

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.

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TO CAPITALISTS THAT DESIRE TO START SOME manufacturing business in the West, may find it to their advantage to examine our water power on the Turkey river, at Elkador, Clayton county, Iowa. We will sell or lease one-half of the power and some land on the East bank of the river, opposite a large flouring mill. We are twenty miles from the Mississippi river at McGregor, and sixteen miles from Clayton. There will be plenty of water, and we can get eleven feet head. Building material of the best kind near by. Address as above to LEVI A. BEARDSLEY or S. V. HARRIS.

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PETTEE'S IMPROVED ENVELOPE.—CAUTION.—The public are hereby cautioned against purchasing, making, vending, or using Envelopes made under, or by virtue of any letters patent, alleged to have been recently granted for supposed inventions, which are infringements on the patent issued March 22d, 1859, to S. E. Pettee, and assigned to and now owned by George S. Stimble. All infringements will be proceeded against. E. J. SPANGLER, Sole lessee. Philadelphia, April 27, 1864.

WANTED.—A Situation by a person who has an experience of 25 years in the management and construction of Railway Machinery and Marine Engines; has had entire charge of the Machinery Department of several important Railroads; also of a line of Steamers; can produce the most satisfactory references as to character and ability. Letters addressed to "Machinery" care of C. W. COPELAND, Consulting Engineer, No. 122 Broadway New York, will meet with prompt attention.

CALORIC ENGINE MANUFACTURERS, WANTED, sizes, prices, and description of Caloric Engines from parties who manufacture them. Address M. BENTLEY, Covington, Ky.

THE COLD-IRON BAR CUTTERS ARE INVALIDABLE in Machine Shops. They will cut off four inch, round or square bars. For circulars or machines address CRESSON & HUBBARD, 1,539 Pennsylvania avenue, Philadelphia.

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 100 being in use. All warranted satisfactory or no sale. Descriptive circulars sent on application. Address J. C. HOADLEY & CO. Lawrence, Mass.

FOR SALE.—A VALUABLE LOT OF TURNED SHAFTING, ready for use. 3 pieces, 7/8 inch diameter, each 16 feet long; and 1 piece, 7/8 inch diameter, 18 feet long, with couplings attached; 3 pieces, 1/2 inch diameter, each 16 feet long, turned the whole length, without couplings. Apply to the Superintendent of the Norway Iron Works, Dorchester avenue, South Boston, Mass.

SCALY BOILERS.

WINANS' ANTI-INCORUSTATION POWDER effectually cleanses dirty Boilers without injury or loss of time. A thousand references. Send for circulars to H. N. WINANS', 11 Wall street, New York.

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FOR TOOLS, DRILLS, DIES, SPRINGS, CARBINES, also steel forged to any required shape, by the MONTAUK IRON AND STEEL CO. Office, 16 Beekman Street, New York.

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

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ORDNANCE OFFICE.

SEALD PROPOSALS will be received at this office until Monday, the 23d day of May, 1864, for the delivery at the following arsenals, Cavalry Accoutrements, United States Cavalry pattern, as herein after specified.

At the New York Arsenal, 25,000 sets. At the St. Louis Arsenal, 5,000 sets. At the Frankfort Arsenal, 10,000 sets. At the Alleghany Arsenal, 10,000 sets.

These Accoutrements are to be made in strict conformity with the regulation pattern, which can be seen at the above named places. Each set is to consist of one Sabre-belt and plate complete; one Carbine-sling with swivel complete; one Sabre-knot; one Carbine Cartridge-box; one Pistol Cartridge-box or Pouch; one Belt-holster for Army size revolver, and one pouch with cone pick. All of which are to be made of the best materials and workmanship. The Sabre-belt, Sabre-knot, and Carbine-sling are to be of Buff Leather Blacked, and the Cartridge-boxes, Belt-holster, and Cap-pouch of Pure Oak Tanned Leather.

It is to be distinctly understood that this Department is to have the privilege of inspecting the work done under any contract it may award, in all stages of its progress; especially, to examine the stock before cutting. They are to be subject to the final inspection at the Arsenal, where delivered, before being received by the Government. None are to be accepted or paid for but such as are approved upon inspection.

Deliveries must be made in lots of not less than one-tenth (1-10th) per week of the whole number contracted for; the first delivery to be made on the 20th day of June.

Failure 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.

The Accoutrements must be boxed in the usual manner; the boxes to be charged cost, to be determined by the inspector. Bidders will state explicitly the Arsenal, or Arsenals, where they propose to deliver, and the number of sets they propose to deliver at each place, if for more than one.

No bids will be considered from parties other than regular manufacturers, and such as are known to this Department to be fully competent to execute in their own shops the work proposed for. Should any party obtaining a contract offer Accoutrements other than those made in his own shops, they will be rejected, and the contractor rendered null and void.

