

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 to 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 In case an application has been made for a patent the model is in deposit at the Patent office, and cannot be withdrawn.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.

TO OUR READERS.

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 enclosing \$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.

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.

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.

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* acknowledgement of our reception of their funds.

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 un- able 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 III., IV., VII., IX AND X., (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 **VOLS. I., II., V., VI. and VIII.** are out of print and cannot be supplied.



N. D., of N. Y.—Thirty years ago we heard a story somewhat similar to the one you have heard about Whittemore's stealing the invention of the card-setting machine; but on examining the evidence we are satisfied that all of these stories are false. See the report of the Congressional Committee. See also in the last volume of the SCIENTIFIC AMERICAN accounts of recent investigations of the subject of the absorption of gases by water and their expulsion by heat.

J. H. T., of N. Y.—If a cannon were moving breech foremost through the air at the rate of 1,000 feet per second, and should be discharged with a force that would move the ball in relation to the cannon 1,000 feet a second, the ball would fall vertically to the earth.

C. D., of Maine—Asks the following question—"If I patent a machine and dispose of the right, and then make an improvement which I also patent, does that improvement belong to me or to the purchaser of the original patent, and can the purchaser use the improvement without my consent?" We answer—Unless there is a previous agreement by which the patentee stipulates to convey all subsequent improvements made by him, he would have entire control of the patent for the improvement, and no one could use it without his consent.

O. C. M., of N. J.—We have been interested in your statement of your troubles with your small propeller. You say that the boiler is perfectly clean, but although it was once large enough, it will not now make sufficient steam for your engine. The trouble must be in the latter then, for if all the conditions are the same with the boiler, as they were originally it will continue to act well. It is very likely that the engine is in fault. Try the piston and see if it leaks. Examine the valve and see if it sets fair on its seat; see that the eccentric has not shifted. Your exhaust pipe is too small at any rate. It should be one and a half times the area of the steam pipe. Do not narrow it at the mouth; let it be straight. It ought to work quite as well, if not better on a small engine than when contracted. Write and let us know the result.

C. P. W., of Mass.—Very little power is obtained from a Barker-mill steam engine except with high pressure. We should suppose, however, that you could produce sufficient blast for a chemist's fire with an engine similar to the one described but constructed of thicker metal. The arms should be sword-shaped; this might be effected by enclosing the iron tubular arms in sword-shaped sleeves. The openings should be very small, perhaps the 100th of an inch in diameter.

H. C. A., of Ohio.—You will find full instructions for making all the solutions used in electro-plating in "Smees' Electro Metallurgy," published by John Wiley, of this city.

R. F., of Ind.—In the Hecker & Waterman experiments a slide valve is used, worked by an eccentric.

W. L. C., of Md.—The dimensions of the engine in the Hecker & Waterman experiments were stated in our last volume, page 377. The cylinder is ten inches in diameter with two feet stroke. As the object of the experiments is to test the quantity of fuel required to do a given amount of work in a given time with different measures of expansion, the cut-off is fixed at a certain point for each thirty hours run.

P. P., of N. Y.—The specimen you send us is a very good article of plumbago. Most of the mining companies in this city are perfect swindlers. We would suggest to you to advertise a part of the mine extensively and sell it at auction.

E. L., of Pa.—If you ask your druggist for a box of the "Pittsburgh Salt Company's Concentrated Lye," which is sold for twenty-five cents, you will find a number of receipts for making soap attached to the box. They are the best and simplest that we can give you. We make all our own soap for family use with this lye, and it is white, hard, and very emollient.

R. K. L., of Pa.—Chains have been made cast in one entire length. There is no value in them being only specimens of the molder's skill. On page 177 of the "Metal Worker's Assistant," you will find an engraving and full description of such a chain.

C. S. T., of Mass.—Address H. C. Baird, 406 Walnut street, Philadelphia, for a work on malleable iron.

Money Received.

At the Scientific American Office, on account of Patent Office business, from Wednesday, July 13, 1864, to Wednesday, July 20, 1864—

