

Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion.

"Little All Right," the smallest and most perfect Revolver in the world. Radically new both in principle and operation. Send for circular. All Right Firearm's Co., Lawrence, Mass., U.S.A.

S. B., Niagara Falls, N. Y., wishes to procure a family Ice Machine. Address as above.

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

George S. Boutwell, Counsellor in Patent Causes, 150 Devonshire St., Room 62, Equitable Building, Boston, Mass.

Patent Salesmen Wanted.—We will employ a number of men recommended as to character and ability, who have had experience in selling patents by counties—good pay to good men. F. F. Adams & Co., Erie, Pa.

Wanted—A position as Mechanical Engineer or Draughtsman, by an inventive man, for a moderate salary. Address Otto Schrott, Hartmann's Hotel, 45 and 47 Bowery, N. Y.

Estimates wanted for sinking a well about 100 feet deep, or would buy the necessary tools for doing the work if they can be had cheap. Address F., Carlsstadt, Bergen county, N. J.

For Sale—Lathes 15 in. 6 ft., \$135; 19 in. 8 ft., \$165; 20 in. 10 ft., \$180; 25 in. 12 ft., \$95; 20 in. 8 ft., \$125. Planer 7 ft. 24 square, \$250. Drills, 44 in. B. G., \$325; 35 in., \$100. J. D. Shearman, Indianapolis, Ind.

Shaw's Noise-Quitting Nozzles for Escape Pipes of Locomotives, Steamboats, etc. Quiets all the noise of high pressure escaping steam without any detriment whatever. T. Shaw, 915 Ridge Ave., Philadelphia, Pa.

Styrax, Oak, and Black Poplar (almost equal to Walnut) sawed to order, for cabinet makers and wheelwrights. Address G. B. Lartigue, Blackville, S. C. R. R.

For best and cheapest Cider and Wine Presses, address H. Sells & Son, Port Huron, Mich.

Split-Pulleys and Split-Collars of same price, strength and appearance as Whole-Pulleys and Whole-Collars. Youcum & Son, Drinker st., below 147 North Second st., Philadelphia, Pa.

Screw cutting Foot Lathes, W. E. Lewis, Cleveland, O.

Nickel Salt and Anodes of superior quality at lowest market prices. L. Feuchtwanger & Co., 16 Dey st. N. Y.

600 New and Second-hand Portable and Stationary Engines and Boilers, Saw Mills, Woodworking Machines, Grist Mills, Lathes, Planers, Machine Tools, Yachts and Yacht Engines, Water Wheels, Steam Pumps, etc., etc., fully described in our No. 12 list, with prices annexed. Send stamp for copy, stating fully just what is wanted. Forsyth & Co., Machine dealers, Manchester, N. H.

John T. Noye & Son, Buffalo, N. Y., are Manufacturers of Burr Mill Stones and Flour Mill Machinery of all kinds, and dealers in Dufour & Co.'s Bolting Cloth. Send for large illustrated catalogue.

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

For Best Presses, Dies, and Fruit Can Tools, Bliss & Williams, cor. of Plymouth and Jay Sts., Brooklyn, N. Y.

Lead Pipe, Sheet Lead, Bar Lead, and Gas Pipe. Send for prices. Bailey, Farrell & Co., Pittsburgh, Pa.

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

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.

Steel Castings from one lb. to five thousand lbs. Invaluable for strength and durability. Circulars free. Pittsburgh Steel Casting Co., Pittsburgh, Pa.

Best Pulleys and Couplings made; secured to shafts without keys, set-screws, bolts, or pins. Send for catalogue. Taper Sleeve Pulley Works, Erie, Pa.

Skinner Portable Engine Improved, 2 1/2 to 10 H. P. Skinner & Wood, Erie, Pa.

Diamond Planers. J. Dickinson, 64 Nassau St., N. Y. More than twelve thousand crank shafts made by Chester Steel Castings Co. now running; 8 years constant use prove them stronger and more durable than wrought iron. See advertisement, page 174.

Emery Grinders, Emery Wheels, Best and Cheapest, Hardened surfaces planed or turned to order. Awarded Medal and Diploma by Centennial Commission. Address American Twist Drill Co., Woonsocket, R. I.



(1) N. W. asks: How can I put a good and durable finish on walnut wood? A. Rub the work over with boiled linseed oil, and when nearly dry, rub it over with a stiff brush. Take a strip of woolen cloth about two yards long, roll it up into a hard roll. Dip one end into the boiled oil and add a few drops of shellac varnish, and rub the work previously oiled with that until a fine polish is obtained.

