#### NEW RATES OF ADVERTISING.

FORTY CENTS per line for each and every insertion, paywhile in advance. To enable all to understand how to calculate the amount they must send when they wish advertisements published we will explain that eight words average one line. Engravings will not be admitted into our advertising columns, except on payment of one dollar a line each insertion, and, as heretofore, the publishers reserve to themselves the right to reject any advertisement they may deem objectionable.

IMPORTANT TO MANUFACTURERS AND INVENT-ORS.—SMITH & GARVIN, No 3 Hague street, New York, Machinets and Model Makers, are now ready to make proposals for building all kinds of light Machinery, Manufacturers' Tools. Models, etc. Satisfactory reference given.

WANTED, A SECOND HAND STEAM ENGINE AND Boilers, from 30 to 45 horse-power, in good condition. Address, with full particulars and lowest price, Box 3,041, New York Post-office.

ARE OPPORTUNITY!—I CANNOT SUPPLY THE market with my Lamp Trimmers (illustrated in Sejentific American Feb. 17, 1866), under two months, and in the meantime do offer a portion of or the entire patent for sale. For full particulars address WM. R. BROOKS, WM. R. BROOKS, 17 3\*\*

BOX 195, Syracuse, N. Y.

WOODWORTH PLANERS, BARTLETT'S PATENT Power Motive Machine, the best in market. Wood-working Machinery, all of the most approved styles and workmanship. No. 24 and 26 Central, corner Union street. Worcester, Mass. 17 11 WITHERBY, RUGG & RICHARDSON.

CAMDEN TUBE WORKS (OFFICE AND MANUFA C-tory Second and Stevens streets, Camden, N. J.), Manufacturers of Wrought Iron Welder Tube of all sizes; Peace's Improved Gas Pipe Screwing Machines for both Hand and Power; Pipe Vises, Stocks, Dies, Faps, Reamers, Tongs, and all other tools used by steam and steam and gas ritters. Also Upright Drill Presses for both band and power, constantly on hand and ready for delivery, 17 5\*

BROUGHTON'S PATENT DOUBLE BOTT'OM SPRING OILER. Illustrated and described in this journal Feb. 24th. The spring bottom is indestructible. One of these oilers will outlast a dozen of any others in the market. Manufactured by BROUGHTON & MOORE, 41 Center street. Single oilers forwarded to any address on receipt of 50 cents for No. 1, or \$450 per dozen; 65 cents for No. 2, or \$6 per dozen. A discount to dealers.

MANUFACTURE OF VINEGAR.—PROFESSOR Hfacture Vinegar by the slow and quick methods, and by distillation
of wood; preparation of the wash, with and without alcohol; preparation of the grains; purification of vinegar; fabrication of acetic acid; processes to try vinegars.
For further information address

New Lebaron, New Lebar

CARD.

ROF. H. DUSSAUCE, CHEMIST, TAKES OCCAMay next, he will leave for Europe, where he shall reside several
months. Any one who desires to transact any business there-pur
classing or selling in the chemical line-can get information by

-TWO 10-FEET 36x36 IN. AND ONE 12 Feet 36x36 in. New Iron Planers ready for immediate shipment, for sale low by J. B. FULLER, No. 8 Dey street. New York. 14 4

PUMPS! PUMPS! PUMPS OF EVERY DESCRIPTION, with Lead Iron, and Improved Wood Pipes, Garden and Fire Engines, Hydraulic Rams, Amalgam Bells in store, for sale low by J. B. FULLER, No. 8. Dey street.

250 A MONTH MADE WITH THE BEST STEN-PAYN, Payn's Block, cor. Church and Cherry sts., Burlington, Vt. 144\*

POR MACHINIST TOOLS OF EVERY DESCRIP-11ON, Seroll and Screw Chucks, Drill Chucks, Improved Twist Drills, Beltings, &c., go to J. B. FULLER, No. 8 Dey street, New York. 114

ROR WOOD-WORKING MACHINERY OF EVERY description go to J. B. FULLER, No. 8 Dey street, New York.

STATE RIGHTS FOR SALE OF MARKLAND'S PATENT WATER COOLER, just granted. The ice is not in the water; no marter how dirty the ice is, it does not effect the water, and the ice will last much longer. Address THOMAS T. MARKLAND, Jr., No. 1006 south Eighth Street, Philadelphia, Pa. 14 4t.

PAINTER'S PATENT FOR RIVETING BLACKING Boxes, Spice Cans, Bucket Hoops, Stove Pipes, &c., &c. By our process, Sheet Metal can be securely, neatly and expeditiously fastened together with no other cost than the labor required to work the Machine, the rivet being formed out of the metal when joined together.

the Machine, the rivet being torside out of the together.

AGP At least 50 percent, can be saved by the use of our device, over any other known process. See illustration in No. 14 SCIENTIFIC AMERICAN. A working Machine can be seen by calling on T. A. QUINLAN at the office of C. W. COPELAND, 171, Broadway, N. Y. Samples sent on application, and full particulars given by addressing "Y. PAINTER, & CO., 14 4t\*

45 Holliday Street, Baltimore.

Brass, ZINC, OR TIN.

The Subscribers are prepared to manufacture articles of Shee
Brass, Zinc or Th. Stamp work or Spinning done at short notice

NEW YORK LAMP COMPANY, 259, Pearl Street. NDICA'TOR APPLIED TO STEAM ENGINES TO ascertain their condition and power, also to determine the amount of power used by tenants. F. W. BACON, Consulting Engineer, No. 84 John street, N. Y.

FOR SALE—8 SETT OF 32-IN. DANFORTH COTTON York.

RIRST-CLASS MACHINISTS' TOOLS.—36 AND 25-inch Lathes, 32-inch Planers, 48-inch Radval Drill and Bolt Cutter for immediate delivery; 10-inch Shapers and 24-inch Planer-making 12 6\* A. BETTS, Wilmington, Del.

MODELS, PATTERNS, EXPERIMENTAL AND other Machinery, Models for the Patent Office, built to order holk-KE & KNEELAND, Nos. 528, 530, and 532 Water street near Jefferson. Reter to SCIENTIFIC AMERICAN Office. 11 tf

MERCHANTS SHOULD HAVE PURINGTON'S
Patent Alarm Drawer. It has thirty (30) changes, and can be
ltered every day in the month. Price \$7. All orders must be adressed to A. S. TURNER, Williamntic, Conn. 9 13\*

WANTED—ACTIVE MEN, TO SELL PURINGTON'S
Patent Alarm Drawer. Great inducements to good business
men. FAddress A. S. TURNER, Willimantic, Conn.
9 13\*

FAN BLOWERS, OF Sizes, in store for sale by LEACH BROTHERS, No. 86 Liberty street, N. Y.

WANTED!

wan of experience and good habits can seenre a permanent situation and fair satary by applying to MURRAY, MO RE & CO.

Pottsmouth, Ohio.

FOR SALE.—LOUGHREY'S PATENT HAND SCREW anew and valuable patent. It is the best hand screw now in use. and can be fitted to any size in half a second; liked by every one for particulars address J. LOUGHREY, Cambridgeport, Mass. 1

BELT STRETCHER—SHIPPED WITHIN FOUR days after receipt of order. They are highly recommended, and are useful in any place where ma hinery is ruu by belts. For full particulars inclose stamp and address 174 SEYMOUR ROGERS, Pittsburgh, Pa.

READ THIS.—A FINE CHANCE FOR A SPECU-excepting 28 counties (which have been sold), for one of the best patent rights in use. It is an indispensable article to every farmer. For particulars address NATIONAL ROOTER COMPANY, Canton, Stark County, Ohio, Lock Box No. 11.

IN CONSEQUENCE OF THE FIRE ON THE 6TH inst., and the entire destruction of the Patent Exchange, 229 Broadway, the undersigned can hereafter be addressed care of J. N. Phelps & Co., Publishers of "The Illustrated Journal," 111 Fulion street, where the business will be continued. THOMAS G. ORWIG.

THE CELEBRATED "SCHENCK" WOODWORTH Planers, with new and important improvements, are manufactured by the Schenck Machine Co., Matseawan, N. Y. T. I. B. SCHENCK, Treas. JOHN B. SCHENCK, Pres's. 17 tf.

WANTED—TO PURCHASE, THE ENTIRE PATENT right, for the best stave sawing and dressing machines in use Address, giving full description and price, Postoffice Box 522, New York City.

FOR SALE. — PATENT RIGHT OF HERVEY'S double acting Apple Parer. Has taken the first premium at all the State and County Fairs where it has been exhibited. Address 173\*

— WANTED, ONE OR TWO Partners with the above amount, to join in the Machinery business. The advertiser has a large establishment with wharf, in a most favorable location on tide water and railroad. Can command first-class patronage and a permanent market for his manufactures. One partner with a good set of marine engine tools for capital, would be preferred. Communications with real uame strictly confidential. Address, "Engineer, Box 2696, Philadelphia P. O."