- J. D., of N. Y., \$30; E. M. C., of R. I., \$41; G. M. L., of N. Y., \$41; J. B., of Mich., \$25; E. H., of N. Y., \$15; S. W. P., of Ill., \$15; S. V., of Pa., \$20; R. B. M., of Ohio, \$28; G. McK., of N. Y., \$15; I. W. B., of Mich., \$28; H. P. G., of Pa., \$20; W. G. S., of Pa., \$16; N. S., of Mich., \$15; S. & B., of Conn., \$16; A. P., of N. J., \$25; H. C. II., of Ill., \$100; A. D., of N. Y., \$16; J. C., of N. Y., \$16; W. H. R., of Ky., \$45; J. F. C. P., of N. Y., \$10; G. M. L., of N. Y., \$44; J. F. R., of Ill., \$20; C. V. W., of N. J., \$20; P. H., of N. Y., \$20; W. D. S., of N. J., \$20; A. R., of N. Y., \$250; J. V. C. C., of Conn., \$46; A. W. H., of N. Y., \$92; G. M., of N. Y., \$12; J. D., of N. Y., \$25; H. F., of N. Y., \$25; N. V., of N. J., \$25; W. T. H., of Maine, \$10; J. L. B., of Pa., \$10; H. C. D., of Mich., \$25; W. H., of Conn., \$25; J. R., of Ind., \$16; M. H. B., of Ill., \$15; C. C., of Mass., \$10; G. A., of Oregon, \$41; E. C., of Mass., \$36; C. C. B., of Iowa, \$35; J. B., of N. Y., \$16; J. S., of Cal., \$20; W. & S., of N. Y., \$16; J. S. F., of N. T., \$52; J. B., of N. Y., \$186; J. & B., of N. Y., \$66; E. F. W., of N. Y., \$16; D. W. C. W., of Mich., \$20; J. T. W., of N. Y., \$22; E. B., of N. Y., \$20; J. F. C., of N. Y., \$16; J. G., of Ill., \$45; W. W., of Conn., \$46; J. H. C., of N. Y., \$23; G. H., of N. Y., \$25; D. E. B., of Ind., \$23; E. S., of Pa., \$25; J. A. McC., of Ky., \$10; G. G. P., of Pa., \$25; W. II., of N. Y., \$25; G. W. P., of N. Y., \$25; C. V. S., of Ill., \$30; H. F., of Ill., \$26; S. & B., of Mich., \$31; J. F. B., of Ind., \$18; S. M. B., of Mich., \$35; M. C. B., of Ind., \$15; J. E. T., of Pa., \$25; J. W. P., of Maine, \$15; Mrs. L. A. H., of N. H., \$25; C. S., of N. Y., \$16; T. B. F., of Mass., \$20; W. S., of Mich., \$20; T. II. S., of Va., \$20; G. L., of N. Y., \$45; O. M. P., of Pa., \$45; C. P. B., of N. Y., \$45; G. P. I. C., of N. J., \$20; A. J. P., of N. Y., \$20.

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, July 13, 1864, to Wednesday, July 20, 1864—

- J. D., of N. Y.; E. M. C., of R. I.; G. M. L., of N. Y.; I. W. B., of Mich.; G. G. P., of N. Y.; M. C., of Ohio; G. W. P., of N. Y.; M. II. B., of Ill.; W. II., of Conn.; A. P., of N. J.; L. A. H., of N. H.; G. M., of N. Y.; J. D., of N. Y.; J. B., of N. Y., (4 cases); E. M. C., of R. I.; N. S., of Mich.; C. W. & J. B., of Pa.; H. P. G., of Pa.; L. O. C., of Pa.; J. E. T., of Pa.; II. C. II., of Ill.; J. H. C., of N. Y.; II. F., of N. Y.; G. H., of N. Y.; J. T. W., of N. Y.; A. W. H., of N. Y. (2 cases); E. C., of Mass.; W. H., of N. Y.; J. L. B., of Pa.; H. F., of Ill.; H. C. D., of Mich.; S. M. B., of Mich.; S. V., of Pa.

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.

ARMY SUPPLIES.

OFFICE OF ARMY CLOTHING AND EQUIPAGE, 502 BROADWAY, NEW YORK, July 19th, 1864.

SEALED PROPOSALS WILL BE RECEIVED AT this office until 12 M., on Thursday, the 23d instant, for furnishing by contract, at the Depot of Army Clothing and Equipage in this city,—

- Blankets.
- Knit Drawers.
- Flannel Drawers.
- Hospital Tents and Flies.
- Hospital Tent Flies.
- Shelter Tents, 8 oz. Duck.
- Manilla Paper, 36x40.

Samples of which can be seen at this office. Bidders will submit with their proposals, samples of the articles which they propose to deliver or of the materials of which the articles are to be made, in the case of Flannel Drawers and Tents at least one yard of the material to be submitted. Bidders will state the quantity they wish to furnish, the shortest time in which they can make deliveries, and how soon they can complete the delivery of all they bid for.

All proposals must be accompanied by a proper *surety* signed by two responsible parties, setting forth that if a contract is awarded to the party named therein he will at once execute the same, and give bonds for its faithful performance. The United States reserves the right to reject all bids deemed objectionable.

Proposals should be endorsed "Proposals for furnishing (here insert the article bid for)" and addressed to
LT-COL. D. H. VINTON, Dy. Qr. Mr. Genl.

OFFICE OF ARMY CLOTHING AND EQUIPAGE, PHILADELPHIA, July 20th, 1864.

