

described for the purpose of tucking the twisted ends under the band.

Seventh, Holding the band against the pressure of the tucking band by means of the claw, f, or its equivalent, substantially as described.

Eighth, The combination and arrangement of the shafts, F F', yokes, f2, pinions, f3 f4, guides, H, and segment racks, h, to impart the required motion to the tucker, f, and claw, f1, substantially as set forth.

Ninth, The arm, G, provided with a cogged segment, g', and employed to advance the shafts, F F', intermittently, in the manner and for the purposes explained.

Tenth, The segment wheel, I 1', constructed as described, in combination with the twisting jaws, D, and tucker, f, or their equivalents.

Eleventh, The arm, L, or its described equivalent, for casting the finished sheet, substantially as explained, when used in the described combination with the pivoted table, N or N2, or other suitable receptacle for carrying the sheaves and depositing them in heaps.

Twelfth, The curtain, P or P2, operated by the falling and rising of the table, N or N2, in manner substantially as and for the purposes set forth.

Thirteenth, The mode of combining the worm, s2, and slotted disk, O, or any substantially equivalent devices, for counting the number of sheaves to be deposited in each heap, with an automatic binding machine, substantially as herein described.

Fourteenth, The combination of the shear-holder, B B', or equivalent, with rotating gripping jaws for twisting the band, and the tucking hand and holder, as described.

1,876.—Raking Attachment to Harvester.—Robert D. Brown, Covington, Ind. Patented April 7, 1863:

I claim, first, The continuously revolving rake, B, carried forward over the platform and back beneath the same by means of driving chains, bolts, or their equivalent, and elevated to its working position during its forward motion and retracted in passing beneath the platform by means of the crank and D, or its equivalent, working in a slot for the purposes specified.

Second, The intermittent cradle, F f, operated as described, in combination with the continuously revolving rake, B, for the purposes set forth.

1,877.—Steam Engine.—Fred'k P. Dimpfel, New York City. Patented July 1, 1861.

I claim, first, The means herein described for connecting the steam piston of a steam engine with the crank thereof, said means consisting of a piston rod, fixed crosshead, side bars, forked connecting rod and belts, or the equivalents thereof, the several devices being arranged and operating substantially as herein set forth, in such manner that the crosspiece of the connecting rod which is placed transversely to the crank shaft shall be on opposite sides of the axial line of said shaft at opposite extremities of the stroke of the piston.

Second, The forming of the induction and induction chambers in cylinder heads of steam engines, and furnishing them respectively with supply and exhaust valves, substantially in the manner and for the purposes described.

Third, The forming of two steam chambers in one or both heads of a steam engine cylinder in combination with induction and induction steam pipes, and with puppet or other valves, in such manner that a large portion of the steam shall be saved which is lost or wasted in the passages or steam ways of engines as ordinarily constructed, substantially as described.

Fourth, The removable chambered cylinder head, in combination with the extension chambers, u, u, and steam pipes, r, r, connected to the latter, substantially as and for the purposes described.

Fifth, The manner, substantially as described, of applying the induction and induction valves with their respective chambers to steam cylinders, for the purpose set forth.

1,878.—Condenser.—Wm. A. Lighthall, New York City. Patented Dec. 17, 1861:

I claim securing the packing rings, C, or their equivalents or substitutes, as herein described, in the apertures, B, in the head sheet, A, around the ends of the tubes, D, without the use of a follower or other analogous mechanical device or arrangement, as herein set forth.

1,879.—Portable Water Condenser.—Wm. A. Lighthall, New York City. Patented July 29, 1862:

I claim, first, The combination of the tank, N, filter, B, condenser, F, and heater, G, when arranged in relation to each other in the manner and for the purposes herein set forth.

Second, The construction of the case of the condenser, F, with spaces above and below the series of tubes, K, as and for the purposes set forth.

1,880.—Naval Ram for the destruction of the Enemy's Ships.—Charles Perley, New York City. Patented Feb. 24, 1863:

First, In combination with a horn or ram capable of being projected from or drawn into a vessel below the water line, I claim a valve gate or gates to close the orifice when the same is removed, as specified.

Second, I claim a cutting edge provided at the end of a horn or ram to prevent the same from glancing off when striking diagonally against an opposing vessel, as set forth.

Third, In combination with a movable horn or ram, I claim a weight or mass of material employed behind said horn or ram, but separate from the vessel itself, and acting to drive the horn into the vessel to be destroyed, substantially as set forth.

1,881.—Machine for Cutting Files.—Milton D. Whipple (assignor by mesne assignments to the Whipple File Manufacturing Company), Cambridge, Mass. Patented Oct. 7, 1866:

I claim feeding the blank forward and rotating it upon its axis as the cutting proceeds, when it is operated upon by the vibrating cutters in the manner substantially as herein set forth.

I also claim supporting one end of the blank in a socket that is free to move with it and to accommodate itself to blanks of various lengths, substantially as set forth.

I also claim, in combination with a round blank that is rotated for the purposes described, operating upon the blank immediately beyond its point of support, in the manner and for the purpose substantially as herein described.

I also claim the method herein described of operating the cutters by means of the wipers, b, and the springs, A2 and Z, whereby the force of the blow is diminished as the size of the blank decreases, as set forth.

I also claim forming the cutters of circular disks, or of portions thereof, in the manner and for the purpose substantially as herein set forth.

DESIGNS.

2,032.—Agricultural Furnace.—Merritt Peckham, Utica, N. Y..

2,033.—Spoon and Fork Handle.—Julius L. D. Sullivan, Somerville, Mass.:

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* acknowledgement of our receipt 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.



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 succeeded (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 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.

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 re-

garding 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 think they can safely say that THREE-FOURTHS of all the European Patents secured to American citizens are procured through their agency.

Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

Circulars of information concerning the proper course to be pursued in obtaining patents in foreign countries through MUNN & CO.'S Agency, the requirements of different Government Patent Offices, &c. may be had, gratis, upon application at the principal office, No. 37 Park Row, New York, or any of the branch offices.

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.

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 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 storageroom. 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.