

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Patent Lawyers, Experts, and Capitalists wanted to collect \$1,000,000 for infringements, at 50 per cent. Most valuable patent ever issued. Address 2,049 Euclid Ave., Cleveland, Ohio.

Best Wood Cutting Machinery, of the latest improved kinds, eminently superior, manufactured by Bental, Margedant & Co., Hamilton, Ohio, at lowest prices.

A Microscope with 100 mounted objects for one dollar; circulars free. Address D. L. Smith, Waterbury, Ct.

Vises, horizontal and vertical, illustrated on page 342. Sample sent prepaid in the U.S. on receipt of \$2. Patent for sale. W. X. Stevens, East Brookfield, Mass.

Cash Registering Machine required in every store. Patent rights for sale. Circulars, Box 619, Petrolia, Pa.

Wanted.—Persons prepared to Manufacture small articles of Brass (a coin tester). Please communicate with H. Maranville, Akron, Ohio.

Wanted.—A New or Second-hand Jeweler's Hand Power Drop, in good order. Address, with price, D. M. Williams & Co., Fort Worth, Texas.

Patent Right for sale of Sulky and Gang Plow; one that never was beaten on test. Apply to E. C. Eaton, Patentee, Pinckneyville, Ill.

Rubber Belting, Packing, Hose, and Manufacturers Supplies. Greene, Tweed & Co., 13 Park Place, N. Y.

Water Wheels, increased power. O. J. Bollinger, York, Pa.

Vertical Scientific Grain Mills. A. W. Straub & Co., Phila.

Diamond Planers. J. Dickinson, 64 Nassau St., N. Y.

Vertical & Yacht Engines. N. W. Twiss, New Haven, Ct.

Cornice Brakes. J. M. Robinson & Co., Cincinnati, O.

Sperm Oil, Pure. Wm. F. Nye, New Bedford, Mass.

Power & Foot Presses, Ferracute Co., Bridgeton, N. J.

Painters' Metal Graining Plates. J. J. Callow, Cleveland, O.

Bolt Forging Machine & Power Hammers a specialty. Send for circulars. Forsaith & Co., Manchester, N. H.

For Town and Village use, comb'd Hand Fire Engine & Hose Carriage, \$350. Forsaith & Co., Manchester, N. H.

Zero Refrigerator, with cooler. Centennial award. Send for catalogue. A. M. Lesley, 372 Sixth Ave., N. Y.

F. Lunkenheimer's Brass Goods for Engine Builders, Automatic Oil Feeders, Glass Oil Cups, Cody Shaft Oilers, etc. Address Cincinnati Brass Works.

The SCIENTIFIC AMERICAN Export Edition is published monthly, about the 15th of each month. Every number comprises most of the plates of the four preceding weekly numbers of the SCIENTIFIC AMERICAN, with other appropriate contents, business announcements, etc. It forms a large and splendid periodical of nearly one hundred quarto pages, each number illustrated with about one hundred engravings. It is a complete record of American progress in the arts.

1,000 2d hand machines for sale. Send stamp for descriptive price list. Forsaith & Co., Manchester, N. H.

Nickel Plating.—A white deposit guaranteed by using our material. Condit, Hanson & Van Winkle, Newark, N. J.

Cheap but Good. The "Roberts Engine," see cut in this paper, June 1st, 1878. Also horizontal and vertical engines and boilers. E. E. Roberts, 107 Liberty St., N. Y.

Foot Lathes, Fret Saws, &c., 90 pp. E. Brown, Lowell, Ms.

For Shafting, Pulleys, Hangers, etc., send for price list and discount to Hilles & Jones, Wilmington, Del.

Improved Steel Castings; stiff and durable; as soft and easily worked as wrought iron; tensile strength not less than 65,000 lbs. to sq. in. Circulars free. Pittsburgh Steel Casting Company, Pittsburgh, Pa.

Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever.

Valuable Invention to users of Steam Boilers. See advt., page 318, last issue. Address U. S. Automatic Stoker Co., No. 2 Chestnut St., Philadelphia, Pa.

Presses, Dies, and Tools for working Sheet Metals, etc. Fruit and other Can Tools. Bliss & Williams, Brooklyn, N. Y., and Paris Exposition, 1878.

For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St. Wm. Sellers & Co.

