

PATENTS FOR SEVENTEEN YEARS.



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

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

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

The law abolishes discrimination in fees required of foreigners, excepting reference to such countries as discriminate against citizens of the United States—thus allowing English, French, Belgian, Austrian, 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.

During the last sixteen 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 more than **FIFTEEN 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 afterward 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 are employed at present in our extensive Offices, and we are prepared to attend to Patent business of all kinds in the quickest time and on the most liberal terms.

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 reply written corresponding with the facts, free of charge. Address MUNN & CO., No. 37 Park-row, New York.

Preliminary Examinations at the Patent Office.
The advice we 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 we may acquire of a similar invention from the records in our Home Office. But for a fee of \$5, accompanied with a model or drawing and description, we 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 our Branch Office, corner of F and Seventh-streets, Washington, by experienced and competent persons. More than 5,000 such examinations have been made through this office during the past three years. Address MUNN & CO., No. 37 Park-row, N. Y.

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 prepaid. Small models from a distance can often be sent cheaper by mail. The safest way to remit money is by draft on New York, payable to the order of Munn & Co. Persons who live in remote parts of the country can usually purchase drafts from their merchants on their New York correspondents; but, if not convenient to do so, there is but little risk in sending bank bills by mail, having the letter registered by the postmaster. Address MUNN & Co. No. 37 Park-row, New York.

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, in English and German, 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 Abchurch-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 our 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 our Agency, the requirements of different Patent Offices, &c., may be had gratis upon application at our principal office, No. 37 Park-row, New York; or either Branch Office.

Rejected Applications.

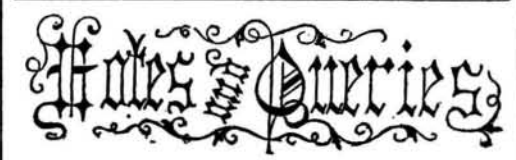
We are prepared to undertake the investigation and prosecution of rejected cases, on reasonable terms. The close proximity of our Washington Agency to the Patent Office affords us rare opportunities for the examination and comparison of references, models, drawings, documents, &c. Our success in the 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.

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.

It would require many columns to detail all the ways in which the Inventor or Patentee may be served at our office. 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.



F. G. & B. P., of N. B.—Messrs. Sellers, of Philadelphia, are agents for and manufacturers of Giffard's boiler injectors. For the information you desire respecting T. Hunt's modification of the injector, illustrated on page 124, Vol. V. (new series) SCIENTIFIC AMERICAN, you must address the inventor, at Crewe, England.

H. S. S., of Mass.—The metal magnesium is costly because the processes for obtaining it from its natural salts are tedious and expensive. Perennial cotton is not considered equal to the annual. Percussion shells are now cast with a portion of each heavier than the rest so as to insure its striking on the heavy side, otherwise there can be no certainty respecting their explosion.

J. M. L., of Mass.—The "Tinman's Manual" is published by I. B. Butts & Co., Boston.

O. P., of N. Y.—The salts of tin, as you suppose, are crystals of the protochloride of tin. Cast iron should be malleabilized before it is galvanized or tinned. We have been informed that it is coated with zinc before a thick coat of tin is put upon it, and vice versa. You will find it too expensive to employ the galvanic process for tinning, or zincing cast iron.

D. C., of C. W.—Electro platers make their own wire brushes with fine brass wire. The high polish of electro-plated goods is given with steel and agate burnishers.

T. B., of Phila.—We have been informed that Capt. Gowan, of your city, is the American contractor who is raising the sunken vessels of Sevastopol. You probably can find some information respecting him personally at the Franklin Institute. We understand he uses the diving bell for submarine operations, stops all the leaks and boards up each vessel to exclude the water from the cradle thus formed, then he pumps out the water from the vessel until she floats.

G. M. G., of N. Y.—The "tuns burthen" of a vessel does not mean, as the term is commonly used, the amount of freight which a vessel can carry, but refers to the measurement of the vessel. A vessel registered for 1,200 tons may be able to carry 2,000 tons.

