

A. B. says: I claim that a solid column of metal is stronger than a hollow one of the same diameter. My opponent claims it is not. Which is correct? Answer: The solid column is the stronger, the diameters of the two being the same.

J. Y. of Leeds, England.—The Science Record has been published two years. We can send you the two volumes, postage prepaid, for £1.

J. H. H. says in answer to J. S. C.'s query about oil of rhodium: "Oleum rhodii" from rhodium wood (the root), *genus: canariensis*; 80 lbs. of old resinous wood yields 2 ounces of oil. Color of oil, light yellowish, by age turns red. Odor, of roses. Wood used for fumigation. Cordial and cephalic. Imported from the Levant.

W. W. A. replies to T. W. S., who asked how to keep paste from souring: Stir in pulverized alum while cooking, about a teaspoonful to a pint of paste. The alum will also keep the flies out of the paste pot.

S. P., Jr., asks how to proceed with a drive well after driving down a certain distance and not obtaining water. "I have driven down into the ground 22 feet of $\frac{1}{4}$ inch tubing and attached my pump thereto, but am unable to start her. I do not think that it is for want of water, as water can be obtained here almost at any time at a depth of from 2 to 3 feet from the surface of the ground. I had to dig a hole 4 feet deep in order to put down the set length which is attached to the pump, and before I could screw the set length on to the tubing I had to dip out the water that had accumulated in the hole, which was half full." Answer: We can best answer this question by relating a little anecdote. "Suppose," said an examiner to a competitor in engineering, "you should build an engine yourself, perform every part of the work without assistance, and know that it was in complete order; if, when put into a vessel, the pump would not draw water, what would you do?" "Go to the side of the vessel and ascertain if there was any water in the river," answered the competitor.

A. K. S. says, in answer to B. A. O.'s queries on page 27, current volume: Girdle trees as early in the season as the oak will peel, in the following manner: Commence three or four feet from the ground, cut the bark entirely around the tree; then strip the tree down to the ground, leaving the bark intact at the base of the trunk. This will kill most kinds of timber so that the stump or roots will not sprout. Honey locust is an exception. I never knew or heard of one of these trees being killed (except by fire) so that it did not sprout from roots. A few times grubbing of the sprouts will end this. In answer to query 4. I would say that iron is a permanent cure for nose bleeding and for boils. The best preparation is the tincture of the muriate (*tinctura ferri muriatis*). Take 20 drops in a wineglass of water twice a day for three weeks. The above is a dose for an adult. I have known it to cure several severe cases. A solution of alum sometimes gives a temporary relief.

MINERALS.—Specimens have been received from the following correspondents, and examined with the results stated:

A. R. G.—The substance enclosed is peat, used as a fuel.

M. M. G.—The mineral is felspar.

J. T. C.—No. 1 is felspar, used in the manufacture of pottery and porcelain. No. 2 is copper pyrites, iron pyrites, and galena, all valuable if in large quantities and near to means of transportation. No. 3 is hornblende; of no value; it occurs with copper pyrites, and is known as "dead rock." No. 4 is copper and iron pyrites in quartz rock.

W. M. A.—The specimens you send are kaolin and felspar, the kaolin evidently resulting from the disintegration of the felspar. The kaolin contains too much grit, or undecomposed felspar, to be of use without washing. You may find some, however, as the deposit is so large, that is free from grit. This is easily determined by crushing a small piece between the front teeth. The specimens of felspar are good. It is used by the potters under the name of "spar"; and kaolin is even more extensively applied to the same purpose.

W. C. A.—The sample enclosed is ferruginous sand, consisting of the protoxide and sesquioxide of iron or magnetic iron ore mixed with some silica. It sometimes contains a considerable quantity of titanium. If found sufficiently pure and abundant, it might pay to smelt.

S. K.—1. Quartz, and iron pyrites. 2. Pyrites. 3. Copper pyrites. 4. Galena and quartz. 5. Galena. 6. Pyrites. 7. Quartz. An assay or analysis for silver or gold will cost \$10 for each specimen.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

On the Crewe Engine Works. By J. R.