The great Wheelock Engine, which furnishes the power to the machinery of the American Exhibit at the Paris Exposition this year, is lubricated by Patent Lubricene and Cups. Our exhibit will equal that which we made in Philadelphia in 1876. R. J. Chard, 134 M. Lane, N. Y. city.

Friction Clutches for heavy work. Can be run at high speeds, and start gradual. Safety Elevators and Hoisting Machinery a specialty. D. Frisbie & Co., New Haven, Ct.

Wrenches.—The Lipsey "Reliable" is strongest and best. Six inch sample by mail 60 cents. Roper Caloric Engine Manufacturing Co., 91 Washington St., N. Y.

The Cameron Steam Pump mounted in Phosphor Bronze is an indestructible machine. See ad. back page.

For Solid Wrought Iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

Solid Emery Vulcanite Wheels.—The Solid Original Emery Wheel—other kinds imitations and inferior. Caution.—Our name is stamped in full on all our best Standard Belting, Packing, and Hose. Buy that only. The best is the cheapest. New York Belting and Packing Company, 37 and 38 Park Row, N. Y.

Hydraulic Presses and Jacks, new and second hand. Lathes and Machinery for Polishing and Buffing metals. E. Lyon & Co., 470 Grand St., N. Y.

Climax Washing Machine. Reliable Agents wanted. Descriptive circulars furnished. N. C. Baughman & Co., York, Pa.

We make steel castings from 1/4 to 10,000 lbs. weight. 3 times as strong as cast iron. 12,000 Crank Shafts of this steel now running and proved superior to wrought iron. Circulars and price list free. Address Chester Steel Castings Co., Erelina St., Philadelphia, Pa.

Blake's Belt Studs, the best fastening for Rubber and Leather Belts. Greene, Tweed & Co., 13 Park Place, N. Y.

Hand Fire Engines, Lift and Force Pumps for fire and all other purposes. Address Rumsey & Co., Seneca Falls, N. Y., U.S.A.

The Turbine Wheel made by Risdon & Co., Mt. Holly, N. J., gave the best results at Centennial test.

Scroll Saws.—Three 2d hand, Cordesman, Egan & Co. make. Send for cuts. Steptoe & Co., 214 W. 2d St., Cin. O.

Manufacturers of Improved Goods who desire to build up a lucrative foreign trade, will do well to insert a well displayed advertisement in the SCIENTIFIC AMERICAN Export Edition. This paper has a very large foreign circulation.

Bound Volumes of the Scientific American.—I have on hand bound volumes of the Scientific American, which I will sell (singly or together) at \$1 each, to be sent by express. See advertisement on page 380. John Edwards, P. O. Box 786, N. Y.

NEW BOOKS AND PUBLICATIONS.

PRINCIPLES OF MACHINE CONSTRUCTION. By Edward Tompkins. With volume of Plates. G. P. Putnam's Sons, Publishers, 182 Fifth avenue, New York.

This work belongs to Putnam's Advanced Science series. It is an exceedingly clear, well arranged and well edited treatise, simple enough for the student of mechanical engineering at the outset, and at the same time it will prove a useful manual of reference to the practicing engineer. We can commend the book as one which embodies a great deal of information which too often by the free use of the higher mathematics is made unnecessarily obscure. No extensive knowledge on the part of the reader is here presupposed. The author begins with simple drawing apparatus, and devotes his initial chapter to the rudiments of draughting. He then advances through various geometrical constructions, development of surfaces, etc., and finally in the chapter on "Motion" enters upon the application of the principles laid down. Elementary combinations of mechanism, a discussion of materials, modes of construction, a good clear exposition of the difficult subject of gearing, and lastly the practical building of machine tools, make up the rest of a volume which impresses us as excellent from beginning to end.

PINE PLANTATIONS ON THE SAND WASTES OF FRANCE. By John Croumbie Brown, LL.D. Edinburgh: Oliver & Boyd, Publishers.

Dr. Brown has published a number of valuable work on sylviculture, which contain strong arguments against the destruction of forests and in favor of reclaiming waste lands by tree planting. The present work relates mainly to the attempts at arresting and utilizing the sand drifts on the waste regions in France by the plantation of the pine and other trees or grass, the suitability of which is indicated by the nature of the soil and atmospheric conditions.

