

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:—

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| 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 28 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 1855, 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 experiment 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 1786. 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. 1*

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. 1*

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. 4*

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 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—Re-issues 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 also to answer a great variety of questions which have been put to them from time to time during their practice of upwards of seventy 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.

WAR DEPARTMENT.

PROVOST MARSHAL GENERAL'S OFFICE, } WASHINGTON, July 10, 1863.

The following extracts from laws of the United States, now in force, are published for the information and guidance of all concerned.

Section 12, of the Enrollment Act, after directing how the draft shall be conducted, says: "And the person so drawn shall be notified of the same within ten days thereafter, by a written or printed notice, to be served personally, or by leaving a copy at the last place of residence, requiring him to appear at a designated place of rendezvous, to report for duty."

Section 13, of the Enrollment Act, contains the following: "And any person failing to report after due service of notices herein prescribed, without furnishing a substitute or paying the required sum therefor, shall be deemed a deserter and shall be arrested by the Provost Marshal and sent to the nearest military post for trial by Court-martial, unless, upon proper showing that he is not liable to do military duty, the Board of Enrollment shall relieve him from the draft."

The 20th Article of War contains the following: "All officers and soldiers convicted of having deserted, shall suffer DEATH, or such other punishment as by sentence of court-martial shall be inflicted."

JAMES B. FRY, Provost Marshal General.

WHITE'S PATENT GOVERNOR AND CHECK VALVE

A perfect regulator of steam, and always safe, as it checks the speed of an engine if the governor belt breaks or comes off, which alone is worth the price of it. Territory for sale. For particulars inquire of A. WHITE & CO., proprietors and manufacturers, Genesee, Henry county, Ill.

LABORATORY OF INDUSTRIAL CHEMISTRY—ADVICE ON CHEMISTRY APPLIED TO ARTS AND MANUFACTURES, AGRICULTURE, METALLURGY, ANALYSES, AND COMMERCIAL ASSAYS OF EVERY KIND; PLANS OF FACTORIES, CHEMICAL FABRICATIONS, RECIPES, &c. &c.

Address Prof. H. DUBSALVE, chemist, New Lebanon, N. Y.

IRON ROOFING—LIGHT, CHEAP, DURABLE AND PERFECTLY FIRE AND WATER-PROOF, CONSTRUCTED AND PUT UP BY WM. G. REED, Chelsea, Mass.

Patent rights for sale.

RIGHT FOR THE STATE OF NEW YORK FOR SALE.—Improved Automatic Weighing Scale.

This scale operates without the use of weights or springs, is compact, simple and cheap, always reliable, never gets out of order, has every advantage of the spring balance without its disadvantages, and can be adapted to every kind of scale now in use, and is superior to any scale now in use. For terms, etc., address as soon as possible L. C. CROWELL, 187 Salem street, Boston, Mass.

WATER WHEELS.—REYNOLD'S PATENT.—THE BEST TURBINE IN USE; POWERFUL AND ECONOMICAL IN USE OF WATER.

Call upon or address us at our office, Works at Oswego. TALLCOTT & UNDERHILL, 482 Broadway, New York.

WOOD-WORKING MACHINES.—A FULL SET FOR CAR AND SASH AND DOOR WORK.

Two Woodworth planers 6 rolls, 14 inches. One Gray & Wood planer 16 by 20, one Daniel's planer, one planer and matcher, two moiding, two tenoning, and two mortising machines, two scroll saws, one boring machine, two saw tables, one circular saw mill, one "Wicks" re-slicing mill, one cut-off saw, one blind slot machine, belt, etc., all in good order and cheap for cash. Address CHARLES H. SMITH, 135 North Third street, Philadelphia, Pa.

MACHINERY.—SLIDE LATHES, IRON PLANERS, UPRIGHT DRILLS, BOLT-CUTTING MACHINES, MILLING MACHINES, GEAR CUTTING ENGINES, PUNCHING MACHINES, UNIVERSAL CHUCKS, &c.

at 135 North Third street, Philadelphia, Pa., CHARLES H. SMITH.

FAN BLOWERS.—DIMPPEL'S, ALDEN'S, MCKENZIE'S AND OTHERS, FOR STEAMBOATS, IRON WORKS, FOUNDRIES, SMITH SHOPS, JEWELERS, &c., ON HAND FOR SALE BY LEACH BROTHERS, 86 LIBERTY STREET, NEW YORK.

2 13*

IRON PLANERS, ENGINE LATHES, DRILLS AND OTHER MACHINISTS' TOOLS, OF SUPERIOR QUALITY, ON HAND AND FINISHING FOR SALE LOW. FOR DESCRIPTION AND PRICE ADDRESS NEW HAVEN MANUFACTURING COMPANY, NEW HAVEN, CONN.