SEALED PROPOSALS WILL BE RECEIVED AT this office until 12 o'clock, M., on Tuesday the 26th instant, for supplying the Schuylkill Arsenal with the following articles, viz:—

- Sky-blue Kersey, army standard, 3 1/2 or 6-1/2 wide, to be made from pure wool, and free from shade.
- Blue Flannel Sack Coats, lined.
- Haversacks, linen, painted.
- Blankets, vulcanized India-rubber or Gutta-percha for infantry.
- Boots } To be sewed by hand or machinery, but if and } by machinery, to be double-soled, without } welts.
- Bootees, } do.
- Drums, artillery, 3/4 and full size.
- General Hospital Bags.
- Company Order Books.
- Company Descriptive Books.
- Regimental General Order Books.
- Regimental Order Books.
- Brigade, Division, and Headquarter Books, viz:—
- Brigade Letters received.
- Brigade Letter.
- Brigade Order.

All the above articles to be of army standard. Also, Linen Linings: samples required.

Army Standard samples of each of the above articles can be seen at this Office, to which deliveries must strictly conform. Bidders must state in their Proposals the price (which must be given in writing, as well as in figures), and also the quantity and times of delivery.

Each bid must be guaranteed by two responsible persons, whose signatures must be appended to the guarantee, and certified to as being good and sufficient security for the amount involved, by one public functionary of the United States. Bids from defaulting Contractors, and those that do not fully comply with the requirements of this advertisement, will not be considered. Blank forms for proposals embracing the terms of the guarantee required on each bid, can be had on application at this Office, and none others, which do not embrace this guarantee, will be considered and not be considered which does not strictly conform to the requirements therein stated.

Bids must be endorsed "Proposals for Army Supplies," stating the article bid for.
G. H. CROSMAN, Asst. Quar. Mast. Gen. U.S.A.

PLATINA PLATE AND WIRE.—IMPORTED AND for sale by SAMUEL S. WHITE, Dental Depot, 653 Broadway, New York. 5 4*

HEYER'S POCKET SEWING MACHINE.—ILLU- trated in No. 5, current volume, SCIENTIFIC AMERICAN. State and County Rights for sale. Address W. D. HEYER, Box 762, New Orleans, La. 5 4*

A GENTLEMAN, WITH 18 YEARS' ENGINEERING experience, desires a re-engagement as Superintendent or Draughtsman. Unexceptionable testimonials and references given. Address W. H., Box 212, Post-office, Baltimore, Md. 1*

STEAM ENGINE WANTED.—FROM 20 TO 35 HORSE- Power, in good condition. And the correspondent will please state whose make, how long it has been in use, also state price. Address JAMES AKEN, Sandlake, Rensselaer county, N. Y. 5 5*

FOR SALE.—A SUPERIOR POWER BOILER Punch and Boiler Former. Price for both, \$210. Inquire of H. MCCOLLUM, Owego, N. Y. 1*

A SPLENDID STORY BY SELVANUS COBB, JR., in the **PRINTER'S DEVIL**, this week, at all Newsdealers. It is one of the best this popular author ever wrote. The **PRINTER'S DEVIL**, a handsome, illustrated, literary, and miscellaneous family paper, will be sent six months to any new subscriber for 25 cents. Address "PRINTER'S DEVIL," 113 Fulton street, New York. 1*

TWIST DRILLS.—ALL SIZES OF STUB'S WIRE Drills; also Twist Drills for machinists' use, varying in diameter from 3/32nds to 1 1/2 inch, together with sockets to fit them. For sale by the "Manhattan Fire Arms Company," corner of High and Orange streets, Newark, N. J. 5 4*

NEW APPARATUS FOR MAKING NITROUS OX- IDE chemically pure. Needs no watching, and breaks no glass. Pure Nitrous Ammonia, yielding eight gallons per lb. more than the ordinary. Rare Chemicals and Apparatus for experimenters. A. W. SPRAGUE, 59 Washington street, Boston. 5 2*

SOMETHING OF IMPORTANCE. Having obtained Letters Patent for tanning Leather without Bark, and said patent having been submitted to the severest test, and giving entire satisfaction, as affidavits in my possession will affirm, different persons bought rights who were not tanners, but having strictly adhered to the instructions accompanying such right have been enabled to make the best of leather, in quick time, and at less expense than can be done with bark. The Patentee is a practical tanner, and will send all necessary instructions to any person buying a right. State, County, Town, and Shop Rights for sale. Agents wanted, and good inducement. For further information address ALEXANDER HILL, Patentee, Dubuque, Iowa. 5 3*

ALCOTT'S CONCENTRIC LATHES.—FOR BROOM, Hoe, and Rake Handles, Chair Rounds, &c.—Price \$25; and all other kinds of Wood-working Machinery, for sale by S. C. HILLS, No. 12 Plattstreet, New York. 1*

SCIENTIFIC BOOKS.

