

ing 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.

**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 the 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

The Patent Laws, enacted by Congress on the 2d of March, 1861, 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.

**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 charges 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.

**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.

**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.

**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 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.

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



W. E. C., of Conn.—It is quite possible that your shaft does not get oil on the bottom. Many shafts heat from this cause. If it is collar bound or too tight between the collars, it will heat. File the sides of the brass away 3 inches from the top, so that they clear. If all these plans are of no avail change the brass. Repeat with a harder one and you will have no trouble. A journal that is too small and has a heavy strain on top is very apt to heat the bottom brass unless oil grooves are cut in the same. We should regard the arrangement of the boiler mentioned as undesirable. The temperature of the heat passing over the top of the boiler may not be high but it must be enough to superheat the steam within, which is itself a source of deterioration to the iron.

C. B. M., of Ohio.—Five sided rimmers cut better than square ones, because there are no two edges opposite each other, one edge being always backed up by two others.

B. J. R., of Conn.—Try aluminum bronze in your hot bearing. We have known mandrels run 7,000 revolutions per minute with this composition, and remain perfectly cool when all others failed. Aluminum can be had of metal dealers in all the large cities. To make it, use copper 90, aluminum 10 parts.

C. D. S., of Wis.—The focus of a concave mirror is the point where the rays emanating from it converge.

J. B. of Conn.—Tempered steel at 32° according to Wollaston and Lavoisier, expands at 212°, 1 in 926, in length, and 1 in 309, in bulk.

B. J. R., of U. S. N.—The engines of the new sloops-of-war are steeple engines placed horizontally. You need not go out of your own ship to see a steeple engine.

S. C. H., of Conn.—The tendency of superheated steam is to corrode the parts with which it comes in contact. Bourne states that felt applied to boilers has been known to materially in-

crease the corrosion, and he accounts for this fact by its preventing radiation; consequently increasing the steam heat within the boiler.

A. S. A., of Maine.—We are unable to publish your views on boiler explosions. They take a narrow view of the subject. The area of the safety valve is not the only thing, as you say, that requires consideration. A boiler would explode if it had fifty safety valves, all in a row, from the dome to the smoke stack, unless properly taken care of.

T. B. H., of R. I.—There is no danger of your bursting the crank by shrinking it on, unless you allow too much shrinkage. For a 12-inch shaft allow a sixty-fourth of an inch. You must not heat the crank so hot as to raise a scale on it. Expedition must be used in getting it to its place, for we have known cranks stick fast when half home and have to be broken off. All caused by carelessness.

C. P., of Cal.—Your communication is received, and, notwithstanding its formidable length, is under consideration.

M. R., of Mo.—We are much obliged for your receipts but shall give them a trial before we publish them.

D. L. W., of Mich.—There is but one self-propelling steam engine in this city, the J. G. Storm, and it is seldom used except for great fires.

T. T., of Vt.—If, as you state, your cylinder is oval when taken out of the lathe although it was true before its removal, you must have sprung it in bolting it down. When the bolts were taken off it assumed its distorted shape. The fastenings on every cylinder should be eased up before the last cut.

C. H. W., of N. Y.—The number of square feet of heating surface necessary to evaporate a cubic foot of water in a marine boiler is from eleven to fifteen.

R. S. T., of Cuba.—The weight of your fly-wheel rim can be found by multiplying the mean diameter in feet by the area of its transverse section in square inches and multiply this product by 9.817 pounds.

**Money Received**

At the Scientific American Office, on account of Patent Office business, from Wednesday, Nov. 16, 1864, to Wednesday, Nov. 23, 1864:—

