

CHANGE IN THE PATENT LAWS.

NEW ARRANGEMENTS—PATENTS GRANTED FOR SEVENTEEN YEARS.

The new Patent Laws, recently enacted by Congress, are now in full force, and promise 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 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 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, except in 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.

Testimonials.

The annexed letters, from the last three Commissioner of Patents, we 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, 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.

Immediately after the appointment of Mr. Holt to the office of Postmaster-General of the United States, he addressed to us the subjoined very gratifying testimonial:— Messrs. MUNN & Co.—It affords me much pleasure to bear testimony to the able and efficient manner in which you have discharged your duties of 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, J. HOLT. 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, WM. D. BISHOP. 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 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, 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. Over 1,500 of these examinations were made last year through this Office, and as a measure of prudence and economy, we usually advise Inventors to have a preliminary examination made. 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 furnished gratis on application by mail. Address MUNN & CO., No. 37 Park-row New York.

How to Make an Application for a Patent.

Every applicant for a Patent must furnish a model of his invention, if susceptible of one; or if the invention is a chemical production, he must furnish samples of the ingredients of which his composition is composed, for the Patent Office. These should be securely packed, the Inventor's name marked on them, and sent, with the government fee, 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.

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 their case, inclosing the official letters, &c.

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 Chancery-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 of our Branch Offices.

Interferences.

We offer our services to examine witnesses in cases of interference, to prepare arguments, and appear before the Commissioner of Patents or in the United States Court, as counsel in conducting interferences or appeals.

For further information, send for a copy of "Hints to Inventors," furnished free. 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 other particulars, address MUNN & CO., No. 37 Park-row, New York.

Extension of Patents.

Valuable Patents are annually expiring which might be extended and bring fortunes to the households of many a poor Inventor or his family. We have had much experience in procuring the extension of Patents; and, as an evidence of our success in this department, we would state that, in all our immense practice, we have lost but two cases, and these were unsuccessful from causes entirely beyond our control. It is important that extension cases should be managed by attorneys of the utmost skill to insure success. All documents connected with extensions require to be carefully drawn up, as any discrepancy or untruth exhibited in the papers is very liable to defeat the application.

Of all business connected with Patents, it is most important that extensions should be entrusted only to those who have had long experience, and understand the kind of evidence to be furnished the Patent Office, and the manner of presenting it. The heirs of a deceased Patentee may apply for an extension. Parties should arrange for an application for an extension at least six months before the expiration of the Patent.

For further information as to terms and mode of procedure in obtaining an extension, address 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.

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.

TO OUR READERS.

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 is required to accompany the petition, specification and oath, except the government fee.

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 inclosing \$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.

BINDING.—We are prepared to bind volumes, in handsome covers, with illuminated sides, and to furnish covers for other binders. Price for binding, 50 cents. Price for covers, by mail, 60 cents; by express or delivered at the office, 40 cents.

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NEW PAMPHLETS IN GERMAN.—We have just issued a revised edition of our pamphlet of Instructions to Inventors, containing a digest of the fees required under the new Patent Law, &c., printed in the German language, which persons can have gratis upon application to this office. Address MUNN & CO., No. 37 Park-row, New York.

RATES OF ADVERTISING.

Thirty 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 ten 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 sent for publication.

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SWISS DRAWING INSTRUMENTS.—CATALOGUE (7TH Edition), containing over 250 illustrations of Mathematical, Optical and Philosophical Instruments, with attachment of a large sheet representing the genuine Swiss instruments, in their actual size and shape, will be delivered on application to all parts of the United States (gratis), by C. T. AMSLER, No. 635 Chestnut-street, Philadelphia, Pa., established agency for the Swiss Drawing Instruments since 1848.

Being about to retire from business, I have sold my stock of Swiss Mathematical Instruments to Messrs. McALLISTER & BROTHER, of No. 728 Chestnut street, Philadelphia, who will continue to keep such for sale, and to whom I refer my former friends and customers. C. T. AMSLER, Philadelphia, Pa., June 12, 1861.

RARE CHANCE.—C. T. AMSLER, OPTICIAN, NO. 635 CHESTNUT-STREET, PHILADELPHIA, is offering from the 1st of June his large stock of Mathematical, Optical and Philosophical Instruments at 20 per cent below the regular retail prices. Drawing Instruments and Magic Lanterns, Photograph of War Scenes, &c., are sold at the same rate.