1 f

PAYE'S PATENT FORGE HAMMER—ADAPTED TO BOTH HEAVY AND LIGHT FORGINGS, WITH AN ADJUSTABLE STROKE OF FROM ONE INCH TO THREE FEET, ON HAND FOR SALE BY LEACH BROTHERS, 86 LIBERTY STREET, NEW YORK.

1 13*

LANE'S PATENT LIFTING JACK—VERY EASILY OPERATED, COMPACT, SIMPLE AND CHEAP. FOR CUT AND DESCRIPTION SEE PAGE 105, VOL. VIII. (NEW SERIES), SCIENTIFIC AMERICAN. STATE RIGHTS FOR SALE. COMMUNICATIONS IN RELATION TO RIGHTS OR ORDERS FOR JACKS MAY BE ADDRESSED TO J. G. LANE, WASHINGTON, N. Y.

1 8

250 RARE RECEIPTS—ONE HUNDRED OF THESE RECEIPTS COST OVER THOUSAND DOLLAR. THE BOOK SENT BY MAIL FOR FIFTEEN CENTS. HUTCHINSON & CO., PUBLISHERS, 442 BROADWAY, NEW YORK.

24 6*

PORTABLE STEAM ENGINES—COMBINING THE MAXIMUM OF EFFICIENCY, DURABILITY AND ECONOMY WITH THE MINIMUM OF WEIGHT AND PRICE. THEY ARE WIDELY AND FAVORABLY KNOWN, MORE THAN 200 BEING IN USE. ALL WARRANTED SATISFACTORY OR NO SALE. A LARGE STOCK ON HAND READY FOR IMMEDIATE APPLICATION. DESCRIPTIVE CIRCULARS SENT ON APPLICATION. ADDRESS J. C. HADLEY, LAWRENCE, MASS.

2 13

PORTABLE STEAM ENGINES—6, 8 AND 10 HORSE AT \$500, \$625 AND \$750. FOR SALE BY S. C. HILLS, NO. 12 PLATT STREET, NEW YORK.

c

A MESSIEURS LES INVENTEURS.—AVIS IMPORTANT. LES INVENTEURS NON FAMILIERS AVEC LA LANGUE ANGLAISE, ET QUI PREFERERAIENT NOUS COMMUNIQUER LEURS INVENTIONS EN FRANCAIS, PEUVENT NOUS ADRESSER DANS LEUR LANGUE NATALE. ENVOYER NOUS UN DESSIN ET UNE DESCRIPTION CONCISE POUR NOTRE EXAMEN. TOUTES COMMUNICATIONS SERONT REÇUES AVEC CONFIDENCE.

MUNN & CO., Scientific American office, No. 37 Park Row, New York.

B. T. BABBITT ON MAKING BREAD, WITH FULL DIRECTIONS ON EACH PACKAGE OF SALARATUS, SHOWING HOW TO MAKE THE BEST OF BREAD FROM MATERIALS THAT FARMERS ALWAYS HAVE ON HAND.

Bread made in this manner contains nothing but flour and common salt and water; it has an agreeable taste; keeps much longer than common bread; is more digestible and much less disposed to turn to acid. Common bread, like every thing that has been fermented, ferments again to the great discomfort of many stomachs, and not only so, but acting as a ferment, it communicates to all food in contact with it. The bread being free from all yeasty particles, is more digestible and not so likely to create flatulence or turn acid on weak stomachs as fermented bread is apt to do, and, when of the finest quality, it is beneficial to those who suffer from headache, acidity, flatulence, eructations, a sense of sinking at the pit of the stomach, distension or pains after meals, and to all who are subject to gout or gravel; it is also useful in many affections of the skin: a saving of 25 pounds of flour per barrel is effected by this process. Be sure and get that with B. T. BABBITT'S name on, or you will not get the recipe with sour milk, nor the quality. For sale by store-keepers generally or at the manufactory, Nos. 64 to 74 Washington street, New York. 25 f

