Notes and Queries

C. C. R., of N. H.—Both of your inventions were new to us until a few weeks ago. A patent has been officially ordered to issue and will be out in a few days, for a shell made in sections as you propose, and we consider it a new thing. A brass gun was fitted with steel ridges at a factory in Brooklyn, two or three weeks ago, but no patent has, to our knowledge, been applied for on such a gun.

A. J. D., of Md.—We can tolerate an honest difference of opinion upon all subjects—scientific, religious and political. It becomes a very different thing, however, when *opinions* assume the character of armed opposition to a government; it then becomes treason, which we regard as a crime of the deepest dye. The ancients visited this crime with far greater severity than we do, by making its consequences attach to the children of the traitor. Of course we do not approve of such severity, but we nevertheless think all traitors should be severely dealt with, otherwise society would have no security.

M. J. K., of N. Y.—There is nothing patentable in your shields. Single shields were used by soldiers before the invention of gunpowder, and it has been proposed to attach them to field pieces to shield the gunners. Soldiers generally have too much weight to carry without such contrivances.

T. M., of Pa.—To obtain indigo from the plant, it is steeped in a tank until fermentation takes place, when the indigo is dissolved from the plant and taken up by the water. It is then precipitated from the water by adding a little lime and beating the water as you would beat eggs. No lime is added to the best Bengal indigo; the coloring matter is precipitated entirely by the beating process.

J. H., of Ind.—The best varnish for iron chains is made of pure linseed oil well boiled and rendered quick drying by adding some litharge—about four ounces to the gallon. Color it black by adding some lampblack and a little asphalt. When resin is added to oil it renders it more liable to scale off. The chains should be thoroughly dried in a hot room before they are used.

J. H. T., of Pa.—The quantity of the tin produced from the mines of Cornwall and Devonshire, in England, amounts to about 7,000 tuns per annum. As we have to import all the tin which we use, the discovery of a rich mine of this metal would be one of the most valuable acquisitions to our commerce and manufactures. We hope you will follow up your researches.

W. H., of Pa.—We have never seen any other metal than steel employed for making dies to stamp metallic plates. No metal but steel will withstand the pressure to which dies are subjected.

P. McC, of Phila.—We never heard of experiments having been conducted under the patronage of the government with combined steam and air under water, for the purpose of propelling vessels. Your informant, we think, must be mistaken. Your former letter was not received.

H. C., of N. Y.—In order to color brass blue, mix some ultra marine with copal or other resin varnish, dip the brass into it, then dry in a warm room or oven. To bronze brass, mix some common bronze powder with lac varnish and dip the brass into it, and dry as before directed. All colors are put on brass with varnishes colored with appropriate pigments.

T. F. L., of R. I.—Gun cotton has been used for shells and for blasting rocks under water, for which purposes, we believe, it is better than powder, but for artillery and small arms it ignites too rapidly, so that it expends most of its force in a manner tending to burst the guns.

J. E. C., of Vt.—*Silliman's Journal* is a bi-monthly, 8vo., and the price is $5 a year. The boomerang is made of hard wood; it is about thirty inches long, three inches wide, and one in thickness. It is convex on one side and flat on the other, and is slightly curved. It is thrown by the natives of Australia with the flat side downwards.

S. G. H., of Mass.—The public opening of the Liverpool and Manchester Railway took place September 15, 1830, but engines had been running upon it for several months previously. The British Reform Bill passed March 1st, 1831.

J. L. M., of Pa.—Your "unpickable" pocket made of wire links is quite an old thing. A patent was refused for it several years ago.

Wm. J. S., of N. Y.—Our machine shops are fully able to produce all the cannon wanted and of the most perfect quality if the government will only give them the orders.

R. E., of N. Y.—A straight piece of iron wire connected with a galvanic battery introduced between the poles of a horse-shoe magnet and its armature, would have no effect on the attractive power.

S. F. D., of Me.—You will find the requirements of conditions for admission into the engineer department of the navy fully given on page 198 of the last volume of the SCIENTIFIC AMERICAN. It is No. 13, Vol. IV., New Series, of the date March 20, 1861.

