

BAIRD'S REVISED CATALOGUE OF PRACTICAL and Scientific Books, complete to date, will be ready for delivery this week.

HENRY CAREY BAIRD, Industrial Publisher, 406 Walnut street, Philadelphia.

DRAFTING INSTRUMENTS FOR ENGINEERS, SURVEYORS, ARCHITECTS, MACHINISTS, AND SCHOOLS. Engineers' and Surveyors' transits, levels, compasses, and chains, Chesterman's Metallic and Steel Tape-measures, for sale, wholesale and retail, by JAMES W. QUEEN & CO., 924 Chestnut street, Philadelphia.

WANTED.—AMERICAN OR ENGLISH IMPROVEMENTS in machinery for manufacturing cotton or wool, old or new, patented or unpatented. CHARLES A. SHAW, Biddeford, Maine.

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

PATENT IMPROVED SOLID EMERY WHEELS, FOR Cutting, Grinding, and Polishing. No Metal-worker can afford to be without them. Orders promptly filled. Smyrna Emery by the Keg, warranted Pure and Best Quality. NEW YORK EMERY WHEEL COMPANY, 51 Beekman street, New York.

AGENCY FOR THE INTRODUCTION AND SALE OF PATENT INVENTIONS.—Inventors and manufacturers desirous of having their inventions introduced into this country and abroad, will find it to their interest to send descriptive, illustrated pamphlets or circulars to A. SCHELLER, 370 Bowery, New York.

ANTI-INCORUSTATION.—BEWARE OF COUNTERFEITS. Winan's Anti-Incorustation Powder—so long a success—is being pirated. Cost 10 cents a day or less. A certain remedy without injury. Apply for circular to H. N. WINAN'S, 11 Wall street, New York.

HACKLE, GILL, COMB CARD PINS, &c., &c., promptly supplied by J. W. BARTLETT, 442 Broadway, New York. Refers to leading Flax, Linen and Cordage Machy Manuf'rs.

OLIVER'S PATENT DRYING KILN, FOR SEASONING and Drying Lumber, the only process that will season thoroughly without checking. Carpenters, Cabinet Makers, Coopers, Cabinet Makers, Car Builders, Gun Stock Manufacturers, Sash and Blind Manufacturers, Agricultural Machine Manufacturers, and all Workers in Wood should own a right to use this invention, which consists in certain provisions within a kiln for subjecting the lumber to heat in such a manner as to effectually prevent it from checking. H. W. OLIVER, Patentee, Box 934, New Haven, Conn.; or S. C. LEWIS, Whitneyville, Conn.

BAIRD'S REVISED CATALOGUE OF PRACTICAL and Scientific Books, complete to date, will be ready for delivery this week. This will contain the titles and full particulars of the contents of several new books, and will be the most complete catalogue of this character yet issued by me. It will be sent free of postage to every reader of the SCIENTIFIC AMERICAN who will favor me with his address.

HENRY CAREY BAIRD, Industrial Publisher, 406 Walnut street, Philadelphia.

REGENERATING GAS FURNACE.—WE UNDERSTAND that Messrs. TUTTLE, GATFIELD & CO., of Boston, Mass., are the interested parties and agents for the United States for the very valuable Patent Regenerating Gas Furnaces, noticed in the SCIENTIFIC AMERICAN of March 19th, and numbered 41,788. At some future time we shall give a full account of this invention of the Messrs. Siemens, of London, which has been very extensively introduced in England and on the Continent, and is applicable to the manufacture of iron, gas, glass, &c. Address as above.

TO MANUFACTURERS OR ANY ONE HAVING AN article of manufacture they wish to introduce in the West. Having a large country acquaintance in Illinois, Iowa, Wisconsin, Minnesota, Michigan, and Indiana, and also a large store in the best street in Chicago, we would like such an agency. Best of references as to character and ability given in Boston, New York, Philadelphia, and Chicago. Address Drawer 5,908, Chicago Post-office, Ill.