Mahan's Civil Engineering. 1 vol., 8vo, cloth, \$3 50
Moseley's Mechanical Engineering, etc. 1 vol., 8vo, 4 50
Reed on Ventilation in American Dwellings, 1 25
Booth on Clock and Watch Making, 1 75
Snee's Electro Metallurgy, etc., 1 75
Mahan's Field Fortifications, 1 25
Advanced Guard and Out-post Service, 1 25
Drawings of Fortifications and Stereotomy, 2 50
Industrial Drawing, 1 vol., 8vo, 1 25
Warren's Drawing for Students and Engineers, 1 00
Ruskin's Elements of Drawing, 12mo, 1 00
Coe's Drawing Cards—15 kinds in packs—per pack, 37 1/2
Smith's Topographical Drawing, 1 vol., 8vo, 1 75
Linear Perspective, 1 50
Ruskin's Elements of Perspective, 75
Warren's Linear Perspective, 1 75
Hand-Book of Oil Painting, 3 00
Hatfield's American House Carpenter, 60
Holly's Carpenter's and Joiner's Hand-Book, 2 50
Dowling's Cottages, etc., 1 75
Hints to Persons about Building, etc., 75
Falbrunn's Practical Iron to Building, etc., 2 00
French on the Iron Trade, 3 50
Fresenius's Qualitative Chemical Analysis, 3 50
Miller's Chemical Physics, 2 50
Electricity and Magnetism, 2 50
Hittell's Mining in Pacific States, 2 75
Kenap's Landscape Gardening Plates, 2 00
Downing's Fruits and Fruit Trees of America, 2 50
London's Gardening for Ladies, 1 50
Lindley's Horticulture, 1 50
Parson's on Culture of the Rose, 1 25
Gilroy and Macfarlane on Dyeing, 1 vol., 8vo, 3 00
Catlin's Breath of Life (Shut your Mouth), plates, 37 1/2
Published and for sale by JOHN WILEY, 535 Broadway, New York.

PROPOSALS FOR MORTAR SHELL.

ORDNANCE OFFICE, WAR DEPARTMENT, WASHINGTON, D. C., July 8, 1864.
Sealed Proposals will be received at this office until Monday the 1st day of August, 1864, for 8-inch Mortar Shell, to be delivered in the following quantities, at the undernamed arsenals, viz:—
At the Watertown Arsenal, Massachusetts, 5,000.
At the Watervliet Arsenal, New York, 10,000.
At the New York Arsenal, Governor's Island, N. Y., 20,000.
At the Alleghany Arsenal, Pittsburgh, 10,000.
At the Washington Arsenal, D. C., 5,000.
These projectiles are to be made of the kind of metal, and inspected after the rules laid down in the Ordnance Manual; the tensile strength of the iron to be not less than 14,000 lbs. per square inch.
Drawings can be seen at any of the United States Arsenals. The projectiles are to be inspected at the foundry where cast, and are to be delivered at the Arsenals free of charge for transportation or handling.
Bidders will state the rate at which they will deliver. Failures to make deliveries at a specified time will subject the contractor to a forfeiture of the number he may fail to deliver at that time.
Bidders will state explicitly the Arsenal, or Arsenals, where they propose to deliver, and the number of projectiles they propose to deliver at each place, if for more than one.
No bids will be considered from parties other than regular foundries, or proprietors of works who are known by this Department to be capable of executing the work proposed for. Should any party obtaining a contract offer shell other than those cast in his own foundry, they will be rejected, and the contract rendered null and void.
Forms of bids can be obtained at the above-named Arsenals. Proposals not made out on this form will not be considered.

GUARANTY.

The bidder will be required to accompany his proposition with a guaranty signed by two responsible persons, that, in case the bid is accepted, he will at once execute the contract for the same, with good and sufficient sureties, in a sum equal to the amount of the contract, to deliver the article proposed in conformity with the terms of this advertisement; and in case the said bidder should fail to enter into the contract, they will make good the difference between the offer of said bidder and the next responsible bidder, or the person to whom the contract may be awarded.
The responsibility of the guarantors must be shown by the official certificate of the Clerk of the nearest District Court, or of the United States District Attorney.
Bonds in the sum equal to the amount of the contract, signed by the contractor and both of his guarantors, will be required of the successful bidder or bidders upon signing the contract.

FORM OF GUARANTY

We, the undersigned, residents of _____ in the county of _____ and State of _____ hereby jointly and severally covenant with the United States and guarantee, in case the foregoing bid of _____ be accepted, that he or they will at once execute the contract for the same, with good and sufficient sureties, in a sum equal to the amount of the contract, to furnish the articles proposed in conformity with the terms of this advertisement, dated July 8, 1864, under which the bid was made; and, in case the said _____ shall fail to enter into a contract as aforesaid, we guarantee to make good the difference between the offer of the said _____ and the next lowest responsible bidder, or the person to whom the contract may be awarded.
Witness: } Given under our hands and seals this _____ day of _____, 186—. [Seal.] [Seal.]
To this guaranty must be appended the official certificate above-mentioned.
Each party obtaining a contract will be obliged to enter into bond with approved sureties for its faithful execution.
Upon the award being made, successful bidders will be notified, and furnished with forms of contract and bonds.
The Department reserves the right to reject any or all bids if not deemed satisfactory.
Proposals will be addressed to "Brigadier-General George D. Ramsay, Chief of Ordnance, Washington, D. C.," and endorsed "Proposals for 8-inch Mortar Shell." GEORGE D. RAMSAY, Brigadier-General, Chief of Ordnance.