TO MANUFACTURERS AND MACHINE BUILDERS.—THE UNDERSIGNED BEING ENGAGED IN THE PURCHASE AND SALE OF MACHINERY, SUCH AS STEAM ENGINES, MILL AND FACTORY MACHINERY, LATHES, TOOLS, AND ALL KINDS OF MANUFACTURED MACHINES AND IMPLEMENTS, AND ASSISTING COMMISSION MERCHANTS AND OTHERS IN THEIR PURCHASES, SOLICITS FROM MANUFACTURERS THEIR CIRCULARS, PRICE LISTS, TERMS, &c., ALSO ANY ILLUSTRATIONS OF THEIR MACHINERY OR WORKS THEY MAY HAVE. PARTIES INTRODUCING NEW MACHINERY OR IMPLEMENTS WILL FIND IT TO THEIR INTEREST TO COMMUNICATE WITH HIM, GIVING SUCH INFORMATION IN REGARD TO THEIR IMPROVEMENTS AS THEY DEEM NECESSARY, WHICH WILL RECEIVE THE ATTENTION DUE TO THEIR MERITS. J. E. STEVENSON, MACHINERY BROKER, 200 BROADWAY, NEW YORK. REFERENCES:—THE NOVELTY IRON WORKS, NEW YORK; FRANKLIN TOWNSEND, ALBANY, N. Y.; LOWELL MACHINE SHOP, LOWELL, MASS.; HUNSWORTH, EAKINS & NAYLOR, PEOPLES WORKS, PHILADELPHIA, PA.

FIBER-CLEANING MACHINE.—THIS VALUABLE MACHINE, THE INVENTION OF EDWARD J. PATRULLO, AND ILLUSTRATED ON PAGE 368, LAST VOLUME, SCIENTIFIC AMERICAN, IS NOW ON EXHIBITION, WHERE THE PUBLIC ARE INVITED TO EXAMINE IT, AT THE ESTABLISHMENT OF TODD & RAFFERTY, NO. 13 DEY STREET, NEW YORK. 2 13

WANTED—SCRAP IRON, OLD BOILERS, AND OLD IRON MACHINERY.—THE SUBSCRIBERS WILL PAY CASH FOR ANY QUANTITY OF WROUGHT OR CAST SCRAP IRON, OLD BOILERS, AND OLD IRON MACHINERY, DELIVERED AT THEIR WAREHOUSE, 28, 30, AND 32 TERRACE STREET, BUFFALO, OR AT THEIR ROLLING MILL AND NAIL FACTORY, BLACK ROCK, N. Y. BUFFALO, JULY, 1863. PRATT & CO 2 10*

SOMETHING NEW! AGENTS WANTED!—OUR NEW FACTORY CARD PHENOMETER, "Hemlock & Shield" for hand sewing, "Improved Indelible Pencil" for marking linen, and 10 more novel, useful and indispensable articles selling rapidly. NEW INVENTIONS SOLD ON COMMISSION. FOR CIRCULARS AND TERMS ADDRESS RICE & CO., 37 PARK ROW, NEW YORK, INVENTORS AND AGENTS' DEPT. 11*

\$60 A MONTH! WE WANT AGENTS AT \$60 A MONTH, EXPENSES PAID, TO SELL OUR EVERLASTING PENCILS, ORIENTAL BURNERS, AND THIRTEEN OTHER NEW, USEFUL AND CURIOUS ARTICLES. FIFTEEN CIRCULARS SENT FREE. ADDRESS SHAW & CLARK, BIDDFORD, MAINE. 21 11*

PECK'S PATENT DROP PRESS.—ALL THE SIZES USED IN THE MANUFACTURE OF SILVER, BRASS OR TINWARE, LAMPS, SPOONS, JEWELRY, &c.; ALSO FOR FORGING PURPOSES, ON HAND OR MADE TO ORDER, BY MILO, PECK & CO. NEW HAVEN, CONN. 22 13*

HOMAN'S "EXCELSIOR" HORSE HAY RAKE.—THOSE WISHING RIGHTS IN THE BEST, EITHER FOR MANUFACTURE OR SPECULATIVE TRADE, SHOULD APPLY IMMEDIATELY. NEW ENGLAND STATES ALREADY DISPOSED OF. DESCRIBED IN NOS. 22 AND 25, VOL. VIII. (NEW SERIES) OF THE SCIENTIFIC AMERICAN. CIRCULARS SENT FREE. C. B. HOLMES, DOWAGIUS, MICH. 25 6*

NERVOUS DISEASES AND PHYSICAL DEBILITY, ARISING FROM SPECIFIC CAUSES, IN BOTH SEXES—NEW AND RELIABLE TREATMENT, IN REPORTS OF THE HOWARD ASSOCIATION—SENT IN SEALED LETTER ENVELOPES, FREE OF CHARGE. ADDRESS DR. J. SKILLIN HOUGHTON, HOWARD ASSOCIATION, NO. 2 SOUTH NINTH STREET, PHILADELPHIA, PA. 3 4*