A MANUAL OF INDUSTRIAL CHEMISTRY. Edited by B. H. Paul, Ph.D. New York: John Wiley & Sons, 15 Astor Place. Price \$10.

This work is based upon a translation of Stohmann and Engler's German edition of Payen's "Précis de Chimie Industrielle." It is copiously illustrated, and the editor has added some chapters on the chemistry of the metals. As a manual for general reference it will probably serve instead of larger and more costly works, as it contains much useful information in condensed form.

PROTECTION AND REVENUE IN 1877. Published by G. P. Putnam's Sons, 182 Fifth avenue, New York.

This is a lecture delivered before the New York Free Trade Club by Professor Sumner of Yale College. It adds many cogent arguments to one side of a controversy in which it is not the province of this journal to participate.



(1) G. W. S. asks: Can any saving be made in battery material of Callaud cells by breaking circuit when not needed for use? A. If the circuit remains open any length of time the blue (copper) solution reaches the zinc; soluble zinc sulphate is then formed and the copper deposited on the zinc. The Smee or Leclanché cell is better suited for open circuit lines.

(2) C. B. P. asks: 1. What is the title of M. Peclet's work, so often quoted in Rankine's treatise on the steam engine? A. "Traité de Chaleur," par M. Peclet, Paris. 2. Who are the standard authorities on locomotive engineering? A. Colburn, Clark, Holley, and Forney are authors of standard treatises on the locomotive. 3. Does an engineer, who makes a specialty of locomotives, require to be well versed in the higher branches of mathematics, such as calculus, trigonometry, or conic sections? A. Some of the most successful builders have been ignorant of the higher analysis, but such knowledge is frequently of great assistance.

(3) O. J. B. asks: Which will transmit more power, a polished cast iron pulley or a rough one? A. A polished pulley.

(4) W. M. J. writes: I wish to build a 16 x 25 foot drying room for green lumber 25 feet from my engine, using the exhaust steam from the engine, which is 25 horse power. It takes all the power to do the work required of it with a free exhaust through a 2 1/2 inch pipe. I am fearful of the back pressure. Will it do to enlarge the pipe 1/2 inch, and if so, how many coils of pipe will be necessary? A. You can regulate the back pressure to a considerable degree by using large heating pipes. With 3 inch pipe and 8 or 9 coils, which would probably be sufficient for your purpose, the back pressure ought not to be increased more than from 1 1/2 to 2 lbs. per square inch.

(5) G. & H. ask how to galvanize sheet iron. A. The iron should be cleaned by immersion in an acid bath (sulphuric acid and water, equal parts), and then scrubbed with sand or emery. When clean, it is

to be placed in a bath of melted zinc, covered with sal ammoniac. If desired, it may then be placed in a bath of melted tin, or may be used at once, after receiving the zinc coating.

(6) R. J. B. writes: Occasionally I am in the habit of laying my pen, without cleaning, on the writing desk (which is of mahogany) and by so doing have spotted the desk in many places. What will remove the stains? A. The ink may be removed by the application of strong aqueous solution of oxalic acid or a solution of calcium hypochlorite in acetic acid. Apply wet blotting paper to remove excess of solution, and then a dry blotter. After the wood is dry apply a little boiled oil. The spotting cannot be altogether obliterated.

(7) G. S. C. writes: By using oxalic acid with Prussian blue for laundry purposes, it gives the water a greenish tinge. What can I use that will give the water a purplish tinge or a purplish blue? A. Use potassium ferrocyanide instead of oxalic acid, in proportion of about 3 to 20 of the Berlin blue. See p. 969, SCIENTIFIC AMERICAN SUPPLEMENT, No. 61.

(8) E. B. asks whether spur or bevel wheel gearing is preferable, in cases where either kind can be applied. A. Spur gearing is best.

(9) W. & K. write: We have difficulty with a belt in our office. On which will a leather belt slip least, smooth iron, rough iron, or a turned wood surface? A. Smooth iron. As a general rule the best way to prevent the slipping of belts on smooth faced pulleys, is to increase the area of the friction surface by using pulleys of larger diameter or width of face, and belts of a corresponding size.

(10) J. F. N. asks: Will a tin tube answer as a core upon which to wind an induction coil for electrical purposes; would the tin cause any diminution of the current? A. It is not advisable to use the tin tube for the core; it is better to wind the primary coil directly on a core or bundle of parallel iron wires, covered with one or two layers of clean paper soaked in paraffin.