On Meteors. By S. G.

On the Origin of the Earth and Stars. By C. B. Jr.

On French Telegraphy. By T.

On Retrogression of the Sun. By C. H. B.

On Solar Reaction. By R. B. S.

On Inversion by Vision. By J. M. R.

On a Balloon Safety Valve. By S. W. G.

On a Suggestion for Balloonists. By J. W. S.

On Boilers and Boiler Owners. By A. J.

On the Zodiacal Light. By J. E. H.

On Fire Arms. By C. P. T.

On the Patent Right Question. By H. A. W.

On Setting Saws. By J. F. T.

On Deviation of the Compass. By J. W. S.

On Tool Holders. By H. W. P.

On a New Mechanical Principle. By D. M. B.

On Turbine Wheels. By J. H.

On Navigation of the Air. By C. B. S.

Also enquiries from the following:

W. E. S.—A. H.—C. M. H.—J. M. A.—J. W.—E. A. H.—A. G.

Correspondents who write to ask the address of certain manufacturers, or where special articles are to be had, also those having goods for sale, or who want to find partners, should send with their communications an amount sufficient to cover the cost of publication under the head of "Business and Personal," which is specially devoted to such enquiries.

[OFFICIAL]

Index of Inventions

FOR WHICH

Letters Patent of the United States

WERE GRANTED FOR THE WEEK ENDING

July 15, 1873,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

Abdominal supporter, E. J. Harding.....	140,778	Knitting machine, O. F. Tripp.....	140,800	6,773.—JEWELRY BOX.—E. C. Moore, Yonkers, N.Y.
Auger, earth, Baisley & Wilson.....	140,756	Knives, forks, etc., cleaning, E. Marwedel.....	140,933	6,714.—FAN.—J. T. Brundage, Niagara Falls, N.Y.
Aluminum, electro-deposition of J. A. Jeangon.....	140,924	Lamp, J. M. Clark.....	140,764	6,775.—DRAWER PULL.—O. F. Fogelstrand, Kensington, Ct.
Bale tie, cotton, R. Cook.....	140,766	Lamps, supplying oil to street, R. V. DeGuinon.....	140,815	
Bales, hoop tie for cotton, E. J. Beard.....	140,873	Last block fastener, D. Huard.....	140,827	TRADE MARKS REGISTERED.
Barrel hoop, H. Willard.....	140,852	Lemon squeezer, J. H. Mead.....	140,795	1,361.—LICORICE PASTE.—D. V. Argumbau, N. Y. city.
Barrel-making machinery, H. P. Hall.....	140,776	Lock, hasp, J. Kinzer.....	140,926	1,362.—QUILL BOBBINS.—D. Bass, Jr., Woonsocket, R. I.
Bed bottom, T. J. Shears.....	140,953	Logs, machine for turning, E. Tarrant, (r).....	5,487	1,363.—COFFEE.—Dilworth Brothers, Pittsburgh, Pa.
Bed bottom, J. V. Taylor.....	140,856	Loom, G. Crompton.....	140,894	1,364.—PACKAGES OF WHISKEY.—Howe & Co., Cincinnati, O
Bed bottom spring, Van Wert & Crooley.....	140,975	Lubricator, steam cylinder, L. F. Smith.....	140,955	1,365.—CIGARS, ETC.—F. S. Kidney, New York city.
Boiler, wash, E. H. McDonald.....	140,936	Man hole covers, securing, J. J. Craven.....	140,893	1,366.—SADDLE TREES.—S. E. Tompkins & Co., Sing Sing, N.Y.
Boot soles to uppers, uniting, W. Strasser.....	140,864	Meat chopper, H. P. Rankin.....	140,950	1,367.—RAZORS, ETC.—Friedmann & Co., New York city.
Boots, cutting off pegs in, A. Whittemore.....	140,808	Medical compound, T. T. Wright.....	140,866	1,368.—VARNISH.—L. L. Mandel, New York city.
Box match, C. Prahl.....	140,949	Mirror holder, W. Simpson.....	140,851	1,369.—HOMEOPATHIC GLOBULES.—Smith & Co., Cinn., O.
Box scrapper, A. Tester.....	140,857	Miter box, G. M. Stevens.....	140,853	1,370.—CYLINDER STOVE.—Southard & Co., N. Y. city.
Bridges, constructing, T. C. Clarke.....	140,888	Miter machine, D. Bull.....	140,763	
Bustle, M. K. Bortree (r).....	5,484	Motion, transferring, W. H. Benson.....	140,878	
Bustle, A. W. Thomas.....	140,966	Movement, intermittent rotative, R. C. Reynolds.....	140,951	
Candles, drip cap for, D. M. Ayer.....	140,755	Mowing machine, C. Colahan.....	140,890	
Car awning, street, C. B. Turnbull.....	140,972	Nozzle, steam, W. Ebbitt.....	140,902	
Car coupling, E. W. Barker.....	140,803	Numbering heads, C. W. Dickinson.....	140,899	