THE HUMAN VOICE; MALE AND FEMALE. Why is one Bass, and the other Soprano? Stammering. The true character of the Voice. Climate, as affecting the Races—Temperament, Quality, and Constitutional differences, between Northerners and Southerners. Men for the Time. Our National Resources; Shall we Repudiate? MARRIAGE—Union of Opposites—Short Courtships—Matrimonial Customs. Was it a Ghost? Murderers detected by Dreams. Witches. Sensations when Craying—Is it painful? Coming to One's Self. Prayed to Death. SIR ROWLAND HILL, MR. CHARLES MINOT, C. H. KILGORE, SENYMAN SIMONS—a murderer.—DR. E. K. KARR, the explorer. AN ESQUIMAUX; FISHERWOMEN of Boulogne; with Portraits, Characters, and Biographies. Also, Ethnology, Physiology, Phrenology, Physiognomy, and Psychology, in the August Double No. PHRENOLOGICAL JOURNAL; 20 cents, or \$2 a year. Newsmen have it. Sent first post, by FOWLER & WELLS, 389 Broadway, New York. 5 2c

STEAM ENGINE FOR SALE.—A NEW, HIGHLY finished Steam Engine, particularly adapted for a Sugar House or Water Works. Apply at 114 Liberty street, New York. 4 3c

N. B.—I WANT TO CONTRACT FOR MAKING 10,000 pairs of my Self-Registering Callipers. See SCIENTIFIC AMERICAN, March 5th. Write to CHARLES W. MORSE, and contract with the party. Address WM. A. MORSE, Box 1, 122, Philadelphia, Pa. 1c

GALVANIZED IRON.—GALVANIZING DONE WITH despatch and castings furnished if desired, either Malleable or Gray iron. Address, WILCOX & HALL, Middletown, Conn. 16 12c 50w

FOR SALE.—TWO SECOND-HAND STEAM ENGINES, nearly as good as new. Balance wheels, shafts, pump, &c., all complete. One of 25 horse-power, and one of 12 horse-power. One new, highly finished, 3 1/2 horse Engine, has never been used. One pair of best cross pumps as good as new. Will be sold very low. Address J. W. MOUNT, Medina, Orleans county, N. Y. 21 1c 50w

THE CHEAPEST MODE OF INTRODUCING INVENTIONS.

INVENTORS AND CONSTRUCTORS OF NEW AND useful Contrivances or Machines, of whatever kind, can have their Inventions illustrated and described in the columns of the SCIENTIFIC AMERICAN on payment of a reasonable charge for the engraving.
No charge is made for the publication, and the cuts are furnished to the party for whom they are executed as soon as they have been used. We wish it understood, however, that no second-hand or poor engravings, such as patentees often get executed by inexperienced artists for printing circulars and handbills from, can be admitted into these pages. We also reserve the right to accept or reject such subjects as are presented for publication. And it is not our desire to receive orders for engraving and publishing any but good Inventions or Machines, and such as do not meet our approbation in this respect, we shall decline to publish.
For further particulars a Press—

MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, No. 37 Park Row, New York City.

PATENTS!!—VALUABLE ENGLISH AND AMERICAN Patents introduced, manufactured, or sold for cash on commission. Communications respectfully solicited. Address SNYDER & WALTER, 229 Broadway, New York. REFERENCES.—John McKewan, 55 Maiden Lane; J. Wilmot, No. 2 Bowling Green. 1 1c

FOR SALE.—ONE PULLEY, 80 INCHES DIAMETER, 24-inch face, bored for 3 1/2-inch shaft. Apply to "Providence Tool Company," Providence, R. I. 4 1c

NOTICE.—PARTIES HAVING EITHER AN IMPROVED Threshing Machine, Farm Mill, or Cotton Gin to be introduced, may address "Patent Horse-power Company," 1,509 Pennsylvania avenue, Philadelphia. 4 6c

OIL! OIL! OIL! For Railroads, Steamers, and for machinery and Burning, PEASE'S Improved Engine and Signal Oil, indorsed and recommended by the highest authority in the United States. This Oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test. Our most skillful engineers and machinists pronounce it superior to and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The "Scientific American," after several tests, pronounces it "superior to any other they have used for machinery." For sale only by the Inventor and Manufacturer, F. S. PEASE, No. 61 Main street, Buffalo, N. Y. N. B.—Reliable orders filled for any part of the United States and Canada. 4 1c

POWER LOOMS FOR SALE.—SIXTEEN SATINETT Looms, together with lot of pulleys and hangers. Manufactured by Alfred Jenks & Son. Address LOCK, Box 70, Lexington, Ky. 4 7c

FOR SALE.—EIGHTEEN CAST-IRON RETORTS, with Piles, Glrders, etc., also Arch Fire Brick. The whole have been little used and are as good as new. Were erected to distill iron coal. Apply to J. R. FINLAY, 129 North Third street, St. Louis, Mo. 4 3c