(11) G. M. W. asks: What volume of steam, at atmospheric pressure, is procurable from the evaporation of a unit volume of water, and what would be the ratio of decrease in the volume of steam under added pressure? A. According to Professor Rankine, whose calculations agree quite well with the experimental investigations of Fairbairn and Tate, the relative volume of steam, compared with that of water, is as follows:

Pressure in Atmospheres.	Relative Volume.
1.....	1646
2.....	850
3.....	580
4.....	440

(12) C. W. M. asks: 1. How can rusty steel tools be made bright? A. Clean them with oiled emery paper. 2. How can a soldering iron be tinned when the tin is off, so that the solder will adhere to the iron? A. Heat the soldering iron, and file the end down to the clear copper, then rub it in resin and solder mixed by the heat of the iron. You may have to file the iron twice.

(13) F. L. M. asks: 1. In what kind of water will most likely be found animalcules for low power microscopes from 20 to 100 diameters? A. Any stagnant water. 2. How can I obtain some "paste eels"? A. Allow flour paste to stand two weeks or more in a moderately warm place, in contact with the air. 3. What power is required to distinguish human from other blood? A. Not less than 500 diameters; one fifth inch objective with B eyepiece. It is questioned by some microscopists whether the distinction is always possible.

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

H. A. J.—It is hornblende.—W. M. B.—The fire clay is not of excellent quality. It is of little value as a pigment. Properly tempered it might serve as material for drain pipes, tiles, common pottery, soft bricks, etc.—J. N., Jr.—The glittering particles in the powder are of mica. Not valuable.—A. B. T.—The sandstone and red Jasper contain nothing of value.—J. S., M.D. We do not consider the pebble of value; it is milky quartz.—C. & R.—The sample of quartz does not appear to be auriferous. The other specimen contains silica, clay (aluminum silicate), lime, magnesia, and a little sodium and iron.—E. A. S.—The samples of native magnesium sulphate received. We should be pleased to have further particulars respecting the deposit.—E. McD.—The samples consist principally of lime carbonate with a little sulphate and a trace of potassa, strontium, and phosphoric acid.—D. E.—It is a fair quality of fire clay.—J. D.—Nos. 1, 2, and 3 are argillaceous limestones. Nos. 4 and 5 contain calcium carbonate with a little barite and strontia. No. 6 is calcareous clay. No. 7 is clay slate. No. 8 is a variety of hematite. No. 9 is a concretionary formation of calcareous clay. We cannot judge from the specimens of the proximity of coal. No. 1 might be used as a building stone, but is rather soft.—W. J. C.—It is zinc blende—of some value as a source of zinc.—W. J. T.—The curious hair-like substance formed on the coke is similar to the mineral wool now largely made from molten blast furnace slag by the contact with a jet of hot air or steam. In composition it is an iron-lime-aluminum silicate, containing a little graphitic carbon. Its formation would require an unusually high temperature in the retort.

COMMUNICATIONS RECEIVED.

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

Singular Locomotive Accident. By W. J. T.
The Jury at the Paris Exhibition.
Storm and Flood Signals. By A. W.
Set ing Boilers. By F. B. C.
Money. By J. A.
Iron Mining and Manufacture. By M. I. H.
The Phonograph.
Ink Wipers. By C. F. S.
Price of Machinery. By J. C. H.

OFFICIAL.