- W. W. S., of N. Y., \$100; J. & S., of Conn., \$41; E. S., of N. Y., \$35; C. L. L., of Pa., \$16; L. S., of Pa., \$15; G. K. W., of Conn., \$12; T. H. S., of N. Y., \$15; A. W., of Maine, \$16; M. H., of Mass., \$16; G. C., of N. Y., \$25; J. & S., of Conn., \$25; S. G. G., of Ohio, \$15; S. G., of Pa., \$25; W. A. D., of N. Y., \$17; J. W. N., of Mass., \$21; A. B., of N. Y., \$20; J. T., of N. J., \$20; J. H. G., of Ohio, \$15; E. S., of N. Y., \$45; T. G. O., of N. Y., \$15; J. S., of Iowa, \$45; D. M. M., of Vt., \$20; T. G., of N. Y., \$20; J. & J. M., of N. Y., \$15; J. G., of Mich., \$15; J. J. S., of Conn., \$15; A. & B., of Maine, \$20; A. E., of Ohio, \$25; G. L. S., of Mass., \$10; J. B. T., of Pa., \$30; G. C. P., of N. Y., \$15; L. C. W., of N. Y., \$15; C. L. B., of Conn., \$25; S. & H., of Conn., \$45; W. & S., of Pa., \$15; S. G., of N. Y., \$25; W. R., of N. Y., \$16; T. B. T., of N. Y., \$22; T. D. B., of N. Y., \$45; J. C., of N. Y., \$20; S. L. F., of Pa., \$30; H. E. G., of N. Y., \$15; McK. & W., of Wis., \$20; C. M. M., of N. J., \$20; G. W. R., of Ill., \$20; C. F. R., of N. Y., \$15; A. R., of Iowa, \$35; J. L. H., of N. Y., \$16; A. Y. McD., of Iowa, \$28; I. A., of N. Y., \$16; H. H. H., of —, \$20; W. R. T., of Pa., \$16; S. W. F., of Mass., \$32; S. T., of Ky., \$25; J. L. T., of Maine, \$15; C. C., of N. Y., \$15; A. T. F., of N. Y., \$30; A. M., of Ark., \$75; T. L., of Conn., \$15; H. H., of Conn., \$25; E. B. L., of Conn., \$15; N. S., of Ohio, \$15; J. M., of N. Y., \$45; S. T., of Ill., \$20; P. H., of N. Y., \$20; G. F. I. C., of N. J., \$40; F. F. C., of N. Y., \$22; J. K., of N. Y., \$15; J. P., of Canada, \$20; H. J., of N. Y., \$15; T. B. T., of N. Y., \$15; J. S., of N. Y., \$40.

Persons having remitted money to this office will please to examine the above list to see that their initials appear in it, and if they have not received an acknowledgment by mail, and their initials are not to be found in this list, they will please notify us immediately, stating the amount and how it was sent, whether by mail or express.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office, from Wednesday, Nov. 16, 1864, to Wednesday, Nov. 23, 1864:—

- W. B. C., of R. I.; M. J. S., of N. Y.; T. A. H., of N. Y.; E. & S., of N. Y., (2 cases); S. E. H., of Conn.; S. T. S., of Ky.; M. B. & N. A. P., of Tenn.; C. L. B., of Conn.; S. G., of Pa.; J. T. P., of N. Y.; J. S., of N. Y.; S. L. F., of Pa.; F. F. C., of N. Y.; A. Y. McD., of La. A. E., of Ohio; S. & H., of Mass.; G. C., of N. Y.; J. & S., of Conn.; H. H., of Conn.; J. W. N., of Mass. (2 cases); G. F. I. C., of N. J.; T. G., of N. Y.; O. E. R., of Maine; R. K., of Ill.; E. R., of Mich.; A. T. F., of N. Y.; D. & O., of France; S. G., of N. Y.; J. Y., of N. Y.

**RATES OF ADVERTISING.**

TWENTY-FIVE 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, we publishers reserve to ourselves the right to reject any advertisement they may deem objectionable.

**ARMY SUPPLIES.**

OFFICE OF ARMY CLOTHING AND EQUIPAGE, No. 602 Broadway, New York, Nov. 23, 1864.

**SEALED PROPOSALS WILL BE RECEIVED AT** this office until 12 o'clock a. m., on Tuesday the 29th instant, for baling Army Blankets, until the 1st of May next, the Contractor to furnish all materials necessary to bale the blankets in a satisfactory manner to this department. The services to be performed in the buildings of this Depot, the Contractor to supply the machinery. Further information can be obtained at this office. Bidders will state the number of bales they can put up per week, and send with their proposals a proper guarantee signed by two responsible persons, stating that if a contract is awarded to the bidder, they will enter into bonds for the faithful performance of the work. The United States reserves the right to reject all bids deemed objectionable.

Proposals should be endorsed "Proposals for Baling Blankets," and addressed to COL. D. H. VINTON, D. Q. M. Gen. U.S.A.

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MESSEURS LES INVENTEURS.—AVIS IMPORTANT. Les Inventeurs non familiers avec la langue Anglaise, et qui preferent nous communiquer leurs inventions en Francais, peuvent nous adresser dans leur langue natale. Envoyez nous un dessin et une description concise pour notre examen. Les communications sont seules sous le couvert. MUNN & CO., Scientific American office No. 37 Park Row, New York.