BOLTS, NUTS AND WASHERS OF ALL SIZES CON- STANTLY ON HAND FOR SALE BY LEACH BROTHERS, 86 LIBERTY STREET NEW YORK. 1 13*

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BLACK DIAMOND STEEL WORKS, PITTSBURGH PA. PARK, BROTHER & CO., MANUFACTURERS OF BEST QUALITY REFINED CAST STEEL, SQUARE, FLAT AND OCTAGON, OF ALL SIZES. WARRANTED EQUAL TO ANY IMPORTED OR MANUFACTURED IN THIS COUNTRY. OFFICE AND WAREHOUSE, NOS. 149 AND 151 FIRST STREET, AND 120 AND 122 SECOND STREET, PITTSBURGH, PA. VOL. 8 11 17*

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FAIR OF THE AMERICAN INSTITUTE, 1863.—THE BOARD OF MANAGERS OF THE AMERICAN INSTITUTE HEREBY GIVE NOTICE THAT THEY HAVE OPENED THE GREAT NATIONAL EXHIBITION. THE EXHIBITION WILL BE GENERAL, EMBRACING MANUFACTURES OF ALL KINDS, NEW INVENTIONS, IMPROVEMENTS IN AGRICULTURAL IMPLEMENTS AND THE MECHANICAL ARTS GENERALLY, EXCEPTING THOSE OF THE FINE ARTS, BY STEAM-POWER. PREMIUMS, CONSISTING OF GOLD, SILVER, AND BRONZE MEDALS, AND DIPLOMAS, WILL BE AWARDED ON THE DECISION OF COMPETENT AND IMPARTIAL JUDGES. ARTICLES FOR COMPETITION FOR THE PREMIUMS WILL BE RECEIVED COMMENCING AUGUST 28, 1863, AND THE FAIR WILL BE OPENED TO THE PUBLIC ON WEDNESDAY, SEPTEMBER 2. CIRCULARS GIVING FULL PARTICULARS CAN BE HAD AT THE ROOMS OF THE INSTITUTE IN THE COOPER UNION BUILDING. BY ORDER OF THE MANAGERS, WM. H. BUTLER, Chairman. WM. S. CARPENTER, Vice-Chairman. JOHN W. CHAMBERS, Secretary. 2 300*

FOR HUB-MORTISING MACHINES, SPOKE PLAINERS, BLANCHARD LATHES AND WHEEL MACHINERY, ADDRESS J. A. FAY & CO., OR E. C. TAINTER, SUCCEEDING PARTNER, WORCESTER, MASS. 24—1 & 4 VOL. 9*

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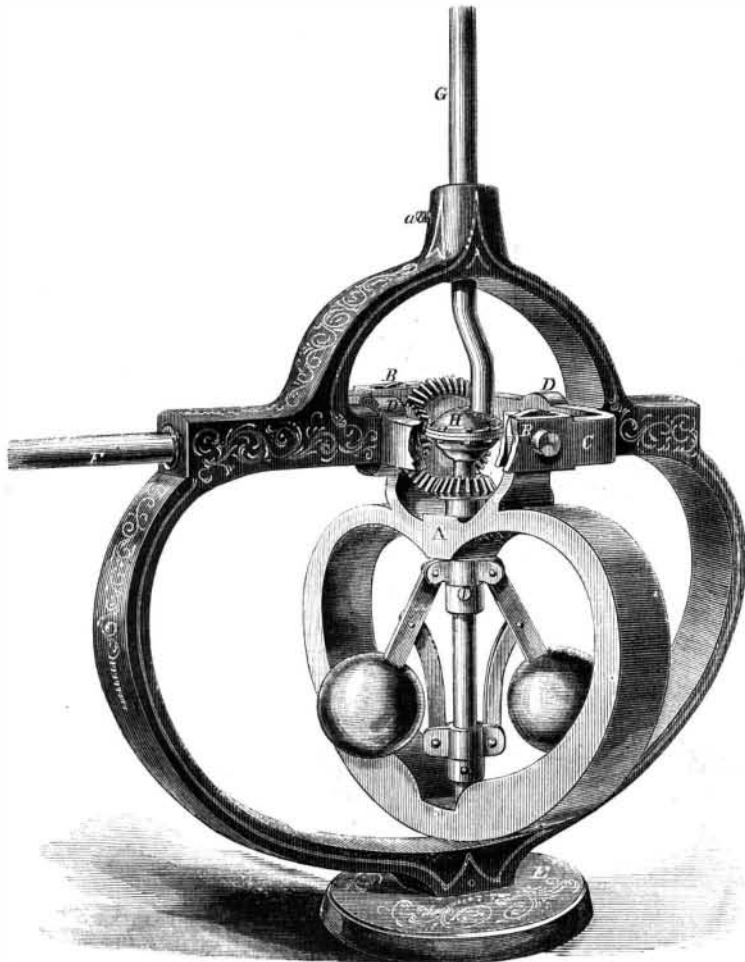
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It is a fact well known to all marine engineers that the engines of sea-going steamers "race," or run away with themselves, when pitching and tossing on the surface of the sea. This is very dangerous to the engine, as the increased velocity, and sudden strain it is subjected to when checked by the vessel plunging into a heavy sea is liable to do great injury. Engines are usually checked by hand during heavy weather, requiring a man at the throttle valve continually. To obviate this evil, a great number of marine engine-governors have been invented and introduced, and we illustrate one of the latest improvements herewith. The governor is of the usual kind, and is supported in the frame, A; this