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were

Granted in the Week Ending

April 23, 1878,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

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Plow, J. Oldendorph, Jr.....	202,746
Plow, G. W. & W. F. Wimpee.....	202,688
Plow colter, J. Augspurger.....	202,624
Pocketbook clasp, L. Prahar.....	202,755
Press, copying, E. H. T. C. Rath.....	202,756
Press, hay and cotton, M. Lahaussois.....	202,885
Printers, roller composition for, A. Van Bibber.....	202,897
Printing apparatus, Hillen & Crockett.....	202,650
Printing machines, lapping for, Jillson & Smith.....	202,826
Pulley, loose, J. Saltar, Jr.....	202,667
Pulp grinding machine, J. W. Brightman.....	202,698
Pump, Lucase & Newell.....	202,659
Pump, ammoniaical gas, J. Enright.....	202,641
Pump, chain, G. B. Valentine.....	202,896
Pump, cream, G. A. Baron.....	202,778
Pump, double-acting, C. Heister.....	202,725
Pump, double-acting, N. Clute.....	202,693
Pumping machine, A. H. Low.....	202,841
Rail, compound, C. Conrad.....	202,635
Railwayswitch, J. W. Close.....	202,632
Railway turn-table, locking, E. H. Johnston.....	202,828
Rake, horse hay, E. Knapp.....	202,833
Rake, horse hay, S. Ritty.....	202,871
Refrigerator, A. C. Rand.....	202,867
Roof battening, N. H. Brown.....	202,784
Roofing fabric, C. M. Warren.....	202,902
Sackel, A. McKinnon.....	202,850
Sawing machine, G. Schlichter.....	202,683
Scales, weighing, T. Fairbanks.....	202,800
Settee, folding, H. T. L. B. & F. F. Morse.....	202,856
Sewing machine, J. McCloskey.....	202,738
Sewing machine, Morrill & Parkinson.....	202,857
Sewing machine, broom, C. Palmer.....	202,749
Sewing machine, glove, C. M. Boland.....	202,695
Sewing machine presser foot, T. P. West.....	202,771
Sewing machinetrimmer, J. E. Wilson.....	202,908
Sewing machine wood trimmer, H. H. Hallett.....	202,721
Sifter, clay, N. Goddard.....	202,717
Skirt exhibitor, G. W. Everett.....	202,713
Sleeve supporter, J. P. Lindsay.....	202,735
Slimes, machine for drying, J. W. Dillon.....	202,709
Soap crutching machine, S. Strunz.....	202,886
Spark arrester, C. E. Wyman.....	202,914
Speculum, J. C. Hall.....	202,813
Spring, vehicle, W. Michael.....	202,851
Spring, vehicle, Muldoon & Davis.....	202,858
Stamp, hand, E. D. Chamberlain (r).....	8,201
Stamp, postage, J. Sangster.....	202,760
Staplehook, N. Burnham.....	202,736
Starch, process of drying, T. Kingsford.....	202,832
Steam trap, J. Ryan.....	202,759
Steamer, feed, Darling, Parshall & Wendell.....	202,706
Stench trap, R. G. M. Nowell.....	202,860
Stills, L. Bordewich.....	202,782
Stoveback, portable, W. C. Barkalow.....	202,777
Stovebottom, G. S. Stannard.....	202,838
Stove, F. J. Gould.....	202,718
Straw cutter, G. R. Pierpont.....	202,751
Stretcher and wheeled frame, Rice & Childs.....	202,868
Surveying instrument, tripod head, A. Young.....	202,916
Swivelback, A. Wallah.....	202,698
Telephone transmitter, G. B. Richmond.....	202,870
Thill coupling, E. R. Mason.....	202,846

Timber, preserving, W. Thilmany.....	202,678
Tobacco, treating, J. Trent.....	202,680
Tobacco stem crusher, N. H. Borgfeldt.....	202,696
Toy, S. Potts.....	202,754
Toy pistol, C. Mohr.....	202,742
Toy vehicle, F. R. Hoard.....	202,651
Trace coupling, J. Fournay.....	202,806
Transplanter and hoe, M. Wilson.....	202,909
Treadmill, R. A. Brown.....	202,783
Truck, car, Marsters & Fisher.....	202,787
Truck, car, C. Speidel.....	202,881
Truss, L. T. J. Lubin.....	202,843
Umbrella tip cup, A. Ditttrich.....	202,710
Valve, F. Brown.....	202,785
Valve for barrels, etc., J. Byrne.....	202,639
Vehicle, side spring, Milligan & Wood.....	202,741
Vehicle, side spring, W. L. Weston.....	202,904
Velocipede, H. F. Parsons.....	202,66
Ventilator for houses, J. E. Richard.....	202,869
Ventilator, louver, J. F. Starr, Jr.....	202,765
Vessel, compartment, J. Butcher.....	202,701
Wagon, dumping, J. H. Nelson.....	202,745
Wagon top, V. B. Grinnell.....	202,810
Washing machine, J. G. Beardsley.....	202,781
Washing machine, J. J. Straub.....	202,887
Washing machine, C. Thompson.....	202,889
Water closet, M. Hogan.....	202,652
Water closet, drip tray, C. Harrison (r).....	8,189
Water meter, J. Johnson.....	202,827
Water raising apparatus, D. M. Smyth.....	202,764
Weather strip, D. S. Wood.....	202,912
Well boring and rock drilling, J. P. Summers.....	202,677
Wells, lining bored, J. Dollard.....	202,796
Wheels, scraper for vehicle, M. Robbins.....	202,872
Whiffletree hook, N. Hill.....	202,649
Whip rack, S. A. Darrach.....	202,794
Windmill, S. E. Jarvis.....	202,825
Wire rolling machine, Shaw & Spence.....	202,670
Wire rolling machine, guide for, W. W. McCallip.....	202,848
Wire rope and cable, T. Hager.....	202,812
Wool, etc., separating, J. Y. Slater.....	202,672