Bidders will enclose with their bids the written acknowledgments of their superiors or their own signatures.

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.," endorsed "Proposals for Cavalry Accoutrements." GEORGE D. RAMSAY, Brigadier-General, Chief of Ordnance.

Bids will also be received for these accoutrements to be made of the best grained leather, instead of buff.

GUM-ELASTIC CRUTCHES.—STATE RIGHTS FOR SALE.—These Crutches have a gum tube across the top, making a soft and elastic support to the arm, and enabling the wearer to walk with more comfort than can be derived from any other crutch. For particulars address J. HARTMAN, 123 Pine street, Philadelphia.

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E. H. BELLOWS, MANUFACTURER OF PORTABLE and Stationary Steam Engines, Worcester, Mass.

MACHINERY.—S. C. HILLS, No. 12 PLATT STREET, New York, dealer in Steam Engines, Boilers, Planers, Lathes, Chucks, Drills, Pumps; Mortising, Tenoning and Sash Machines; Woodworth's and Daniels' Planers, Dick's Punches, Presses and Shears; Cob and Corn Mills; Harrison's Grist Mills; Johnson's Single Mills; Belting, Oil, &c.

GALVANIZED IRON. GALVANIZING DONE WITH despatch, and castings furnished if desired, either Wholesale or Retail. Address, WILCOX & HALL, Middletown, Conn.

TO PURCHASERS OF RIFLES.—IN CONSEQUENCE of numerous applications which I have received since the publication of my "Hints to Riflemen," I am induced to offer my services to the public as agent for the purchase of rifles of every description. Having no personal interest in any particular arm, and having made such arrangements with the principal manufacturers and dealers, that I can supply purchasers with arms of any pattern that is in the market, I will select for any one who leaves the choice to me, or will procure a gun of any specified pattern and prove its capacity by such tests as will enable me to certify to its merits. It is proper to state that the unprecedented demand for rifles renders it impossible to procure immediately those of the best models; but my arrangements will enable me to do so at the earliest possible date, and customers will be served in the order of their application.

PAGE'S PATENTED LIME KILN WILL BURN 300 bushels lime per day, with three cords wood or 1 1/2 tun coal, hard or soft. Address C. D. PAGE, Cleveland, Ohio.

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MESSIEURS LES INVENTEURS.—AVIS IMPORTANT Les inventeurs non familiers avec la langue Anglaise, et qui préféreraient nous communiquer leurs inventions 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—Reissues of Defective Patents—Validity of Patents—Abandonment of Inventions—Best Mode of Introducing them—Importance of the Specification—Who are entitled to Patents—What will prevent the granting of a Patent—Patents in Canada and European Patents Schedule of Patent Fees; also a variety of miscellaneous items on patent law questions.

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AMERICAN NEEDLE COMPANY, 42 BROADWAY, New York, J. W. Bartlett, Needle manufacturer for all the Sewing Machines. Bartlett's Burnished Hand Needles Hackle pins, &c.

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GUILD & GARRISON'S CELEBRATED STEAM Pumps—Adapted to every variety of pumping. The principal styles are the Direct Action Excelsior Steam Pump, the Improved Balance Wheel Pump, Duplex Vacuum and Steam Pumps, and the Water Propeller, an entirely new invention for pumping large quantities at a light lift. For sale at No. 66 and 67 First street, Williamsburgh, and No. 74 Beekman street, New York.

GUILD, GARRISON & CO. GROVER & BAKER'S HIGHEST PREMIUM ELASTIC Stitch Sewing Machines, 495 Broadway, New York.

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BARTLETT'S NEW COOLER AND REFRIGERATOR COMBINED.—Patent to be sold in States or Counties, to enable Tin or Iron Workers to manufacture and supply their own trade, and save transportation. Terms will be low. J. W. BARTLETT, Patentee, 442 Broadway, New York. Model coolers furnished purchasers.

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SELF-FEEDING HAND SAWING MACHINE, TALLEY'S PATENT.—Invaluable to Carpenters and Builders. One man can easily do the work of three, with less waste of stud, and in a far better manner. It is pronounced by hundreds, who are using them, to be the greatest wood-working machine ever invented. Send for a Circular. HOAG & HAMPSON, 95 Maiden Lane, New York.

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.

Zur Beachtung für deutsche Erfinder. Die Unterzeichneten haben eine Anleihe, die Erfinder des Verbalten anzuzeigen, um sich ihre Patente zu sichern, herausgegeben, und verabsoluten, welche nicht mit der englischen Sprache bekannt sind, können ihre Mitteilungen in der deutschen Sprache machen. Erfragen von Erfindungen mit kurzen, deutlich gezeichneten Beschreibungen betriebe man zu adressieren an Munn & Co., 37 Park Row, New-York. Auf der Office wird deutsch gesprochen. Die Patent-Gesetze der Vereinigten Staaten.