A VALUABLE WORK FOR INVENTORS PATENTEES AND MANUFACTURERS.

The publishers of the SCIENTIFIC AMERICAN have just prepared with much care, a pamphlet of information about Patents and the Patent Laws, which ought to be in the hands of every inventor and patentee, and also of manufacturers who use patented inventions. The character of this work will be better understood after reading the following synopsis of its contents.— The complete Patent Law Amendment Act of 1861—Practical Instructions to Inventors, how to obtain Letters Patent, also about Models—Designs—Caveats—Trade-marks—Assignments—Revenue Tax—Extensions—Interferences—Infringements—Appeals—Reissues of Defective Patents—Validity of Patents—Abandonment of Inventions—Best Mode of introducing them—Importance of the Specification—Who are entitled to Patents—What will prevent the granting of a Patent—Patents in Canada and European Patents—Schedule of Patent Fees; also a variety of miscellaneous items on patent law questions.

It has been the design of the publishers to not only furnish, in convenient form for preservation, a synopsis of the PATENT LAW and PRACTICE, but to answer a great variety of questions which have been put to them from time to time during their practice of upwards of 40 years, which replies are not accessible in any other form. The publishers will promptly forward the pamphlet by mail, on receipt of six cents in postage stamps. Address MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, No. 37 Park Row New York.

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CAVALRY HORSES WANTED. CAVALRY BUREAU, OFFICE OF ASSIST. QUARTERMASTER, No. 18 State street, New York, June 10, 1864.

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A RARE CHANCE.—FOR SALE AT YOUR OWN price, the entire patents of my Wind-wheel and Governor, illustrated in No. 1, Vol. XJ, new series, of the SCIENTIFIC AMERICAN. The inventor having other business, which requires his whole attention, will sell the above patents on the most liberal terms. The Governor works equally well attached to any kind of machinery where a Governor is required. It is especially adapted to Water-wheels, it being very sensitive and giving a strong and positive movement. Copies of the illustration furnished on application. Address JOHN P. BURNHAM, Chicago, Ill.

Zur Beachtung für deutsche Erfinder. Die Untzeichneten haben eine Uebersetzung, die Erfinder das Ver-halten anzeigt, um sich ihre Patente zu sichern, herauszugeben, und verabfolgen solche gratis an beifolgende. Erfinder, welche nicht mit der englischen Sprache bekannt sind, können ihre Mittheilungen in der deutschen Sprache machen. Entzen von Erfindungen mit furgen, beuulich gedruckten Befehreibungen betriebe man zu adressiren an Munn & Co., 37 Park Row, New-York. Auf der Office wird deutsch gesprochen. Dafelbst ist zu haben: Die Patent-Gesetz der Vereinigten Staaten, nebst den Regeln und der Geschäftsordnung der Patent-Office und den Anweisungen für den Erfinder, um die Patente zu sichern, in den Ver-einigten Staaten sowohl als in Europa. Ferner Auszüge aus den Patent-Gesetzen fremder Länder und darauf bezügliche Statutliche; ebenfalla nützliche Winke für Erfinder und solche, welche patentreten wollen. Preis 20 Cts., per Post 25 Cts.

**Trial of an English Broadside Iron-clad.**

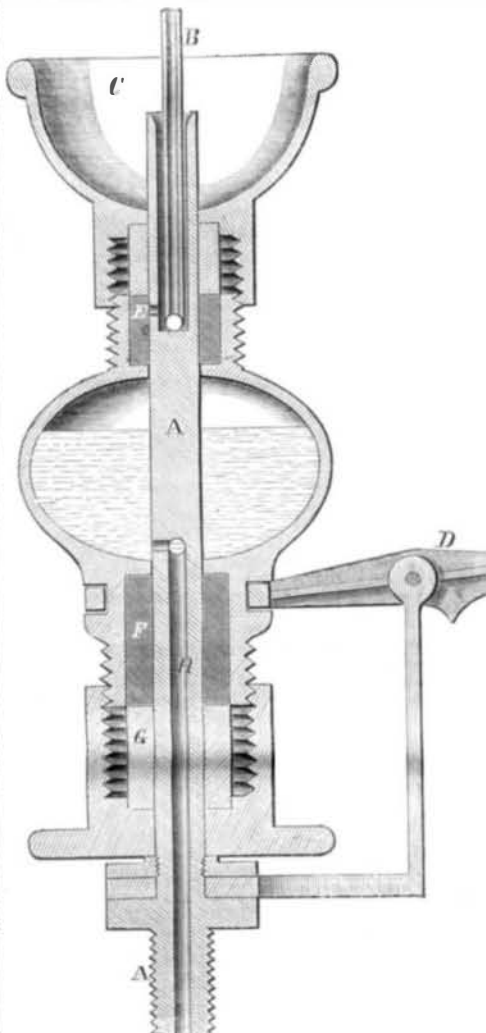
The *Achilles*, a formidable iron-clad ship, has recently been completed in England, and we here present an account of her trial at sea:—