TRADE MARKS.

Aguecures, M. C. White.....	5,938
Axes, Markley, Ailing & Co.....	5,901
Bitters, Alphonse Wals.....	5,936
Boots and shoes, E. H. Stark & Co.....	5,905
Bread raising preparations, D. & L. Slade.....	5,934
Bronchial lozenges, C. F. Asche.....	5,898
Burning fluids, J. G. Gorrell.....	5,922
Caps for toy pistols, etc., E. H. Wander.....	5,915
Catarrh remedy, F. W. Wei De Meyer.....	5,943
Chemical products, Solvay & Co.....	5,946
Chemical solution for preserving dead bodies, Rodgers Allekton Company.....	5,933
Chewing and smoking tobacco, J. B. Pace.....	5,912
Chewing tobacco, J. W. & C. G. Holland.....	5,923
Cigars and tobacco, S. Jacoby & Co.....	5,944
Cigars and tobacco, Lichtenstein Bros. & Co.....	5,909
Cigars, Theodore Schunemann.....	5,913
Cigars and tobacco, Joseph Loewenherz.....	5,926
Cigars, Celestino Palacio.....	5,930
Collars, Pine, Adams & Dunham.....	5,929
Compressed yeast, Oscar King.....	5,910
Corsets and waists, J. G. Fitzpatrick.....	5,921
Cotton goods, J. Caswell & Co.....	5,893
Cotton yarn, L. G. Hansen.....	5,894
Cough mixture, Rhodes & Lewis.....	5,932
Door springs, Van Wagoner & Williams.....	5,942
Files, Western File Company.....	5,939
Italian paste, H. K. & F. B. Thurber & Co.....	5,907
Lace articles, George Cox.....	5,918
Liquid drier, A. W. Pratt & Co.....	5,928
Medicine, Powell & Turner.....	5,902
Medical compound, Dundas Dick.....	5,920
Medicinal preparation, C. W. Scott.....	5,935
Medical preparation, W. L. Keller.....	5,909
Ostrich feathers, etc., Welch & Creighton.....	5,914
Paper, Crane Brothers.....	5,919
Paper bags, Smith, Dixon & Co.....	5,897
Paper carpets, etc., T. S. Scott & Bro.....	5,904
Prepared calcimine, G. I. Stevens.....	5,906
Preparations of witch-hazel, Fred. Humphreys.....	5,925
Pile cure, S. J. Cox & Co.....	5,908
Scrap books, Slote, Woodman & Co.....	5,896
Screw cap for fruit jars, etc., The Con. Fruit Jar Co.....	5,947
Sewing machines, Providence Tool Company.....	5,895
Shirts, C. H. Buck.....	5,917
Shirts, C. L. Smith.....	5,903
Smoking tobacco, Oliver & Robinson.....	5,927
Smoking tobacco, B. F. Weyman.....	5,948
Steam engines, Armstrong & Sims.....	5,916
Toweling, Wilmerding, Biddle & Bisset.....	5,937
Whisky, A. & H. Myers.....	5,911
Worsted braid, A. C. Haynes.....	5,924

DESIGNS.

Advertising monuments, J. B. Turner.....	10,649
Cabinet jewelry, W. A. L. Miller.....	10,630
Glassware, T. B. Atterbury.....	10,643
Match safes, J. H. Davis.....	10,644
Packages, Samuel Kimberly.....	10,647
Pistol handles, Harrington & Richardson.....	10,646
Scarf pin, Henry Griffith.....	10,645
Jewel case, E. H. Zoepfel.....	10,651
Jewelry, Abraham Steinan, Jr.....	10,643

FOR THE WEEK ENDING APRIL 16, 1878.

