

Fourth, The racks, I and slides, I, in combination with the pawls, H, as and for the purpose specified.

Fifth, The standards, F, F, and cross beam, G, in combination with the rod, h, and pawls, H, arranged to operate substantially as described.

Sixth, The detent rod, F, in combination with the projections, f, and standards, F, F, substantially as and for the purpose hereinbefore described.

Seventh, The cam, J, in combination with the traveling slides, E, and post, A, substantially as and for the purpose herein specified.

2,102.—Harvester.—Reuben Hoffheins, Dover, Pa. Patented Nov. 3, 1863:

I claim, First, The combination in a two-wheeled, hinged joint machine, of a driver's seat mounted upon the main frame, with a raking mechanism mounted upon the finger-beam, and rotating on a vertical axis, or one nearly so, substantially in the manner described, for the purpose of enabling the driver to ride upon the machine while the rake is in operation.

Second, The combination in a two-wheeled, hinged joint machine, of a shoe with a hinged joint in it, with a rake and platform having an extension, J2, and with a draft frame which sustains the weight of the cutting apparatus and raking apparatus, with platform attached at a point between the two drive wheels.

Third, The combination with a hinged joint machine of the inner shoe and raking apparatus, substantially as described.

Fourth, The combination of a revolving or turning rake, extensible tumbling shaft, and driving shaft or axle of the main frame, substantially as described.

Fifth, The combination of a two-wheeled, hinged joint machine, a raking apparatus, and a driver's seat mounted on the main frame, substantially as described and for the purpose set forth.

DESIGNS.

2,215.—Standard and Treadle of a Sewing Machine.—Joseph W. Bartlett, New York City.

2,216.—Drawer Pull.—Pietro Cinquini (assignor to John E. Parker and H. J. P. Whipple), Meriden, Conn.

2,217.—Army Badge.—Isaac T. Hooton and J. H. Cummings, Boston, Mass.

2,218.—Monument to the Memory of Abraham Lincoln.—William H. Machew, Toledo, Ohio.

2,219.—Parlor Stove.—Charles Williams, Manchester, N. H.



**PATENTS**  
GRANTED  
**FOR SEVENTEEN YEARS.**  
**MUNN & COMPANY,**

In connection with the publication of the SCIENTIFIC AMERICAN, have acted as Solicitors and Attorneys for procuring "Letters Patent" for new inventions in the United States and in all foreign countries during the past seventeen years. Statistics show that nearly ONE-HALF of all the applications made for patents in the United States are solicited through this office; while nearly THREE-FOURTHS of all the patents taken in foreign countries are procured through the same source. It is almost needless to add that, after eighteen years' experience in preparing specifications and drawings for the United States Patent Office, the proprietors of the SCIENTIFIC AMERICAN are perfectly conversant with the preparation of applications in the best manner, and the transaction of all business before the Patent Office; but they take pleasure in presenting the annexed testimonials from ex-Commissioners of Patents.

Messrs. MUNN & Co. :—I take pleasure in stating that, while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE CAME THROUGH YOUR HANDS. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours very truly,  
CHAS. MASON

[See Judge Holt's letter on another page.]

Hon. Wm. D. Bishop, late Member of Congress from Connecticut, succeeded Mr. Holt as Commissioner of Patents. Upon resigning the office he wrote to us as follows:

Messrs. MUNN & Co. :—It gives me much pleasure to say that, during the time of my holding the office of Commissioner of Patents, a very large proportion of the business of inventors before the Patent Office was transacted through your agency; and that I have ever found you faithful and devoted to the interests of your clients, as well as eminently qualified to perform the duties of Patent Attorneys with skill and accuracy. Very respectfully, your obedient servant,  
Wm. D. Bishop.

THE EXAMINATION OF INVENTIONS.

Persons having conceived an idea which they think may be patentable, are advised to make a sketch or model of their invention, and submit it to us, with a full description, for advice. The points of novelty are carefully examined, and a written reply, corresponding with the facts, is promptly sent, free of charge. Address MUNN & CO., No. 37 Park Row, New York.

PRELIMINARY EXAMINATIONS AT THE PATENT OFFICE.

The service which Messrs. MUNN & CO. render gratuitously upon examining an invention does not extend to a search at the Patent Office, to see if a like invention has been presented there; but is an opinion based upon what knowledge they may acquire of a similar invention from the records in their Home Office. But for a fee of \$5 accompanied with a model, or drawing and description, they have a special search made at the United States Patent Office, and a report setting forth the prospects of obtaining a patent, etc., made up and mailed to the inventor, with a pamphlet, giving instructions for further proceedings. These preliminary examinations are made through the Branch Office of Messrs. MUNN & CO. corner of a and Seventh streets, Washington, by experienced and competent persons. Many thousands of such examinations have been made through this office, and it is a very wise course for every inventor to pursue. Address MUNN & CO., No. 37 Park Row, New York.

The Patent Laws, enacted by Congress on the 2d of March, 1861, are in full force and prove to be of great benefit to all parties who concerned in new inventions.