(2) C. H. P. asks: How many pounds will a leather belt 16 inches wide, of the strongest kind, sustain before breaking? A. The strength of a good leather belt is about 3,000 lbs. per square inch of section. From this you can readily calculate an answer to your question.

(3) G. C. P., Jr., asks: What ingredients are used in making kalsomine for walls, and the proportions? A. Kalsomine is composed of zinc white mixed with water and glue sizing. To 1 lb. glue use 15 lbs. zinc white. Soak the glue over night, and the next morning prepare as for gluing wood. Put the zinc white in a vessel and pour on hot water, stir until it appears like thick milk. Mix with the liquid glue and apply to the wall with a brush. If too much glue, the material cannot be laid on smoothly. Stir frequently while applying.

(4) J. H. W. asks: 1. How to make a good waterproof leather cement for shoemaker's use? A. Dissolve gutta percha in chloroform to the consistency

of honey. Heat the surfaces to which it is to be applied, and press together. 2. Also how to make a rubber cement? A. Gutta percha 3 parts, pure India rubber 1 part, cut small, pyrogenous oil of turpentine or bisulphuret of carbon 8 parts. Mix in a close vessel and dissolve by the heat of hot water. Heat the cement gently before using.

(5) A. R. B. says: In the summer time I see the sun, as it rises, shining into my north window; now as the sun never gets as far north as the latitude in which I live, I would like to have explained how it is that its rays can come from a northern direction? A. The rays, from your statement, shine obliquely into the north window, which would not require the sun to be as far north as the latitude in which you live.

(6) J. W. H. says: 1. I am building an engine 3 x 5 1/2 inches cylinder for a launch 30 feet long. Is it large enough to drive it 10 knots in still water? A. No. 2. With a 22 inch propeller, had I better place the shaft near the bottom of the boat, allowing the propeller to work below the keel? A. Yes. 3. With a 3 feet pitch the propeller would have to make over 400 revolutions to drive a boat 10 knots; is that too fast to run the engine? A. If the engine is well designed and built, it can be safely run at this speed.

(7) F. M. T. says: What size boiler and what size engine should I have to use to propel a boat 15 feet long, 30 inches beam, and 6 inches draught? I cannot use a screw, and with side wheels would it be better to have the connecting rod on the shaft of the wheels, or have gearing? A. You might use a geared engine 2 1/2 x 4, with a boiler 30 inches in diameter and 3 feet high.

(8) T. S. L. asks how to kill those small wrigglers that appear in cisterns; also directions for making a filter? A. The best plan will be to clean the cistern. You can filter the water by passing it through sand and gravel, arranged in layers.

(9) J. M. B. says: Can anything be added to glue, that will make it slightly elastic or tough when dry, without much impairing its strength? A. Try the addition of a little glycerin.

(10) A. McC. W. asks: How may grapes be preserved, in their natural state, through the winter? A. Select sound bunches, being careful not to bruise or crush them or start them from the stems, and keep in a cool, dry place.

(11) R. L. says: I wish to make about 1,000 moulds with hard glossy surface, averaging 2 inches in diameter by 1 1/2 inches in height, to be used for wrapping paper on in rings to give these rings shape when dry? A. You might use papier maché, as described on p. 28 (40) present volume of the SCIENTIFIC AMERICAN. The surface might be perfected by means of a hard Japan.

(12) H. W. S. says: In the issue of August 4 is an article headed \$20,000 prize for a new sugar extraction process. Where is the proper address to write the parties who make this offer? A. "Director of the Interior," Basse Terre, Guadeloupe.

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

J. W. F.—The clay is of fair quality—it contains some free silica, organic matter, and a little iron besides the alumina silicate. If properly washed it might find a market, or be used in the locality where mined in manufacturing pottery, etc.—E. S. W.—It is tourmaline—composed of silicic and boracic acids, potash, soda, alumina, lithia and iron oxide.—H. C. G.—There are no positive indications in the rock of any notable qualities of valuable metals or minerals. The particles of metallic appearance are pyrites.—Box marked L. P. contains fine specimens of fluorspar—calcium fluoride. The white uncrystalline fragment is chiolite—soda alumina fluoride. The substance in paper is simply quartz sand colored by iron oxides.—A. C. A.—The alloy seems to consist of tin, lead, bismuth, a little antimony, nickel or iron, and zinc. We cannot make a complete analysis of it for you.