TURBINE WHEELS.—J. E. STEVENSON & CO., Engineers 200 Broadway, New York, are now manufacturing STEVENSON'S HELICAL TURBINE (the Jonval principle) on horizontal shaft with driving pulley all mounted complete, ready to attach the belt. Suitable for heads of water from 10 to 200 feet, wheels from 4 inches to 42 inches diameter, and from one-half horse power up to 200.

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.

AMERICAN NEEDLE COMPANY, 442 BROADWAY, New York, J. W. Bartlett, Needle manufacturers for all the Sewing Machines. Bartlett's Burnished Hand Needles, Hackle pins, &c.

TO DEALERS AND BROKERS IN PATENTS.—\$2,000 will buy twenty States (New England States included) in a first-class patent, entirely new, and of daily use in every family. If applied for soon, all inquiries promptly and satisfactorily answered. JOHN JACOBS & CO., Shirleyburg, Pa.

HARDAWAY & SONS, MANUFACTURERS OF IMPROVED Spike, Bolt, Rivet, and Horse-shoe Machines. St. Louis, Mo. REFERENCES.—Chateau Harrison & Valle Laclede Rolling Mill; Collins & Holliday, Broadway Foundry; Marshall & Co., Western Foundry; all of St. Louis.

MARINE RAILWAYS.—MY IMPROVEMENT CAN be applied to them at small expense, while it will greatly increase their effectiveness and value. Send for circular to CHARLES H. EDWARDS, Quincy, Mass.

PECK'S PATENT DROP PRESS FOR FORGING PURPOSES.—All sizes manufactured by MILO PECK & CO., New Haven, Conn.

SAVING OF FUEL TO PARTIES USING STEAM-ENGINE REGULATORS. Guaranteed to effect a great saving in fuel and give the most perfect regularity of power. For sale by the subscribers, who have established their exclusive right to manufacture steam regulators, using diaphragms of flexible vessels of any kind. CLARK'S PATENT STEAM AND FIRE REGULATOR COMPANY, No. 5 Park Place, New York.

FOR SALE.—MY WHOLE RIGHT TO MY SACCHARINE Liquid Evaporator. The best out. See illustration in No. 14, current volume, SCIENTIFIC AMERICAN. Address J. C. CHESNEY, Abingdon, Ill.

25 HORSE STEAM BOILER, JUST FINISHED, 40 1/2 feet long and 40 inches diameter, for sale at 8 cents a lb. Address EAGLE WORKS, Harrisburg, Pa.

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 to answer a great variety of questions which have been put to them from time to time during their practice of upwards of seventeen 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 BELLEVUE STEREOSCOPE, WITH SLIDING FOCUS and Field Piece, accommodating all eyes, recently noticed in the SCIENTIFIC AMERICAN, is mailed, prepaid, for \$3, or with 12 Assorted Views, \$6, by HENRY CRAIG, 335 Broadway, New York.

NOTICE TO MACHINE BUILDERS.—PROPOSALS will be received at the Monongahela Water Company for the building and erection of a Steam Engine, with Pumping Apparatus, for the New Water-works of South Pittsburgh, Birmingham, and East Birmingham, Alleghany County, Penn. The machinery will be required to pump water at the rate of one million gallons in 12 working hours to an elevation of about 187 feet above Monongahela River; the distance of an inlet from river is about 2,000 feet. Builders will state the price of machinery delivered at Birmingham and put up ready for use, and accompany their proposals with plan of machinery. Address—C. J. SEULTZ, Letter-box 1382, Pittsburgh, Pa.—The Committee on Machinery, Monongahela Water Company.

TO WRENCH MAKERS.—FOSTER'S PATENT UNIVERSAL GRIP WRENCH is for sale. It is the best and only Wrench that will work equally well on round and square forms. It is invaluable to Gas-fitters, &c. Address—D. P. FOSTER, Shelburne Falls, Mass.