THREE VALUABLE PATENTS FOR SALE.—OWING to ill health I offer for sole my undivided half of patents granted to me Feb. 8, 1859, Dec. 13, 1859, and Dec. 4, 1860, for improvements in refrigerators. WILLIAM SIMS, per John Ashcroft, his Atty, No 50 John street, New York.

TO CHAIR MANUFACTURERS AND WOOD WORK-ERS.—I wish to contract for the manufacture of a new Nursery Chair, patented 28th November last, and described in No. 24, Vol XIII, Scientific American. Address S. RAINEY, care of Aiken & Rainey, New Orleans, La.

WOODWORTH PLANER AND MATCHER, TWEN-ty-two inches wide tor \$350 now ready. Also, Woodworth Surface Planers at \$125 to \$450, and all other kinds of wood-working machinery. S. C. HILLS, No. 12 Platt street. 174

ARGE ENGINE LATHE.—I HAVE ON HAND, ready to ship, a lathe which swings 50 inches, is 14 feet long reighs 5,800 lbs. Also, smaller Lathes, Flaners, Etc.

S. C. HILLS, No. 12 Platt street.

MATHEMATICAL INSTRUMENTS, SWISS, GER-nometer Bules, Engineers' Slope Levels, Steel Verner Callipers, Cly-steel Straight Edges, Steel U. S. Standard Rules, Ames's Patent Uni-versal Squares, Wire Gages, Center Gages, Plumb Bobs, Willis's Odentographs, Etc., Etc., Etc., WILLIAM Y. MCALLISTER, 1 728 Chestnut Street, Philadelphia, Pa.

G REAT BARGAINS IN PATENTS.—I WANT TO GREAT BARGAINS IN PATENTS.—I WANT TO sell three patents, as I am about making a change in my business. I offer a good opportunity to one or more parties who wish to make money. First, improvement in Too! Handles, for attaching rubber to bearing for the hand, new patent; one thousand dollars! worth of orders will be given to start it Second, Centrifugal Spring Gun for Torpedoes and Eire Crackers; 1,400 gross have been s.ld. 100 gross will be contracted for now. Third, The Elastic Automaton Dancers, a staple article of large sale; eight hundred dollars worth of orders will be given for these. Address I. S. CLOUGH, No. 290 Pearl street, New York. By calling at the office, samples can be seen, and all satisfactory information regarding the patents will be given.

I. S. CLOUGH, 290 Pearl street.

I. S. CLOUGH, 290 Pearl St After May 1st, No. 10 Broadway, corner Beaver

A NDERSON & SCHERMERHORN, PATERNT AND
Model Makers, Gearing Cocks, Valves and Engine. Patterns of
every description. Rear No. 47 Ann street, sec and floor 64\*

WINTER'S IMPROVED PORTABLE

OIRCULAR SAW-MILL,

with ENGINE and BOILERS complete.

Combining LANE'S PATENT SET and FEED WORKS.

THE GREATEST IMPROVEMENT EXTANT.

The entire log of any length instantly and unerringly set at both ends, at one and the same moment of time, by the man attending the Saw. Labor-saving and Time-saving. The capacity of the Mill being thereby doubled. Pamphlets turnished.

WINTER & CO., No. 40 Broadway, N. Y.

GEEDS! RARITIES! EVERLASTING FLOWERS.
15 choice sorts mixed. Ornamental Grass, 5 sorts, mixed Each package 25 cents. Direct orders. EMIL KELLERMANN Grand Rapids, Mich., P. O. Drawer No. 189.

RANK M. STEARNS & CO., MANUFACTURERS of Grindstones, Community Scythe Stones, Pokonoker Ax Bitts, Oil Stones, Slips, Shoe Stones, Currier Blocks, Mounted Grindstones, Kitchen Sand Stone, Saw Grinders, Ship Stone and Family Grindstones in every style, Flagging, Block Stone, &c. 54\*

Berea, Cuyahoga Co., O.

POILERS FOR SALE.—CYLINDER, FLUE, TUBU-ready for delivery. By J. B. FULLER, No. 8 Dey street, New York.

FOR THE CELEBRATED QUAKER MOWER, PORTable Engines, and Circular Saw Mills, address TABERS & CO., Salem, Ohio.

CIRCULAR SAW MILLS OF THE MOST APPROVED construction, with engines, boilers and every thing requisite for runningthe same in store, ready for immediate shipment, at the lowest rates, by J. B. FULLER, No. 8 Dey st., New York. 14 4

TURNING TOOLS.—MY SUBSTITUTE FOR THE slide rest meets with approval from practical men. It is intended for small lathes and light work; will bore out any hole six mehes in diameter and two and a half inches deep; will face danges, turn a piece in the chuck, or round out a curve. Price \$10.

EGBERT P. WATSON, Box 773, New York.

STEAM BOILERS,

STEAM BOILERS.

IMPORTANT AND RELIABLE ARRANGEMENT TO REMOVE SCALE AND PREVENT ITS FORMATION.

ECONOMY IN FUEL.

GREATER SAFETY IN BOILEIS—LESS DANGER FROM EXPLOSION.

The AMERICAN ANTI-INCRUSTATION COMPANY are prepared to remove scale from any and every description of steam boiler, and prevent the hard incrustation or scale from forming. By the use of the Anti-Incrustator the consumption of fuel is much reduced; the frequent s oppage of mills, naminfacories furnaces, forges, locomodives, steamboats, colleries, etc., to clean bilers, dispensed with, and the danger from the terrible effects of boiler explosions greatly lessened.

Experience has clearly demonstrated the utility of the Anti-Incrustator, and the certainty of its attaining the very desirable results above claimed for it.

Information relative to the Anti-Incrustator cheerfully given personally, or through correspondence at the Company's Office, No 147 South Fourth Street, cor. of Harmony street, Philadelphia.

JOHN C. GRESSON,
President.

H. G. LEISEURING.

President. H. G. LEISEURING, H. G. LEISEÜRINĞ,
Secretary and Treasurer.
JAMES HARPER,
Managing Director.
JOHN C. CRESSON,
JOHN EDGAR THOMPSON,
D. H. F. HEKHILL,
JAMES HARPER,
W. H. GATZMER,
H. G. LEISEÜRINĞ,
Directors

H. G. LEEFURING,
Directors.
Directors.
Philadelphia, March (1885)
The undersigned having the Anti-Incrustator in use, consider it valuable in removing scale from boilers and in preventing its formation, as well as it the saving of fuel and rendering boilers less liable to explosion. We heartly recommend it to all persons using steam for the purposes set forth, convinced that its use will be highly advantageous.

heartily recommend it to all persons using steam et foith, convinced that its use will be highly additionally additionally

Result of the water paper Mills, Lebanon, Pa.

Result OF THE VAN DE WATER WHEEL CHALLENGE.—Messrs. Editors:—I see in your issue of the 24th
inst., a notice with the above heading, with a very one-sided state
ment of a trial of my Water Wheel with Leffel & Co./s, which was in
every way unfair. The wheel that Leftle & Co. put in Mr. Burbank's
Mill was a new one, got up with great care, with polished steel buckets, after his first one was bear, using twenty inches more water
than my wheel. According to Leffel & Co./s table, twenty inches of
water under fifteen feet head ought to grind six and one-half
bushels of wheat per hour, or thirty-six barrels in 24 hours
more than my wheel, and he only claims beating me 24 horres in
24 hours, which would show the result of the thalto be in my fathat the stones which my wheel run were not in good order, and
that it was an unfair trial. I had no notice, nor any one there to see
to my interest in the metter. I do not know which drove the most
machinery lot he mill except two smut mills. My wheelwas all
cast iron, rough as it came from the foundery not polished buckets,
the fitteen of the containt pattern, using twenty inches less water unfitteen for the data pattern, using twenty inches less water unplace I should have kept quiet about that trial. I hat be fit of the
wheel venting the same amount of water as the Leffel wheel,
who and bollars is still open for Leffel & Co.'s acceptance; the five Toousand Dollars is still open for Leffel & Co.'s acceptance; the five Toousand Dollars is still ready as I proposed, with a far trial atgrinding.

Below I give Mr. Burbank's certificate, saying my wheel used less
water than the Leffel wheel. The new Leffel wheel vents the same
stee old one. I see the certificate which Leffel & Co. publish says
they did not measure the amount of water used, that it was only as
star a test as could be made without measuring water; as if the
amount of water wheels. Very respectfully,

Buffalo, N. Y., March 27, 1886.

ROCHESTER, Sept. 20, 1865.