J. H., of N. Y.—If you should double the size of both the water and steam cylinders of your steam pump, and reduce the pressure of the steam 50 per cent., it would not make the same number of strokes per minute.

O. B. V., of Ohio.—The telescopic sights to which you refer, illustrated on page 403 of our last valume, was credited to the London *Mechanics' Magazine*. Any maker of optical instruments could apply one to your rifle. The camphar-fluid barometer is to be found in almost every store where mathematical instruments are sold. The price of them varies from $2 to $3. It is formed of a glass tube containing camphorated spirits. Its mouth is closed with a piece of bladder usually surmounted with a small brass cap.

W. C., of Ind.—Common vulcanized india rubber can withstand a pretty high degree of heat and still retain its elasticity. It hes been used for the cartridges of rifles. The steel cannon, illustroted on page 48 of our last volume, has not been patented here we think.

T. S., of K. T.—There is nothing that will restore the natural color of gray hair, except by dyeing it. What do you want to restore it for? Gray hair is becoming. Waste is made in woolen manufactures. We presume machine card clothing is not imported, as the machine was invented and the manufacture originated in this country. We sympathise in your patriotic feelings. It does us good to see old Kentucky come out so square for the Union.

R. J. W., of Pa.—Photographic pictures have been frequently taken by artificial light.

H. J., of Ohio.—The path described by a ball in the atmosphere when projected from a gun, is a parabola.

Money Received

At the Scientific American Office on account of Patent Office business, during one week preceding Wednesday, July 3, 1861:—

H. F., of Ohio, $25; A. R. D., of N. Y., $25; S. S. W., of N. Y., $25; D. R., of N. Y., $12; H. V. D., of N. Y., $30; C. A. W., of Mass., $5; J. H. V., of N. Y., $15; I. F., of Ky., $25; W. E., of N. Y., $15; M. & E., of Ill., $25; F. & C., of Conn., $15; A. R., of N. J., $25; J. H., of Pa., $25; A. A. L., of Iowa, $25; M. B. B., of Ill., $15; P. S., of Pa., $30; J. H. L., of N. Y., $15; M. C. W., of Ill., $10; J. T. S., of Wis., $250; W. F., of Iowa, $15; H. & M., of Ill., $15; I. J. C., of N. Y., $15; J. C. G., of Mass., $45; S. I., of Pa., $10; O'B. & K., of Ohio, $25; J. B., of Mass., $25; E. H. L., of N. Y., $25; F. & H., of N. Y., $12; O. R. B., of N. Y., $15; C. T., of N. Y., $15; W. R., of N. Y., $15; G. I. W., of Mass., $22; C. N., of N. H., $22; K. H. C. P., of N. Y., $15; F. & W., of Iowa, $25; R. L., of R. I., $25; S. & A., of N. Y., $10; D. S., of Cal., $15; S. M., of N. Y., $15; C. A., of N. Y., $10; J. H. S., of N Y., $25; C. F., of Wis., $25; R. W., of Iowa, $15; P. F., of ——, $15; W. A. D., of Ill., $15; H. C., of Maine, $15; J. M. A. G., of Mass., $15; R. P. P., of N. Y., $80; G. L. K., of Pa., $20; E. A. K., of Conn., $20; W. J. S., of N. Y., $20; B. H., of Ill., $20; G. S., of N. Y., $20; S. M. R., of Mass., $20; M. L. P., of Ind., $20; G. S., of Iowa, $20; A. H. F., of Ill., $20; W. H. P., of N. Y., $10; D. R. P., of Mass., $25; J. P., of N. Y., $50; C. N. B., of Pa., $25; W. M., of Mass., $25; C. & B., of Mass., $25; S. & E., of N. J., $25.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office from June 26 to Wednesday, July 3, 1861:—

C. A. W., of Mass.; I. F., of Ky.; D. R., of N. Y.; E. H. E., of Mass.; J. H., of Pa.; H. F., of Ohio; M. C., of France; A. A. L., of Iowa; J. B. B., of Cal.; M. & ●., of Ill.; J. J. S., of N. Y.; A. R., of N. J.; W. H., of Conn.; C. F., of Wis.; E. H. L., of N. Y.; O'B. & K., of Ohio; J. B., of Vt.; F. & W., of Iowa; R. L., of Mass.; J. H., of N. Y.; A. S. W., of N. Y.; S. I., of Pa.; F. & H., of N. Y.; G. J. W., of Mass.