The law abolishes discrimination in fees required of foreigners, excepting natives of such countries as discriminate against citizens of the United States—thus allowing Austrian, French, Belgian, English, Russian, Spanish and all other foreigners, except the Canadians, to enjoy all the privileges of our patent system (except in cases of designs) on the above terms. Foreigners cannot secure their inventions by filing a caveat; to citizens only is this privilege accorded.

CAVEATS.

Persons desiring to file a caveat can have the papers prepared in the shortest time by sending a sketch and description of the invention, the Government fee for a caveat is \$10. A pamphlet of advice regarding applications for patents and caveats is furnished gratis, on application by mail. Address MUNN & CO., No. 37 Park Row, New York.

INVITATION TO INVENTORS.

Inventors who come to New York should not fail to pay a visit to the extensive offices of MUNN & CO. They will find a large collection of models (several hundred) of various inventions, which will afford them much interest. The whole establishment is one of great interest to inventors, and is undoubtedly the most spacious and best arranged in the world.

UNCLAIMED MODELS.

Parties sending models to this office on which they decide not to apply for Letters Patent and which they wish preserved, will please to order them returned as early as possible. We cannot engage to retain models more than one year after their receipt, owing to their vast accumulation, and our lack of storage room. Parties, therefore, who wish to preserve their models should order them returned within one year after sending them to us, to insure their obtaining them. In case an application has been made for a patent the model is in deposit at the Patent office, and cannot be withdrawn.

It would require many columns to detail all the ways in which the inventor or Patentee may be served at our offices. We cordially invite all who have anything to do with patent property or inventions to call at our extensive offices, No. 37 Park Row, New York, where any questions regarding the rights of Patentees, will be cheerfully answered.

REJECTED APPLICATIONS.

Messrs. MUNN & CO. are prepared to undertake the investigation and prosecution of rejected cases, on reasonable terms. The close proximity of their Washington Agency to the Patent Office affords them rare opportunities for the examination and comparison of references, models, drawings, documents, &c. Their success in the prosecution of rejected cases has been very great. The principal portion of their charge is generally left dependent upon the final result.

All persons having rejected cases which they desire to have prosecuted, are invited to correspond with MUNN & CO., on the subject, giving a brief history of the case, inclosing the official letters, etc.

MUNN & CO. wish it to be distinctly understood that they do not speculate or traffic in patents, under any circumstances; but that they devote their whole time and energies to the interests of their clients.

Patents are now granted for SEVENTEEN years, and the Government fee required on filing an application for a patent is \$15. Other changes in the fees are also made as follows:—

On filing each Caveat.....	\$10
On filing each application for a Patent, except for a design.....	\$15
On issuing each original Patent.....	\$20
On appeal to Commissioner of Patents.....	\$20
On application for Re-issuance.....	\$30
On application for Extension of Patent.....	\$50
On granting the Extension.....	\$50
On filing a Disclaimer.....	\$10
On filing application for Design (three and a half years).....	\$10
On filing application for Design (seven years).....	\$15
On filing application for Design (fourteen years).....	\$30

EXTENSION OF PATENTS.

Many valuable patents are annually expiring which might readily be extended, and if extended, might prove the source of wealth to their fortunate possessors. Messrs. MUNN & CO. are persuaded that very many patents are suffered to expire without any effort of extension, owing to want of proper information on the part of the patentees, their relatives or assigns, as to the law and the mode of procedure in order to obtain a renewed grant. Some of the most valuable grants now existing are *extended patents*. Patentees, or, if deceased, their heirs, may apply for the extension of patents, but should give ninety days' notice of their intention.

Patents may be extended and preliminary advice obtained, by consulting, or writing to, MUNN & CO., No. 37 Park Row, New York.

Pamphlets of information concerning the proper course to be pursued in obtaining patents in foreign countries through MUNN & CO.'S Agency, the requirements of different Government Patent Offices, etc., may be had, gratis, upon application at the principal office, No. 37 Park Row, New York, or any of the branch offices.

SEARCHES OF THE RECORDS.

Having access to all the official records at Washington, pertaining to the sale and transfer of patents, MESSRS. MUNN & CO., are at all times ready to make examinations as to titles, ownership, or assignment of patents. Fees moderate.

FOREIGN PATENTS.

Messrs. MUNN & CO., are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business they have offices at Nos. 66 Chancery Lane, London; 29 Boulevard St. Martin, Paris; and 26 Rue des enniers, Brussels. They think they can safely say that THREE-FOURTHS of all the European Patents secured to American citizens are procured through their agency.

Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

ASSIGNMENTS OF PATENTS.

The assignment of patents, and agreements between patentees and manufacturers carefully prepared and placed upon the records at the Patent Office. Address MUNN & CO., at the Scientific American Patent Agency, No. 37 Park Row, New York.

HOW TO MAKE AN APPLICATION FOR A PATENT.