Car coupling pins, die for, C. H. Williams.....	140,980	Organ, reed, R. Burdett, (r).....	5,485	
Car coupling pins, die for, C. H. Williams.....	140,981	Packing, piston rod, W. W. Vanderbilt.....	140,973	
Car, dumping, J. Hughes.....	140,779	Paint for oil barrels, etc., W. L. Elkins.....	140,917	
Car starter, T. W. Johnston.....	140,781	Pavement, laying cement, A. F. Shryna.....	140,956	
Car stove, railroad, W. S. Jones.....	140,831	Pen, fountain, J. Goodyear.....	140,771	
Carding waste remover, G. W. Craner.....	140,814	Penel case, S. S. Rembert.....	140,842	
Carpet rag looper, W. Clapton, Jr.....	140,889	Pencils, machine for finishing, T. H. Muller.....	140,946	
Carriage springs, clip plate for, N. C. Dean (r).....	5,490	Petroleum, refining, S. Van Syckle.....	140,801	
Carts, apparatus for loading, J. Byerly.....	140,884	Pipes, lining cement, M. Stephens, (r).....	5,494	
Chair, child's, J. F. Downings.....	140,906	Pipe, smoking, W. H. Morris.....	140,940	
Chair, invalid, T. Armstrong.....	140,968	Pitcher, molasses, D. C. Ripley.....	140,793	
Churn, reciprocating, Barrett & Fenimore.....	140,871	Planter, potato, C. Svendsen.....	140,965	
Churn, reciprocating, L. I. Bodenhamer.....	140,880	Potato screen, G. Clafin.....	140,866	
Churn, reciprocating, M. W. Staples.....	140,796	Powder keg, Green & Wilson, Jr.....	140,913	
Cigar bunches, making, S. Scholfield.....	140,918	Pump, double acting force, J. P. Flanders.....	140,819	
Cigar bunches, making, D. A. Wightman.....	140,861	Pump plunger and pump, N. P. Sheldon.....	140,795	
Cigar fillers, arranging, S. Scholfield.....	140,850	Railway rail joint, J. Bishop.....	140,760	
Cigar machine, C. J. Delbridge.....	140,896	Railway signal, electric, F. L. Pope.....	140,790	
Cigar machine, T. Ernst.....	140,906	Railway signal circuit closer, D. Rousseau.....	140,933	
Cigar machine, S. Scholfield.....	140,845	Railway switch, A. C. Garratt.....	140,770	
Cigar machine, S. Scholfield.....	140,846	Railway switch, M. & J. W. Fels.....	140,909	
Cigar machines, roll for, D. A. Wightman.....	140,859	Railway switch, T. Hall.....	140,915	
Cigar trimmer, S. Scholfield.....	140,847	Railway switch, T. P. Hatchett.....	140,917	
Cigar wrapping machine, S. Scholfield.....	140,849	Railway tie, G. R. Richardson.....	140,932	
Clamp, J. E. Sinclair.....	140,852	Rivets, manufacture of hollow, M. Bray.....	140,881	
Clay articles, mold for, C. A. Fischer.....	140,910	Roof truss, iron, A. Gottlieb.....	140,772	
Coke from lignites, etc., H. Engelmann (r).....	5,486	Roofing composition, C. Mueller.....	140,945	
Cooler, milk, J. F. Hawkins.....	140,919	Roofing, metallic, C. Lewando.....	140,928	
Cooler and show case, water, P. J. Hancur.....	140,777	Roughing machine, adjustable, J. S. Tilley.....	140,858	
Cooling storage rooms, J. Ring.....	140,792	Saddle tree, S. E. Tompkins, (r).....	140,933	
Cotton gin, M. E. Pratt.....	140,791	Sewing machine stand, H. Loth.....	140,919	
Coverlet, C. K. Pevey.....	140,948	Sewing machine table, J. Bennor.....	140,874	
Crane, R. Briggs.....	140,882	Sewing machine table, J. Bennor.....	140,875	
Cultivator, J. Taylor.....	140,885	Sewing machine treadle, W. D. Wood.....	140,865	
Curtain fixture, L. J. Earll.....	140,901	Sewing machine balance wheel, D. G. Williams.....	140,832	
Curtain fixture, F. Walker.....	140,976	Sewing machine extension table, J. Bennor.....	140,877	
Cutter, rotary, Mellor & Orum.....	140,905	Sewing machine threader, M. A. & J. T. Williams.....	140,933	
Cylinder burring machine, J. K. Proctor (r).....	5,493	Sharpening machine, Kealey & Rigney.....	140,832	
Dental gold, manufacture of, R. S. Williams.....	140,984	Shoe, ladies' garter, H. C. Letsinger.....	140,836	
Desk school, A. F. Wilber.....	140,979	Shoe, rubber, Hyatt & Canfield.....	140,829	
Dish heater, S. S. Fitch.....	140,769</			