VIROUD'S PATENT MARINE CLOCKS, REGISTERS, Steam, Vacuum, Water, and Open Siphon Gauges. Hot Well and Engine-room Thermometers and Indicators. Models made and Instruments repaired.—DAVIDSON, DICKINSON & CO. 229 Broadway; Factory, 191 Lewis street.

DAVIDSON, DICKINSON & CO., CIVIL, MINING and Mechanical Engineers, 229 Broadway, New York. Manufacture and repair of all kinds of Steam and Water Engines, Hair and Wool Felt, Boilers and Pipe Felted, Cast and Wrought Iron Pipe, Fitting of all kinds. Belting and Brass-work for sale.

THE CELEBRATED CRAIG MICROSCOPE, COMBINING Instruction with Amusement, is mailed, prepaid, for \$2.25; or with 6 beautiful Mounted Objects for \$3; with 24 Objects, \$5, by HENRY CRAIG, 335 Broadway, New York.

CHLORATE OF ZINC FOR BURNETTIZING TIMBER.—A Pure Article. For sale by BOYD BROS., 159 Front street, New York.

SHEEP WASH TOBACCO.—JAGUES PURE EXTRACT OF TOBACCO.—Will not injure the most delicate animals. Kills Ticks on Sheep. Cures Scab on Sheep. Kills all Vermin on Animals and Birds. Cures all Skin Diseases on Animals. Kills Bugs on Roses, Lice on House Plants. Kills Canker Worm on Apple Trees. Kills Beetles and Water-lice. Kills all Vermin that infest Grape and Cranberry Vines. One Pound of this Extract will make Sixteen Gallons Wash. For sale by all Grocers, and at Country and Agricultural Stores. Price 75 cents per pound. A liberal discount to the trade and large purchasers. Orders promptly sent by express. JAMES F. LEVIN, Agent South Down Co., 23 Central Wharf, Boston.

ROUND AND SQUARE MATCH MACHINES. Woolen Cards, Rag Pickers, &c., Manufactured by RICHARDSON & CO., Athol Depot, Mass.

IMPORTANT TO CARPENTERS AND WOOD WORKERS.—Talpey's Patent Self-feeding Hand-sawing Machine saves labor, timber, time, and money. Descriptive circulars sent on application to HOAG & HAMFSON, 96 Maiden Lane, New York.

ASURE FORTUNE FOR AN ENTERPRISING MAN.—The whole of the Patent for Post's Combined, Sawing, Planing, Boring, and Moulding Machine will be sold cheap; the proprietor being engaged in other business cannot give his attention. For information and circulars, address—JOHN P. POST & SON, Carpenters and Builders, Paterson, N. J. Application for State rights will be received.

BAIRD'S PATENT INCORUSTATION PREVENTER, AND REMOVER, FOR STEAM BOILERS in either Salt or Fresh Water.—No invention connected with Steam Power combines so many advantages as this. THE ECONOMY IN FUEL ALONE, from its use, repays the cost of the preventive. Certificates from Engineers and owners of Steam Boilers, at sea and on shore, can be seen at the office of JAS. F. LEVIN, 23 Central Wharf, Boston, Mass.

STEAM ENGINES AND BOILERS OF EVERY DESCRIPTION; Shafting; Pulleys and Machinists' Tools, for Sale by C. GAY, 29 Doane street, Boston, Mass.

JACQUARD MACHINES, WITH APPURTENANCES manufactured and put up. Looms for narrow goods, from silk ribbon to cotton tape, built to order on the most approved principles. W. P. UHLINGER, No. 1,621 North Second street, Philadelphia, Pa.

JAMES HORNER & CO., MANUFACTURERS OF CAST Steel and Files. Orders solicited for all kinds, shapes and sizes. Office and Warehouse, 23 Cliff street, New York.