Every applicant for a patent must furnish a model of his invention if susceptible of one; or, if the invention is a chemical production, he must furnish samples of the ingredients of which his composition consists, for the Patent Office. These should be securely packed, the inventor's name marked on them, and sent, with the Government fees, by express. The express charge should be pre-paid. Small models from a distance can often be sent cheaper by mail. The safest way to remit money is by a draft or Postal Order on New York, payable to the order of Messrs. MUNN & CO. Persons who live in remote parts of the country can usually purchase drafts from their merchants on their New York correspondents; but, if not convenient to do so, there is but little risk in sending bank bills by mail having the letter registered by the postmaster. Address MUNN & CO., No. 37 Park Row, New York.

Communications and remittances by mail, and models by express (prepaid) should be addressed to MUNN & CO., No. 37 Park Row, New York.



G. S. B. & Co., of Vt.—Mr. L. L. Smith, of this city, one of our largest electro-platers, says that in depositing copper on iron he should use an alkaline solution, and should prefer to employ a magneto-electric machine, driven by power, to make the deposit. Smees' Electro-metallurgy was published by John Wiley of this city, in 1852, but we should advise you to learn the art from some practical electro-plater.

L. L. V., of C. E., whose query was answered on page 20, Vol. XIII.—Lieut. John A. Winebrenner, U. S. A., of Scott Foundry, Reading, Pa., would like to communicate with you.

J. M. A., of Pa.—It is possible that you might make an engine work by creating a vacuum through the agency of a stream of water rushing through a pipe. You say you dreamed of it. Did you dream that any power was derived from it?

C. W., of Pa.—The power of an engine is obtained by squaring the diameter of the cylinder in inches, and multiplying by 7854. The sum so obtained, multiplied by the pressure of steam will give the pressure on the piston in pounds. This last is to be multiplied by the length of the stroke in feet, and again by the number of revolutions per minute, and this sum divided by 33,000. This will give the horse-power, for a horse is capable of raising 33,000 pounds one foot high per minute.

B. B. C. of N. Y., asks:—"Can you tell me the best field for an inventor to work? I think if I knew I would devote my whole time and energies to that particular object." Ans.—The best field is, of course, that in which you are best qualified. For example, an ingenious man who is thoroughly acquainted with cotton and woolen manufacture would be more likely to succeed in making inventions pertaining to such mechanism than if he were to attempt improvements in a direction where he had had no experience. For further hints study the SCIENTIFIC AMERICAN.

J. K., of Ill.—Fairbairn gives the tensile strength of single-riveted boiler plate at 56,000 lbs. to the square inch. To get the strain upon the plate of a spherical boiler multiply the square of the diameter by 7854, and this by the pressure per square inch. Your plan of securing the joints would give increased strength, but how much it is impossible to say, as it depends on so many circumstances.

C. D. R., of Tenn.—It is not new to stamp the exterior of lead pencils with measuring figures and marks, to indicate inches, and parts thereof.

G. W. R., of Mo.—You ask, "Is air a component part of a drum?" The reply is, it depends on the meaning of the word drum; and the meanings of words are to be determined by lexicographers. Webster defines drum, "A martial instrument of music, in form of a hollow cylinder, and covered at the ends with vellum, which is stretched or slackened at pleasure." It does not seem that air is a component part of the drum.

W. B., of N. J.—Gum shellac, dissolved in alcohol, will probably render your pine boards impervious to water; or you might line your tank with lime cement.

F. D., of Ky.—An india-rubber cement is made by dissolving pure india-rubber—not vulcanized—in spirits of turpentine. With this cement two pieces of india-rubber may be fastened together by coating their surfaces with the cement, and subjecting them to long-continued pressure. An india-rubber foot-ball might be patched in this way.

T. C. T., of N. Y., asks:—"Do you know of any good patent of which I can get an agency that will pay?" If our correspondent will read the SCIENTIFIC AMERICAN with regularity he will become cognizant of many valuable inventions for which doubtless he could get an agency. Or, if he chooses to advertise in our columns for an agency, probably he would receive a number of suitable replies.

A. F., of Mich.—We do not know where a complete modern model engine, low pressure, and fitted with every detail, could be had cheap. It depends greatly on the meaning people attach to words. Such an engine, with boiler, would be worth \$150, and could not now be built for that.

A., of Conn.—One good way of encouraging your boys to take an interest in their work will be to supply them each with a copy of the SCIENTIFIC AMERICAN. Boys take pride in a paper which comes addressed to their names, and generally read its pages with care. A large engineering firm at the West lately wrote us that they are accustomed to make a Christmas gift of the SCIENTIFIC AMERICAN to their best boys. We know of other establishments where the proprietors voluntarily supply their workmen with this journal, and find that it pays a hundred fold and more.

L. P., of N. Y.—Your plan for an aerial car, with an elevating gas bag, to be drawn through the air by birds, may have advantages over the contrivance illustrated in the SCIENTIFIC AMERICAN a short time ago, in which the car was put on and moved by bird power only. Our friend Will Brighteye prefers to drive with birds exclusively.