"This was her first trip at sea, and being one of an entirely new class of ships of large dimensions, 6,121 tons, and carrying four masts, her performance was watched with considerable interest. The results of the trip were not entirely satisfactory, but this refers chiefly to the difference of speed at the contractor's trial and in the Channel. The officers speak well of her sea-going qualities, and all on board are hopeful that the cause of the loss of speed under steam will be found out and remedied. On the 21st, by plunging during a severe gale, the *Achilles* carried away her jibboom and her whiskers (two stout spars projecting at right angles from either bow). She also took in several heavy seas at the bow ports, and it was in consequence determined to run in for Torbay. Here she arrived on Saturday, the 22d, and dropped her starboard anchor, but having drifted with her full broadside to the wind, the chain, fifty fathoms of which were out, broke, and recourse was then had to the port anchor. The vessel, however, was kept under steam all the time she continued in the roadstead. On Monday the lost chain was fished up. On Tuesday morning, the 25th, in weighing the port anchor with the steam capstan, it snapped off near the junction of the shaft with the flues, both of which were left below. On Thursday the *Achilles* was placed in the south basin of Keyham steamyard, where the new 'hog' for scouring the bottoms of iron ships was tested, under the superintendence of Mr. Robinson, from the Admiralty, Whitehall, by the help of the ship's diver. This hog is an enormous brush of birchbroom, about five feet long by three feet broad. Its back consists of a frame of wood 16 inches thick, having round the edge a groove, into which is inserted a rope with iron thimbles attached to each of its four sides, to receive the guides by which the hog is moved under water. Some shellfish were brought up, but the hog could not detach those which were on and near the 'lands,' or projecting strokes of the *Achilles*. The ship measures 380 feet from stem to stern, or 392 feet over all. Her draught aft was 26 feet 3 inches; the depth of water in the dock was 28 feet. Her engines are of 1,250-horse power nominal, and at the contractor's trial were worked up to 5,067 horses; in the Channel 3,200 horse power only could be attained, the pressure of steam being occasionally 26 pound, and the revolutions 40 per minute, against 46 on the trial. The speed first attained, and which at the time gave great satisfaction, was 14½ knots, but during the passage to Plymouth, although an especial effort was used on one occasion, very little over ten knots was produced. Scotch and Welsh coals mixed were used. The trim of the ship, her greater immersion, and the foulness of the bottom may account for a loss of from two to three knots, but what remains puzzles all concerned. At the contractor's trial the ship was 15 inches by the stern; her immersion now is 2 feet more, and she has about 30,000 superficial feet under water. Soon after leaving the Nore it was discovered that she was too much by the head, some of her weights were moved aft, and the coal in the fore bunkers was reduced as speedily as possible. The armament on her main deck is 16 100-pounder smooth-bore Armstrongs, weighing 6½ tons each, and on the upper deck four 110-pounders. On the passage, when going ahead, the screw revolved 73,500 times; when backing and performing other evolutions not accounted for, it is calculated that the revolutions were 26,500, making a total of 100,000. The screw is considered very powerful. It was occasionally out of water to a small extent, but the 'rest' was not great, because the screw is provided with four blades. The *Achilles* dipped very quickly. In a fresh gale there is little motion; but she did not answer so well in a rolling sea. The crew of the *Achilles*, all told, would be about 755 men. Out of 75 men engaged in the engineer's department 64 only were effective in the stokehole. During the height of the gale, 27 stokers were unfit for work at one time, chiefly through sickness, occasioned by her liveliness."

The sales of tobacco for the past year at Louisville, the largest tobacco mart in the world, were 63,322 hds., the proceeds of which amounted to \$20,000,000.

**FOGLE'S OIL CUP.**

This oil cup is constructed on an unusual and novel principle, and has no cocks or valves about it to become leaky. By the provision of two apertures, merely, the oil is let into the cylinder or valve chest. The following description will render it intelligible to every one. The whole cup, globe and all, slides up and down on the pipe, A. This pipe has the top chambered out to receive a smaller pipe, B, which lets the air or steam out of the interior of the globe. The cup, C, is filled with oil, and when in its present position, the oil runs into the tube, A. The handle of the lever, D, is then raised, the cup following it.