WM. CLEVELAND HICKS, CIVIL AND MECHANICAL Engineer, 480 Broadway, New York.

HARRISON'S GRIST MILLS—20, 30, 36 AND 48 inches diameter, at \$100, \$200, \$300 and \$400, with all the modern improvements. Also, Portable and Stationary Steam Engines of all sizes, suitable for said mills. Also Boilers, Elevators, Belting, &c. Apply to S. C. HILLS, No. 12 Platt street, New York.

MESSEURS LES INVENTEURS.—AVIS IMPORTANT Les inventeurs familiers avec la langue Anglaise, et qui préféraient 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 conscience. MUNN & CO. Scientific American office, No. 37 Park Row New York

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 approval in this respect, we shall decline to publish.

For further particulars address— MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, No. 37 Park Row, New York City.

OIL! OIL! OIL! For Railroads, Steamers, and for machinery and Burning. PEASE'S Improved Lubricating and Signal Oil, endorsed and recommended by the highest authority in the United States. This Oil possesses qualities equally 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 ever 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.

REYNOLD'S TURBINE WATER-WHEELS.—THESE celebrated water-saving and powerful wheels, now extensively used on limited streams, are furnished and adapted to every head and supply of water, by TALLCOT & UNDERHILL, 170 Broadway, New York.

TO WIRE DRAWERS.—I have patented and brought into practical operation, a Machine for Pointing Wire in the Coil for drawing, without the use of files or emery, and for pointing all kinds and sizes of wire where a perfect taper is required. C. JILLSON, Worcester, Mass.

FOREIGN LABOR.

INVITE THE CORRESPONDENCE OF MANUFACTURERS wanting Miners, Rollers, Puddlers, Machinists, Molders, Steel, Edge-Tool, File, Saw and Cutlery Makers, and Manufacturers of Hardware generally, as I am now prepared to enter into Contracts for the supply of such Labor. I have made such arrangements through my agent in Great Britain as will enable me to furnish any reasonable number of men that may be required.—JOHN WILLIAMS, Editor Hardware Reporter, 80 Beekman street, New York.

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

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

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.

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. HOADLEY, Lawrence, Mass.

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 Nos. 55 and 57 First street, Williamsburgh, and No. 74 Beekman street, New York.

WHEELER & WILSON'S HIGHEST PREMIUM SEWING MACHINES and Foot's Patent Umbrella Stands, 305 Broadway, New York.

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.

BOLTS, NUTS AND WASHERS OF ALL SIZES constantly on hand for sale by LEACH BROTHERS, 86 Liberty street, New York.

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.

Zur Beachtung für deutsche Erfinder. Die Unterzeichneten haben eine Anleihe, die Erfindern das Verarbeiten angibt, um sich ihre Patente zu sichern, herauszugeben, und verabschieden solche gratis an dieselben.

Erfinder, welche nicht mit der englischen Sprache bekannt sind, können ihre Mittheilungen in der deutschen Sprache machen. Stücken von Erfindungen mit kurzen, deutlich geschriebenen Beschreibungen beliebe man zu adressiren an

Munn & Co., 37 Park Row, New York.

Auf der Office wird deutsch gesprochen. Befehle ist zu haben: Die Patent-Gesetze der Vereinigten Staaten.

nebt den Regeln und der Geschäftsordnung der Patent-Office und Anleitungen für den Erfinder, um sich Patente zu sichern, in den Ver. St. sowohl als in Europa. Ferner Auszüge aus den Patent-Gesetzen fremder Länder und darauf bezügliche Nachträge; ebenfalls nützliche Hinweise für Erfinder und solche, welche patentiren wollen.

Preis 20 Cts., per Dutz. 2 1/2 Dts.