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Improved Evaporator.

Whenever a new article is introduced which bids fair to become staple, the energies and talents of inventors are directed toward cheapening and expediting its manufacture. This has been eminently true of sorghum sugar. Its cultivation at first was attended with poor success, but through patience and perseverance it is getting to be of the first importance. The engraving published herewith represents a new arch for sorghum evaporators. Its construction and operation are thus described by the inventor.

This arch is constructed of brick, and has a stationary chimney so arranged as to secure instant and perfect adjustment, ease and convenience in operating

1864; for further particulars apply to the patentee, L. W. Bodwell, Ann Arbor, Mich.

Plumbago Mine in Lower Canada.

We have been shown some rich specimens of plumbago, large quantities of which have been discovered on a piece of property on the St. Maurice river, Canada East, owned by Mr. P. B. Vanasse, Quebec. The specimens are very pure, being singularly free from grit, and the mineral is obtained in larger pieces than in many of the mines now worked in England and the United States. Plumbago, or graphite, is used principally for lead pencils, in the manufacture of crucibles, as a lining of molds for

will be found to present several cavities formed in other times by stone-boring mollusks; these markings succeed each other without interruption from high-water level to a height of from 8 to 10 metres (about 30 feet). The upper ones are much more crowded than those below, thus proving that the elevation has been gradual; for had it taken place at various intervals, there would be a series of interruptions in the series, which do not exist.

How SMALL INVENTIONS ARE INTRODUCED.—It is proposed to form a company for the manufacture of twist drills, etc., in New Bedford, Mass. Twist drills are used by machinists, gun-makers, etc., in nice mechanism; heretofore they have been very expensive, as they have been made only by hand. S. A. Morse, a practical machinist of East Bridgewater, has invented a machine by which these are made at about half the cost of the hand-made drills, and of superior excellence.

THE Pacific Mail Steamship Company have another splendid steamer—the *Sacramento*—nearly ready for service. She will be the third new ship within three years, and two others are now building. These vessels are unsurpassed for speed and economy.

THE

Scientific American,

FOR 1864!

VOLUME X.—NEW SERIES.

The publishers of the SCIENTIFIC AMERICAN respectfully give notice that the Tenth Volume (New Series) commenced on the first of January. 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.

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

NUMEROUS SPLENDID ENGRAVINGS

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

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

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

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

alone are oft-times worth more to the subscriber than the amount of a whole year's subscription.

TERMS OF SUBSCRIPTION.

Two volumes of the SCIENTIFIC AMERICAN are published each year, at \$1 50 each, or \$3 per annum, with correspondingly low terms to Clubs; \$1 will pay for four months' subscription. The numbers for one year, when bound in a volume, constitute a work of 332 pages of useful information, which every one ought to possess. A new volume commenced on the first of January, 1863.

Club Rates.

Five Copies, for Six Months.....	\$6
Ten Copies, for Six Months.....	12
Ten Copies, for Twelve Months.....	23
Fifteen Copies, for Twelve Months.....	34
Twenty Copies, for Twelve Months.....	40