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A MESSIEURS LES INVENTEURS—AVIS IMPORTANT. Les Inventeurs non familiers avec la langue Anglaise et qui préféreraient nous communiquer leurs inventions en Français, peuvent nous adresser dans leur langue natale. Envoyez nous un dessin et une description concise pour notre examen. Toutes communications seront reçues en confiance. MUNN & CO., SCIENTIFIC AMERICAN Office, No. 37 Park-row, New York.

Improvement in Canal Boats.

Notwithstanding that the introduction of railroads has put a stop to the construction of canals, there are still in operation in the United States more than 3,000 miles of the latter, and the great numbers of canal boats which are constantly decaying and passing out of service, renders the building of these small craft a very great business. In place of the usual mode of framing them, a plan was adopted some time since of constructing them with a log on each side along the bilge, to which the side and floor timbers were secured. Messrs. McCausland & Sons, practical boat builders, of Rondout, New York, have invented an improved mode of securing the frames to the side logs, which is illustrated in the accompanying engraving.

Fig. 1 is a side view of a portion of the boat with a part of the outer planking removed, and fig. 2 is a cross section of the bilge on one side, showing the form of the log with its connections. The stick of timber marked *a*, running fore and aft, is connected to the stem and stern posts by a knee or chock ex-

and Hudson Canal for the last four years, and are said to be a perfect success, never having been taken out of the water for repairs, and carrying from 10 to 16 tons more than boats of other styles now in use.

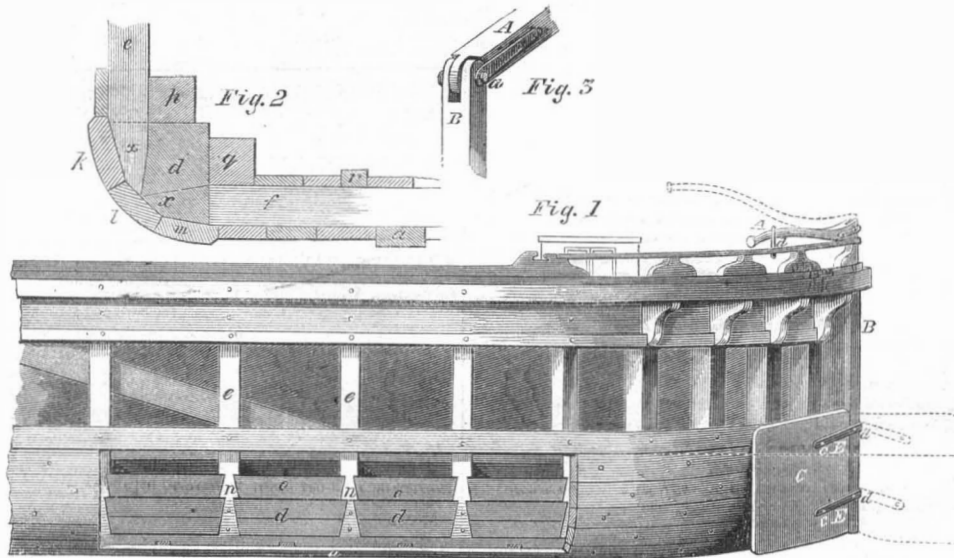
The engravings also illustrate an improved mode of connecting the tiller with the rudder stock of canal boats, invented and patented by the same parties, by which the boat is not only managed with more facility, but which also permits the boat to be made of some two feet greater length. This plan is plainly shown in figure 3. Instead of a mortise through the rudder stock to receive the tiller, the former has a slot cut in its upper end, into which a tenon on the end of the tiller is fashioned to fit. Then two iron straps, fastened on each side of the tiller embrace the end of the rudder stock; a bolt passing horizontally through the pieces to form a hinged joint, so that the tiller may be swung over the end of the rudder stock. By this arrangement, on entering a lock, the tiller can be turned over back, parallel with the rudder, and the latter brought close to the side of the boat, both being entirely out

of color and light, formed the concluding experiment.

Calculating the Speed of Screws.

If the pitch of a screw, in feet, be multiplied by the number of turns per minute, and two places of decimals be pointed off from the right hand of the product, the latter will almost express the speed in knots per hour, including slip. Thus a screw of 30 feet pitch, making 45 turns per minute, will make $(30 \times 45 = 1,350)$ 13.5 knots nearly per hour including slip. 1,350 in this case is the number of feet of horizontal motion, including slip, developed per minute, and as a nautical mile is very nearly 6,000 feet, and as there are 60 minutes in an hour, the effect of multiplying 1,300 by 60 and dividing the product by 6,000, is, of course, the same as pointing off two places of decimals at once.