C. D. L., of N. Y.—Prof. Rankine, has published a manual of the steam engine, in which he gives formulae for calculating the amount of steam which should be condensed when working expansively independent of the surface condensation by conduction of the heat.

O. C. H., of Conn.—All paper becomes yellow in color by long exposure to the atmosphere. This may be caused by the absorption of smoke, dirt and acid from the atmosphere. By scouring iron bright and dipping it into a strong solution of the sulphate of copper a thin skin of pure copper will be deposited, but it soon wears off. You cannot deposit a thick coat without using a battery.

J. H. C., of Mass.—The best way to dissolve isinglass is to allow it to stand all night in a vessel containing cold water, then put it on the fire next morning and stir it until it becomes hot.

R. B. P., of Conn.—A breast wheel of 30 feet diameter supplied with 724 cubic feet of water per second is 164.44 horse power. Are you sure that you have such a great quantity of water flowing into your wheel?

E. J. P., of Pa.—You will find an Engraving of Giffard's Injector in Vol. III. SCIENTIFIC AMERICAN (new series) page 260. You will find mention made of it in Vol. IV. pages 4 and 376.

E. Piper, of Camden, Me., wishes to know where glass cylinders sufficiently perfect for air pumps, of green glass, can be obtained.

A. M. Swain, of North Chelmsford, Mass., desires to correspond with G. W. W., of N. Y., P. H. W., of Me., J. F. C., of Mich., J. K. W., of Kansas, and a reader of the SCIENTIFIC AMERICAN, Pa. These parties will please address as above.

M. J. W., of N. Y.—You have no right to manufacture a patented machine in any county where the "right" is owned by another person, even if you do not offer the manufactured article for sale.

C. E. W., of Ky., J. H. S. and R. W., of Ohio.—Your plans for armor plates for vessels are received. It is said that the Navy Department has received over 1,500 of these plans, and when the best are selected we shall probably give illustrations of them. In the mean time unless something very novel and promising should be presented, we shall fill our pages with other matter.

C. A. W., of Mo.—The power that forces water up the short leg of a siphon is the weight of air resting upon the surface of the reservoir from which the water flows; consequently the water will rise to such height that its vertical column will be equal in weight to a vertical column of the atmosphere of the same size. This at the level of the sea is a little less than 34 feet, but varies with the changes in the atmosphere. It rapidly diminishes as the altitude above the sea increases.

T. M., of N. Y.—The American Pneumatic system for carrying mails, &c. through exhausted tubes is illustrated and described on page 265, Vol. VIII. (old series) SCIENTIFIC AMERICAN. By consulting these illustrated descriptions of the pneumatic post system, you will obtain very full information on the subject.

V. B., of Pa.—The most perfect method of preventing alcohol from evaporating from bottles and glass vessels containing preserved insects, reptiles, &c., is to use ground glass stoppers, and fuse some glass with the blow pipe around the seams. Sealing wax is the best plastic substance known to us for sealing such glass vessels, but it is slightly porous, and alcoholic vapor will slowly escape from vessels coated with it.

J. D., of Mass.—We saw the report published that the Parrott gun had sent a newly invented shot completely through a target formed of 12 one-inch iron plates and a backing of 24 inches thickness of oak, at a distance of 300 yards. Also that another target at the same distance sloped to an angle of 25° representing the side of the Merrimac, backed by 24 inches of oak and covered with six one-inch iron plates, was completely perforated by every shot. We do not know how far these statements are true as there has not yet appeared any verification of them. This result is possible with a projectile of the right weight and velocity.

SPECIAL NOTICE—FOREIGN PATENT.—The population of Great Britain, is 30,000,000; of France, 35,000,000; Belgium, 5,000,000, Austria, 40,000,000; Prussia, 20,000,000; and Russia, 60,000,000. Patents may be secured by American citizens in all of these countries. Now is the time, while business is dull at home, to take advantage of these immense foreign fields. Mechanical improvements of all kinds are always in demand in Europe. There will never be a better time than the present to take patents abroad. We have reliable business connections with the principal capitals of Europe. Nearly all of the patents secured in foreign countries by Americans are obtained through our agency. Address Munn & Co., 37 Park row, New York. Circulars about foreign patents furnished free.