**Improved Rotary Harrow.**

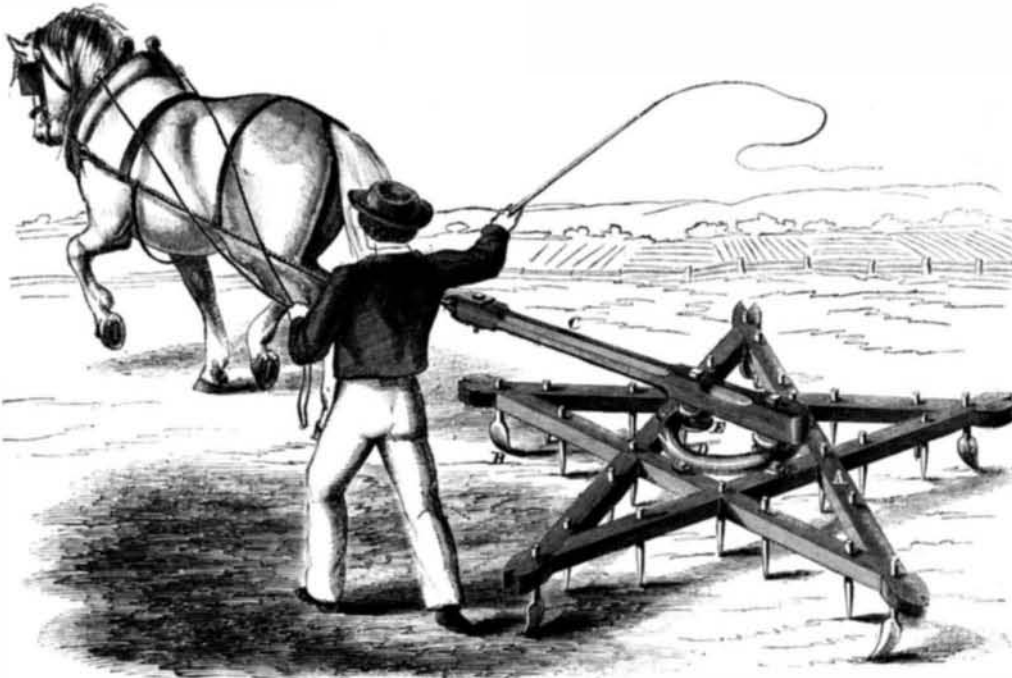
This agricultural implement is of the class known as the rotating harrow, it being so arranged as to revolve freely by its own action as the horse advances. The points of novelty are these:—The star-shaped frame A, the gages B, which enter the ground and by their action cause the machine to revolve, and also the connection of the draft pole with the main frame.

The frame explains itself; the gages are curved in form, and longer than the other teeth, and cause the frame to revolve, each being turned in the same direction, or all facing one way. The central metallic ring D, is fixed to the star frame and has grooved rollers E, working easily in it; said rollers being screwed, or

place with very slight pressure of the screws, and can be readily adjusted by slacking the screws and tapping lightly on the clamp. This is a very useful and well arranged implement for the purpose, and was patented through the Scientific American Patent Agency, on February 9, 1864, by A. F. Cushman; for further information address the assignee, H. B. Langdon, 13 Park Place, New York, or R. J. Ives, Bristol, Conn.

**Marked Articles for the Soldiers.**

Some of the marks which are fastened on the blankets, shirts, &c., sent to the Sanitary Commission for the soldiers, show the thought and feeling at home. Thus, on a home-spun blanket, worn, but

**DANIEL'S ROTARY HARROW.**

otherwise tightly fastened to the pole, so that as the harrow is drawn along and revolved by the action of the teeth, or gages, the draft pole maintains a direct pull upon the machine at all times. The rotation of the harrow thoroughly pulverizes the soil and causes it to be reduced to the proper condition in a short time. This excellent harrow was patented through the Scientific American Patent Agency, on December 1st, 1863, by Charles Daniel, of Sigel, Mo.; for further information address the inventor at that place.

