

flange or flanges on either side of the base of the cast-iron block or wrought-iron plate, or on both of them, and transverse bolts, substantially as and for the purpose specified.

50,777.—Mode of Operating Boring Tools for Artesian Wells.—Johnston Ross, East Liberty, Pa., assignor to A. H. Gross and C. W. Batchelor, Alleghany Co., Pa.:

I claim, First, The revolving platform, r, with its reel, i p, placed centrally over the bore of the well, and caused to revolve on its axis while the boring tool is being worked, in the same direction as the boring tool and rope in the well, for the purpose of holding the slack or surplus rope outside of the well and preventing it from becoming twisted, substantially as herein before described.

Second, Also the use of the check block, with its wedge, for the purpose of securing the working rope while it is being detached from the walking beam of the engine, substantially as herein before described.

50,778.—Elevator.—Wesley Sawyer, Lowell, Mass., assignor to himself and Francis A. Sawyer, Boston, Mass.:

I claim, in the improved elevator herein before explained, the combination and arrangement of the belt-shifting mechanism, viz., the two levers, h k, and their connecting rod, i, with the bucket, K, its elevating chains, G G, their toothed wheels, C D E F, and gears, b c, driving belt, l, and pulley, g, and fast and loose pulleys, d f, the whole being to operate substantially as specified.

I also claim the combination and arrangement of the guide rollers, H H, with the bucket, K, its elevating chains, G G, and their operative toothed wheels, C D E F, and shaft, A, the whole being substantially as explained.

50,779.—Machine for Facilitating Household and Culinary Operations.—Henry S. Shephardson (assignor to H. S. Shephardson & Co.), Shelburne Falls, Mass.:

I claim the mechanical arrangement of the base, column and gearing, so that the base will serve to hold any vessel under the gearing, and the gearing be susceptible of driving the different devices herein named, while the devices themselves are interchangeable to accomplish the several purposes herein named, substantially as described.

50,780.—Blacking.—Abraham Tomlinson (assignor to himself and Charles C. Clements), Cincinnati, Ohio. Antedated Aug. 3, 1885:

I claim the blacking composed and compounded as described.

50,781.—Machine for Finishing Lap-welded Tubes.—Peter L. Weimer (assignor to Aurora Iron Company), Lebanon, Pa.:

I claim, First, Removing the fins from lap-welded tubing as it leaves the pressing rollers, by means of rotary cutters or files, substantially as described.

Second, Providing for giving a vertical movement to the fin cutters at the same time that they receive a rotary motion, substantially as described.

50,782.—Cutting Staves.—John I. Ralya, Alleghany, Pa.:

I claim constructing the knives for stave dressers with a shoulder projecting as an obtuse angle from the outer face of each blade of the knife, substantially as herein before described, for the purpose of breaking off the shavings or slivers as to prevent the riving of the stave.

REISSUES.

2,098.—Grain Separator.—Ezekiel Montgomery, Henry Montgomery, and M. E. Montgomery, Silver Creek, N. Y., assignees of Henry Montgomery and Simeon Howes. Patented Feb. 22, 1885:

We claim subjecting light grain after it has been separated from the heavy grain and carried over into the utilizing chambers to a counter current of air, for the purpose of further cleaning the light grain, and delivering it from the machine in a fit condition for feed, substantially as set forth.

2,099.—Harvesting Machine.—John Reilly, White Pigeon, Mich. Patented Nov. 20, 1885:

First, I claim a grain guard or cut-off which remains out of the way of the falling grain until a reel or proper size has accumulated; is then interposed between the platform and reel to receive and support the falling grain, and remains there until the gavel already accumulated has been removed, when it is withdrawn, the movements of the cut-off being parallel to the path of the machine, for the purposes set forth.

Second, The combination in a harvesting machine of a cutting apparatus and platform with a grain guard or cut-off, the combination being and operating substantially as described.

Third, The combination, substantially in the manner described, in a harvesting machine of a cutting apparatus, a platform and a reel with a grain guard or cut-off, arranged behind and moving in the same vertical plane as the reel, for the purpose of separating the grain swept back by the reel into gavels suitable for binding.

Fourth, The combination in a harvesting machine of a cutting apparatus projecting from one side of the main or gearing frame and a hinged or swinging platform with a grain guard or cut-off vibrating over the platform.