Money Received

At the Scientific American Office on account of Patent Office business, during one week preceding Wednesday, May 7, 1862:—

W. B., of N. Y., \$40; F. W., of N. J., \$15; S. A. B., of R. I., \$20; J. K., of N. Y., \$45; W. D. A., of N. Y., \$40; H. R., of Ill., \$20; S. E. A., of N. Y., \$45; J. J. A., of Mich., \$20; S. E. S., of N. Y., \$20; W. B., of N. Y., \$10; L. S. A., of Ind., \$10; H. O., of O., \$15; J. E., of N. J., \$30; J. M., of Pa., \$25; J. A. B., of Mass., \$15; S. and F., of Pa., \$25; G. R. R., of Ill., \$15; P. and S., of N. Y., \$15; H. W., of Vt., \$20; M. Y., of N. Y., \$20; W. H. G., of N. Y., \$40; W. L. F., of N. J., \$55; W. H. E., of Va., \$20; P. and B., of Mass., \$20; T. C. B., of Vt., \$45; N. F. E., of Vt., \$20; J. A., of N. Y., \$45; R. B., of N. Y., \$15; G. T., of Conn., \$25; T. H. R., of Mass., \$30; C. and M., of Iowa, \$25; R. D. D., of Iowa, \$25; M. G., of Pa., \$15; J. S., of Mass., \$25; H. M., of N. H., \$75; J. M. W., of Iowa, \$25; E. D. G., of Conn., \$20; R. G., of N. Y., \$20; C. H. W., of Mass., \$20; J. C. C., of Vt., \$20; A. C., of N. Y., \$45; C. C. C., of N. Y., \$20; H. S. and R., of Vt., \$20; G. J., of N. Y., \$45; J. S., of N. Y., \$20; P. and P., of Ill., \$25; G. H., of Ill., \$15; D. and R., of Iowa, \$15; J. M. D., of N. Y., \$15; S. W., of Mass., \$25; H. W. O., of Conn., \$40; E. and E. II., of Ill., \$25; W. H. H. and L. H. McF., of N. Y., \$15; J. M. D., of Va., \$25; J. D., of Mich., \$15; T. and H., of N. Y., \$250; B. D., of Conn., \$15; J. B. T., of Pa., \$34; R. F., Jr., of Mass., \$15; R. S., of N. Y., \$20; N. A. B., of N. Y., \$25; T. and D., of O., \$25; E. T. C., of Ind., \$15; V. W. B., of Vt., \$10; A. G., of N. Y., \$15; C. and C., of Va., \$15; A. B., of Iowa, \$20; C. B., of N. Y., \$10; W. W. B., of N. Y., \$25; E. M. C., of N. Y., \$25; G. A. T., of Wis., \$25; E. J. C., of Ill., \$15; T. W. C., of N. Y., \$25; P. K., of Conn., \$35; E. W., of N. Y., \$25; W. E. B., of Conn., \$15.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office from April 30 to Wednesday, May 7, 1862:—

G. C., of N. Y.; W. H. G., of N. Y.; C. J., of N. Y.; J. M. W., of Iowa; J. M. D., of Va.; G. A. T., of Mass.; J. M., of Conn.; W. E. B., of N. J.; J. S. A., of Ind.; C. and M., of Iowa; R. D. D., of Iowa; W. D. A., of N. Y.; F. W., of N. J.; A. F. T., of N. Y.; E. W., of N. Y.; N. A. B., of N. Y.; H. W. O., of Conn.; S. W., of Mass.; J. F., of N. Y.; J. M., of Pa.; P. and P., of Ill.; J. S., of Mass.; W. L. F., of N. J.; W. B., of N. Y.; J. McN., of Pa.; F. W. C., of N. Y.; W. W. B., of N. Y.; R. S., of N. Y.; E. M. C., of N. Y.; B. and E. H., of Ill.; G. T., of Conn.; T. H. E., of Mass.; G. H. F., of N. Y.