**Improved Box Plane.**

For erasing marks or directions upon boxes, a handy little implement like the one here illustrated is indispensable. It is also useful for scraping butch-

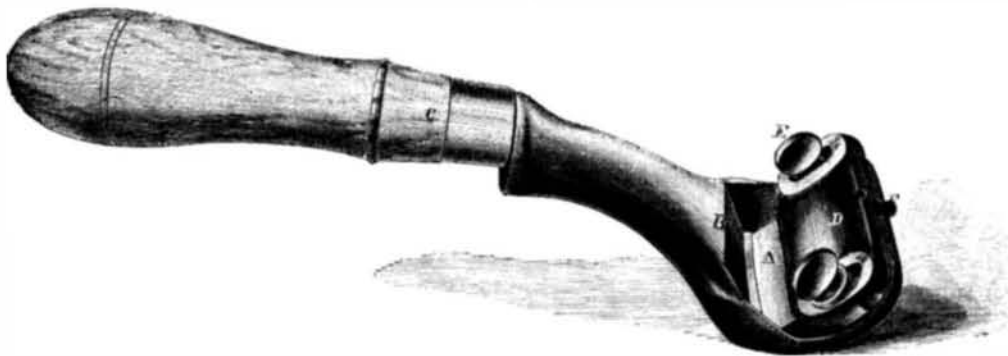
washed as clean as snow, was pinned a bit of paper, which said: "This blanket was carried by Milly Aldrich (who is 93 years old) down hill and up hill, one and a half miles, to be given to some soldier."

On a bed-quilt was pinned a card saying—"My son is in the army. Whoever is made warm by this quilt, which I have worked on for six days and most all of six nights, let him remember his own mother's love."

On another blanket was this—"This blanket was used by a soldier in the war of 1812—may it keep some soldier warm in this war against traitors!"

On a pillow was written—"This pillow belonged to my little boy, who died resting on it: it is a precious treasure to me, but I give it for the soldiers."

On a pair of woolen socks was written—"These

**CUSHMAN'S BOX PLANE**

ers' benches, and for similar purposes where it is merely desired to renew the surface of wood without regard to very fine workmanship. The engraving represents this box plane very clearly; it is simply a steel cutter, A, set in a cast iron stock, B, which is furnished with a handle, C. There is further a clamp D, which is secured by thumb-screws, E, tapped into the bottom plate; this clamp has a square jog on the under side which fits into a square hole in the cutter, there is also a groove, as at F, which receives the part of the shoulder which projects through the cutter. By this arrangement the cutter is firmly held in its

stockings were knit by a little girl five years old, and she is going to knit some more, for mother says it will help some poor soldier."

On a box of beautiful lint was this mark—"Made in a sick room, where the sunlight has not entered for 9 years, but where God has entered, and where two sons have bid their mother good bye, as they have gone out to the war."

On a bundle containing bandages was written—"This is a poor gift, but it is all I had; I have given my husband and my boy, and only wish I had more to give."

On some eye-shades were marked—"Made by one who is blind. Oh, how I long to see the dear old flag that you are fighting for!"

**Petroleum as Fuel.**

In the neighborhood of the Caspian Sea, where petroleum springs are abundant, the inhabitants manufacture fuel by impregnating clay with the combustible fluid; the clods are afterward burned on an ordinary hearth. The Norwegians have long economized the saw-dust of their mills, by incorporating with it a little clay and tar, and moulding it into the form of bricks. Of late years, in England, much attention has been given to artificial fuel in many districts, but not with much success, owing to the want of a suitable combustible, which petroleum is, above all others, best adapted to supply. In France, charcoal is prepared from the refuse of the charcoal furnaces, by mixing it with charred peat or spent tar, and then adding tar or pitch. The materials are ground together and subjected to heat in close vessels, to expel volatile gases. From seven to nine gallons of tar are mixed with two hundred-weight of charcoal powder.

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 artizan, 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 832 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.