HENRY VAN DE WATER—Dear Sir.—I have now jully tested your Patent Improved Jonval Turbine Water Wheel, at my mill in the city of Rochester, under a fifteen toot head a darful, and am driving two pair of 4½-feet stones, and they are grinding u to their fullest capacity with all the machinery necessary for cleaning and bolting wheat and flour for said runs of stones. I most cordially and confidently recommend your Wheel to mill-owners and others, who are operating machinery by water power, as being the best wheel of the day, using less waterand doing more work than any other Water Wheel known to me. It is proper to state that you warranted your wheel to yield full as much power as the Ohio Double American Turbine Water Wheel, built at Springfield, Ohio, with the same number of inches of water. I am satisfied that your wheel gives me more and a steadier power than the Ohio wh el, with 20 inches less water. You can draw at sight on me for your pay for the same. It is proper to state that the wheel is only 3 feet in diameter. Truly Yours,

KEPNER'S BREAD, MEAT AND SLAW CUTTER, set out of order. With it a citid of ten years can with ease cut the so test bread in the most perfect manner, slice drued beef and ham, sawing off the bone, and as a slaw cutter it has no superior. It is an important implement for the kitchen, that all house keepers will be sent to order. The whole patent, or state or County rights sold low. As there is no competition, a lucrative business could easily be established. Address

S. KEPNER, Pottstown, Pa. S. KEPNER, Pottstown, Pa.

POURNE ON THE STEAM ENGINE.

Artisan Club edition. 1 vol, 4to. Price reduced to \$17. Fo
D. VAN NOSTRAND,
1 192 Broadway.

TEAM ENGINE INDICATOR,
and the IMPROVED MANOMETER,
Steamand Vacuum Gages, their utility and application. By PAUL
STILLMAN. I vol. 12mo., \$1

D. VAN NOSTRAND, Publisher,
No. 192 Broadway.

\*\*\* Copies sent free by mail on receipt of price.

BOILERS DEFICIENT IN POWER, ARE RENdered effective by the use of Carvalho's Superheater illustrated Solennica American. It is easily attached, is very durable, and saves 25 per cent of the fuel. Agents wanted in this city, and elsewhere. Call upon or address HENRY W. BULKLEY, Consulting Engineer, 57 Broadway, New York,

THE ILLUSTRATED PHRENOLOGICAL JOURNAL APRIL—Contains Thomas Cook, the Excursionist; Dr. Nott; W. V. Wallace; J. Carhart; Alex. Campbell; Miss Carmichael; with Portraits, Character, and Biography. Causes of Suicide—Temperament—Marriage—Idiocy; Mirth'ulness, Modesty, Order; Signs of Character-How to Observe; Physiognomy-Primary Rules; Inquisitive Nosc. Our Social Relations—To the Girls, by Mrs. Wyllys; Teaching by Love; How to be Happy; a Dead Man Visiting America—How to See it. A Negro Baptizing; Music as a Moral and Physical Agent; Frogs, Fish, and Toads. Religious—a Discourse by Rev. H. W. Beecher, on Self-esteem; Falth; Self-improvement; Benevolence; Ethnology, Physiology, etc., only 20 cents, or \$2 00 a year. Address FOWLER & WELLS, 389 Broadway

ROR SALE.

The whole right for my Paper Cutter and half interest in Book Binder's Press with full sets patterns, wood cuts, etc. I have no facilities for manufacturing. For particulars address 171\*

E. BURROUGHS, Lowell, Mich.

CAUTION.—SALES OF IMITATIONS OF CAMP'S
Rotary Hair-brushing Apparatus (Patent dated Washington,
March 8, 1854), are illeral, and users of said infringements will be
subject to the usual penalties of U. S. Laws Agents wanted.

17 12\*
Metropolitan Hotel, New York.

MPROVED BOLT CUTTER.—I AM NOW PREPARED to supply Schlenker's Improved Bolt Cutter on short notice. Cutter Heads to attach to ordinary Lathes, now in use, supplied promptly. Single square thread for Piano stool screws, superno Coach screws, together with the ordinary Bolt-cutting, from % to 1% inch, done in once passing over the iron. No running back off the thread

the thread

Ref 'Refnces.—David Bell, Locomotive Works; Frank Colligon,
Portable Engine: Nagle & Weed, Stationary Engine; Sutton &
Bro's. Engine & Machinery; Pratt & Co., Iron Wor s; Pierce & Co.,
Shingle Jachi e Manufacturers; Jas. Butman, Master Mech. N. Y.
C. Shop; M. E. Brown M. M. N. Y. & E. Shop, of Buffalo; Tompkins & Co., S. Coleman & Badger & Co., Rochester, N. Y.

ins & Co., S. Coleman & Badger & Co., Rochester, N. Y.
Send for description circulars Nut Taps supplied to order.
174 R L. HOWARD, Manufacturer, Buffalo, N. Y.

A PRACTICAL MILLER AND ENGINEER, EXPErienced in both Lumbering and Grinding, wishes to purchase an interest in a Milling Establishment, or to join in building a mill, in the West. Best of reference. Address E. S. WICKLIN, 171% Patent Office, Washington, D. C.

50.000 BUSINESS MEN.—ADDRESS, FOR Creular, "ATWATER'S PATENT COPYING PRESS," Providence, R. I. Costs with Book by mail, \$1. Copies quickly and well. Thousand a lready sold. Stationers and A. ents supplied with this and other articles by the manufacturer. 171\*

HINKLEY & CROWELL'S AUTOMATIC CHIMNEY to cure a smoky channey or defective flue. every time they are cheap, simple, and durable. For Sall Vessels, Stramers, and Railroad Cars they are invaluable. Send for circular For rights to manutacture or sell, address

Fig. 1\*

Cleveland, Ohio.

ATS KILLED WITHOUT TRAPS, POISON, OR PHOSPHORUS, NO DANGER TO CHILDREN, Carcasses in Griensive. Send 25 cents and red stamp, 17 12 Box 83, New Albany, Ind.

TO CAPITALISTS, AND MANUFACTURERS.—
will sell the entire right to manufacture, and use my Protracting Bevel, patented March 27, 1866, or will arrange for their man facture, for a reasonable royalty.

Address W. BHANCH, Jr., 171\*
Madison, Lake Co., Objo.

PATENT POWER AND FOOT-PUNCHING PRESSES the best in market, manufactured by N. C. STILES & CO. West Meriden, Conn. Cutting and Stamping Dies made to order Send for Circulars.

THE UNDERSIGNED, HAVING INVENTED A SIMple Machine—that practical men say will plck the best of the
cotton from the stalk—wishes to correspond with some responsible
party to assist in carrying out the invention. Address J. S. DICK
ERSON, Lock Box 133, Memphis, Tenn.

ENOIR GAS ENGINES, FROM HALF HORSE TO FOUR Horse-nower. Manufactured at the DRY DOCK IRON WORKS, No. 435 East Tenth Street, New York.

DOURNE'S STEAM ENGINE—PRICE REDUCED TO
S17 00. 1 Vol. 4to. Illustrated. Artesian club edition.
For sale by
T 1
PANNOS (RAND.
192 Broadway, New York.

NUTS, WASHERS, AND RIVETS AT MANUFAC-TUBERS' AGENCY, 133 W. 21 street, Cincinnati, Ohio. GEST, MEEK & CO.

TEEL. "SINGER'S SUPERIOR" CAST GERMAN AND BLISTER at Manufacturers' Agency, 133 W. 2d street, Cincinnati, Olnio.

"2" GEST, MEEK & CO.

NEW STEAM CARRIAGE FOR SALE OF TWO
A Horse power, arranged to drive machinery. Has steel shafts
and rods. The boiler is upright, tubular, with over thirty square
feet fire surface.
The boiler cost \$250. The whole may be had for \$500.
E. WARE, Bayonne, N. J.

PARTNER WANTED—IN A MACHINE AND TOOL Shop in Baltimore, Md. The shop is well supplied with patterns and tools, and does a large general business. The orders on hand will takethree months with present force of twenty-four

TO CIVIL ENGINEERS, ARCHITECTS, AND BUILD-ERS.—A Civil Engineer of considerable experience in getting up quantities, estimates and reports, desires almost any kind of office work. Salary not so much an object as an opportunity for acquiring valuable professional information. The best of City refer-ences as to reliability and capacity Address Box 38, Station G. 173\*

TNGINE LATHES, IRON PLANERS, DRILLS, RUB by WELLS, CHASE & GEHRMANN, 6 S. Howard st, Baltimore. 173\*

BELTING, HOSE, & PACKING AT MANUFACTUR-ers' Agency, 135 W. 2d street, Cincinnati, Ohio. GEST, MEEK & CO.