THE CHEAPEST MODE OF INTRODUCING INVENTIONS.

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

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

For further particulars, address—
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VALUABLE PATENT FOR SALE.—A SMALL, NEW and useful article for every female, that will pay a large profit. See Scientific American, Vol. VI, No. 9 (new series), and address JOS. LOFFENDAL, Boston, Mass.

IMPROVED MILLING MACHINES, WITH HAND AND power feed, furnished for \$800 per pair, by W. T. NICHOLSON, Providence, R. I.

PATENT FOR SALE.—IMPROVED CATCH BOLT FOR Door Locks and Latches, which greatly facilitates their operation, and does not increase the cost of manufacture. Address W. M. SALISBURY, Wheeling, Va.

FOR SALE.—HALF OF AN ENGLISH PATENT. The inventor would like to meet with some one to join him in introducing a patented article into the cloth, cotton, paper, oil and other factories...

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C. C. WHITESEY, FOUNDRY AND MACHINE Shop, Malone, N. Y.—Manufacturer of Portable and Stationary Steam Engines, Engine and Hand Lathes, Upright Drills, Bolt Cutters, Double and Single Acting Force and Lifting Pumps...

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SPRING TACKLE BLOCKS.—PATENT RIGHT FOR Sale, or license to manufacture granted on reasonable terms. See invention described in Scientific American for May 10, 1882. Address Mrs. EUNICE R. HUSSEY, Baltimore, Md.

TERRYVILLE CLOCK SPRING COMPANY.—MANUFACTURERS of Polished Clock, Watch and Toy Springs, Terryville, Conn.

PRACTICAL MACHINIST AND ENGINEER SEEKS employment.—Would become an agent for the sale of some invention of real utility. The most satisfactory reference will be given. Only those willing to deal liberally with a thoroughly reliable man, may address CONDENSED, Box No. 131, Phelps, Ontario County, New York.

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JACQUARD MACHINES, WITH APPURTENANCES, manufactured and put up. Looms for narrow goods, from silk ribbon to cotton tape, built to order on the most approved principles. W. P. UHLINGER, No. 1, 621 North Second street, Philadelphia, Pa.

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ONE 50-HORSE STEAM ENGINE, AS GOOD AS NEW, will be sold cheap on application to GUILD & GARRISON, Nos. 55 and 57 First street, Williamsburgh, or No. 74 Beekman street, New York City.

MACHINERY FOR SALE AT VERY LOW PRICES.—2 slide lathes, 2 double-axle lathes, 2 iron planers, 2 bolt cutters, 2 punching machines, 1 boring lathe, 3 upright drills, 1 gem-cutting engine, 1 wheel jack, 1 heavy slotting machine, 1 car-wheel boring machine, 1 Gray & Wood planer, 2 Daulnia's planers, 1 Woodworth planer, 2 power-molding machines, 2 slab-molding machines, 2 tenoning machines, 1 weather-boring machine, 1 screw saw, 1 portable forge, universal chucks, and a lot of foundry tools. Call for cash. Address O. H. SMITH, No. 133 North Third street, Philadelphia. The above have been in use, but are in good order.

ANILINE COLORS.—FUCHSINE, BLUE DE LYON, AND VIOLET IMPERIAL, of the products of Messrs. HENARD, FEBRES & FRANCO, Lyons, France. Secured by Letters Patent of the United States, granted July 31, 1860, and July 30, 1861. The above are prepared to order for sale, or to receive orders for the above products. A. PEBSON & HARRISMAN, Nos. 80 and 82 Murray street, New York City. Sole agents for the United States.

PATENT RIGHTS FOR SALE.—PRACTICAL EXPERIENCE, derived from an extensive use and thorough test of the Nonpareil Washing Machine, patented September, 1861, proves it to be the family hotel and laundry purpose, greatly superior to any machine now before the public. State rights to manufacture and vend are for sale by OAKLEY & KEATING, No. 73 South street, New York City.