New Books and Periodicals Received.

THE NEW YORK DIRECTORY FOR 1862. Published by John F. Trow, 160 Greene street, this city.

MR. TROW has issued his annual alphabetical list of the heads of families of this city, which was compiled and published immediately after the great moving on the first of May. In his preface, the compiler says:—"The Directory for the present year contains 152,825 names; last year it contained 150,303. Owing to the secession movement of the Cotton States, a diminution of this number might have been expected, but the present year shows an increase of 2,522 names. The grass which was to grow in Broadway when South Carolina seceded, has not yet begun to sprout, and the great artery of the city is as full of life and as plethoric as it has ever been."

We copy this paragraph to show the all-pervading presence of the thoughts of war. They enter even into the compilation of city directories! All residents of a city know the importance of a Directory, and it is convenient to have in the dwelling, as well as in store or shop for reference.

INSTRUCTIONS ABOUT EUROPEAN PATENTS, With a Synopsis of the Patent Laws of the Various Countries.

AMERICAN INVENTORS SHOULD BEAR IN MIND that, as a general rule, any invention which is valuable to the patentee in this country is worth equally as much in England and some other foreign countries. Four patents—American, English, French and Belgian—will secure an inventor exclusive monopoly to his discovery among 100,000,000 of the most intelligent people in the world. The facilities of business and steam communication are such that patents can be obtained abroad by our citizens almost as easily as at home. The majority of all patents taken out by Americans in foreign countries are obtained through the Scientific American Patent Agency. We have established agencies at all the principal European seats of government, and obtain patents in Great Britain, France, Belgium, Prussia, Austria, Spain, &c., with promptness and dispatch.

It is generally much better to apply for foreign patents simultaneously with the application here; or, if this cannot be conveniently done, as little time as possible should be lost after the patent is issued, as the laws in some foreign countries allow patents to anyone who first makes the application, and in this way many inventors are deprived of valid patents for their own inventions.

Many valuable inventions are yearly introduced into Europe from the United State, by parties ever on the alert to pick up whatever they can lay their hands upon which may seem useful.

Models are not required in any European country, but the utmost care and experience is necessary in the preparation of each case.

GREAT BRITAIN.

Patents for inventions under the new law, as amended by the act of Oct. 1, 1852, and now in operation, include the United Kingdom of Great Britain and Ireland in one grant, which confers the exclusive right to make, use, exercise or vend. This is conceded to the inventor, or the introducer, for a period of fourteen years, subject, after the patent is granted, and the first expenses paid, to a government tax twice during its existence—once within three years, and once again within seven. The purchaser of a patent would assume the payment of these taxes.

There is no provision in the English law requiring that a patented invention shall be introduced into public use within any specified limit. Under the Patent Act of October, 1852, the British government relinquished its right to grant patents for any of its colonies, each colony being permitted to regulate its own patent system. If a patent has been previously taken out in a foreign country, the British patent will expire with it.

FRANCE.

Patents in France are granted for a term of fifteen years, unless the invention has been previously secured by patent in some other country; in such case, it must take date with and expire with the previous patent. After the patent is issued, the French government requires the payment of a small tax each year so long as the patent is kept alive, and two years' time is given to put the invention patented into practice.

It should be borne in mind that, although the French law does not require that the applicant should make oath to his papers, yet if a patent should be obtained by any other person than the inventor, upon proof being adduced to this effect before the proper tribunal, the patent would be declared illegal.

BELGIUM.

Patents in Belgium are granted for twenty years, or if previously patented in another country, they expire with the date thereof. The working of the invention must take place within one year from date of patent; but an extension for an additional year may be obtained on application to the proper authorities. Inventors are only legally entitled to take out patents.

THE NETHERLANDS.

Patents are granted by the Royal Institute of the Netherlands to natives or foreigners represented by a resident subject, which extend to a period of about two years, within which time the invention must be brought into use, and upon payment of an additional tax, a patent will be granted to complete its whole term of fifteen years. Unless these conditions are complied with, the patent ceases.

