

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 to \$15. Other changes in the fees are also made as follows:—

On filing each caveat.....	\$10
On filing each application for a Patent, except for a design.....	\$15
On issuing each original Patent.....	\$20
On appeal to Commissioner of Patents.....	\$30
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 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 (but in cases of designs) on the above terms. Foreigners cannot secure their inventions by filing a caveat; to citizens only is this privilege accorded.

During the last seventeen 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 at least 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 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 afterwards 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 those 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.

#### 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 story of the case, inclosing the official letters, &c.

#### 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, printed in English and German, is furnished gratis on application by mail. Address MUNN & CO., No. 37 Park Row, New York.

#### 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 the Scientific American Patent Agency, No. 37 Park Row, New York.

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 Government Patent Offices, &c., may be had gratis upon application at our principal office, No. 37 Park Row, New York, or any of our branch offices.

#### ASSIGNMENTS OF PATENTS.

Assignments of patents, and agreements between patentees and manufacturers are 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 inventors or patentees 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.

#### Binding the "Scientific American."

It is important that all works of reference should be well bound. The SCIENTIFIC AMERICAN being the only publication in the country which records the doings of the United States Patent Office, it is preserved by a large class of its patrons, lawyers and others, for reference. Some complaints have been made that our past mode of binding in cloth is not serviceable, and a wish has been expressed that we would adopt the style of binding used on the old series, i. e., heavy board sides covered with marble paper, and morocco backs and corners.

Believing that the latter style of binding will better please a large portion of our readers, we commenced on the expiration of Volume VII. to bind the sheets sent to us for the purpose in heavy board sides, covered with marble paper and leather backs and corners.

The price of binding in the above style is 75 cents. We shall be unable hereafter to furnish covers to the trade, but will be happy to receive orders for binding at the publication office, No. 37 Park Row, New York.

**Back Numbers and Volumes of the Scientific American.**  
(VOLUMES I., II., III., IV., V., VII. AND VIII. (NEW SERIES) complete (bound) may be had at this office and from periodical dealers. Price, bound, \$2.25 per volume, by mail, \$3.—which includes postage. 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. VOL. VI. is out of print and cannot be supplied.

#### TO OUR READERS.

**RECEIPTS.**—When money is paid at the office for subscriptions, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a *bona-fide* acknowledgment of our reception of their funds.

**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 1833, to accompany the claim, on receipt of \$2. Address MUNN & CO., Patent Solicitors, No. 37 Park Row, New York.

**Models are required to accompany applications for Patents** under the new law, the same as formerly, except on design patents when two good drawings are all that are required to accompany the petition, specification and oath, except the Government fee.

**INVARIABLE RULE.**—It is an established rule of this office to stop sending the paper when the time for which it was pre-paid has expired.

**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 at this office. Address MUNN & CO., No. 37 Park-row, New York.



**J. H. P., of N. Y.**—You state your case so that it is difficult to decide. You say, "the steam pipe enters the boiler just below the crown sheet, so there is plenty of steam space." Do you not mean the shell of the boiler? The crown sheet is the top of the fire-box. The trouble you refer to is caused by the water following the steam passing through the main pipe. The water in the boiler is raised by the steam and carried over with it, and of course, shows itself at the upper gage. When the steam is shut off, the water which is left subsides, and is, consequently, far below the water-line. You blow the steam off too fast; let it go more slowly and you will, probably, have no trouble. The feed pump is not large enough to supply the demand; steam condenses in the main pipe because it is cold, and water passes over with the steam, causing a double consumption of water and fuel.

**S. Q., of Canada West.**—Boilers are liable to foam when they are new, when their steam space is too confined, and when their water is foul. An injector is a most efficient substitute for a feed-pump. Messrs. Sellers, of Philadelphia, manufacture Giffard's injectors.

**C. M. H., of Wis.**—We have never seen experiments made with the turbine wheel to which you refer, and cannot tell how much water it discharges when running free; but in all likelihood it discharges like some other wheels, more than when driving a full train of machinery and running at a lower velocity.