Rake, horse, L. A. Paddock, U. S.	2,144
Rein holder, L. D. Howard, U. S.	2,140
Road scraper, W. Thompson, U. S.	2,118
Roofing compound, D. G. Conger, U. S.	2,132
Roofing, artificial, D. G. Conger, U. S.	2,124
Saw, A. P. Sproul & G. H. Coffin, U. S.	2,199
Saw gate, oscillating, C. P. Meigs	2,101
Saw mills, dogs for circular, J. A. Fordon, U. S.	2,102
Saws, J. E. Emerson, U. S., et al.	2,094
Screw wood and driver, A. H. Lightfoot, U. S.	2,163
Scythe scythe, F. S. Gilbert	1,205
Seeding machine, C. E. Patric & W. G. Wright	2,146
Sewing machine for boots, M. J. Stein, U. S.	2,180
Sewing machine hemmer, J. Miller	2,159
Sewing machine, leather, G. V. Sheffield et al., U. S.	2,183
Sewing machine, sole, E. O. Crosby et al., U. S.	2,218
Sewing machine treadle, J. F. Webster	2,126
Shingle machine, J. Goldie & D. Cameron	2,115
Ship plank and roller gage, J. H. Johnson	2,191
Shoe, improved, T. R. Evans, U. S.	2,175
Snow plough, J. O. Stackhouse, U. S.	2,105
Soap making, E. H. Gibbs, U. S.	2,090
Spring bottom, P. Wells, U. S.	2,187
Steam boiler, cleaning tube, J. Collicott, U. S.	2,185
Steam boiler gage cocks, W. Painter et al., U. S.	2,216
Steam boiler, removing lime, W. H. Dunning, U. S.	2,077
Steam engines, governors of, W. A. Cogswell, U. S.	2,159
Steam engine pumps, G. Wightman	2,215
Steam engine rams and pumps, W. C. Church	2,165
Steam trap, J. H. Blessing et al., U. S.	2,080
Steam valve, automatic, G. J. Kitson et al., U. S.	2,164
Steam valve and chest, W. Glen	2,096
Steel, J. Bauer	2,074
Stone borer, etc., F. E. B. Beaumont, et al.	2,089
Stone borer, hydrostatic, F. E. B. Beaumont, et al.	2,088
Stone dressing machine, J. E. Holmes et al.	2,200
Stone drill, etc., F. E. B. Beaumont, et al.	2,087
Stove, heating, J. Gray	2,075
Stove pipe stone, flask for, P. Jacob & J. Jolliffe	2,210
Surgical instrument covering, W. Hurlstone	2,188
Telegaph, H. Highton	2,177
Threshing machine, J. Gillespie	2,160
Tobacco box and cutter, G. W. Hunter et al.	2,107
Tramways, steam carriages for, J. Grantham	2,116
Treadle, machine, G. B. Kirkham, U. S.	2,172
Troweler legs, ironing bottoms of, T. C. Tillingshast	2,119
Truss, engine, J. D. Fitch	2,140
Trusses, engine, G. Stevens, et al.	2,098
Vault, fireproof, J. W. Warner, U. S.	2,072
Washing apparatus, H. B. Corner, et al., U. S.	2,092
Washing machine, W. J. Freeman, U. S.	2,189
Washing and wringing machine, J. Ewing, Jr.	2,083
Water wheel, B. Cockley et al., U. S.	2,222
Weighing machine, A. E. Emory, U. S.	2,098
Window shade, E. Metcalf, U. S.	2,193
Wrecks, apparatus for raising, H. F. Knapp, U. S.	2,171
Wrench, F. S. Gilbert	2,197