TOR IRON PLANERS, LATHES, DRILLING MA-chines, Shapers, Slotting Machines, and all kinds of Machinists, Tools, or Castings for any of the above, address for cuts, etc. 171 STEPTOE, McFARLAND & CO., Cincinnati, Ohio.

ROR THE VERY BEST OF WOOD-WORKING MA-chinery of the latest and most approved patterns. Send for cuts, prices, fetc. STEPTOE, McFARLAND & CO., I'll Onlo.

PALLETT'S MILLER, MILLWRIGHT AND ENGINEER.

PALLETT'S MILLER, MILLWRIGHT AND
ENGINEER.

(NOW READY.)

THE MILLERS', MILLWRIGHTS' AND ENGINeers' Guide. By Henry Pallett. Illustrated, In one volume,
12mo. Price \$3 00. By mail, free of postage.

Explanation of Characters ONTENTS

Explanation of Characters of Mills and Jensures; Decimal Fractions; On
the Selection of Milsones; On the Dressing of new Milstones—making
their Faces Straight, and ready for putting in the Furrows; Furrows;
the manuer of Laying them out—their Draft, and cutting them in; Directions for laying off and cutting the Holes for the Balance Ryne and
Driver; Directions for putting in the Balance Ryne and Driver; Directions for putting in the Balance Ryne and the Boxes for
the Driver, and making them fast; Of setting the Bed Stone, and fastening the Bissh therein Directions how to Bridge or Tram the Spindle;
Instructions for grinding off the Lumps of New Stones, Turning the
Back of the Running Stone, Rounding the Eye stones, Turning the
Back of the Running Stone, Rounding the Eye stones, Turning the
Back of the Running Herican of the Mill; Description of Plate 4,
Showing the Principles uncn which the Millstones work; How to fit at
New Back on a Stone that has been running; Of the Elevator, Conveyor, and Hopper Boy; Of Bolting Reels and Cloths, with Directions for
Roling and Inspecting Flour, Directions for cleaning Wheat; Instructions for Grinding Wheat; Directions for Grinding Wheat with
Garlic amongst it, and for Dressing the Stones suitable thereto; Directions how to put the Stones in Order for Grinding Wheat that has
Garlic amongst it; Directions for Grinding Middlings, and how to prevent the Stones from Chaking, so so to make the most of them; Reels
ferent kinds of Gr-sin; Of the Manner of Packing Flour; Table showing
the number of Pounds which constitute a Bushel, as established by Law
in the States therein named; The Duty of the Miller; Pearl Barley or
Pot Barley; The art of Distillation; of the Importance of Draughting
and Planning Mills; Coss: the best time for Sasonin

The above, or any of my Books, sent by mail free of postage.

My Catalogue of Practical and Scientific Books sent free of postage
to any one who will favor me with his address.

vno win tavor me with his address. HENRY CARY BAIRD Industrial Publisher, 406 Wellnut Street, Philedelph

THE MOST VALUABLE MACHINE FOR BUILDERS and Carpenters, Furniture, Carriage, Agricultural Implement, Sash and Door, Waived and Straight Moulcing, and Plano Manufac turers, complete for all kinds of irregular and straight work in wood, bard or soft, superior to all others, baving the capacity of 20 good mechanics, celled the Variety Moulding and Planing Machine. We own 9 patents covering the valuable inventions for machines with upright mandrels. We hear there are parties manufacturing machines in finizing on some one or more of our patents. We caution the public from purchasing such infringements. Our patents secure to us the machine with either iron or wooden table, through which are two upright mandrels, having outters in each head held by a screw nut; also, combination collars, saving 75 per cent in cutters, feed table to plane and cut. Irons outside the cutters, preventing woodfrom taking undue hold. Also guards acting as plane stocks, making it safe for a boy to run.

These machines are manufactured for America and Europe, only at the Hamilton Machine Works, No. 211 East Twenty-second street, New York. All communications addressed there will receive prompt attention. Agents solicited. Send for circular giving full description 14 13

WALUABLE PATENT RIGHT FOR SALE.
HUBBELL'S Broadcast Seed and Plaster Sower, Patented in
1859 for 14 years. They atentee made and sold machines, but sold
no rights; they are universally approved, and used in almost every
State in the Union. Took 1st Premium, a silver medal, st New
York State Fair, 1860; also, 1st premium a medal at the World's
at Hamburgh, Germany, in 1863. The whole Patent Right must be
sold to close an estale; or Rights for States will be sold separately.
FREDERICK A. SANDS, Administrator, Unadilla, Gtsego Co., N.Y
145\*

ARGE ENGINES FOR SALE.—ONE NEW HORIdo, 16x48 inch cylinder; one do, 20x24 inch cylinder; one
lox48 inch cylinder; two do, 14x22 inch cylinder. All first class
and ready for immediate delivery. Also, 12, 14, 15, 16 and 18x36
inch Woodruff & Beach Engines, with or without boilers, by
J. B. FULLER, No. 8 Dey street, New York.

GOULD MACHINE COMPANY,

NEWARK, N. J.

IRON AND WOOD-WORKING MACHINERY,

STEAM FIRE ESGINES.

SEND FOR A CATALOGUE.

A MERICAN PEAT COMPANY.—THIS COMPANY, having the right to operate under five patents, are now selling Machinery and Territorial Rights to the same, to manufacture fuel of the best description for steam or domestic use. 12 26\* ALBERT BETTELEY, Agent, 42½ Kilby st., Bo

TOR THE CELEBRATED LAW'S PATENT SHINGLE and Heading Machine, and the best Shingle, Heading, and Stave Machinery, address TREVOR & CO., Lockport, N. Y. 118\*

Of about 40 horse-power, with grate, bars, safety valve, and other necessary fixtures complete. Made to order by Thomas Gannin, No. 25 Old Slip. For sale by 11 8\*

PATENT SOLID EMERY WHEELS, SILICATE OR Vulcanite. N. Y. EMERY WHEEL CO., 94 Beekman st., N.Y.

ODDARD'S BURRING MACHINE WORKS,
Office, No. 3 Bowling Green, New York,
manufacture the
Patent Steel Ring and Solid Packing
BURRING MACHINES,
Patent Mestizo Wool-burring Pickers, Shake Willows, Wool and
Waste Dusters, Gessner's Patent Gigs, Etc.
Orders' respectfully solicited, and prompt attention given, by addressing
11 13
No. 3 Bowling Green, N. Y.

THE HARRISON BOILER—A SAFE STEAM BOILER. Absolute Safety from explosion, in first cost and cost of repairs, durability, economy of fuel, facility of cleaning, and transportation, not possessed by any other boiler.

It is formed or a combination of east-iron bollow spheres,—each 8 inches in external diameter, and 3/ths of an inch thick, connected by curved necks These spheres are held together by wrought iron boils with caps at the ends. The form is the strongest known: its strength to resist internal pressure very great—unweakened as it is strength to resist internal pressure very great—unweakened as it is strength to resist internal pressure very great—unweakened as it is strength to pressure at 400 pounds to the square inch. It cannot be burst under any practicable steam pressure.

Under pressure which might cause rupture in ordinary boilers, every loint in this becomes a saf-ity valve. No other steam generator possesses this property of relief, under extreme pressure without injury to itself, and thus preventing disaster.

It is not affected by corrosion, which soon destroys the wroughtiron boiler. Most explosions occur from this cause. It has economy in rucle equal to the best boilers, arising from the large extent and nearness to be fire of its heating surface, as also from the waved line of this surface, which, thoroughly mixing the gases, induces better combustion and breaking the fiame, causes the heat to be more effectually absorbed than in the ordinary tubular or cylinder boiler.

It gets up steam quickly, and with little fuel. It produces super-

better compussion, and preasing the imme, causes the heat to be more effectually absorbed than in the ordinary tubular or cylinder boiler.

It gets up steam quickly, and with little fuel. It produces superheated steam without separate apparatus, and is not liable to priming or foaming.

It is easily transported, and may be taken apart so that no piece need weigh more than eighty pounds. In difficult places of access, the largest boiler may be put through an opening one foot square, it is kept free from permanent deposit by blowing the water entrely out, under full pressure once a week. It requires no special skill in its management Injured parts can be renewed with great iacility, as they are uniform in shape and size. When renewed the entire boiler remains as good as new. The greater part of the boiler will never need renewal unless unfairly used.

A boiler can be increased to any extent by simply adding to its width, and being the multipl cation of a single form, is strength remains the same for all sizes. It has less weight, and takes less than one-half the groundarea of the ordinary cylinder boiler, without being increased in hight

Any kind of fuel may be used under this boiler, from the most expensive to refuse coal dust.

Drawings and Specifications free of charge. For descriptive circulars or price address

Harrison Boiler Works, Gray's Ferry Road,

17 13

Adjoining U. S. Arsenal, Philadelphia.