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

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SOLID EMERY VULCANITE.—WE ARE NOW MANUFACTURING wheels of this remarkable substance for cutting, grinding and polishing metals, that will outwear hundreds of the kind commonly used, and will do a much greater amount of work in the same time, and more efficiently. All interested can see them in operation at our warehouse. Circulars describing them will be furnished by mail. NEW YORK BELTING AND PACKING CO., No. 37 and 39 Park-row, New York.

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MORGAN IRON WORKS, New York, Nov. 30, 1881. NEW YORK EMERY WHEEL CO.—Gentlemen: Having given the Patent Solid Emery Wheel manufactured by you a severe trial, I do, without hesitation, pronounce it the best wheel I have ever used, as it cuts quick, wears slow, and does not glass or soften the friction. Respectfully yours, Foreman Morgan Iron Works, JOHN GALLIGHER.

A descriptive circular, containing a list of prices, &c., will be forwarded on application. Address NEW YORK EMERY WHEEL CO., No. 28 Frankfort street, New York.

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IMPORTANT TO INVENTORS.

MESSRS. MUNN & CO., PROPRIETORS OF THE Scientific American, continue to solicit patents in the United States and all foreign countries, on the most reasonable terms.



They also attend to various other departments of business pertaining to patents, such as Extensions, Appeals before the United States Courts Interferences, Opinions relative to Infringements, &c. The long experience Messrs. MUNN & Co. have had in preparing Specifications and Drawings, extending over a period of sixteen years, has rendered them perfectly conversant with the mode of doing business at the United States Patent Office, and with the greater part of the inventions which have been patented.

Information concerning the patentability of inventions is freely given, without charge, or sending a model or drawing and description to this office. Consultation may be had with the firm between nine and four o'clock, daily, at their PRINCIPAL OFFICE, No. 37 PARK ROW, NEW YORK. We have also established a BRANCH OFFICE in the CITY OF WASHINGTON, on the CORNER OF F AND SEVENTH STREETS, opposite the United States Patent Office.

This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office are cordially invited to call at this office.

They 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. 65 Chancery Lane, London, 29 Boulevard, St. Martin, Paris, and 26 Rue des Eperonniers, Brussels. We think we may safely say that three-fourths of all the European Patents secured to American citizens are procured through our Agency.

A pamphlet of information concerning the proper course to be pursued in obtaining Patents through their Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the Principal Office, or either of the Branches. They also furnish a Circular of information about Foreign Patents. The annexed letters from former Commissioners of Patents commend to the perusal of all persons interested in obtaining Patents:—

Messrs. MUNN & Co.—I take pleasure in stating that while I held the office of Commissioner of Patents some time ago—having for all the business of the office come 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, O. H. MASON.

Immediately after the appointment of Mr. Holt to the office of Postmaster General of the United States, he addressed to us the subjoined very grateful testimonial:—

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.

Messrs. MUNN & Co.—Gentlemen: 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, W. M. D. BISHOP. Communications and remittances should be addressed to MUNN & CO., Publishers, No. 37 Park-row, New York.

PUMPS! PUMPS!!! PUMPS!!!—CARY'S IMPROVED Rotary Force Pump, unrivalled for pumping hot or cold liquids. Manufactured and sold by CARY & BRAINERD, Brookport, N. Y. Also, sold by J. C. O'BY, No. 2 Astor House, New York.

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CENTRIFUGAL SUGAR MACHINES.—MESSRS. ASPINWALL & WOOLSEY'S patent.—George B. Hartson, No. 111 East Forty-second street, continues to execute orders, and gives his personal attention to the erection of the above machines, and will also furnish plans and estimates for complete sugar refineries, with all the latest improvements. 23 6m

MESSIEURS LES INVENTEURS.—AVIS IMPORTANT. Les Inventeurs non familiers avec la langue Anglaise et qui préfèrent leur nom communiquer leurs inventions en Français, peuvent nous adresser dans leur langue natale. Nous nous engageons à leur donner une description concise pour notre examen. Toutes communications seront reçues en confiance. MUNN & CO., Scientific American Office No. 37 Park-row, New York.