By multiplying the pitch of a screw by its revolutions per minute and dividing by 88, we obtain the speed of the vessel without allowing for slip, which is generally about 11 per cent. The above rule is sufficiently correct for all common purposes.



M'CAUSLANDS' IMPROVED CANAL BOAT.

tending far enough out on the bilge timbers to get sufficient fastening through them and give ample strength to the bow and stem. The bilge timbers, *d*, extend from the stem to the stern post, and may be 8x12 inches square or larger, as the size of the vessel may demand. To the bilge timbers the side timbers, *e*, and the floor timbers, *f*, are secured by dovetail joints; the dovetails tapering, as shown in fig. 2. The outer and lower corner of the bilge timbers is beveled, *g*, and an inclined face both above, *h*, and below, *i*, is also formed to allow of the planking of the timbers. The plank to these three faces will form a gradual turn, and will fully protect the bilge timbers from exposure to the water, and from being bruised and broken away. A second dovetail on the side timbers, marked *n*, is formed to receive the dovetail chocks, *o*. These chocks fit in between the side timbers and are fastened by spikes to the bilge timber, and to a fore-and-aft piece, *p*, of the length of the bilge timber, lying above it, and inside of the side timber. Another fore-and-aft piece, *q*, extends along the side of each bilge timber and above the floor timbers, being fastened to both the floor and bilge timbers. Keelsons, *r*, are placed directly under the hatch combings so as to receive two stanchions under each beam. The ceiling is intended to be placed between the bilge and the clamps.

It will be seen that boats made on this plan will be of great strength and very durable, and will be easily repaired. By dispensing with the ceiling between the bilge and the clamps (rendered possible by the second dovetail joint and chocks) the side timbers will be kept in better condition and more room exist for the cargo. Alternately attaching the floor and the side timbers to the bilge timbers is also regarded as very advantageous in this class of vessels. This plan also obviates the necessity of obtaining pieces of timber of a natural curve for futtocks, and by keeping the parts dry prevents the rapid decay of the timbers and planking. Provision can easily be made for salting the timbers if desired.

These boats have been in use on the Delaware

of the way of the gate. A pin on the edge of the boat holds the tiller in its place when turned back.

Both of these inventions were made by John Jefferson and James McCausland. The patent for the one first-described was granted September 21st, 1858, and that for the improved tiller May 14th, 1861. Further information in relation to either may be obtained by addressing McCausland & Sons, at Rondout, N. Y.

Experiments with the Induction Coil.

At the London Mechanics' Institution, E. Wheeler, C. E., recently lectured on the induction coil, the apparatus used by him being of his own design and construction. In the course of his experiments, he showed that, in common coal gas of moderate density, the spark passed in zigzag lines of emerald green. Through pure hydrogen, it resembled forked lightning of the deepest crimson. Atmospheric air reduced to a vacuum, showed a broad ribbon of gentle mauve a yard long. A similar line of light made to pass over a wine decanter of Uranium glass, in an exhausted receiver, exhibited upon the decanter tints of extreme richness. A hock wine glass *in vacuo* was made the recipient of a current from the coil; and the electricity, streaming over the edges of the wineglass with roseate tints, seemed like a material liquid flowing from some invisible source, and changing into a brilliant electric cascade. A line of sky-blue light, being caused to traverse an electro-magnet, was seen to revolve round its pole, an illustration of the close relations between light, electricity and magnetism. An example of the stratified form which the light occasionally assumes was supplied in a large glass tube of rarefied carbonic acid gas. In hermetically sealed glass tubes of fantastic shapes, nitrogen gas exhibited pink and carmine tints; sulphurous acid gas, an azure blue; hydrogen, a deep crimson; carbonic oxyd, green. Phosphoric acid gas was visible in the tube by a faint green light for some seconds after the discharge had ceased. A chromatic star, in rapid rotation, and with striking contrasts and endless combin-

PROSPECTUS

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To the Inventor!

The SCIENTIFIC AMERICAN is indispensable to every inventor, as it not only contains illustrated descriptions of nearly all the best inventions as they come out, but each number contains an Official List of the Claims of all the Patents issued from the United States Patent Office during the week previous; thus giving a correct history of the progress of inventions in this country. We are also receiving, every week the best scientific journals of Great Britain, France, and Germany; thus placing in our possession all that is transpiring in mechanical science and art in these old countries. We shall continue to transfer to our columns copious extracts from these journals of whatever we may deem of interest to our readers.

To the Mechanic and Manufacturer!

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TERMS.

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