FOR SALE-MACHINISTS' TOOLS.—ONE IRON planer of our own make, extra heavy, will plane 15 feet, 36336; one do. 10 feet. 40x26. The 15 feet has been used about 4 months. Also, several Engine Lathes. Address 171 STEPTOE, McFARLAND & CO., Cincinnati, Oblo.

PURE NATURAL LUBRICATOR
PRODUCED BY
THE VOLCANIC OIL AND COAL COMPANY,

THE VOLCANIC OIL AND COAL COMPANY,

OF

WEST VIRGI IA.

This Oil is entirely free from grit and will not freeze or become too thick for use as a lubricator at any temperature to which it has as yet been subjected (15° below z ro), and will be found for most purposes superior to lard or sperm II, being equally good as a lubricator, while lasting much langer.

We would call your attention to the certificate of H. Kilpatrick, Esq.. Chief Engineer of the U.S. Mint, which is one of many testimonials in reference to this soi.

To Prof. J. C. Booth:—

West VIRGI IA.

United States Mint, Jan. 5, 1866.

monials in reference to this oil.

To Prof. J. C. Booth:—

Dear Sir.—I have given the Lubricating White Oak Oil which you furdished me, a thorough and practical test on the machinery in this institution. I report that in my judgement it is one of the best and most valuable lubricators I have ever used.

I find that it is perfectly free from all gummy matter, and that it does not stain the bright work of our machinery, as in the case with most all lubricating oils that are generally used for that purpose, after remaining a short time on the same.

I also consider one gallon of your White Oak Oil to be equal to two and a balf gallons of Sperm or Lard Oil, and therefore consider to great atwing over almost all Lubricators. In order to ascertain its applicability for out-door work, I subjected it to the temperature of 15° Fah., and found that it flowed readily and was therefore adapted to out-door machinery, which is not the case with some of the lubricators in use.

(Signed)

H. KILPATRICK, Chief Engineer. (Signed)

H. KILPATRICK,
Chief Engineer.
Offices of the Company—No. 11 Merchants' Exchange, Philadelblia, and in Parkersburg, West Va.

17 3\*

ERICSSON CALORIC ENGINES OF GREATLY IMPROVED CONSTRUCTION.—Ten years of practical working by
the thousands of these engines in use, have demonstrated beyond
cavil their superiority where less than ten horse-power is required
Portable and Stationary Steam Engines, Grist and Saw Mills, Cotton Gins.Air Pumps, Shafting, Pulleys, Gearing, Pumps, and General
Jobbung. Orders promptly filled for any kind of Machinery. JAM ES
A. ROBINSON, 164 Duane street, cor. Hudson, New York. 101y

RNGLISH MACHINERY AND TOOLS OF ALL KINDS imported to order, at manufacturers' prices, by JOHN M. BATCH-ELDER, No. 31 Kilby street, Boston, Mass.

GROVER & BAKER'S HIGHEST PREMIUM ELAS-TIC Stitch Sewing Machines, 495 Broadway, New York. 1 tf

COUTHWICK & HASTINGS,
Proprietors of Jillson's Patent Wire-pointing and Tenoning Machines, SKATE-SPURS, PICKER TEETH, and points and tenons of various descriptions made to order. Samples sent by mail on application. Also, manufacturers of common Steel Callipers and Dividers, and JILLSON'SPATENT COMBINATION CALLIPERS AND DIVIDERS—a very compact, convenient and popular tool, samples of which—124-inch and 3-inch sizes—will be sent by mail on receipt of, for 1½-inch, 50 cents, 3-inch, 75 cents. Agents wanted.

17 22 SOUTHWICK & HASTINGS, Worcester, Mass.

TO MACHINISTS AND MACHINE MANUFACTURERS.—Chas. B. Long's Patent Improved Gear or Cog Wheel Calculating Rules, 24 inches long, correctly graduated, giving the number of cogs in figures directly opposite their diameters, for over 2,000 different gears. Agents wanted to sell these rules, who will be assigned any part of the country they may desire, not previously occupied. Sample rules with illustrated circular and free instructions sent free to agents or others, upon receipt of \$4 50. Circulars free, Address Worcester Rule Co., Office No. 4 Central Exchange, Worcester, Mass., or Baragwanath & Van Wisker, 200 Broadway, Room 20, New York.

RIBBON, SUSPENDER, AND TAPE LOOMS; ALSO Looms to weave any kind of narrow goods, made to order.

JACQUARD MACHINES manufactured and applied to Power and Hand Looms.

RON CASTINGS AND STEAM BOILERS.—THE
HINKLEY AND WILLIAMS WORKS, No. 416 Harrison avenue,
Boston, are prepared to manufacture common and gun-metal castings, of from ten pounds to thirty tuns weight, made in green sand,
dry sand or loam, as desired; also Flue and Tubular Boilers, and
"Hinkley's Patent Boiler," for locomotive or stationary engines,
warranted to save a large percentage of fuel over any boiler now
in use.

STATES RIGHTS FOR SALE.

Markland's Patent Coal Scuttle. Half the labor and iron saved in making and a more durable article Illustrated in Scientific American Sept. 23d, 1865. Diploma awarded State Fair of Maryland 1865. Pennsylvania and Massachusetts sold. Address THOMAS T. MARKLAND, Jr., 144\*

No. 1003 South Eighth street, Philadelphia, Pa-

#### PRESSURE BLOWERS.

PRESSURE BLOWERS.

PRESSURE BLOWERS—FOR CUPOLA FURNACES,
Forges and all kinds of 1 ron Works. The blast from this blower is four times as strong as that of ordinary fan blowers and fully equal in strength to piston blowers when applied to furnaces for melting 1 ron. They make no noise and possers very great durability, and are mad- to run more economi ally than any other blowing machine. Every blower warranted to give entire satisfaction. Ten sizes, the largest being sufficient to melt sixteen tuns of pig ron in two hours. Price varying from \$40 to \$345.

FAN BLOWERS, from No. 1 to No. 45, for Steamships, Iron Mils, Ventilation, Etc., manufactured by E. F. STURTEVANT.

1 tf. No. 72 Sudbury street, Boston, Mass.

MIMOTHY ROSE, OF CORTLANDVILLE, N. Y. patented, Nov. 7, 1865, an improvement on Pumps for Clearing Oil Wells of paraffine, and for bored wells; fresh-water wells made it from one to three hours. For particulars send for circular, or territorial rights.

GOWER-LOOM WIRE CLOTHS" AND NETTINGS, of all widths, grades, and meshes, and of the most superior quality, made by the CLINTON WIRE CLOTH COMPANY, 10 624\*

200.000 ACRES OF OIL, COAL. TIMBER of FARM LANDS, with Oil Wells and FARM LANDS, with Oil Wells and S3 to \$100 per acre. Title indisputable. Address ASA BEE, White Oak, Ritchie Co., West Va.

IMPROVED STATIONARY AND PORTABLE STEAM
Lengues and Boilers, also Saw Mills, Cotton and Hay Presses,
Corn and Flour Mills, on hand and in process of construction.
Marine Engines. Iron Steamers, Light-draft River Boats. Barges,
tron Bridges, Tanks, and general iron work constructed to order.
Address
T. F. ROWLAND.
9 26\* Continental Works, Greenpoint, Brooklyn, N.Y.

THE SAFETY BRIDLE AND LINES PREVENT ALL L accidents by horses. Cost no more than the old style, and pay larger profit than any other business to sell rights. See engraving No. 5, present volume. State and County Rights for sale. Send for a circular to

Box 47, Millersville, Lancaster Co., Pa.

WANTED-AGENTS-\$150 to \$200 PER MONTH, TO sell the celebrated COMMON SENSE FAMILY SEWING MACHINE. Pice \$18 The cheapest Family Sewing Machine in the United States. Every machine warranted for three years, send for descriptive circulars. Address SECOMB & Co., Chicago, fil., or Cleveland, Ohio.

CONNECTICUT IRON WORKS,

Manufacturers of
Portable and Stationary Steam Engines, Boilers, Steam Pumps, Etc.

Also,

Evans & Burges' Parent Water Front Forge. No. 157 Temple street, New Haven, Com

SAW GUMMERS, UPSETS, SWEDGES AND OTHER Saw Tools. Send for a Circular.
8 13\*
G. A. PRESCOTT, Sandy Hill, N. Y.

YELLOW PINE LUMBER.—THE OGLETHORPE MILLS, Savannah, Ga., will manufacture Georgia Yellow Pine Lumber, for Mining Companies, Factories, Ship Builders, Etc., Etc. dddrss the agents. Me-srs WINBORN LAWTON & CO., Savannah, Ga., or Messrs, JOHN H. LIDGERWOOD & CO., 175 Pearl street, New York.