Fifth, The combination in a harvesting machine of a reel, a cutting apparatus, a hinged or swinging platform and a cut-off.

DESIGNS.

2,210.—Coffin Handle.—Alonzo B. Bailey, Middle Haddam, Conn.

2,211.—Inkstand.—John Moore, Warren, Mass.

2,212.—Fork or Spoon Handle.—John Polhamus, New York City.

2,213.—Badge of the Union League.—S. G. Vredenburg, Mount Vernon, N. Y.

2,214.—Floor Oil-cloth Pattern.—James Paterson, Elizabeth, N. J., assignor to Deborah, Albert E., and Nathaniel B. Powers, Lausburgh, N. Y.



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-HALF 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 eighteen 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 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 well 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

[See Judge Holt's letter on another page.]

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.

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, etc., 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 a 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 Patent Laws, enacted by Congress on the 2d of March, 1881, 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.

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.

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.

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, etc.

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.

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.....	\$1
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 an 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

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 of 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 sixty 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.

Pamphlets 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, etc., 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.

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.

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 or Postal Order 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.

Communications and remittances by mail, and models by express (prepaid) should be addressed to MUNN & CO., No. 37 Park Row, New York.



R. B., of N. Y.—The maximum of light in the spectrum is in the middle of the yellow; the maximum of heat is in the dark below the red.

T. A. B., of Ill.—In 1835 and 1837 Messrs. Piobert, Didion and Morin made a series of experiments at Metz, to determine the resistance of air to bodies moving through it, and they came to the conclusion that the resistance of flat surfaces is in direct proportion to the area. They give the following formula:— $R=0.0002 A \text{ plus } 0.0158 AV^2$

in which R is the resistance; A the area in square yards, and V the velocity in yards per second. Whether the same law would hold in the case of a fixed sail opposed to moving air has not, we believe, been yet ascertained.

J. B. B., of Pa.—A properly made governor is self-acting, and requires no attention from any one, whether half or all the machinery is on.

G. C., of Mass.—If in water two miles deep you attempt to drag a ring along the bottom by a line extending from a ship at the surface, your line ~~may~~ be several miles in length, and in practice it would lie a long distance upon the bottom. The idea of drawing a ring along the Atlantic cable in this way is preposterous, and the more complicated the apparatus the more manifestly impracticable would be the scheme.

J. S. M. & Co., of Pa.—We are not acquainted with any work that will instruct boys in the art of painting, striping and finishing wood work.

J. McD., of Vt.—On page 40, Vol. VIII., you will find the subject of curing tobacco treated on. You can procure presses from any of the agricultural warehouses.

McD. & Co., of N. S.—The composition of steel bells, as they are called, is kept a secret by the manufacturers. It is supposed by some to be cast iron, with a little franklinite. The bells of Naylor & Co., we believe, are simply cast steel.

G. W. L., of Pa.—You will find many rules in back numbers of the current volume on the horse-power of belting.

A. J. H.—Copper tubes, surrounded by fire, are as liable to be burnt out as iron; more so. Common practice has fixed upon 1½ and 1¾-inch tubes in tubular boilers, though they are made of any diameter.

L. S. P., of Pa.—We do not know who manufactures machinery for sugar-coating almonds.

C. B. C., of N. Y.—Buy "Templeton's Pocket Companion."

O. G. B., of Me.—It is owing to the angle of the connecting rod that the cross-head is not at mid stroke when the crank is vertical.

G. D. C., of Conn.—We do not know where you can find such steel as you want, but would advise you to address Naylor & Co., of this city.

E. H., of Pa.—You do not forfeit your right to take out a patent by delaying the application, providing such delay does not amount to an abandonment of the invention to the public. Inventors ought not to delay their application unnecessarily, as by such neglect they often become involved in expensive interference cases.

C. C., of Mass.—A patent cannot be for the function or abstract effect of a machine, but only for the machine itself. You can obtain a patent for a process irrespective of any particular form of machinery used in the process.

T. T., of Ill.—As you are an owner in the patent we do not think you are required to take out a license in order to sell it. You are not an agent, but a principal, in the business.

L. P., of Pa.—You cannot apply to a court to have your Letters Patent corrected. This can only be done by the Commissioner of Patents, who is authorized by law to reissue a defective patent.