T. H. B., of N. Y.—We are not sure that we understand your question. To raise water fourteen feet requires a pressure of about seven pounds, and if it takes 20 pounds to draw the water through your nozzle, the power requisite for that would manifestly be nearly three times greater than that required to lift the same water fourteen feet. If, on the other hand, you obtain twenty pounds pressure from the hydrant, it will require less power to work from that.

H. C. P., of N. Y.—We have no doubt that our correspondent was able to understand that the explanation of the motion of a projectile varying from its north or south direction applied to the hemisphere in which we live; it is very plain that in the southern hemisphere the directions would be reversed. Are you not in error in supposing that 761 bears a larger proportion to 597 than 262 does to 747?

PORTABLE STEAM ENGINES.—THESE WORKS have lately increased their facilities for the manufacture of their so popular engines. Prices reduced to a peace standard. Fourteen feet and more of heating surface given to the nominal horsepower.

STATIONARY AND PROPELLER ENGINES. with Boilers of the best design, made to order. The Stationary Engines have Variable Cut-off worked by Governor. Patent Steam Pumps, which can also be used as steam engines, by simply detaching pump. Circular Saw-mills, of latest construction. Ray's Patent Forge Hammers, so popular with rail-roads and machine shops, have lately been much improved in detail. Locomotive boilers built to order. Send for circular. F. W. RAEDER, 18 17 Ames Iron Works, Oswego, N. Y.

FOR SALE—ONE DANIEL'S PLANER—PLANES 20 inches by 18 feet; price, \$250. One 36-inch Mackenzie Fan Blower; price, \$200. Both in good order. Address McC. YOUNG, Frederick, Md.

WANTED—A PARTNER, WITH A CASH CAPITAL of \$50,000 to manufacture my Corn Picker—have been seven years developing and testing this machine; have tested it under all possible conditions of the corn, from the 15th of September until May; picks the corn in complete style, down stalks and all; machine runs independent; discharges corn into wagon; drawn by one span of horses; saves two-thirds of the time, and all the hand labor. A complete working machine will be on public exhibition from the 15th of November until the 15th of April, 1885. Will sell the Right of one or two States, but would rather enter into a copartnership, with capital sufficient to manufacture the machines for all the corn-growing States. Patent secured. Come and see the machine work. Come to Summit Station, Knox Co., Ill. GEO. GEEB, 21 3 Address Douglas, same place.

FINE, POWERFUL DOUBLE-LENS MICROSCOPE, of which Prof. Horstford, of Harvard University, says: "It works very well, and you have got it up very neatly." Free, by mail, 65 cents. The "Square Lens" Microscopes 50 cents, and the "Little Wonder" 40 cents. One each for \$1. J. EDWIN KING, Box 2,552, Boston, Mass.

\$500 WILL BUY THE RIGHT OF BAILEY'S Patent Ice Creeper and Buckle—best ever introduced. See illustrations, page 192, Vol. VIII. (new series), SCIENTIFIC AMERICAN. Creepers for sale. GILBERT L. BAILEY, 21 4 Portland, Maine.

PAGE'S NEW SUPERIOR DRAW LIMEKILN—THE only Kiln that will burn good Finishing Lime with coal, also with wood. Patent runs seventeen years. Warranted to please. Rights for sale. C. B. PAGE, Rochester, N. Y.

NOTICE TO LUMBERMEN.—ALL PARTIES MANUFACTURING Lumber with Circular Saws will please send their address to the subscribers, as they wish to correspond with them in relation to a new arrangement for Gumming. 21 4 DOLE & SILVER, Salem, Ohio.

TO PATENTEES.—THE UNDERSIGNED WISH TO Manufacture Circular Saw-mills under some good patent. Address SNYDER BROS., Founders and Machinists, Williamsport, Pa.

MACHINERY—STEAM ENGINES—100 and 150 Horse-power; 8 Boilers, 80 Rolls, 9 1/4, and 18 in diam. Roll Stands, Mill Gearing, Fly Wheels, Furnace Castings, Lathes, Tools, Etc. J. H. JACKSON, No. 155 Broadway.

UPRIGHT BORING MILL WANTED—TO SWING 9 feet or more. Any person having and for sale will send price, description, etc., to CAIRO IRON WORKS, Cairo, Ill.

THE OUNCE BOOT-JACK.—REPEATED INQUIRIES for my Ounce Boot-jack have determined me to put it in the market again, although I had not thought of doing so, having more urgent business. The Boot-jack is simply a small metallic plate attached to the heel of a boot to draw the same off, and to prevent the pantaloons from getting frayed out by being trodden upon. I sold many hundred pairs last winter. Prices are now lower. I will sell one gross, 288 pieces, for \$18; one half gross, \$9; three dozen set, \$5. Colored Show Cards sent with half-gross orders. State and County Rights, or the whole Patent for Sale low. EGBERT P. WATSON, Box 773, N. Y.

PORTABLE STEAM ENGINES, OF SUPERIOR MANUFACTURE, on hand for sale, by LEACH BROTHERS, No. 88 Liberty street.

BOILER INCrustATION—A MOST VALUABLE Discovery, and a perfect remedy for the removal of scale in fresh or salt-water boilers. Warranted to free your boilers of scale and prevent the iron from corrosion. High testimonials and circulars furnished on application to A. TEMPLE, Bridgeport, Conn.