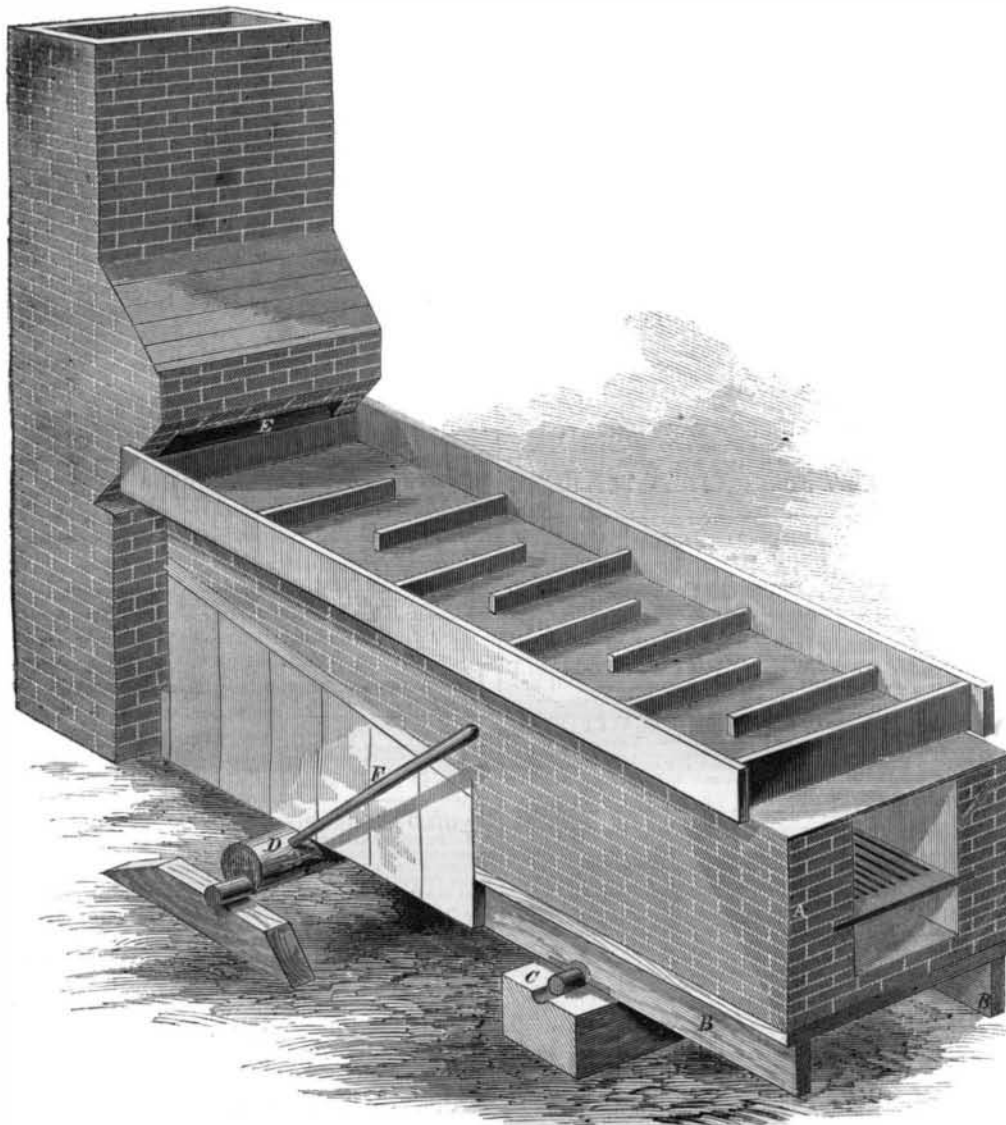
For all clubs of twenty and over the yearly subscription is only \$2 00. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

Canadian subscribers will please to remit 25 cents extra on each year's subscription to pre-pay postage.

Munn & Co., Publishers.

37 Park Row, New York.

FROM THE STEAM PRESS OF JOHN A. GRAY & GREEN.

**BODWELL'S IMPROVED ARCH FOR SORGHUM EVAPORATORS.**

it, and also economy in fuel—characteristics which at once give it superior advantages. By reference to the accompanying drawings the operation of this arch may be readily comprehended. The arch, A, with its grate and fire-box, is built upon the two bed-pieces, B, the whole resting on the journals, C, and the center shaft and journal, D. The arch is connected to the chimney by means of a sliding flue, E, sufficiently large to cover the opening in the chimney at the greatest elevation or depression of the pan. The arch is balanced on the journals, C, having slight preponderance, however, on the eccentric shaft and cam, D, so that when in the process of evaporating the juice it becomes necessary to either elevate or depress the pan, it can be done instantly and with but little expenditure of power, by means of the lever, F, which is inserted in the cam before mentioned. The advantages claimed for this arch and which give it great superiority are:—that a brick arch of any desirable length and dimensions can be managed with perfect ease; also its economy and simplicity of construction and saving in fuel, which by actual test gives in the former case a saving of fifty per cent., and in the latter thirty-three per cent; the operator is always able to be at the place where his services are most required during the process of evaporating. This arch was patented on Feb. 23,

delicate castings, and for stove polish. It is a valuable mineral; immense fortunes have been made for many years from the Borrowdale mine in Cumberland, England, said to produce the finest graphite in use.—*Kingston News*.

Improvement in Ships' Compasses.

We are informed that Mr. L. G. Vassallo, late of the Austrian navy, but now an officer in the service of the United States, has made an improvement in ships' compasses, which consists in constructing a sun-dial upon the compass. The hours are engraved upon the glass cover of the compass, and the gnomon is hinged at its lower end so that its inclination may be adjusted to correspond with the latitude. In 1849 we bought a portable compass and sun-dial constructed on this plan in a German toy-shop for 18 cents.

ELEVATION OF THE COAST OF CHILE.—That the latter coast is being gradually elevated, would appear from the fact that for half a century the harbors of the country have been diminishing in depth. This change, however, might be accounted for by supposing the existence of currents bringing in debris. M. Pissis in the *Comptes Rendus*, gives other proofs. On examining the coast between Conception and Rio Maule, the various escarpments of schistose rocks