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PATENT LABOR-SAVING LATHE.—THIS LATHE is made in whole boards, all widths, and from sixteen inches to twelve feet in length. Spaces for mortars to clinch all sawed alike. Rights for sale low. Splendid opportunity for mill-owners to profitably increase their business with but small outlay. Send for circular to D. D. GARLAND, Kewaunee, Wis. 4 2c

WATER WHEELS.—STEVENSON'S HELICAL Turbine, on horizontal shaft for very high falls, and vertical shaft for ordinary falls. Combining the Vellix with the Jonval Wheel proper, with friction step above the wheel. A very durable wheel, giving a high result at moderate cost. Address J. E. STEVENSON, 200 Broadway, New York. 4 4c

FOR SALE.—ONE HUGHES' PATENT ATMOSPHERIC Trip Hammer. New in good order, and very cheap. It is run by an 8-inch belt, and can be made to strike any weight of blow between 5 lbs. and 30,000 lbs. Inquire of D. A. MORRIS, Rockaway, N. J. 4 3c

FOR SALE.—TERRITORIAL AND STATE RIGHTS in my new and valuable Coal Scuttle, now in successful operation. Illustrated June 11th in SCIENTIFIC AMERICAN. This is an opportunity seldom offered to those who desire the entire control of a sure and profitable business, which will pay more than 100 per cent on the cost of its manufacture, and is sure to find its way into every family where coal is used as fuel. For full particulars send for circular, addressing the Inventor and Patentee, OTIS N. CHASE, Boston, Mass. 4 2c

A MESSEURS LES INVENTEURS.—AVIS IMPORTANT Les inventeurs non familiers avec la langue Anglaise, et qui n'ont pas assez de connaissances en Français, peuvent nous adresser dans leur langue natale. Envoyez nous un dessin et une description concise pour notre examen. Toutes communications seront reçues en confiance. MUNN & CO., Scientific American office, No. 37 Park Row, New York.

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 useful 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—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 to answer a great variety of questions which have been put to them from time to time during their practice of upwards of several 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.

THE SEVENTEENTH ANNUAL EXHIBITION OF the Maryland Institute of Baltimore, for the promotion of the Mechanic's Arts, will commence Monday evening, Oct. 3d, and continue to Monday evening, Oct. 31st, 1864. The Hall will be open for the reception of goods on Monday, Sept. 26th. Goods for competition and premium must be deposited before Thursday night, Sept. 29th. Circulars embracing details, may be had of the Agent at the Institute. Communications addressed to the undersigned, or to WM. C. COBURN, Secretary, will be promptly attended to. 311 W. W. MAUGHLAN, Chairman Committee on Exhibition.

FOR SALE BY THE GREAT CENTRAL FAIR, Philadelphia, Pa., one pair Ericsson's Caloric Engines, 24-inch cylinders, suitable for a printing office. Price \$1,500. Inquire of J. P. MORRIS TOWNE, & CO., Philadelphia, Pa.; or S. V. MERRICK, Philadelphia, Pa. 3 6c

ENGINEERING, CIVIL AND MILITARY; CHEMISTRY, Metallurgy, Assaying, &c., at Union College, Schenectady, N. Y. For Circular address Registrar. 24 1y

WATER WHEELS.—OVER 900 OF WARREN'S Turbines are now operating with great success in Cotton, Woolen, Grist, and Saw Mills, &c. For circular, address A. WARREN, Agent, American Water Wheel Company, 31 Exchange street, Boston Mass. 19 12c

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FOR SALE.—A NOVEL AND PATENTABLE "CORN PLANTER," lately invented, together with "model" of same. Address ROBERT L. SMITH, Stockport, N. Y. 3 4c

DRAFTING INSTRUMENTS FOR ENGINEERS, SURVEYORS, Architects, Machinists, and Schools, Engineers' and Surveyors' transit, levels, compasses, and chains, Chesterman's Metallic and Steel Tape-measures, for sale, wholesale and retail, by JAMES W. QUEEN & CO., 294 Chestnut street, Philadelphia. Price and illustrated catalogues gratis. 21 12c

DUDGEON HYDRAULIC JACKS AT NEW YORK prices. For sale by ENOAS DUDGEON, corner of Eighth and Minna streets, San Francisco, Cal. 2 3c

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. 1 12c

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 1c

HOLSKE & KNEELAND, MODEL MAKERS. PATENT Office Models, Working Models, and Experimental Machinery, made to order at 100 Walker street, between Center and Elm, New York. Refer to Munn & Co., SCIENTIFIC AMERICAN Office. 1 1c

GROVER & BAKER'S HIGHEST PREMIUM ELASTIC Stitch Sewing Machines, 495 Broadway, New York. 1 1c

MANUFACTURERS OF STEAM ENGINES, WITH the link motion, variable cut off of the most approved construction; also Lathes, Mill-gearing, Shafting, Hangers and Machinery in general. Address, M. & T. SAULT, New Haven, Conn. 19 26c