PRUSSIA.

Applications for patents in Prussia are examined by the Royal Polytechnic Commission, and unless there is novelty in the invention, the applicant's petition will be denied; and if it is granted, the invention must be worked within six months afterward. A respite, however, of six additional months may be obtained, if good and sufficient reasons for it can be shown.

AUSTRIA.

Austrian patents are granted for a term of fifteen years, upon the payment of 1,000 florins, or about $500 in American currency. This sum, however, is not all required to be paid in advance. It is usual to pay the tax for the first five years upon the deposit of the papers, and the patent must be worked within its first year. The Emperor can extend the patent and privilege of working by special grant. In order to obtain a patent in Austria, an authenticated copy of the original Letters Patent must be produced.

SPAIN.

The duration of a Spanish patent of importation is five years, and can be prolonged to ten years; and the invention is to be worked within one year and one day.

To obtain a Cuban patent requires a special application and an extra charge.

RUSSIA.

Since the close of the Crimean war, considerable attention has been given to Russian patents by Americans. Russia is a country rich in mineral and agricultural products, and there seems to be a field open for certain kinds of improvements. The present Emperor is very liberally disposed toward inventors, and as an evidence of the interest which he takes in the progress of mechanic arts, we may state that we have had visits from two distinguished Russian officers, specially sent out by the Emperor to examine American inventions. As Russian patents are expensive, and somewhat difficult to obtain, we do not take it upon ourselves to advise applications; inventors must judge for themselves; and this remark applies not only to Russia, but also to all other foreign countries.

CANADA.

Patents of invention are granted only to actual residents of Canada and British subjects. Under the general Patent Law of Canada, an American cannot procure a patent for his invention there. The only way in which he can do so is by virtue of a special act of Parliament, which is very difficult, uncertain, and expensive to obtain. Several zealous friends of reform in Canada are working earnestly to bring about a reciprocal law, but their efforts have thus far proved fruitless.

BRITISH INDIA.

The date of the law, Feb. 28, 1856; duration of a patent, fourteen years. Invention must be worked within two years from date of petition. Privilege granted only to the original inventor or his authorized agent in India.

SAXONY.

Duration of patent, from five to ten years. Invention must be worked within one year from date of grant. Careful examination made before granting a patent.

HANOVER.

Duration of patent, ten years; and in case of foreign patent having been previously obtained, an authenticated copy of said patent must be produced. Invention must be worked within six months from date of grant.

SARDINIA.

Duration of patent, from one to fifteen years. Patents for five years or less must be worked within one year, and all others within two years.

NORWAY AND SWEDEN.

Duration of patent, three years, at least; fifteen at most, according to the nature and importance of the invention. Patents for foreign inventions not to exceed the term granted abroad, and to be worked within one, two or four years.

AUSTRALIA.

Date of law, March 31, 1854. Careful examination made by competent persons previous to issue of patent, which, when granted, extends to fourteen years. Imported inventions are valid according to duration of foreign patent. It would require from twelve to eighteen months to procure a patent from the Australian government.

Parties holding foreign patents secured through our agency will be notified from time to time of the condition of their cases.

GENERAL REMARKS.

While it is true of most of the European countries herein specified, that the system of examination is not so rigid as that practised in this country, yet it is exceedingly important that inventors should have their papers prepared only by the most competent solicitors, in order that they may stand the test of a searching legal examination; as it is a common practice when a patentee finds a purchaser for his invention for the latter to cause such examination to be made before he will accept the title.

It is also very unsafe to entrust a useful invention to any other than a solicitor of known integrity and ability. Inventors should beware of speculators, whether in the guise of patent agents or patent brokers, as they cannot ordinarily be trusted with valuable inventions.

Messrs. MUNN & CO. have been established *fifteen years* as American and Foreign Patent Attorneys and publishers of the SCIENTIFIC AMERICAN, and during this time they have been entrusted with some of the most important inventions of the age; and it is a matter of pardonable pride in them to state that not a single case can be adduced in which they have ever betrayed the important trust committed to their care. Their agents in London, Paris, and other Continental cities, are among the oldest and most reliable Patent Solicitors in Europe, and they will have no connection with any other.