\$200 A MONTH MADE WITH STENCIL TOOLS.

Don't fail to send for a free catalogue, containing full particulars. Address S. M. SPENCER, Battleboro, Vt. 118\*

STATE RIGHTS OF A VALUABLE PATENT FOR sale Apply to S. HARTSHORN, No. 62 Center street 1\*

UMBER CAN BE SEASONED IN TWO TO FOUR days, by Bulkley's Patent, at an average cost of \$1 per M. from he green. For circular rathornation address \$35 - CH. BULKLEY. No. 124 Superior s., Cleveland, Ohio

MACHINISTS.—PROPOSALS ARE INVITED for furnishing an improved apparatus for the use of the American fron and 'teel Association, to test the strength of Iron and Steel. The machine will be required to test the compressive, tensile, torsional, transverse, and shearing strains, and must be capable of exerting and registering with accuracy a force of 100 tuns. Address drawing and specifications to HERRY MCALLISTER, Jr., Secretary, 522 Wa'nut street, Philadelphia.

OLMSTEAD'S PATENT FRICTION CLUTCH PUL-LEY saves the wear of the belt, and the necessity of having an extra loose pulley. It drives any machine whether light or heavy without noise or jar in stopping or starting, and is warranted to give the most complete satisfaction. Orders for any size promptly filled, and shop rights to manufacture the same sold by The Stam-ford Machine and Tool Works. Stamford Conn. filled, and shop rights to manufacture the same sold by The Stam ford Machine and Tool Works, Stamford, Conn. 15 4\* WM. M. BETTS, Proprietor.

UNHAM'S PATENT NUT MACHINE MAKES SU-perior forged nuts by a new and economical process. For fur-ther particulars inquire of GEO. DUNHAM, Unionville, Conu. 1589

CAN I OBTAIN A PATENT?—FOR ADVICE AND instructions address MUNN & CO., No. 37 Park Row, New York for TWENTY YEARS Attorneys for American and Foreign Patents. Caveats and Patents quickly prepared. The SCIENTIFIC AMERICAN \$3 a year. 30,000 Patent Cases have been prepared by M. & Co.

POR SALE.—FOUR 10-HORSE FIRST-CLASS Portable Steam Engines in store. Will be sold very low by
14 4 J. B. FULLER, No. 8 Dey street, New York.

MACHINERY.—WE ARE MANUFACTURING AND have constantly on hand Portable and Stationary Steam Engines, Machinists' Tools of all kinds, also Saw-mills and Woodworking Machinery, etc., at Paterson, N. J. Office and warehous, No. 4 Dey st., New York. [14 4]

WANTED--TO ARRANGE WITH PARTIES IN
New York and other cities to manufacture and introduce a
very useful and popular article for househeld use requiring but
little capital, and paying a large profit. Address W. C. DODGE,
488½ Seventh street, Washington, D. C.

PORTABLE ENGINES, SUITABLE FOR THE OIL
Regions, from 8 to 20-horse power, with large fire place, inde
pendent steam feed pump, steam gage, and improved water heatel
The most complete and best engines in the market. Forparticular
address

WM. D. ANDREWS & BRO.,
1 tt No.414 Water street, N. Y.

BAILEY & CO., PROVISION BROKERS, NO.
40 West Fourth street, Cincinnati. Orders for Provisions,
Lard. Tallow, Grease, Oils, etc., carefully and promptly filled.

FOR SALE—A LARGE FLY WHEEL, 20 FEET IN diameter, weighing about 10 tuns, good as new. Inquire of OSBORN & STRAGUE, No. 87 Dey street, or address II 82

TOR PATENT SCROLL SAWS, PATENT POWER Mortising Machines, Tenoting, Boring and Doweling Machines, Sash. Blind and Door Machines, of the latest and most improved describition, address J. A. FAY & CO. Cincinnati, Ohio, 6dtf

STEAM GAGES—BATES'S PATENT—GOVERNMENT
On and City Standards.—The cheapest and best steam gages ever
offered in this market. Also Water Gages, Marine Clocks, Recisters, Etc. Model making and repairing promptly attended to. Call
and Examine, or send for circular before purchasing elsewhere.

KEEN BROTHERS No. 218 Fulton st.

REFERENCES.—Messrs. Hopper and Douglas. U. S. Inspectors;
Copt. Lord. M. P. Inspector; Messrs. Tedd & Rafferty, No. 4 Dey
street; New York S. E. Works, Twenty-third street, E. R.; Wash. I.
Works. Newburgh.

WATER-WHEELS—MANUFACTURED BY AMERICAN WATER-WHEEL CO., No. 31 Exchange street Boston,
Mass. This is admitted to be the most powerful wheel in the world.
They are simple, and in a compact, portable form, rendering them
the most suitable for the Southern and Western States. For par
ticulars address as above.

10 13\*

BOLT, SPIKE. AND RIVET MACHINES.—2,000 made from inchround or square iron, or under that size, are made per day of ten hours, by one man and boy, on Hardaway's Improved Patent Bolt Machine. Our Spike Machine for simplified.

Patent Bolt Machine.
Our Spike Machine, for simplicity, durability, quality, and quantity of work turned out, is unequaled.
Our Rivet Machine is simple, durable, and does good work.
Shop and Territorial Rights for sale by Assignees of Hardaway & WHITE & BUTTERWORTH,
P. O. Box No. 292. Baltumore Md.,
Office No. 2 Exchange Building.

THE WASHINGTON IRON WORKS HAVE ON HAND
for sale their Improved Portable Steam Engines. Portable Ctrcular Saw-mils, Gang Saw-mils, Flour and Corn Mils, and manufacture to order all kinds of Steam Engines, Marine Stationary, and Propeller, Railroad Cars and Turn Tables, Iron Steam Vessels and Barges; also, General Machinery, Iron and Brass Castings, Large and Small Forgings, Etc. Address
GEO, M. CLAPP, Treasurer, Newburgh, N. Y.,
Or L. C. WARD, Agent,
No. 55 Liberty street, Room 8, New York.

19\*

A TMOSPHERIC TRIP HAMMERS.

Persons intending to erect, or those using hammers, are invited to call and examine Hotchkiss's Patent Hammer, made by CHARLES MERRILL & SONS, No. 556 Grand street, New York. They are very simple in construction require less power and repairs than any other hammer. The hammer moves in vertical sidies; each blow is square and in the same place. For drawing or swaging they are unequaled, and many kinds of die work can be done outker than with a crop. They are run with a both, make but little noise, and cair be tised in any building without injuring the foundation or walls. The medium sizes, for working 2 to 4 inch square iron, occupy 28x56 inches floor room. Send for circular giving Injurioulars.

R EYNOLDS' TURBINE WATER WHEELS.—GREAT Improvements and Reduction in Prices. The best, cheapest, most reliable, and awarded the Gold medal for superiority. Circulars sent free.

GEO. TALLCOT. 170 Broadway. N. Y., Late Tallcot & Underhill.

CIRCULAR SAW-MILLS—SINGLE AND BOUBLE—with heavy iron and wood frames, friction, feed, and improved head blocks, with Steam Engines, adapted to the Mill. Drawing given to set up by. Address, for full description,

ALBERTSON & DOUGLASS MACHINE CO.

New London, Conn.

TAYLOR, BROTHERS & CO.'S BEST YORKSHIRE Iron.—This iron is of a superior quality for locomotive and gun parts, cotton and other machinery, and is capable of receiving the highest finish. A good assortment of bars and boiler plates in stock and for sale by JOHN B. TAFT, sole agent for the U. S. and Canadas, No. 18 Batterymarch street, Boston. 123\*

CHARLES A. SEELY (LATE PROF. OF CHEMIS—TRY in the N. Y. Medical College), Consulting and Analyica Chemist. 246 Canal st. N. Y. Advice, instruction, investigations, etc. Analyses of metals, minerals, commercial products, etc. 172

etc. Analyses of merals, minerals, commercial products, etc. 172

RESULT OF THE VAN DE WATER CHALLENGE.

-Messers, Editors:—The readers of your valuable naper will recollect that in your issue of Nov. 11, 1865, Mr. Van De Water challenged any water-wheel builder to compete with his make of wheel for \$500. In your issue of Dec. 9, 1865, I accepted his challenge, and named \$5,000 as the competing sum, and appointed Fairmount Water Works, Philadelphia, Pa., as the place of trail, where not only the relative merits but the actual percentage of each wheel (large or small) would be made known to the public.

Mr. Van De Water evaded this by proposing the set should be made unknown to the public.

Mr. Van De Water evaded this by proposing the set should be made unknown to the public.