A VIRGINIA FARM FOR SALE.—WE ARE AUTHORIZED to sell a superb Virginia Corn, Wheat, and Tobacco Farm, situated on the Boydton Plank Road, twenty-five miles from Petersburg, in the County of Dinwiddie. The tract numbers 1,100 acres. Persons desiring to colonize could divide this into several small farms. Price, \$500. Title beyond dispute. Address DANCY, HYMAN & CO., No. 80 Cedar street, New York.

PLATINUM CRUCIBLES, DISHES, TUBE, SHEET Wire, Etc., for sale by H. M. RAYNER, Importer of Platina, 738 Broadway, N. Y. Platinum Scrap and Ore purchased. 21 3eov\*

CLUTE BROTHERS, SCHENECTADY, N. Y., MANUFACTURERS of Stationary and Portable Steam Engines and Boilers, high and low pressure; Water Wheels, Flouring and Grist Mills, with portable or large Stone; Gate and Circular Saw-mills; Circular and Drag Cross-cut Steam Sawing Machines; Buckskin Mills; Shafting, Hangers, Pulleys, Gearing, and General Jobbing. Plans made, and competent Millwrights furnished to go to any part of the country.

OSCAR BARNETT'S MALLEABLE AND GRAY Iron Foundry and Machine Shop, Hamilton, McWhorter and Brun streets, Newark, New Jersey.—Drops, Screw, and Foot Presses, Lathes, Shaping Machines, Jewelers' and Hatters' Presses, Etc., constantly on hand or made to order. Particular attention given to the manufacture of Dies, Punches, and Jobbing generally. Depot, No. 85 Center street, N. Y. 21 3\*

PATENT EXCHANGE—ESTABLISHED FOR THE Introduction and Sale of Patents. For terms apply to THOS. G. ORWIG & CO., Patent Exchange, No. 229 Broadway, N. Y. 1\*

TO LET—A ROOM 36 BY 86; HIGH CEILING; well lighted; eligible location, in the City of Bridgeport, Conn. Address Key Box 52, Bridgeport, Conn. 21 3\*

STEAM ENGINES AND BOILERS FOR SALE.—One horizontal Steam Engine, 40 horse-power, made by Hawes & Phillips, of Newark, in good order. And three Flue Boilers, 3 feet diameter, 30 feet long, with 16-inch flue. Also, one Beam Engine, 12 by 30-inch cylinder, with Air Pumps and Water Pumps complete for working a vacuum pan. And two Tubular Boilers, 4 feet by 12 feet 4 inch tubes, with Grate Bars, Fronts and Connections complete. 21 3\* Apply at Nos. 6 and 8 Trinity Place.

MILITARY DIVISION OF THE TENNESSEE, CHIEF QUARTERMASTER'S OFFICE, U. S. M. R. R., NASHVILLE, TENN., October 31, 1865.

EXTENSIVE SALE OF GOVERNMENT RAILROAD PROPERTY.—Will be sold, at public auction on November 20, 1865, at the foot of Poplar street, St. Louis, Mo. Two Flat Cars, 5 1/2 feet gage. On November 25, 1865, at the yard of the Jeffersonville Railroad Company, Jeffersonville, Ind. Nine Flat Cars—Gage, 4 feet 8 1/2 inches.

On November 27, 1865, at Louisville, Ky. 31 Car Wheels, 45 p-s. Wheels and Axle 3, 217 Old Axles, 1 Tender, 1 Engine Truck, 1 Smoke Stack, 1 Engine Truck, 1 Pair Drivers, 4 Springs, 1 Parallel Rod, 1 Bell and Frame, 4 Hand Cars, 14 Truck Cars, 80,000 Pounds of Scrap Iron.

On December 1, 1865, at Memphis, Tenn., the entire stock of the U. S. Military Railroad Supplies remaining on hand at that place, consisting in part as follows:—Eighty tons Assorted Iron, Eight hundred tons Scrap Iron, Eight tons Assorted Steel, One ton Pig Lead.

And a general assortment of Small Stores, suitable for railroads. On December 11, 1865, at Nashville, Tenn., the entire stock of new and serviceable Stores of the U. S. Military Railroad remaining on hand at the General Supply Store, consisting in part as follows:—Twenty thousand Axes, One thousand tons Assorted Bar Iron, round, square, hfrd., Eighty tons Boiler and Tank Iron, Thirty-five tons Assorted Steel, Three hundred tons Scrap Iron, wrought and cast, Twenty five thousand pounds Engine Brass Castings, Heating Stoves, Gas Fixtures of all kinds, Oil Cans, Brass Cocks of every description, Globe Valves, all sizes, Claw, Lining, and Tamping Bars, Iron and Copper Rivets and Burrs, Sheet Copper and Brass, Chains and Rope of all sizes, Blocks, Tackle and Snatch, Kelly's Head Lights, Cooking Stoves and Fixtures.