CAUTION.—It has become a somewhat common practice for agents located in England to send out circulars soliciting the patronage of American inventors. We caution the latter against heeding such applications, or they may otherwise fall into the hands of irresponsible parties, and thus be defrauded of their rights. It is much safer for inventors to entrust their cases to the care of a competent, reliable agent at home.

FEES.—The fees required by us for the preparation of foreign applications are not the same in every case; as, in some instances, when the inventions are of a complicated character, we are obliged to charge a higher fee. Applicants can always depend, however, upon our best terms, and can learn all particulars upon application, either in person or by letter.

Parties desiring to procure patents in Europe can correspond with the undersigned, and obtain all the necessary advice and information respecting the expenses of obtaining foreign patents.

All letters should be addressed to Messrs. MUNN & CO., No. 37 Park-row, New York.

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 estimonials 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,

Your obedient servant, J. HOLT.

MESSRS. MUNN & Co.:—Gentleman: 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 submitit 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. 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. Anyone 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, o 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 rther 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 intrusted 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, 50 cents ; by express or delivered at the office, 40 cents.

BACK NUMBERS AND VOLUMES OF THE SCIENTIFIC AMERICAN.—Volumes I., II. and III. (bound or unbound) may be had at this office and from all periodical dealers. Price, bound, $1.50 per volume by mail, $2—which includes postage. Price in sheets, $1. Every mechanic, inventor or artisan in the United States should have a complete set of this publication for reference. Subscribers should not fail to preserve their numbers for binding.

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.

Improved Adjustable School Desk and Seat.

In order that school children may be preserved in health, and deformities in their persons avoided, it is necessary that their seats and desks should be adjusted to the several hights adapted to their statures; and this can be most readily done by so constructing the seats and desks that their hights may be varied, and thus each desk and seat fitted for the scholar that is to occupy it. Several plans have been devised for this purpose, but they have been objectionable from the want of stability, resulting from the play of the movable parts. The accompanying cut represents a seat invented by Amos Chase, of North Weare, N. H., which is provided with a brace in a way to make it remarkably firm, while it is at the same time very readily adjustable.

The seat is rigidly secured to the rod, *a*, which slides smoothly in the hollow cylinder, *b*, this cylinder being enlarged as its base and fastened firmly to the floor. The middle slat of the seat's back is lengthened downward and attached at its lower end to a projection from the rod, *a*, which passes through a vertical slit made in the cylinder, *b*, for that purpose; this slit being of sufficient length to allow the arm to slide up and down with the rise and fall of the seat. The seat is secured in any desired position by a set-screw.

The desk is also made adjustable in hight by a similar arrangement; the foot-rest being supported on an arm which is fastened to the sliding rod, and passes through a slit in the cylinder or stand.

Beside the facility of adjustment, the convenience of sweeping a room provided with these desks and seats is apparent.

This invention is secured by two patents, procured through the Scientific American Patent Agency, one dated Sept. 11, 1860, and the second June 11, 1861. Further information in relation to the matter may be obtained by addressing the assignee, N. C. Page, at North Weare, N. H.

CHASE'S SCHOOL DESK AND SEAT.

SHIELDS FOR RESISTING SHOT IN SHIPS.

The accompanying engravings represent an invention for protecting the hulls of vessels, lately patented by Mr. W. L. Thomas and Colonel de Bathe, London. The patent is for resisting projectiles, and consists in constructing what the inventors term "compound louver plates or shields," fixed at an angle with the foundation plate, the spaces between the louver plates being filled up with wood, New Zealand flax jute, or other fibrous material or compound, more or less yielding or elastic, and then cover in the whole with metal or wood.

Fig. 1 of the above engravings is a sectional elevation, illustrating one part of the invention applied to the construction of a ship's side or other structure. A A are knees or bent portion of the louver plates parallel, or nearly so, with the side of the ship. B B are the louver plates, forming part of the knees, as shown. C is the packing between the plates. F F are plates forming the outside or front. G G are screws for securing the front plates to the louver plates; or the front plates and packing may be dispensed with.