Sur Beachtung für deutsche Erfinder. Die Unterzeichneten haben eine Anstalt, die Erfindern das Behalten angibt, um sich ihre Patente zu sichern, herauszugeben, und veröffentlichen solche gratis anzuheben. Erfinder, welche nicht mit der englischen Sprache bekannt sind, können ihre Mittheilungen in der deutschen Sprache machen. Sollten von Erfindungen mit kurzen, deutliche geforderten Befreiungen befreit man in adressieren an MUNN & CO., 37 Park Row, New-York. Auf der Office wird deutsch gesprochen. Befreiung ist zu haben: Die Patent-Gesetz der Vereinigten Staaten, nach den Regeln und der Geschäftsordnung der Patent-Office und Anweisungen für den Erfinder, um sich Patente zu sichern, in den Ver. St. (so wohl als in Europa, ferner Kundige aus den Patent-Verfahren fremder Länder und deren bejagliche Nachträge; ebenfalls nützliche Mittheilungen für Erfinder und solche, welche patentieren wollen. Preis 20 Cts., per Post 25 Cts.

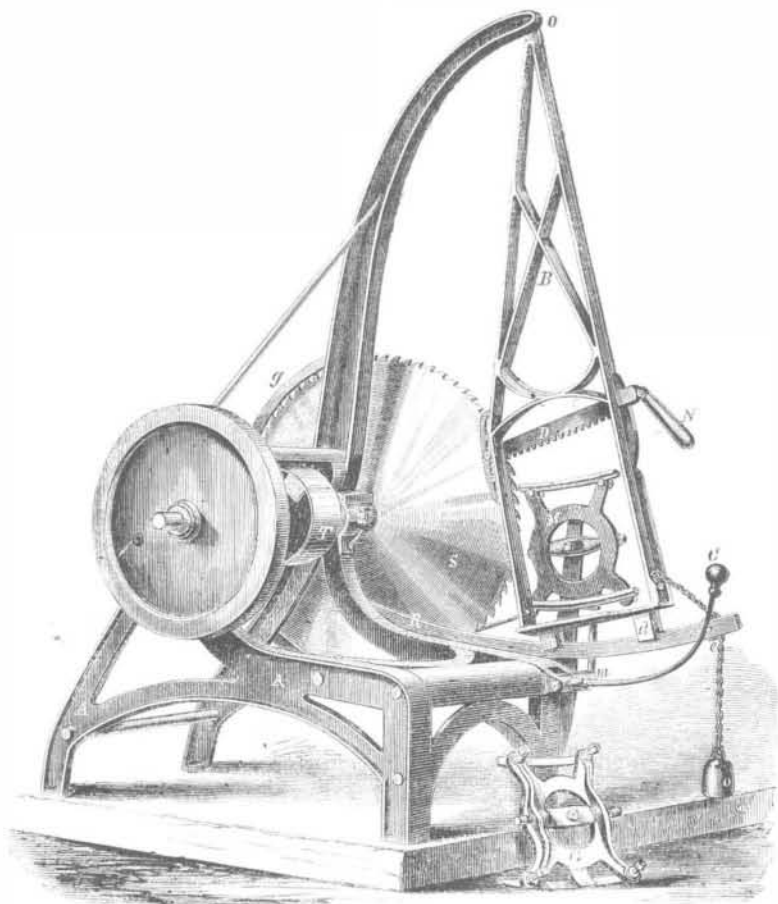
Improved Shingle and Heading Machine.

The accompanying engraving represents a machine which will saw either shingles or headings, cutting the timber with the grain, and thus materially obviating the objection which is brought against sawed shingles.

The bolt or block being placed on end upon a sort of shelf at the bottom of the swing, at *d*, is fastened by bringing the dog, *D*, down upon it by means of the handle, *N*. Continuing to push upon the handle, *N*, the swing carrying the bolt is vibrated past the

effecting a great saving of timber. The sawdust being in long fibers burns rapidly, so that with a good boiler the dust will furnish steam enough to run the machine if cutting pine. The power is not consumed in the operation of small contrivances, which are always getting out of order, but is applied directly to the work.