Full Sets of Carpenters, Blacksmiths, and Saddlers' Tools, Rubber Car Springs, Belling Gum, and Leather, File, Bug, and Screws, Tinware of all kinds; and almost every article suitable for railroad operation; all of the very best quality. Three Large Lathes, Stevens & Bro. manufacturers, Two Planers, Sellers & Co. manufacturers, One Bolt Cutter and 1 Gear Cutter, Gould & Bro. manufacturers, One Axle Cut-off—Lathie, Warner & Whitney, Two Fan Blowers, medium, One Upright Engine, 8 horse-power, One Trip Hammer and Engine, Howells patent, One Broomfield Steam Hammer, One Sellers' Steam Hammer.

Will also be sold at the same time, a large amount of serviceable and second-hand Railroad Tools of all kinds, consisting of Carpenters' Tools, Wheelwright Tools, Blacksmiths' Tools, Machinists' Tools, Stoves and Pipe, Rope, Chains, Etc. Terms Cash, in Government funds. Catalogues of the materials to be sold in Nashville can be obtained by application to Capt. S. R. Hamill, A. Q. M., and at Memphis on application to Capt. John Parks, A. Q. M. The attention of Dealers and Railroad Companies is particularly invited to this sale. Sales will commence at 9 o'clock, A. M., on each day, and continue daily until all the property is disposed of. F. J. GRILLY, Capt. and A. Q. M. U. S. A.

CHEAP BREAD, RESTLESS NIGHTS, RECREATION, Apoplexy, Who are Happiest, Warmth and Strength, Ptoisides, Stomach's Appeal, Economical Eating, Gouty Men, and their Health, Household Knowledge, Cooking Receipts, in 100 Numbers, Fatiguing Weekly, Horse R. Jobs, Food and Health, Facis of Eating, Where to Study, Value of Food, Tables of Food, In Hall's Journal of Health, 15 cents; \$1 50 a year; 2 W. 43d st., N. Y.

INDIA-RUBBER AND PERCUSSION-CAP MANUFACTURERS are requested to communicate their address to the undersigned, which will prove mutually advantageous. S. S. REMBERT, care J. & J. Steele & Co., Memphis, Tenn. Also, a Gunsmith, who will make me a few fine double-barreled shot-guns for sporting purposes. 21 2\*

SPOKE LATHES (BLANCHARD'S) OF AN IMPROVED pattern, manufactured by J. GLEASON, No. 1,030 Germantown avenue, Philadelphia, Pa. 21 2\*

ROLLED SEAMLESS BRASS TUBES—FOR LOCOMOTIVES, Steam Boilers, Sugar Pans, Feed Pipes, Etc. The Tubes are made tapering or perfect bore, the latter of most accurate sizes, and in lengths and other kinds of Pumps. They can be bent into any shape required, without fear of splitting. Manufactured by the Columbian Metal Works, M. M. FREEMAN & CO., Agents, No. 40 Broadway, N. Y. 21 5\*

CLERGYMEN, TEACHERS, THE PRESS UNITE IN saying that the new juvenile magazine, "OUR YOUNG FOLKS," is the best magazine for the young ever published in America. It is filled with attractive illustrations, and its articles, in prose and poetry, are by the best writers for children in the country. It is sold at the low price of \$2 a year. Each number contains 64 pages, beautifully printed. A liberal discount to clubs. Send 20 cents for a specimen copy and circular to the publishers, TICKNOR & FIELDS, Boston. 20 2f

THE LANE & BODLEY PORTABLE CIRCULAR SAW-MILL combines strength and simplicity in construction with the greatest endurance and economy in operating it. The Patent Simultaneous and Independent Wrought-iron Head Blocks are worth the attention of Lumbermen, as they can be used on any Circular Saw-mill. For Illustrated Catalogue address LANE & BODLEY, Cincinnati, Ohio. 20 14\*

THE LANE & BODLEY POWER-MORTISING MACHINE.—We manufacture six varieties of this well-known machine, adapted to the manufacture of Rail Cars, Agricultural Implements, Furniture, Sash and Blinds, Wagon Hubs, Etc. For Illustrated Catalogue address LANE & BODLEY, Cincinnati. 21 14\*

STEAM FIRE ENGINE.—READY FOR IMMEDIATE delivery, one Locomotive Steam Fire Engine, of the style known as the "Cincinnati Engines;" two Cylinders, 8 inches diameter, 30 inches long, with 16 inch tubes, and an inventive wheels of Wrought Iron; will stand rough running; can be relied on to get to work uniformly in five minutes, and will gain steam while working. Boilers of this construction are in use by the Cincinnati Fire Department that are eleven years old and have needed no important repairs. (20 4\*) LANE & BODLEY, Cincinnati, Ohio.