GUN AND PISTOL SCREWS.—COMSTOCK, LYON & CO., Manufacturers (Office, 74 Beekman street, New York), are always prepared to furnish Gun and Pistol Screws to sample. Screws to fit the U. S. Musket, Sewing Machine Screws, and Metal Screws generally, of the best quality, at short notice. 10 26c

REYNOLDS' TURBINE WATER WHEELS.—COMPETENT men are employed to measure streams, make plans, and put in flumes, wheels, and gearing. TALLCOT & UNDERHILL, No. 170 Broadway, New York. 1 1c

JAMES HORNER & CO., MANUFACTURERS OF CAST Steel and Files. Orders solicited for all kinds, shapes and sizes Office and Warehouse, 28 Cliff street, New York. 7 6m

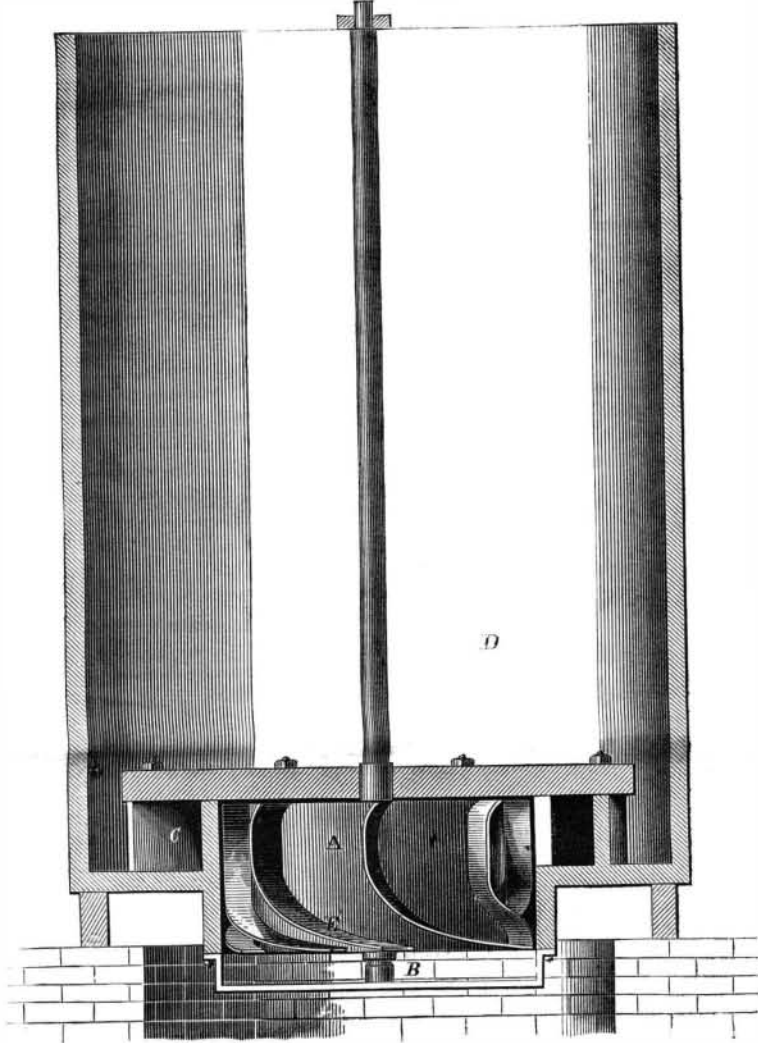
THEYSON & OGG, 39 GREENE STREET, NEAR Grand street, Machinists, Brass Finishers, and Model Makers Experimental Machinery, Indicators, Regulators, and Steam Gages of any kind accurately and promptly made. 21 12c

Zur Beachtung für deutsche Erfinder. Die Unterzeichneten haben eine Anleitung, die Erfinder das Verhalten anzeigt, um sich ihre Patente zu sichern, herausgegeben, und verabfolgt solche gratis an dieselben. Erfinder, welche nicht mit der englischen Sprache bekannt sind, können die Mittheilungen in der deutschen Sprache machen. Etlichen von Erfindern mit kurzen, deutlich gefassten Beschreibungen beliebe man zu adressiren an Munn & Co., 37 Park Row, New-York. Auf der Office wird deutsch gesprochen. Dieselbe ist zu haben: Die Patent-Gesetze der Vereinigten Staaten, nebst den Regeln und der Geschäftsordnung der Patent-Office und Erläuterungen für den Erfinder, um sich Patente zu sichern, in den Vereinigten Staaten sowohl als in Europa. Dieser Preisige aus den Patent-Gesetzen fremder Länder und darauf bezügliche Verfügungen; ebenfalls nützliche Winke für Erfinder und solche, welche patentiren wollen. Preis 20 Cts., per Post 25 Cts.

Improved Water-wheel.