**L. K. W., of Iowa.**—Governors for marine engines have been successfully introduced. If you have anything valuable in that line you had better send us a sketch and description of it for examination. We shall send you, by mail, a copy of our pamphlet of advice about patent matters.

**E. B., of Mo.**—If the parties to whom you refer manufactured your invention within the limits of the United States, you can recover damages from them, as it is an infringement to make a patented invention without the patentee's consent.

**H. L. S., of Ill.**—It would have been very easy for you to try the experiment, whether two magnets placed twelve inches apart "will move together." They will not. A magnet will not draw the iron ball to it from a distance of twelve inches.

**J. C. J., of N. Y.**—Feathers may be dyed a scarlet color by boiling them in a clean tin vessel with some water, ground cochineal, a little cream-of-tartar, and a few drops of the muriate of tin. Put these ingredients into the vessel, and, when boiling, place the feathers therein, and boil for fifteen minutes; then take them out and wash them in cold water. This color is permanent, and one ounce of cochineal will dye one pound of feathers, which should be washed in soap before being dyed. Feathers may also be dyed yellow by boiling them in a strong decoction of quercitron and a few drops of the muriate of tin. These colors are suitable for the feathers of hooks intended for fishing.

**R. A. R., of L. I.**—The turret plates of the *Lancers* were not "bent near the deck" in the turret at Charleston (as we have been informed), so as to prevent the turrets from revolving.

**W. M., of N. Y.**—A diamond does not neutralize the magnetism of a magnet. Whoever told you to the contrary is mistaken. If you place a piece of steel in the inside of a glass tube, and apply a magnet on the outside, the steel will be attracted.

**S. B. C., of Pa.**—When two cisterns are placed at different levels below a spring or fountain head, and the water is conveyed to them by a branch pipe, the overflow will be by the waste pipe of the lower cistern. Water always seeks the lowest level.

**F. W. E., of N. Y.**—There is no reliable way of ascertaining the quantity of air that passes through your register into the chimney, without first finding out its velocity. This could be done with an anemometer, for measuring the force of air currents. By multiplying the velocity of the air, in feet, per second, into the area of the register in square feet, the quantity which passes through in a second will be given in cubic feet.

**S. W., of N. J.**—The mode which you propose for protecting the steam pipe of your engine, by enclosing it in a wooden box filled with saw-dust, to prevent the condensation of steam, will answer very well. Plaster-of-Paris, however, is superior to the saw-dust as a safe non-conductor; so is common plaster mortar that is mixed with hair.

**H. M., of Canada West.**—The powder ignited in a gun exerts the same amount of pressure upon the breech that it does upon the bullet. You should make an experiment to test the question of securing the harness traces of the horse in drawing a load so as to exercise his power most advantageously.

**J. C. A., of N. Y.**—Sixteen years ago we saw a small boat propelled by the reaction of water on the East river, in this city. The water was forced through a tube passing out at the stern of the boat. The principle is old, having been first suggested and tried by James Rumsey about 1736. It is an inferior system to the paddle and screw, and we advise you to spend no money in making experiments with it.

**J. McD., of Maine.**—Your ideas respecting the construction of screw steamers with iron frames, an inside skin of iron plate, and an outside planking of wood are good. Such vessels could be sheathed with copper and thus be free from the fouling so common to iron-plated vessels.

**J. R., of Vt.**—Charcoal and clean sand are about the best substances you can use for filter beds. The charcoal should be fine, but not reduced to powder, and the beds about one foot in depth.

**H. K., of N. Y.**—Lead pipes tinned inside for conveying water are of old date, and have been used to some extent in this city. If the tin becomes detached, in small spots, from the lead, a galvanic action ensues, and the lead is decomposed more rapidly than if it had not been coated with the tin. Such pipes, therefore, have not been approved.

**W. McT., of Pa.**—The magnetic oxide of iron has been used for purifying water. When broken into small pieces and arranged in a layer of a few inches in depth, muddy water was rendered clear by being passed through it. You can easily make an experiment with it and satisfy yourself.