Advertisements.

RATES OF ADVERTISING.

Back Page - - - - \$1.00 a line.
Inside Page - - - - 75 cents a line.
Engravings may head advertisements at the same rate per line, by measurement, as the letter-press.

WOODWARD'S NATIONAL ARCHITECT
1000 WORKING DRAWINGS.
Plans, Details,
Specifications & Estimates.
TWELVE DOLLARS, post paid.

MONCKTON'S NATIONAL STAIRBUILDER. Six Dollars, post paid.
MONCKTON'S NATIONAL CARPENTER & JOINER. Six Dollars, post paid.
Framing and Roofing.

ORANGE JUDD & CO.,
245 Broadway, New York.

PASS THIS BY If you are a fool or a lunatic; but if you are sane, and wish to make money, (man or woman,) get a postal card now and send your address.

AGENTS MAKE \$90 A Week. One Party Orders
EUROPE PORTABLE TABLE CO., ST. LOUIS, MO.

CORN HUSKER — Philip's Patent — 50 bushels per hour. S.C. HILLS, 51 Courtland St., N.Y.

GREAT REDUCTION IN PRICES

O F LE COUNT'S PATENT HOLLOW LATHE DOGS, and his Machinist Clamps of both Iron and Steel.
1 set of 8 dogs, from $\frac{3}{8}$ to 2 inch, \$6.50.

His expanding Mandril is a first class tool which has long been needed by every Machinist.
Send for latest circular.
W. LE COUNT, South Norwalk, Conn.

IMPROVED FOOT LATHES. SELLING Everywhere. N.H. BALDWIN, Laconia, N.H.

PROVINCIAL AGRICULTURAL AND INDUSTRIAL EXHIBITION For 1873.

THE PROVINCIAL AGRICULTURAL AND INDUSTRIAL EXHIBITION for 1873 open to the world, will be held in the CITY OF MONTREAL, on TUESDAY, WEDNESDAY, THURSDAY and FRIDAY, the 16th, 17th, 18th and 19th September next, on the GROUNDS, MOUNT ROYAL AVENUE.

Prizes offered, \$12,000 to \$15,000.
For Prize Lists and Blank Forms of Entries in all the Departments, apply to GEORGES LECLERC, Esq., Secretary of the Council of Agriculture, 48 St. Gabriel Street, Montreal; or to the Secretaries of County Agricultural Societies.

Entries for Stock will not be received after the 30th August, and in the Industrial Department not after the 6th September.

The principal Lines of Railway and Steam-boats will carry stock and articles for exhibition at reduced rates.