Mr. Van De Water evaded this by proposing the set should be made un Rochester. N. Y. I had some thirt of my wheels at work n Rochester —one of them in G. W. Burbanh's mill, that had been unning three and a half years, which had three or four buckets knocked out. Mr. Van De Water put one of his wheels in the same mill, and by running against my wheel in that condition, deluded himself into the belief that his wheel was equal to mine. Hence the challenge. I replaced my wheel in Burba-k's mill with one that was in order. Without my knowledge a test was recently made; for the result I refer you to the article below, signed by s'x responsible millers and mill owners of Rochester. This, Messrs, Editors, we suppose is the reason Mr. Van De Water evades the test, after having made a public c-allenge.

Rochester, N. Y. Feb. 28, 1866.

ROCHESTER, N. Y., Feb. 28, 1866.

We, the undersigned millers, of the City of Rochester, N. Y., saw at the Crescent Mills, owned by G. W. Burbank, a practical test of the capacity for grinding wheat, of the Van De Water wheel (36 inches in diameter), and the "Leffel Double Turbine" wheel, (35 inches in diameter.)

The amount ground by the Leffel wheel exceeded that of the Van De Water wheel by twenty-four (24) barrels of flour in twenty-four hours.

De Water wheel by twenty-tour (24) barters of note in wheels, standard thours.

The two wheels are in the same flume, and this is as fair a trial as can be made, in our opinion, without measuring the water. We consider the Leffel Double Turbine Water-wheel to be the best wheel in existence.

OHN MCTAGGART.

WILLIAM NEWBY.

CHAS. BUCKLEY, JR.

JOHN BAIRD. JR.

G. W. BURBANK, Crescent Mills.

13 4

JAS. WILSON, Model Mills.

WHEELER & WILSON, 625 BROADWAY, N. Y.-Lock-stitch Sewing M'achine and Button-hole Machine. Iti

WOODWORTH PLANERS—IRON FRAMES TO Plane 18 to 24 inches wide, at \$120 to \$150. For sale by S. C HILLS No. 12 Platt street, New York.

FOR BEDSTEAD AND FURNITURE MACHINERY, Friezzing, Shaping and Molding Machines, address J. A. FAY & CO., Cincinnati, Ohio.

PLATINA—WHOLESALE AND RETAIL—IN ALL forms, for all purposes. H. M. RAYNNR, Importer, No. 748 Broadway, New York. Platinum Scrap and Ore purchased. II 5\*eow

FINE POWERFUL DOUBLE-LENS MICROSCOPES, of which Prof. Hosford, of Harvard University, says:—"It works well, and you have got it up very neatly." Free by mail for 65c. "The Square Lehs Microscope." 50c.; "Little Wonder," 40c. One of each ior \$1. J. EDWIN KING, Box 2,552, Boston, Mass. 10 9\*eow

MMENSE IMPROVEMENT IN STEAM.—W. C. Weight. friction and parts, with great economy in steam. Adapted to all uses. For circular address the HICKS ENGINE CO.

HICKS ENGINE CO.. No. 88 Liberty street, N. Y.

A MESSIEURS LES INVENTEURS.—AVIS IMPORT-ANT Les inventeurs non familiers avec la langue Anglaise, et qui préféreraient nous communiquer leurs inventions en Français peuvent nous addresser dans leur langue natale. Europyez nous un dessin et une description concise pour rêtre examen. Toutes com munications servoir reques en confidence. MUNN & CO., Scientific American cance, No. 87 Park Row New York

STEAM ENGINES FOR SALE.—ONE VERTICAL Inverted. 8-inch cylinder, 12-inch stroke. One that may be used vertical horizontal, or inclined. One Dimphet Blower. 48x22 inches 8 12\* F. W. BACON & CO, No. 84 John street, N. Y.

MACHINERY AND TOOLS OF ALL KINDS AT lowest prices.

BARAGWANATH & VAN WISKER, European and American Tool Agents, 200 Broadway, N. y Branch offices—London, Paris, and Melbourne.

FOR SALE-UPWARDS OF TWENTY VALUABLE
Patents. Particulars in our Illustrated Catalogue.
BARAGWANATH & VAN WISKER, 200 Broadway, N. Y.
Branch offices-London, Paris and Melbourne.

A NDREWS' PATENT OSCILLATING ENGINES.—
Double and Single Engines, from ½ to 125-horse power, fin
Sished at short notice. These engines leave the shop ready for use
require no special foundation; are compact, light and simple, an
economical of power. For descriptive rampblets and price list ad
dress the manufacturers,

W. D. ANDREWS & BRO.,
1 tf.
No. 414 Water street, N. Y.

FOR WOODWORTH PATENT PLANING AND MATCHING MACHINES, Patent Siding and Resawing Machines address J. A. FAY & CO. Cincinnati, Ohio.

CETS, VOLUMES AND NUMBERS.
Entire sets, volumes and numbers of SCIENTIFIC AMERICAN
(Old and New Series) can be supoblied by addressing A. B. C., Box No
773. care of MUNN & CO., New York.

JUST PUBLISHED—THE INVENTORS' AND ME;
CHANICS' GUIDE.—A new book upon Mechanics Parents and
New Inventions Containing the U. S. Patent Laws, Rules and Directions for doing business at the Patent Office; 112 diagrams of the
best mechanical movements, with descriptions; the Condensing
Steam Engine, with engraving and descriptions; the Condensing
Steam Engine, with engraving and description: How to Invent;
How to Obtain Patents; Hints upon the Value of Patents; How to
Sell Patents; Forms for Assignments; Information upon the Rights
of Inventors, Assignees and Joint Owners; Instructions as to Interferences. Reissues, Extensions, Caveats together with a great variety of useful information in recard to patents, new inventions and
scientific subjects, with scientific tables, and many illustrations.
108 pages. This is a most valuable work. Price only 25 cents. Address MUNN & CO., No. 37 Park Row N. Y.

14 tf

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 300 being in use. All warranted satisfactory or no sale poscriptive circulars sent on application. Address J. C. HOAFLEY & CO., Lawrence, Mass. mum of weight am more than 300 being in use of the control of the

Navy Vards Sash. Blind and Door,
Ship Yards, Wheel. Felly and Spoke,
Railroad, Wheel. Felly and Spoke,
Stave and Barrel,
Car and Shintel and Lath,
Agricultural Shops,
Warranted superior to any in use. Send for Circulars.
For further particulars address

Corner John and Front Stree

Corner John and Front Street

Corn

Who are the only manufacturers of J. A. Fay & Co.'s Patent Wood working Machinery in the United States.

DUERK'S WATCHMAN'S TIME DETECTOR.—IM-PORTANT for all large corporations and manufacturing concerns—capable of controlling with the utmost accuracy the motion of a watchman or patrolman, as the same reaches different stations of his beat. Send for a circular.

J. E. BUERK.

J. E. BUERK, P. O. 1,057, Boston, Mass

NDREWS' PATENT CENTRIFUGAL PUMPS—CA—A PACITY from 90 to 40,000 gallons per minute. For draining and strigating lands, wrecking, coffer dams, condensers, cotton, wool and starch factories paper mills, tanneries, and all places where a large and constant supply of water is required, these pumps are unequaled. They are compact, require little power, and are not liable to get out of order. For descriptive pamphlet address 1 tf W. D. ANDREWS & BRO. No. 414 Water street, N. Y.

TEAM ENGINES—WITH LINK MOTION, VARIA-BLE automatic cut-off, of the most approved construction; Mill Gearing, Shafting, Hanger, Etc. Address M. &T. SAULT, New Haven, Conn.

C. STILES'S PATENT POWER FOOT AND DROP PRESSES.—Dies of every description made to order. Send or a circular N. C. STILES & CO., West Meriden, Conn.

TOR DANIELLS'S PLANING MACHINES, GAR MORTISING, Boring Machines, Car-Tenoning Machines, Car Planing and Beading Machines, Etc., address J. A. FAY & CO., Clincimati

TRON 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.

VALUABLE ROLLING MILLS FOR SALE—SITUATED on the west side of second avenue, between Forty
sixth and Forty-seventh streets, comprising two Trains of Rolls,
three Steam Engines and Boilers, Heating Furnaces, and all the
Machinery necessary for carrying on a large and profitable business
in the manufacture of iron or steel. These works have lately been
put in thorough working order, and are ready to start at once.
Also, connected with the above, a Crucible Manufactory,
For further information apply o SAML MULLIKEN & CO.,
26 27t Agents, No. 158 Front street, New York.

Oll! Oll Oll Oll
For Rallroads, Steamers, and for machinery and Burnins, PEASE'S Improved Engine Signal, and Car Olls, indorsed and recommended by the highest authority in the United States and Europe, This Oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public uson 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 and 63 Main street, Buffalo, N. Y. M. B.—Reliable orders filled for any part of the world.