The patent for this invention was granted through the Scientific American Patent Agency, to the inventor, Robert Law, of Portage City, Wis., January 5, 1858, and further information in relation to it may

**TREVOR & CO.'S COMBINED SHINGLE AND HEADING MACHINE.**

saw and a slab piece cut off; returning, the dog is raised, and with the left hand the bolt is pushed against the gage, *M*, which determines the thickness and shape of the shingle; the dog is again brought down and the operation repeated. The saw, when properly filed, draws the bolt forward almost without effort on the part of the sawyer, and a small weight attached by a chain or cord to the swing, and passing over the sheave in the end of the slide, at *e*, assists in returning it.

The gage, *M*, is vibrated to cut shingles, alternately points up and down, by the handle, *C*, placed conveniently for use by the left hand, while the right is pushing the swing forward and returning it. When sawing heading the gage remains stationary. The thickness and shape of the shingles are altered in any degree necessary by set screws in the gage, *M*, which is more distinctly shown, detached and turned round at *G*.

The change from shingles to heading is made without the addition or removal of any part, by a simple adjustment of set screws. The frame, *A A*, is of cast iron, thoroughly bolted and braced. At its highest point, *O*, is a wrist, upon which is hung the swing, *B*, which is guided in its vibrations toward and from the saw, *S*, by the slide, *R*, without, however, resting upon it.

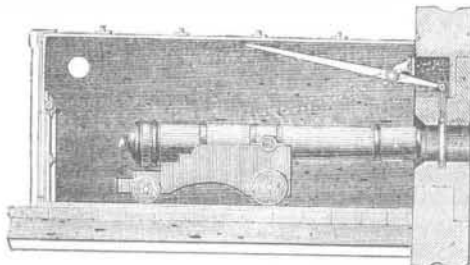
The manufacturers of these machines say the arbor upon which is the saw, *S*, pulley, *T*, and balance wheel, *E*, is of cast steel, finished in the best manner, and supported in babbitted boxes of long bearing, firmly bolted to the frame. The pulley, if desired, can be placed outside of the flywheel. The saw is supported and stiffened by a collar on the outside not shown. The guard, *G*, with an arrangement below, not shown, for separating the shingles and saw dust, renders it perfectly safe to the operator.

The saws are made to order, and ground down to No. 16 gage, thus consuming but little power and

be obtained by addressing the manufacturers of the machines, Trevor & Co., at Lockport, N. Y., to whom the patent has been assigned. [See advertisement on another page.]

SUBMARINE GUNS.

As the part of a war vessel most dangerous to be struck is under the water line, several plans have been proposed for guns to fire under the water into the hull of an enemy's vessel when ranged alongside. The accompanying engraving represents a gun pro-



posed to be operated for this purpose, by Thomas Page, C. E., London, and described in the *Mechanics' Magazine*. Each gun is to be placed in a chamber below the water level. This chamber is made watertight, and air is forced into it by a pump through a tube. The air pressure is greater than that of the water at the depth at which the gun is placed below the water level. Each gun chamber is connected with a reservoir in which a plentiful supply of condensed air is maintained. The gun being loaded, placed and trained in position by suitable apparatus, a port is opened in the ship's side below the water level, and the gun is fired through such port, which is again immediately closed. The pressure of air in the chamber causes a rush of air outward, and prevents the ingress of water to any extent while firing. Mr. Page

proposes to bring the guns into sufficient proximity to an enemy's ship and fire it below the water level; the projectile will therefore pass through the water, strike and enter the enemy's ship below the water line and so contribute to its destruction. Guns so situated may be worked by the men in the ordinary way, they being in the pressure chamber.

Guns worked and discharged in compressed air chambers, according to this invention, would in most cases, be fired point blank, and would not in any case require to be elevated, but in very close quarters with an enemy they might be depressed with advantage. In practice, however, the gun might always be maintained at a uniform level, in which case the port or hole in the ship's side may be made of a size to correspond somewhat in diameter to the muzzle of the gun. The gun having been loaded and brought into position, the supply of compressed air is admitted to the gun chamber, the port is opened by the lever and the gun discharged.

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