**M. A. W., of L. I.**—A blower would greatly increase the draft of your chimney. As you find it difficult to apply it to the several furnaces of your boilers, it may answer every purpose to apply it direct to the chimney, if not, branch pipes must be connected with the furnaces. The exhaust steam from the cylinder of your engine would also increase the draft of your boilers.

**J. B., of Ill.**—By case-hardening the slots in the shanks of your reaper blades they will wear three times longer.

**H. W. L., of Wis.**—In manufacturing shot for fowling pieces a small quantity of arsenic is mixed with the lead, otherwise it will not drop with facility through the sieves.

**T. B., of Ohio.**—The velocity of a falling body is ascertained by multiplying the square root of the height by 8, which is the co-efficient for the action of gravity in falling one foot. Thus a body having fallen 16 feet has a velocity of 32 feet—the square root of 16 being 4, which, multiplied by 8, gives 32. This rule will enable you to calculate the velocity of water at the foot of falls of any height.

**W. W. V., of N. J.**—The sulphate of lead is formed with solutions of alum and the acetate of lead. Dissolve one pound of alum in two gallons of hot water, and one pound of the acetate of lead in an equal quantity of water, and mix them together, when double decomposition will be effected, and the acetate of alum and sulphate of lead will be formed. This solution is used for rendering cloth water-proof. Immerse the cloth in the clear liquor after the sediment has settled; take it out and dry it in a warm room, and it will shed water like the back of a duck.

**A. J. H., of N. Y.**—Your communication upon "The Science of Projectiles" may be very excellent, but the penmanship is so wretched that we could not get through with more than five lines of it.

**J. T. F., of Mass.**—Locomotive boilers could be made just as efficient and strong without steam domes as with them.

**H. O. W., of N. Y.**—The most permanent red color on wool is obtained from madder. Aniline and cochineal reds are more beautiful, but they do not stand washing with soap and exposure to sunlight like madder red.

**J. T. of Pa.**—The prussiate of potash answers well for case-hardening small articles; but the old method of operation—with bone-dust, pieces of hoofs, and leather—is superior for large articles.

#### 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, the publishers reserve to themselves the right to reject any advertisement they may deem objectionable.

#### VULCANIZED RUBBER—

Adapted to mechanical purposes—MACHINE BELTING, STEAM PACKING, VALVES, HOSE, EMERY, VULCANITE WHEELS, &c. &c. Directions, prices, &c., can be obtained on application to the NEW YORK BELTING AND PACKING COMPANY, Nos. 37 and 38 Park Row, New York.

JOHN H. CHEEVER, Treasurer.

**FOR SALE—THREE NEW STATIONARY ENGINES.**—Cylinder 7 inches bore, 14 inches stroke; fly-wheel 4 feet diameter, 12 inches face; complete, with cocks, pump, &c. Boiler, double return flue, 36 inches diameter, 15 feet long; fitted with valves, cocks and pipes to connect with engine. Also 25 feet iron chimney, and all fixtures required to put the engine in operation. Price \$300 each, securely packed. ALBERTSON & DOUGLASS MACHINE CO., 4 3/4 New London, Conn.

**GAS FROM KEROSENE TAR AND HARD WOOD** for factories, &c.: 400 feet from one gallon of tar. The charcoal buys the wood. Address H. Q. HAWLEY, Albany, N. Y.

**STEAM AND WATER GAGES, GLASS TUBES, PATENT** gage cocks, whistles and engine counters, for sale. Also indicators for ascertaining the working horse-power of steam engines, heat-gages and signal gongs for steamboats. E. BROWN, 311 Walnut street, Philadelphia, Pa.

**THE UNRIVALED DOUGLASS ARTIFICIAL LIMBS** are adapted and applied to all forms of amputations. Recommended by the leading surgeons; liberally patronized by the U. S. Army and Navy officers. Manufactured by P. O'Farrell Douglass, Burt's Block, Springfield, Mass.