with the channels, a and b, bowl, c, and cup, d, substantially as shown and described and for the purposes set forth.

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 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 very large proportion of the business of inventors before the Patent 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.

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 com-

petent 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.

The Patent Laws, enacted by Congress on the 2d of March, 1831 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 or 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.

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

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.

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.

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.

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.

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 plenty 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.

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.



Correspondents who wish information from us through this column must, as an evidence of good faith, sign their names to their letters. We throw aside all anonymous communications. W. C., of N. J.—We don't know what the "trap process" of tempering springs is. One way to temper them is to make them hard first and then draw the temper in hot sand heated to 550 or 570 degrees, at which temperature they are dark purple to blue. Oil or tallow smokes at 470 degrees, and takes fire when a light is presented. At 570 degrees it goes out when the light is withdrawn.

R. B. C., of Mass.—It is not new to make a ratchet drill with vertical teeth; such drills were made and sold fifteen years ago.

E. W. D., of Conn.—The wisest and the most learned men are always the most ready to admit their errors, while the greatest fools and ignoramuses are the ones to insist most strongly that they never make mistakes. In the case referred to, all that was said was that the boat with the pulley engine ran faster than the one with the crank engine, but you must know that it is very easy for interested parties to conduct such experiments so as to show any result they please.

T. W. D., of Cal.—Petroleum is composed of the same elements as India-rubber, viz.: hydrogen and carbon. It is probable that by the destructive distillation of India-rubber part of it might be converted into oil closely resembling some portions of petroleum, but we know of no fact that would suggest the possibility of converting petroleum into India-rubber.

Horace, of Pa.—To calculate the power of a steam engine multiply the area of the piston in inches by the pressure per inch in pounds, the product by the length of the stroke in feet, this product by the number of strokes in a minute, and divide by 33,000.

J. S., of N. S.—For cotton machinery of all kinds address Whiting & Sons, Northbridge, Mass.

Nassau, of N. J.—It is rather a complicated problem, but it seems to us that the oscillations must be continuous.

Critic, of R. I.—The earth in its rotation on its axis turns one degree in four minutes; bodies, therefore, at the equator are carried along about seventeen miles in a minute from west to east. Portions of the earth nearer the center are also moving around from west to east, but with less velocity. If a hole were made through the center of the earth at the equator and a stone were dropped into it the stone would continue its eastward motion at the rate of seventeen miles a minute till it came to portions of the earth moving in the same direction but with less velocity, when it would overtake them and strike the eastern side of the hole.

B. H. M., of N. H.—India-rubber varnish for cloth should be of vulcanized rubber.

L. W. S., of Mo.—You can procure a newspaper file suitable for the SCIENTIFIC AMERICAN from Alfred Goulding, Worcester, Mass.

J. P. V., of Cooksville.—Your improvement seems to be new, and we should think a patent could be obtained for it. In what State do you reside?

F. G. F., of Ohio.—You have the right spirit. An inventor can never succeed if he allow a single failure to discourage him.

J. S. E., of Wis.—We cannot admit to our columns a communication that prejudices a case that may involve litigation in court.

C. C., of D. C.—We cannot publish your letter, for the reason that it might prejudice the rights of the patentees in advance of a judicial decision. The patent must stand on its own merits, without any interference on our part.

J. S., of Ind.—We have credited you \$1 on account of your subscription. The article to which you refer was prepared expressly for our paper or we should not have published it, as we dislike long communications. We do not think your proposed article on natural and mental philosophy would be acceptable.

J. W. H., of N. Y.—You can procure soluble glass of Lewis Feuchtwanger, No. 55 Cedar street, this city. We believe the emery wheels made with it are rendered insoluble by having the least possible excess of alkali, so that hot water is required for the solution.

O. D. M., of N. H.—The sample which you send us we take to be very thin tin foil pasted upon paper.

G. W. B., of N. Y.—The Avery engine should yield the full power of the steam (except that which is obtained by expansion), provided the arm at the point of exit moves with a velocity equal to that with which the steam flows through the orifice. This requires a long arm and a very rapid revolution. You can see an old Avery engine at a saw-mill in Attorney street in this city.

S. C. S., of C. W.—For general use in soldering gold rings you will find the following recipe valuable: Gold, 2; silver, 1; copper, 1. Stir it well, and add a little borax in powder; pour out in slips, which will make it handier to use. To clean gold which has been soldered heat it very hot; let it cool gradually, then boil in urine and sal ammoniac. A harder solder than the above is made of gold and silver.