**BEHREN'S PATENT MARINE GOVERNOR.**

frame is hung on centers at B B, in the secondary frame, C; this secondary frame is also hung on centers at D, thus giving a universal joint or movement to the governor proper, working in the frame, A, and maintaining it in a vertical position at all times, so that the balls are free to work, and the collar to slide up and down on the shaft without binding, no matter at what angle the deck or keel of the ship may be. The pedestal, F, is of course fastened firmly to the engine frame in any desired position, and motion is communicated to the balls by a pulley on the shaft, F. The throttle valve connects to the stem, G, which has a ball-and-socket joint, H, so that it communicates the variations of the governor to the throttle equally well in all directions. The small screw, a, works in a slot, and prevents the stem from turning. This invention was patented on March 24, 1863, by Henry J. Behrens, model and pattern maker, of New York city; further information can be had by addressing him at 170 Chatham street, New York.

DISINFECTING AGENTS.

During warm weather decaying organic substances near dwellings emit offensive and unhealthy gases. In situations where the putrid substances cannot be removed, disinfecting agents should be employed for neutralizing their effects. The common gas which is emitted from sinks and sewers is sulphureted hydrogen (H S). It has a peculiarly nauseous fetid odor, resembling that of rotten eggs, and it is so diffusible that a single cubic inch of it escaping into a large

room will render the atmosphere offensive. It is inflammable, burning with a pale blue flame, and when respired it is dangerous. Even when diluted with a considerable amount of atmospheric air, it produces nausea, headache, faintness and loss of appetite, when inhaled for a moderate length of time. Chlorine is a powerful disinfectant of this gas, because the hydrogen of it combines with the chlorine, and sulphur is deposited. The chloride of lime is, therefore, a most convenient substance to use as a disinfectant. It may be sprinkled in the solid state among decaying substances, or it may be placed where the chlorine will evaporate into the atmosphere and combine with the fetid gas, or it may be mixed with water and sprinkled over floors or poured into sinks.

Chloride of zinc also decomposes it, and this has been used extensively as a disinfecting fluid. This gas is rapidly absorbed by charcoal, the hydrogen being oxidized and sulphur deposited. If a weak solution of sulphureted hydrogen is shaken with powdered charcoal, the smell of the gas rapidly disappears. Owing to this property of charcoal, respirators containing charcoal have been recommended for persons whose occupations compel them to breathe the exhalations of sewers.

One of the most efficient substances for the removal of sulphureted hydrogen, either in the state of gas in the atmosphere, or in a solvent form in sewers and sinks, is the hydrated peroxide of iron. This substance is now largely employed in some places for the separation of sulphureted hydrogen in coal gas. The peroxide of iron may be prepared by roasting the sulphate of iron (copperas) in a stoneware bottle exposed to a full red heat; sulphuric acid is driven off through the neck of the bottle, leaving the peroxide in the state of a red powder. Copperas itself is a good disinfectant and is very easy of application by any person. One pound of copperas dissolved in a pailful of boiling water and poured into a fetid sink will banish all the foul odor in ten minutes. Fresh slaked lime is also a disinfectant, but copperas is superior to it, especially where ammonia is present, as in a sink. The odor of sulphureted hydrogen reveals its presence when it only forms 1-200,000 part of the atmosphere. For disinfecting sewers and other such receptacles of decaying organic matter upon a large scale, we recommend the hy-

drated peroxide of iron, but for families to use in sinks copperas is about the best substance that can be employed.

A CORRESPONDENT of the *Boston Cultivator* considers it an important item in the cultivation of potatoes to pick off the blossoms as soon as they appear, for the reason, as he says, that it hurts a potato as much to go to seed as it does a radish or any other root crop.

BLOCKADE RUNNING.—The *Charleston Mercury* says there were 23,000 bales of cotton exported last year from that city, and 9,800 the first quarter of this year.

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