TRADE MARKS.

Baking powder, Cleveland Brothers.....	5,875
Biscuits, E. J. Larrabee & Co.....	5,855
Builders' hardware, Russell & Erwin.....	5,885
Cassimere, Franklin Glazier.....	5,879
Chains, The Smith & Egge Manuf. Co.....	5,890
Cigars, G. Fehl & Co.....	5,862
Cigars, cigarettes, etc., Stratton & Storm.....	5,867
Cigars, D. E. Rose.....	5,886
Coffee, Coelho & Mohlfeld.....	5,861
Coffee, spices, etc., Weikel & Smith Spice Co.....	5,891
Coffees, spices, etc., Weikel & Smith Spice Co.....	5,869
Dental supplies, H. D. Justi.....	5,882
Essential oils, J. J. Quetting.....	5,865
G oves, George Lisner.....	5,883
Leather, Ordway & Clark.....	5,894
Lounges, W. E. Buser.....	5,874
Medical compound, C. T. Swift.....	5,888
Mineral water, T. F. Goode.....	5,878
Organ mechanism or action, E. P. Carpenter.....	5,860
Paints, T. B. Stone.....	5,889
Pills, E. E. Barnum.....	5,873
Playing cards, V. E. Mauger.....	5,870
Ready mixed paints, Norton & Wieder.....	5,871
Ribbons, Meyer & Dickinson.....	5,863
Roasted and ground coffee, Fink, Brother & Co.....	5,877
Salt, H. K. & F. B. Thurber & Co.....	5,872
Saws and files, Emerson, Smith & Co.....	5,876
Smoking tobacco, B. Leidersdorf & Co.....	5,887
Smoking, etc., tobacco, Rowland & Newbrandt.....	5,884
Soap, B. T. Babbitt.....	5,857
Tea, J. R. Walsh.....	5,892
Tobacco and cigars, A. E. Irwin.....	5,891

Toys, J. A. Crandall.....	5,859
Wines and brandies, J. Calvet & Co.....	5,858
Woven cotton fabrics, Minot, Hooper & Co.....	5,885
Wrench, Girard Wrench Manuf. Co.....	5,880
Writing paper, Byron Weston.....	5,868

DESIGNS.

Badge, Henry Moesinger.....	10,639
Badge, R. O. Wood.....	10,636
Billiard table leg, H. W. Collender.....	10,637
Billiard table leg, H. H. Holly.....	10,638
Billiard table leg, Oscar Norma.....	10,639
Bracelet, J. A. Hedstrom.....	10,642
Burial caskets, W. J. Noble.....	10,680
Carpets, T. J. Stearns.....	10,633
Casket screw, Rogers & Huggins.....	10,631
Child's dress, John McNeven.....	10,634
Clock face, George Ager.....	10,625
Clock case, M. C. Jones.....	10,628
Crochet fabric, C. A. Burnham.....	10,626
Organ case, Samuel Hayward.....	10,635
Pendulum weight, George Hoyting.....	10,627
Sheet metal water pipe, J. F. Starr, Jr.....	10,632
Writing paper, M. H. Pirie.....	10,640

English Patents Issued to Americans.

April 23 to May 9, inclusive.