BARAGWANATH & VAN WISKER, NO. 200 BROADWAY, N. Y. Agents for the Sale of Patents in Europe and other countries. Branch offices, London, Paris, and Melbourne. 20 4

TWENTY-FIVE TO THIRTY THOUSAND DOLLARS.—A Partner Wanted with above capital, to engage with advertiser, who is a practical Engineer and Machinist, in the Machinist, Tool and Machine Business. Shops now running, and command first-class patronage. All communications, with real name, strictly confidential. Address CAPITAL, Station A, Philadelphia Post-office. 20 3\*

INTEREST IN A VALUABLE PATENT RIGHT.—ON account of the death of one of the parties in interest, a share of interest for a valuable term in an invention already introduced, of great practical value. From twenty to fifty thousand dollars required, according to the proportion sold. Address Box 438 New York Post-office. 20 4\*

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S. HEALD & SONS, BUILDERS OF THE MOST Improved Circular Saw-mills, Woodworth Planers, Scroll Saws, and a large variety of other Machinery, Corn and Cob Crackers, Etc. Machines in operation at the works, Barre, Mass. 20 3\*

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FOR SALE—THE EXCELSIOR AGRICULTURAL WORKS, Fort Wayne, Ind.—Owing to the death of the Senior Partner, the proprietors of the above works offer the same for sale. The works are situated at the junction of the Pittsburgh, Fort Wayne and Chicago R. W. Co., and Toledo and Western R. W. Co., Fort Wayne, Indiana. The buildings are new, erected expressly for the manufacture of Reapers and Mowers, Separators and Agricultural Implements, with new machinery of the most improved kind, and a large amount of stock on hand, and situated in the midst of the finest timber region of the country, with direct access to all parts of Indiana, Illinois, Wisconsin, and Iowa. No works in the country presents stronger inducements for profitable investment. They will be sold on reasonable terms for cash, or on time, and immediate possession granted. Address JOHN HOUGH, Agent, Fort Wayne, Sept. 20, 1865. 20 4\*

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The form is the strongest possible; its strength to resist pressure very great -unweakened by punching or riveting...

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A MESSEURS LES INVENTEURS.-AVIS IMPORTANT Les inventeurs non familiers avec la langue Anglaise, et qui préféraient nous communiquer leurs inventions en Français, peuvent nous adresser dans leur langue maternelle. Envoyez nous un dessin et une description concise pour notre examen. Toutes communications seront reçues et traitées. MUNN & CO., Scientific American office, No. 37 Park Row, New York.

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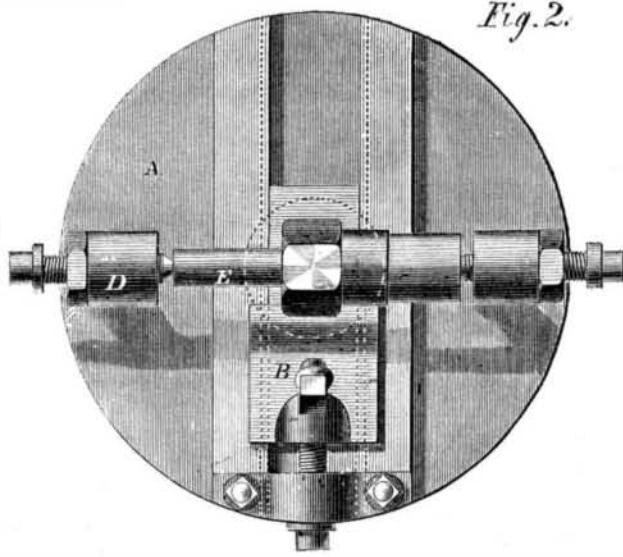
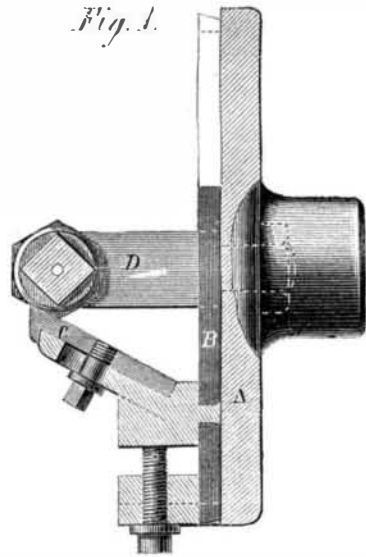
Zur Beachtung für Deutsche Erfinder. Die Untergzeichneten haben eine Anleitung, die Erfindern das Verhalten angibt, um ihre Patente zu sichern, herausgegeben, und beabsichtigen solche gratis an dieselben. Erfinder, welche nicht mit der englischen Sprache befaßt sind, können ihre Mitteilungen in der deutschen Sprache machen. Stützen von Erfindungen mit kurzen, deutlich gefaßten Beschreibungen, welche man zu adressieren an MUNN & CO., 37 Park Row, New-York. Auf der Dfite wird deutsch gesprochen. Dieselbst ist zu haben: Die Patent-Gesetze der Vereinigten Staaten, nebst den Regeln und der Geschäftsordnung der Patent-Office und Aufstellungen für den Erfinder, um sich Patente zu sichern, in der Ber. Staaten sowohl als in Europa. Ferner Auszüge aus den Patent-Gesetzen fremder Länder und darauf bezügliche Nachrichten, ebenfalls nützliche Hinde für Erfinder und solche, welche patentiellen Rechte. Preis 20 Cts., des Post 25 Cts.