I. H. D., of Mass.—The dispatch on the American line does not go to the Independent line, because the circuit is broken; there is no connection between them. We have never seen two rudders applied to one vessel in the manner you describe, and do not doubt its utility so far as increased action on the hull is concerned. Your hoisting arrangement through the aid of a hydraulic press would be too slow. No body could wait fifteen minutes to hoist a tun twenty feet. Your plans for iron-coating ships are not new; similar ones have been published in the SCIENTIFIC AMERICAN.

J. H. M., of Mo.—A man has no right to make a patented article for his family use without the inventor's consent.

U. S., of Md.—W. W. Seacombe, No. 254 Broadway manufactures a very excellent hand-stamp canceller.

F. T., of Iowa.—If you have used your smokestack nine years and find it has now failed you have had good service from it and it has died of old age. The exhaust passing into it does not affect its durability, for whatever moisture resulted therefrom would be dried up almost instantly.

R. T. D., of Conn.—What you require is the terchloride of gold. A brass chain washed in this receives a golden deposit when dried.

J. T., of D. C.—You will find the information about the reporting machine on page 113, vol. XI.

T. A. H. C., of Mo.—A very useful book for you will be the Timman's Manual and Builder's and Mechanic's hand book, by I. R. Butts & Co., Washington street, Boston, Mass.

Venango, of N. Y.—We understand that Professor Dana has a work in press on petroleum, and you will doubtless find that free from the absurdities and trivialities in the work of which you complain.

J. S., of Ill.—If you will send us a sample of the substance in your spring we will tell you whether it is petroleum. In these days the dreams of a great many people are running on oil wells.

J. W., of Mass.—No person except the owner of the patent right for a given state or territory has a right to make use of or sell the invention in such State.

A. G. W., of D. C.—We certainly did not mean to accuse you of plagiarism. We published your communication for the benefit of our large numbers of new subscribers, and we added the foot note principally to call your attention and that of other readers to our previous article.

NOTICE TO SUBSCRIBERS.

The first five numbers of the present volume of the SCIENTIFIC AMERICAN being out of print, we shall commence the time of each new subscriber from the date of receipt of the order, unless the writer states specifically that he wishes such back numbers as can be furnished.

SPECIAL NOTICE TO INVENTORS.

The money receipts on account of patent business, which have heretofore been published in this column, and the notification of cases sent to the Patent Office, will for the present be discontinued. The receipt of specifications and money from inventors will be acknowledged promptly by mail.

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 copy. We can also furnish a sketch of any patented machine issued since 1853, to accompany the claim, on receipt of \$2. Address MUNN & CO., Patent Solicitors, No. 37 Park Row, New York.

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

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.

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.

IMPROVED FURNACE—PATENTED JANUARY 3, 1865.

This is an invention of high importance to Engineers, Petroleum Distillers, Sorghum Manufacturers, Salt Evaporators, Etc., and is destined to create a revolution in the arrangement of furnace fires under long boilers and evaporators of every kind.

This furnace is made to extend in continuous sections under long boilers or evaporators to any desired length; the grate being also in sections resting on wheels set in a ledge on each side of the furnace, and each grate is raised and lowered at pleasure to apply more or less heat to the pan or boiler.

When the heat is too great, the draught is shut off in front; when it is about right, the chimney stopper is closed, and the heat all retained; as the boiling slackens, the grates are raised one or all, less or more, nearer to the pan; as the fire deadens, the draught is let on, and so continued.

When either grate wants more coal, it is drawn out, supplied, and returned to its place in one minute, or less, and the places of any two of them can be exchanged quite as quickly.

When the furnace is too long for the grates to be run in and out with a hook, it is done by an endless chain.

The furnace is always inclosed by walls, which support the pan or boiler above it, except an extra section, which extends out front of the doors, where the fires are all made.

Fires arranged on this plan can be immediately withdrawn in case of the water getting too low in the boiler.

To Sorghum Manufacturers it must be invaluable, from the facility it affords for economizing the heat, modifying, regulating and varying it under different parts of the pan, as desired.

To protect the furnace is exposed to injury from heat but the grates.

Explicit directions given for making and setting a furnace; they can be cast and fitted, boxed and shipped to any point.

The inventor being a confirmed invalid, is disposed to sell out his whole patent to some party more able to introduce it, and will assist in procuring foreign patents. Address

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12 MILLING MACHINES.—2 THREE-SPINDLE Drills; 3 Four-foot Screw-cutting Lathes; 2 Five foot ditto; 1 Heavy Lathe, 32-inch boring, 12-foot bed; 1 Fowler's Patent Press; 1 Lever Press; 1 ten-horse Engine and Boiler. Address CHAS. H. SMITH, No. 145 North Third street, Phila.