Anti-friction bearings.—J. C. Thompson, Brooklyn, N.Y.	
Balance.—F. Fairbanks, St. Johnsbury, Vt.	
Boot and shoe lasting machine.—H. G. Thompson, Milford, Conn.	
Carbureter feed regulator.—B. Chollar, Chicago, Ill.	
Caster for furniture.—C. E. Parent, New York city.	
Concrete.—J. S. Wethered, New York city	
Firearm, repeating.—B. C. Gough, Canton, Miss.	
Folding and printing machine.—C. Chambers, Jr., et al., Philadelphia, Pa.	
Grinding mill.—P. T. Elting, Boston, Mass.	
Inspirator.—H. M. Whitney, Boston, Mass.	
Lacing books.—E. J. aynz, Boston, Mass.	
Loom.—H. Woodman, Saco, Me.	
Loom shuttle.—W. A. Doherty et al., Fall River, Mass.	
Loom shuttle.—J. M. Palmer et al., Cambridge, Mass.	
Motor.—C. Huebner et al., Newark, N. J.	
Pulley.—W. Webster, Washington, D. C.	
Railway spring.—G. E. Gray, San Francisco, Cal.	
Railway switch.—D. Tracy, Ridgewood, N. J.	
Recording and reproducing sounds.—T. A. Edison, Menlo Park, N. J.	
Refrigerator car.—W. D. Mann, Mobile, Ala.	
Sea sickness, preventing.—J. C. Thompson, Bklyn, N.Y.	
Sewing machine.—D. H. Campbell, Pawtucket, R. I.	
Silicious compound.—J. W. Hyatt, Newark, N. J.	
Slate for drawl g.—C. C. Shepherd, Passaic, N. J.	
Stone, artificial.—J. H. Thorp, New York city.	
Sugar cutting machine.—W. Jasper et al., San Francisco, Cal.	
Tape measure.—A. F. Ward, Philadelphia, Pa.	
Telephone.—J. F. Bailey, New York city.	
Terra alba substitute.—C. T. Tomkins, New York city.	
Watch balance.—C. v. d. Woerd, Waltham, Mass.	
Wire rolling machine.—D. Shaw et al., Pittsburg, Pa.	

Advertisements.

Inside Page, each insertion --- 75 cents a line.
 Back Page, each insertion --- \$1.00 a line.
 (A but eight words a line.)

Engravings may head advertisements at the same rate per line, by measurement, as the letter press. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

JAPANESE ART MANUFACTURES.

By Christopher Dresser, Ph.D. etc. Paper read before Society of Arts. The Japanese Potter at Work. Curious Mode of Making Scarfs. How the Japanese Print on Cloth. Japanese Process for Silk Ornamentation. Japanese Weaving. How Fine Japanese Fans are made. Japanese Method of Making Moulds for Ornamental Castings for Vessels, Bronzes, etc. Japanese Lacquer Manufacture. Curious Method of Decorating Lacquer Work. The Love and Pursuit of the Beautiful in Japan. A very entertaining, instructive, and comprehensive paper. Contained in SCIENTIFIC AMERICAN SUPPLEMENT No. 115. Price 10 cents. To be had at this office and of all newsdealers.

EXPLOSIVE DUST. A COMPREHENSIVE

description of the Dangers from Dust in various Manufactures and the Cause of many Fires. How combustible substances can explode. Spontaneous Combustion of Iron, Charcoal, and Lampblack in Air. Flour Dust and Brewery Dust Explosions. Explosions of Coal Dust in Mines. Contained in SCIENTIFIC AMERICAN SUPPLEMENT No. 125. Price 10 cents. To be had at this office and of all newsdealers.

ALCOHOLISM. AN INTERESTING

Paper upon the Relations of Intemperance and Life Insurance. The Average Risks and Expectancy of Life of the Temperate and of the Intemperate. Physiological action of Alcohol; stimulating the Nervous System, Retarding the Circulation. Alcohol Oxidized in the System. Insomnia, Congestion of the Lungs, Deterioration of Structure, Calculus, and Liver Diseases as results of Liquor. Extended Medical Testimony. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 125. Price 10 cents. To be had at this office and of all newsdealers.

Can I Obtain a Patent?

This is the first inquiry that naturally occurs to every author or discoverer of a new idea or improvement. The quickest and best way to obtain a satisfactory answer, without expense, is to write to us (Munn & Co.), describing the invention, with a small sketch. All we need is to get the idea. Do not use pale ink. Be brief. Send stamps for postage. We will immediately answer and inform you whether or not your improvement is probably patentable; and if so, give you the necessary instructions for further procedure. Our long experience enables us to decide quickly. For this advice we make no charge. All persons who desire to consult us in regard to obtaining patents are cordially invited to do so. We shall be happy to see them in person at our office, or to advise them by letter. In all cases, they may expect from us a careful consideration of their plans, an honest opinion, and a prompt reply.

What Security Have I that my communication to Munn & Co. will be faithfully guarded and remain confidential?

Answer.—You have none except our well-known integrity in this respect, based upon a most extensive practice of thirty years' standing. Our clients are numbered by hundreds of thousands. They are to be found in every town and city