For further information, apply to the undersigned,

GEORGES LECLERC, Sec. of the Council of Agriculture

THE "PHILADELPHIA"

HYDRAULIC JACK. PISTON guided from both ends; all working parts guarded from dust; single or double pumps, cylinders, shafts, rocker arms, pistons, etc., entirely steel. No. 14 N. 5th st., Philadelphia. { PHILIP S. JUSTICE, No. 12 Cliff st., New York.

\$5 to \$20 per day. Agents wanted! All classes of working people, of either sex, young or old, make more money at work for us than ever before or at the time than anything else. Particulars free. Address G. Stinson & Co., Portland, Maine.

BARNE'S PATENT

Foot or Steam Power

Scroll Saw.

PRICE THIRTY DOLLARS.

Every builder, Cabinet Maker, Pattern and Wagon Maker—every Wood Worker should have one. Only three years in market, yet thousands are now using them. Send for full description to

W. F. & JOHN BARNEs,
Rockford, Ill.

Massachusetts Agricultural College,
Founded and endowed by the State for the liberal education of the Industrial Classes, will begin its next academic year Aug. 27. For catalogue or information address President W. S. CLARK, Amherst, Mass.

\$125 A MONTH to Lady Agents. Address ELLIS MANUFACTURING CO., Waltham, Mass.

SELL YOUR PATENT.—The advertiser who negotiates sales of valuable patents, wishes, at once, one or two really good Patented Inventions to sell. No advance charge made.

Address P. O. Box "5,190," New York.

G. E. ILLINGWORTH.
NEVILLE ST. FOUNDRY, LEEDS, ENG.
Makes a specialty of 13 in. Lathes. All parts are interchangeable, being made in duplicate, thus ensuring accuracy and excellence of workmanship. Price for 12 feet bed, slide, surfacing, and screw cutting complete, £250. F.O.B., Liverpool. For Photograph and full particulars, write direct.

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 1,000 being in use. All warranted satisfactory or no sale. Descriptive circulars sent on application. Address THE J. C. HOADLEY CO., Lawrence, Mass.

NEW YORK STEAM ENGINE CO.
MANUFACTURERS OF
Machinists Tools
OF ALL DESCRIPTIONS,
98 Chambers St. NEW YORK.

WHALEN TURBINE. No risks to purchasers. Pamphlet sent free. SETH WHALEN, Ballston Spa, N.Y.

E. M. MAYO'S PATENT BOLT CUTTER. Send for Illustrated Circular, Cincinnati, Ohio.

A MENIA SEMINARY, AMENIA, N.Y.—A Family Boarding-School. On the Harlem Railroad, eighty-five miles from New York. Full courses of seminary instruction, with preparation for college or business. Personal care in study, habits, and health. Terms, \$360 per year.

Fortieth year beg ns Sept. 15. S. T. FROST, A.M.

WOODBURY'S PATENT
Planing and Matching and Molding Machines, Gray & Wood's Planers, Self-oiling Saw Arbors, and other wood working machinery.

S. A. WOODS,
91 Liberty street, N.Y.;
Send for Circulars.
87 Sudbury street, Boston.

PAGE'S Water Flame Coal Lime Kiln, with coal or wood. No. 1 Soft White Lime or Cement, with use of water. C.D. PAGE. Patentee, Rochester, N.Y.

**CHAMPION SPRING MATTRESS.**

The latest and best improvement. Do you want a healthy and comfortable bed? Here it is. The softest, easiest, cheapest, most popular, and durable Spring Bed in market. Sold by all leading dealers. No stock complete without it. Wholly composed of tenacious tempered steel springs, so unit'd that the pressure is equally distributed. Easily moved or carried about the house. Can be fitted, turned, or rolled up like a blanket. Both sides alike. No frame, no wooden slats, no straps. May be used on floor without bedstead. No under bed required. Needs only half thickness of hair mattress. The regular size double bed, 4 ft. 6 in. by 6 ft., contains 192 steel upholstery springs and weighs only thirty lbs. More springs for your money to this bed than in any other. Guaranteed noiseless. Any sizes made to order. Send for pictorial circular. Retail price, double bed, \$12. Shipped by express or mail to all parts of the world, and by regular steamer to the trade. Agents wanted. F. C. BEACH & CO., Makers, 102 Chambers St., cor. Church New York.