Fig. 2 is a sectional elevation of part of a ship's side or other structure, in which the foundation plate is made of zig-zag form. The louver plates are arranged with their bent ends in the reverse direction to that described above, and secured to the ship's side by bolts, having a flat portion, which is riveted to the louver plates, and a round portion passing through the foundation plate, and held by screw nuts or keys. By arranging the louver plates in this manner a flush external surface is obtained without the employment of separate outside or front plates.

Fig. 1

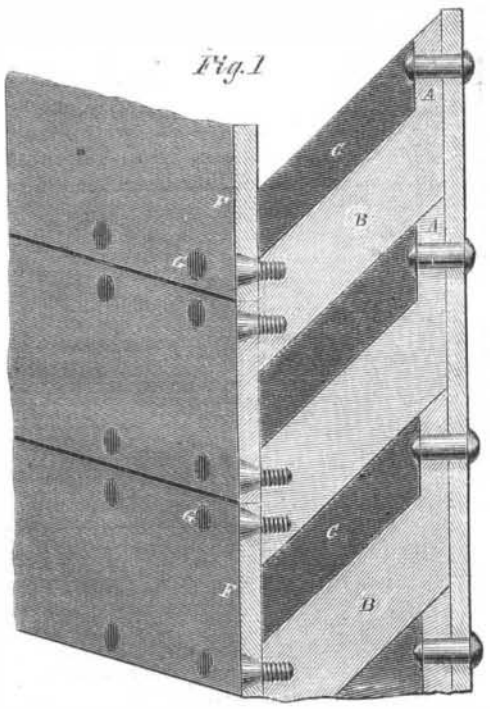
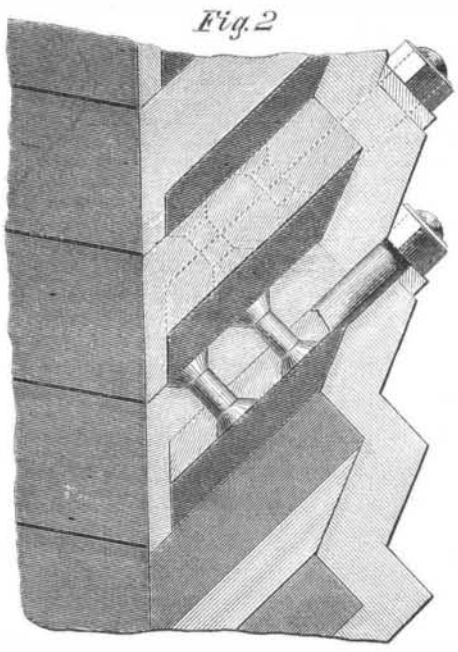


Fig. 2



This invention has been illustrated and described in the London *Mechanics' Magazine*. Our opinions hitherto have been favorable to a rigid backing, for iron plates as being the best for resisting shot, but experiment is the only way to resolve all such questions. Mr. J. Chapman, in making experiments for determining the penetration of shot, found that 18 inches of cotton, packed in a box, was more effectual in resisting the shot than as many inches of *timber*.

STATISTICS OF BRITISH TAXATION.—From 1801 till 1811 the taxation averaged £57,000,000 a year, with a population of about 17,000,000, which is about £3, 7s. per head; in 1861 the revenue, in round numbers, is about £70,000,000, and the population about 30,000,000, which makes the rate per head £2, 6s. 8d. The former was a war period doubtless; but this did not make the pressure of taxation any easier to the community. In 1801, the estimated income of the United Kingdom was £230,000,000, and the revenue was £57,000,000, or, in other words, the taxation amounted to 25 per cent of the national income. At the present time, the revenue is about £70,000,000, and the income is upwards of £600,000,000, which leaves the taxation at about 11 per cent. These figures, however, convey but a faint idea of the immense improvement which has taken place in the condition of the people within the last fifty years; food and clothing are cheaper, the wages have been nearly doubled, while taxes have been removed from the necessaries of the poor, and placed on the luxuries and the incomes of the rich.

FROM THE STEAM PRESS OF JOHN A. GRAY.