This brings the upper holes, E, into communication with the interior of the globe, while the lower apertures are shut off from the steam-chest by the interposition of the partition, F, and the stuffing box, G. When the globe is restored to its lowest position the oil in the globe runs into the cylinder through the hole, H, because there is as much pressure in one vessel as in the other. This is a very neat and useful cup, and was patented through the Scientific American Patent Agency on Sept. 20, 1864, by Jacob Fogle, of Putnam, Ohio; for further information address him as above.

**A "Tricky" Box.**

A war correspondent thus speaks of a novel box which was constructed by rebel prisoners confined at the North:—

"One piece of workmanship, of queer device, I shall have occasion to remember. It was a block of polished wood, carved to represent a book. Upon one edge was a small incision fitting the thumb nail, and indicating the existence of a slide and the hollow nature of the contrivance. But he who opened it was pretty certain to receive a surprise. As the slide was withdrawn, a serpent's head darted through the opening, and his forked tongue, in the form of two sharp needles, was violently inserted in the thumb of the operator, who generally hastened to let the curious and keen piercing contrivance fall to the ground as fast as the attraction of gravitation would take it there. It was a machine worthy of the ingenuity of a genuine Yankee, and as such it finally came into the possession of our first officer, who, as a representative of Cape Cod, would naturally look with favor upon such a mischief-making invention."

**Economy in the Use of Coal.**

With a view to obtain a clear bright fire with the utmost economy in a common stove, an improved fire invigorator has just been introduced by a Mr. Snook, and consists of an improved form of deflector, which is constructed of cast-iron, and occupies the space between the fire-bars. After lighting the fire, and permitting it to burn for about four minutes, with the apparatus closed, so as to form a blower, a large concave elliptical plate, immediately over the bars, and suspended on end pivots, was tilted over to form the deflector. Above this are the necessary shutters for regulating the draught. The heat thrown out is large in comparison to the fuel burned, and the fire has a warm red glow, without flame or smoke. The advantages claimed for the invention are—that fires are lighted without the slightest difficulty; that the whole heat from the fuel is thrown into the room instead of escaping up the chimney; that fifty per cent less fuel is consumed; that there is no smoke, and that nothing but mere ashes are left unburned.—*London Mining Journal*.

Tie your horse in the center of his stall, or he will "drive" more on one rein than the other.

THE

**Scientific American,****FOR 1864!****VOLUME ELEVEN,**

NEW SERIES.

The publishers of the SCIENTIFIC AMERICAN respectfully give notice that the Eleventh Volume (New Series) commenced on July 2d, 1864. This journal was established in 1845, and is undoubtedly the most widely circulated and influential publication of the kind in the world. In commencing the new volume the publishers desire to call special attention to its claims as

**A JOURNAL OF POPULAR SCIENCE.**

In this respect it stands unrivaled. It not only finds its way to all most every workshop in the country, as the earnest friend of the mechanic and artisan, but it is found in the counting-room of the manufacturer and the merchant; also in the library and the household. The publishers feel warranted in saying that no other journal now published contains an equal amount of useful information; while it is their aim to present all subjects in the most popular and attractive manner.

The SCIENTIFIC AMERICAN is published once a week, in convenient form for binding, and each number contains sixteen pages of useful reading matter, illustrated with

**NUMEROUS SPLENDID ENGRAVINGS**

of all the latest and best inventions of the day. This feature of the journal is worthy of special note. Every number contains from five to ten original engravings of mechanical inventions relating to every department of the arts. These engravings are executed by artists specially employed on the paper, and are universally acknowledged to be superior to anything of the kind produced in this country.

The publishers of the SCIENTIFIC AMERICAN promise to present as during preceding years, all the latest improvements in Steam Engineering, War Vessels, Ordnance—military and naval—Fire-arms, Mechanics' Tools, Manufacturing Machinery, Farm Implements, Wood-working Machinery, Water-wheels, Pumps and other Hydraulic Apparatus, Household Utensils, Electric, Chemical and Mathematical Instruments, Flying Machines and other Curious Inventions—besides all the varied articles designed to lighten the labor of mankind, not only in the shop and warehouse, but in every place where the industries of life are pursued.

From its commencement the SCIENTIFIC AMERICAN has been the earnest advocate of the rights of American Inventors and the

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