BOULT'S PATENT
Single Spindle Combined Moulding, Paneling, & Dove-tailing Machine.

For Carving, Paneling, and Irregular Moulding, various Kinds of Dove-tailing and Routing. The simplest and most useful Machine for Furniture, House-finishing, Cars, Organs, Drawers, Brackets, &c. &c.

BATTLE CREEK MACHINERY COMPANY, MANUFACTURERS, Battle Creek, Michigan.

MASON'S PAT'T FRICTION CLUTCHES. are manufactured by Volney W. Mason & Co., Providence, R.I.; Agents, L. B. BROOKS, 80 & 81 Adams Street, New York; TAPLIN, RICE & CO., Akron, Ohio.

GLASS MOULDS for Fruit Jars, Patent Lamps, Bottles, etc., made by H. BROOKE, 14 years at White and Centre Streets, New York. The shortest and cheapest way order direct of Mould Maker.

PARTICULAR ATTENTION paid to MOULDS for INVENTORS.

TO FOUNDERIES, Factories, Ropewalks, &c.—For sale or lease, blocks of Lots, with bulkhead waterfront. Low prices, easy terms. S. B. SCHIEFFELIN, 15 East 26th Street, New York.

SHINGLE AND BARREL MACHINERY. Improved Law's Patent Shingle and Heading Machine, simplest and best in use. Also, Shingle Heading and Stave Jointers, Stave Equalizers, Heading Planers, Turners, &c. Address TREVOR & CO., Lockport, N.Y.

WOOD-WORKING MACHINERY generally. Specialties, Woodworth Planers and Richardson's Patent Improved Tenon Machines.

Central, corner Union st., Worcester, Mass.

WILHERBY RUGG & RICHARDSON.

12 Samples sent by mail for 25cts., that retail quick for \$1. R. L. WOLCOTT, 181 Chatham Square, New York.

Machinery,

Wood and Iron Working of every kind. Leather and Rubber Belting, Emery Wheels, Babbitt Metal, &c.

GEO. PLACE & CO., 12 Chambers St., N.Y.

Cold Rolled Shafting.

Best and most perfect Shafting ever made, constantly on hand in large quantities, furnished in any lengths up to 24 ft. Also, Pat' Coupling and self-tight adjustable Hangers.

GEORGE PLACE & CO.,

121 Chambers Street, New York.

Sturtevant Blowers.

Of every size and description, constantly on hand.

GEORGE PLACE & CO.,

121 Chambers Street, New York.

PATENT PUNCHING

SHEARING MACHINES,

With all modern improvements, in forms adapted to every kind of work. WARRANTED SUPERIOR TO ALL OTHERS.

Presses adapted to all kinds of work in store ready for shipment.

MOSES G. WILDER, 121 Chambers St., New York.

FARREL FOUNDRY & MACHINE CO.,

MOSES G. WILDER, SELLING AGENT, 121 Chambers Street, New York.

COWELL PATENT DOOR AND GATE

SPRING, worth ten of all others. Won't corrode or break. Ask the Hardware dealers for it, or address Sole Manufacturer, JAS. H. WHITE, Newark N. J. Territ ry for Sale.

PATENT COLD ROLLED SHAFTING.

The fact that this shafting has 75 per cent greater strength, a finer finish, and is truer to gauge than any other in use, renders it undoubtedly the most economical. We are also the sole manufacturers of the CELEBRATED COLLIx & PAT' COUPLING, and furnish Pulleys, Hangers, &c., of the most approved styles. Price lists mailed on application to

JONES & LAUGHLINS,

TRY street, 2d and 3d avenues, Pittsburgh, Pa.

Stocks of this shafting in store and for sale by