**Improved Nut Chuck.**

Machinists know very well that hexagonal, or six-sided, nuts take considerable time to finish, and that unless machines are employed the work becomes tedious and costly. In old times apprentices were made to chip and file all the six-sided nuts, but they were not always successful in their attempts. One half the nuts were spoiled from being variable in the size; no two angles were alike, and no single wrench would fit them. It was a great improvement on chipping and filing nuts when "slabbers," or milling machines, were adopted, for then all the nuts were alike in size and in the angles. The machine here shown is intended to face up six, eight, or four-sided nuts

steam power, pierces sixteen holes in the heel, after the 'lifts' are tacked together slightly, at the same time compressing the whole into a solid mass. Then the heel is taken to another machine, of similar construction, and the sixteen holes are pierced with one stroke by sixteen nails, and the heel fastened strongly to the sole of the shoe. The work is performed at a rate of one pair of shoes per minute, or faster if necessary; and the two machines, worked by one man and a boy, do the work of four heelers, thereby saving an outlay, at present prices for such labor, of fifty dollars per week. One hundred and ten operatives, men and women, boys and girls, are employed, divided into 'gangs' of ten or twelve



**REILLY'S NUT CHUCK.**

on a lathe, the same as is done on a slabbing or milling machine, and, as any mechanic can see at a glance, it will do the work to perfection.

A common face-plate, A, is fitted with a slide, B, which carries a gage, C, suited to the number of sides on the nut. This gage is shown in section of Fig. 1. From the face-plate two arms, D, project, which carry a mandrel, E, on which the nut is fixed as usual. These are the details, and the operation of them is easily understood. The chuck is screwed on to any common lathe, and the work of facing off the nuts can be done by a boy. Any sized nut can be faced off with the same gage for a guide. For by running the slide, B, out, and lengthening the gage, C, large or small nuts can be accommodated. The angle is always the same for hexagonal nuts of all sizes. This is an ingenious arrangement, worthy the attention of all persons making six-sided nuts. A number of nuts can be cut at once, but by working one at a time a beautiful finish is given, which is peculiar to this machine. The rays of light all converge in the center, as shown in the nut on the mandrel. Rough nuts can be quickly faced up on this chuck, by having two tool posts—one for roughing, the other for finishing. With a water finish the last cut is better than any nut we have ever seen, far surpassing emery polish.

This chuck was patented on May 30, 1865, by William A. Reilly; for further information address him corner of Third and Lawrence streets, Cincinnati, Ohio.

**A Pair of Shoes Made in a Minute.**

At Lynn, Mass., they make a pair of shoes in a minute; that is, the amount turned out at the end of the week is equal to a pair for every working minute of the time. This is done, says the Boston Commercial Bulletin, at Messrs. Bancroft & Purington's establishment:—

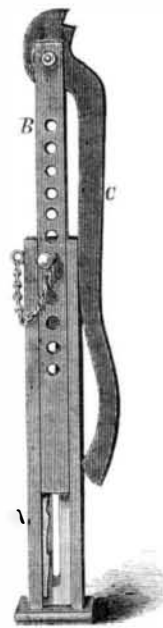
"Perhaps the most extensive establishment, in the details of its operations, is that of Messrs. Bancroft & Purington, who make about \$40,000 worth of ladies' boots per month. Mr. Purington has introduced the factory system of labor, and to decided advantage. One can witness in his rooms the entire process of making a shoe, from the rough side of leather to the full-finished article. Mr. P. has also introduced new machinery well worthy the attention of the trade. One of these machines, by the simple movement of a small lever, operated by hand or

each. Something more than a pair of shoes a minute are now being made during each ten working hours, and these are sent off to the purchaser every morning. The uppers are stitched in a separate establishment, and after a lot is received from the stitchers' hands, two days is ample time to prepare them for the sales-room of the purchaser."

**FIELD'S CARRIAGE JACK.**

A jack is an indispensable utensil to every one who owns a wheeled vehicle of any kind, for in order to grease the axles or remove the wheels from them they must be raised clear of the ground.

The engraving published herewith shows an improved carriage jack, by the aid of which any wagon or cart may be immediately raised and held securely without danger of falling. The details are as follows:—A represents a wooden standard which has a groove on each side to receive a metallic bar, B. In the latter there are holes and a pin fast to a chain, which passes through both parts, and supports them; in this way the jack can be fitted to any height of axle. When once brought to its position the lever, C, is thrown down—as shown in the engraving—and the axle rests on top of it. This machine is strongly made, and can be easily worked by any one. It was patented through the Scientific American Patent Agency, on April 25, 1865, by Austin W. Field, of Vergennes, Vt.; for further information address him at that place. State and county rights for sale.



**CORRECTION.**—In the article on small steam boilers, published in our last issue, it was stated that the threads cut on the tubes should be 28 to the inch. This is an error; the number of threads should be 48—as a brass tube one thirty-second thick would not carry 28 threads.

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