This wheel is claimed to be a very great improvement in ordinary wheels. It is intended to utilize the force of the fall to the utmost, and the chief peculiarity lies in the shape of the buckets. These, it will be seen, are wood, and they are designed, says the inventor in his specification, to obtain the power of the water as it enters the wheel, and also by re-acting against the lower or bottom parts of the buckets to save what is generally lost by the water escaping too quickly.

The construction of the wheel is similar to that of many others in all other respects than the shape of the buckets. These latter are set upon a disk, A,



LUTHER'S RE-ACTING WATER-WHEEL.

which is carried by a step, B. The wheel and case, C, which is of scroll form, sets in a penstock, D, and the water enters to A as usual. There are openings in the side of the scroll which deflect the water to the buckets so that it impinges directly upon them, horizontally. The top of the buckets are curved slightly so as to concentrate the force directly upon the most effective portion of the wheel, and as the current in its passage seeks to escape at the bottom, it re-acts upon the inclined or helical portion E, of the bucket, and thus adds its weight and the velocity it may have acquired in its passage, to the former impetus obtained by striking horizontally against the bucket.

It is asserted that this plan of wheel is a very efficient one, and it has been patented in the United States, and in England and France.

The patents were all obtained through the Scientific American Patent Agency. The American patent bears date Feb. 17, 1863. For further particulars address the patentees, Jacob Luther & Co., Anamosa, Iowa.

Dangerous Percussion Caps.

"A Surgeon to a London Hospital" has called the attention of the public to the danger of using cheap and bad percussion caps. "Many eyes," he writes, "are entirely lost every year by them. They are used, first, very largely by children in their toy-guns and pistols; secondly, by others more advanced in years, who at fairs and other places of public resort

shoot with them at a target for nuts; and, thirdly, by poor men for sporting purposes, who are tempted to buy them on account of their cheapness.

"Unlike the best percussion caps sold by all respectable gunsmiths, they are composed of a very brittle metal, which, in the explosion of the detonating material within, is apt to splinter, and the fragments fly off with a most dangerous rapidity. They may be purchased at the rate of 500 for 1s. Each year I see patients who have been the victims to these miserable toys. Parents in perfect innocence buy them for their children, and but too often learn from sad experience the danger of the plaything they have given them.

"In the explosion of the cap a small speculum of the metal flies off, and strikes the eye of the person shooting, or that of a bystander, inflicting in its rapid transit either a dangerous wound, or else lodging itself deeply in the eye.

"Of all the eyes I have seen thus irreparably destroyed, and they are many, I have, on a careful cross-examination of the patients, or of the patient's immediate relatives, ascertained that the percussion caps used were cheap, and consequently bad."

The publication of the above in the columns of the London *Times* called forth the following statement from "A Volunteer:"—

"The percussion caps supplied with the ball cartridges issued the last two years to Volunteer corps, on exploding, are attended with exactly similar results as the supposed cheap caps described by your correspondent. Instead of, as formerly, expanding only upon explosion, the caps now fly into two or three, or even five pieces. I was standing a few days since about three yards to the right of a friend while firing kneeling, and was struck by a piece of an exploded cap, which cut through my trousers and fetched blood. I found the piece adhering to the cloth.

"On another occasion I saw a man struck twice in the course of an hour in the face, while firing, laying his cheek open."

SILENCE IN NATURE.—It is a remarkable and very instructive fact, that many of the most important

operations of nature are carried on in unbroken silence. There is no rushing sound when the broad tide of sunlight breaks on a dark world and floods it with light, as one bright wave over another falls from the fountain, millions of millions of miles away. There is no creaking of axles, or groaning of cumbrous machinery as the solid earth wheels on its way, and every planet and system performs its revolutions. The great trees bring forth their boughs and shadow the earth beneath them—the plants cover themselves with buds, and the buds burst into flowers, but the whole transaction is unheard. The change from snow and winter winds to blossoms and fruits and the sunshine of summer is seen in its slow development, but there is scarcely a sound to tell of the mighty transformation. The solemn chant of the ocean, as it raises its unchanged and its unceasing voices, the roar of the hurricane and the mighty river, and the thunder of the black-browed storm; all this is the music of nature—a great and swelling anthem of praise, breaking in on the universal calm. There is a lesson for us here. The mightiest worker in the universe is the most unobtrusive.—*Brakus.*

SHOT cast in cold sand molds are coming into use for their cheapness and destructive effect.—*Phil. Ledger.*

Shot are always cast in cold sand molds. Our contemporary alludes to iron molds, probably, which chill the exterior of the easting, thus making it harder.

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 almost 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.

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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

REPERTORY OF AMERICAN PATENTS.

In this important department, so vitally connected with all the great interests of the country, no other journal can lay any claim whatever, as in its columns there is published a weekly Official List of the "Claims" of all patents granted at the U. S. Patent Office.

THE PRACTICAL RECIPES

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Munn & Co., Publishers,

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FROM THE STEAM PRESS OF JOHN A. GRAY & GREEN