Bur Beachtung für beutiche Erfinder.

Die Unt reichneten haben eine Anteitung, die Erfindern bas Ber-halten angibt, um ich ihre Patente zu sichern, herausgegeben, und berabfolgen solche gratis an dieselben. Erfinder, welche nicht mit ber englischen Sprache bekannt sind, fönnen ihre Mittheilungen in der berufchen Sprache machen. Stigen von Ersindungen mit turzen, deutlich geschriebenen Beschreibungen beliebe man pradbressiren at. Munn & Co., 37 Part Row, New-York. Auf ber Office wird beutsch gesprochen. Daselbft ift zu haben:

Die Patent-Befebe der Vereinigten Staaten,

nebst den Regeln und der Geschäftsordnung der Vatent-Office und Anleitungen für den Erfinder, um sich Vatente zu sichern, in den Ber, Staaten sowofi als in Europa. Ferner Auszüge aus den Patent-Gesen fremder Länder und darauf bezügliche Rathschläge; ebenfalle auszüge Winte für Ersinder und folde, welche patentiren wokkn Verts 20 Cis., der Vek 25 Cis.

#### Improved Motion for Sewing Machines.

Many of the lower-priced sewing machines have no treadle or other means of applying power, except a small balance-wheel and a handle therein. It is difficult to get sufficient velocity on these machines without driving the hand and arm at such a rate that the operator is soon tired out; moreover one hand is always occupied in moving the machine so that attention is distracted from the work, which is

herewith shows a method of attaching a treadle to such machines so that they are moved by the foot of the operator the same as all other machines. The treadle only has to be purchased where the operator has the machine, and not an expensive piece of cabinet work such as the table often is.

The method of attaching the treadle is as follows:-A cast-iron plate, A, is fitted to two studs on the bottom of the machine and is prolonged at the end furthest from the reader to receive a clamp, B, which carries the main driving wheel, C. From this wheel a rod proceeds to a stirrup, D, at the end, which constitutes a treadle, light and durable. It can be easily put on and taken off any table without marring the surface, and will greatly facilitate operations.

The machine to which the treadle is attached is very neatly got up and does good work for one of its class, that is, the single thread machine.

For further particulars address J. G. Folsom, Winchendon, Mass., who has an application pending before the Patent Office on this invention.

## Academy of Sciences.

Father Secchi sent an account of the spectra of some stars, as seen by him recently in a new spectrometer by Merz, with a prism by Hofmann, of Paris. A drawing of the spectrum of a Orionis accompanied the communi-

learned author as resembling that of sulphur.

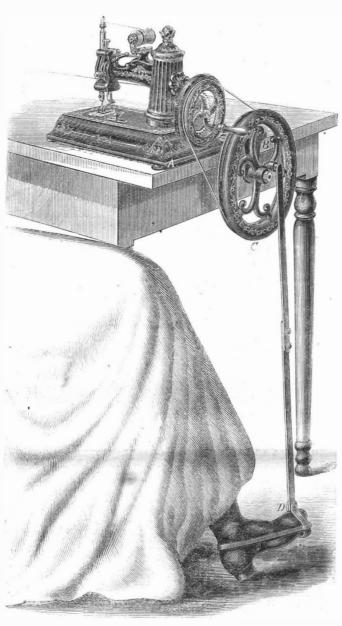
M. De Vergnette-Lamotte sent a long memoir "On the Preservation of Wines by the Employment of Heat." M. Pasteur, reviving an old suggestion of Appert, proposes to heat wine for a few minutes to 75° or 80° C. The author objects to this, and says it is better to submit the wines for some time to a temperature not exceeding  $45^{\circ}$ . He seems to admit, however, that Appert's or Pasteur's plan answers well with the more saccharine and alcoholic wines, like ports and sherries, etc.

M. Fouque presented a memoir "On the Chemical Phenomena of Volcanoes." Only the general conclusions of the author are given in the Comptes Rendus. and the most interesting of these is the last. The author wished to demonstrate that the contact of sea water with the molten mass on which the solid crust of the earth rests is sufficient to account for all the eruptive phenomena. With this view he made some synthetical experiments, having for their object the reproduction of some of the substances he had found in the fumaroles of Mount Eina. In the course of his experiments he tound that steam alone decomposes chloride of sodium, forming caustic soda and hydrochloric acid; and, further, that sulphate of lime and chloride of sodium react on each other in the presence of the vapor of water, producing sulphate hight of the water in the interior of the cooler. As

of soda, and many other compounds he has noticed in volcanic emanations. Is it possible that the first of these observations may lead to the simplification of the soda process?—Chemical News.

### Extension of Patents.

Many valuable patents are allowed to expire every year for the want of a little care on the part of patentees in not applying for an extension. The petition often injured thereby. The engraving published must be filed in the Patent Office at least ninety days



FOLSOM'S MOTION FOR SEWING MACHINES.

cation. The spectrum of Sirius is decribed by the | before the expiration of the patent, which gives time for the preparation of testimony. Inventors who have patents dated in 1852, and who may wish to have them extended for seven years, can receive all necessary advice how to proceed, by addressing this office.

# HOPKINS'S WATER COOLEER.

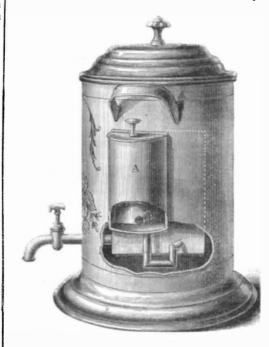
This water cooler is composed of an inner and an outer casing, with the intervening space filled with any non-conducting material. The inner casing is made to receive the ice as it is delivered to the consumer without the necessity of cutting away the corners and otherwise breaking it—as in the ordinary round cooler. The great loss of ice resulting from the necessity of cutting it into small pieces and exposing a much greater amount of surface to the water is avoided, while the external dimensions do not have to be any larger than in ordinary coolers.

After the block of ice is placed with the water in the cooler, as in ordinary ones, the covers are replaced and the water may be replenished through the reservoir, A, which is so arranged as to shut off all communication with the external air to the interior of the cooler. Hence, there is no necessity for removing the cover except to introduce more ice.

A glarge at the reservoir will always indicate the

the water is introduced gradually at the base of the ice, says the inventor, with the covers tight, it does not melt as rapidly as when poured upon it from above with the covers off, which, at the same time, admits the warm surrounding air.

It is claimed that this cooler will save from thirtythree to fifty per cent of ice, as it was in use last season, while the cost will be but a trifle more than ordinary



coolers. Samples may be seen at the warerooms of J. Hall Reohrman, No. 606 Cherry street, Philadelphia, where orders will be received. State rights will be disposed of on application to the patentee, No. 1,107 Walnut street.

It was patented Jan. 16, 1866, by E. E. Hopkins, of Philadelphia, Pa.

FAST WORK.—Benj. F. Avery, of Louisville, Ky., informs us that for three months past he has finished 2,000 plows per week. He turned out over 622 in one day, which, we should say, was rapid work.

Of the 529,241 persons who visited Kew Gardens last year 260,040 arrived on Sundays, and 269,201 on week days.



# INVENTORS, MANUFACTURERS

The SCIENTIFIC AMERICAN is the largest and most widely circulated journal or its class in this country. Each number con tains sixteen pages, with numerous illustrations. The numbers for a year make two volumes of 416 pages each. It also contains a full account of all the principal inventions and discoveries of the day. Also, valuable illustrated articles upon Tools and Machinery used in Workshops, Manufactories, Steam and Mechanical Engineering, in Workshops, Manufactories, Steam and Mechanical Engineering, Woolen, Cotton, Chemical, Petroleum, and all other manufacturing and producing interests. Also, Fire-arms, War Implements, Ord nance, War Vessels, Railway Machinery, Electric, Chemical, and Mathematical Apparatus, Wood and Lumber Machinery, Hydraulics, Oil and Water Pumps, Water Wheels, Etc.; Household, Horticultural, and Farm Implements—this latter department being very full and of great value to Farmers and Gardeners. Articles empracing and of great value to Farmers and Gardeners. Articles embracing every department of Popular Science, which every body can under Also, Reports of Scientific Societies, at hom and abroad, Patents

law Decisions and Discussions, Practical Rec. es, Etc. It also contains an Official List of all the Fatent Claims, a special feature of great value to Invertors and owners of Patents.

Published Weekly, two volumes each year, commencing January

and July

TERMS. Per annum.....\$3 00 Six months...... 1 50 

## MUNN & CO., Publishers.

No. 37 Park Row, New York City

Messrs, MUNN & CO. have had twenty years' experience in procuring Patents for New Inventions. Inventors who may have such business to transact can receive, free, all needful advice how to proceed.

SOM THE STEAM PRESS OF JOHN A. GRAY AND GREEY.