FOR SALE.—STATE RIGHTS OF MY PATENT article, made to order. It is cash manufacture and requires but little capital. The patent was issued last year, and a quantity of them have been sold in this State. They weigh but two ounces and are better than any others in use. Any one introducing them in the South can realize a fortune. Address JOHN ZENGER, Chicago, Ill. P. O. Box 2,662.

MACHINE SCREWS.—WE KEEP IN STOCK ALL lengths, thickness and threads, of Flat and Round-head Machine Screws, made by the American Screw Co. On the receipt of 20 cents we will send a card Screw Gauge, enabling parties unacquainted with the different numbers to order the thickness and thread they wish, with prices attached. CHARLES MERRILL & SONS, No. 536 Grand street, New York.

PRINTING PRESS PATENT FOR SALE, WITH TWO Presses complete—one hand the other treadle—patterns, Etc. Hand Press illustrated in SCIENTIFIC AMERICAN, July 11, 1864. The whole cost \$500. Will be sold for \$300, or exchanged for a Steam Engine and Boiler of one-half to one-horse power. Address JOHN H. UTTER, Westery, R. I.

FOR SALE.—A BOILER 4 FT. 8 IN. DIAM. BY 21 feet long, with two 1 1/2 inch diameter and three 1 3/4 inch diameter return flues, almost entirely new. Also a Steam Engine, 12 by 48 in. cylinder, second hand, not quite complete, will be sold separate or together. H. M. AMES & CO., Oswego, N. Y.

FOR SALE.—NE ENGINE LATHE, SECOND HAND, 10 feet bed, 20 inch swing. Price \$175. L. W. MOUNT, Medina, N. Y.

F. B. HUNT'S HOOSIER FODDER CUTTER.—PATENTED in the United States and Europe; the most popular cutter in use; it cuts with equal facility hay, straw and corn fodder; is simple and durable, and can be worked with ease by a boy of ten years, having the most simple and complete change of feed, cutting any length desired. This machine was patented Jan. 5, 1864, and was exhibited at twenty different State and County Fairs, at which it took 18 first and 2 second premiums. In each case of failure to get the first premium the committees were divided—self-interest or controlling the majority. Seldom has there anything become so suddenly popular and profitable as the Hoosier Fodder Cutter. All who have had an equal experience or observation in the matter pronounce it a fixed fact—a success beyond all controversy. Although it has been but a short time since this machine was introduced, it has been conclusively proven that the fodder from an acre of corn cut or chaffed by this machine is worth the entire cost of making the crop. Machines and shop rights to manufacture for sale by TOBIAS, LANE & CO., Richmond, Ind. 15 2

WATER WHEELS.—J. E. STEVENSON, No. 200 Broadway, N. Y., Hydraulic and Mechanical Engineer and Manufacturer of the HELICAL TURBINE WATER WHEEL. Particular attention paid to the improvement of Water Powers and Mill Sites. Surveys made. Plans, Specifications and Estimates furnished. General Agent for the purchase and sale of all kinds of Mill Property and Machinery. Contracts for furnishing Turbines, Mill Gearing, Shafting, Pulleys and all Iron Work for Cotton, Woolen, Grist and Saw-mills. 15 3

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NEW STEAM ENGINE FOR SALE—250 H. P., HORIZONTAL, cylinder 6 feet stroke, 30 inch diameter. Built at the Burdon Iron Works, Brooklyn, N. Y. where it may be seen. Apply to A. & P. ROBERTS & CO., Philadelphia, Pa., WILLIAM LILLY, Mauch Chunk, Pa., THOMAS BARBER, Allentown, Pa., or HUBBARD & WHITTAKER, Brooklyn, N. Y.

CAN I OBTAIN A PATENT?—FOR ADVICE AND instructions address MUNN & CO., No. 37 Park Row, New York, for TWENTY YEARS Attorneys for American and Foreign Patents. Caveats and Patents quickly prepared. THE SCIENTIFIC AMERICAN, \$3 a year. 30,000 Patent Cases have been prepared by M. & CO.

VALUABLE DISCOVERY.—IT HAS BEEN ASCERTAINED that Railroad Ties may be preserved for a great length of time by the application to them of a composition discovered and lately patented by B. S. FOREMAN, Architect and Builder, at Morrison, Ill. 15 6

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