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 Manufacture of Rubber Hose. By H. T. M.
On Carrying a Bar of Iron. By S. B. E.
On a Mathematical Problem. By P. J. D.
On an Explosive Bullet. By P. M.
On a Rare Caterpillar. By F. W. S.
On Powder Mill Explosions. By C. H. R.
On Some Insects. By C. F. S.
On Education of Parrots. By W. B. C.
On the Locusts in Kansas. By C. V. R.
On a New Keely Motor. By M. A. J.
On Working Men and Rev. H. W. Beecher. By A. B. W.
Also inquiries and answers from the following:
W. M.—G. S. B.—J. M. F.—B. T.—T. C.—H. G. W.—F. J. T.—L. R.—E. S. G.—H. O.—L. H. P. & Co.—J. B. B.—S. A. R.—J. M. McC.—J. F. W.—J. J. P.—S. S.—E. M. W. & Co.

HINTS TO CORRESPONDENTS.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Inquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are sent: "Who builds road engines suitable for thresh-

ing wheat, and for other farm operations? What is the best instruction for obtaining instruction in mechanical and civil engineering? Who sells good books on steam engineering?" All such personal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

OFFICIAL.

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

August 7, 1877,

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.

Table listing various inventions and their patent numbers, including items like Adding machine, Agricultural steamer, Ammonia salts, Axle lubricator, Bale tie, Bale tie, cotton, Ballot box, Barrels, Beehive, Beehive, Beer pump, Bell, call, Bell, door, Bell, door and alarm, Belongs, Belts, Berth for ships, Bessemer converter, Beton or concrete, Boat, Boiler head machine, Boot and shoe machine, Boots and shoes, Bottle closing device, Brake wagon, Bridge, draw, Burglar alarm, Burner, Button, Button fastener, Button machinery, Canal lock, Cap, S. & W. Katz, Car axle box, Car bell, street, Car coupling, Car platform, Car spring, Carbon paper, Carbuiretor, Carpet fastener, Carriage, child's, Carriage, child's, Cartridge, Center board for vessels, Chair, folding, Churn, J. & J. S. Weider, Churn, Brown et al., Churn, E. Buell, Clamp for carpenters, Clothes and fruit dryer, Corn-shelling machine, Cotton harrow, Cultivator, D. Stanchfield, Cultivator, W. G. Barnes, Cultivator, E. M. & M. L. Kissell, Currier's knife, Cut-off gear, Cut-off, water, Derrick step, Ditching machine, Divider and siding hook, Door bolt, Egg, nest, Elevator, Etching glass, Evaporating pan, Fan, M. rx & Blasi, Fare register, Faucet, Feather renovator, Feed water heater and filter, Felted fabrics, Fence, J. Brinkerhoff, Fence, Green & Knapp, Fertilizer, C. F. Pankin, Fetter, Ladd & Parker, File, bill, Filter, water, Tittle & Noite, Firearm, W. M. Wood, Firearm, J. Lee, Firearm, D. Smith, Fire escape, T. A. Andrews, Fire escape, B. F. Frank, Fire escape, B. A. Richardson, Fire escape, G. J. Taggart, Fire escape and extension ladder, Fire extinguisher, Fire extinguishing apparatus, Flour, bolt, Flower pot, Foot, canning, Fruit, dryer for, Fruit dryer, Church & Perkins, Fuel machine, Furnaces, Garter, Gas burner, Gas retort, Gate, Grain binder, Grain huller, Graining wood, Grate, H. Rogers, Hame tug attachment, Harrow and cultivator, Harvester, C. C. Bradley, Harvester binder, Hay fork, Hay rake, Hay rake, S. Ritty.

Table listing various inventions and their patent numbers, including items like Hay rake, Hemmer, Hoisting, clamp for, Hoisting tackle, Holdback iron, Horse power, Horseshoe, Horseshoe, J. A. Conkey, Horseshoe, T. Henry, Horseshoe nails, Hose coupling, Ice plows, Ink, Iron, dividing cold rolled, Jacquard machinery, Journal boxes, Kettle, Kitchen boiler, Lamp extinguisher, Lathe, Lathes, Leather, Lifting jack, Lifting jack, T. R. Day, Lightning rod, Lumber, compound, Match box, Moccasin, Mould for plaster casts, Motor for light machinery, Movement, mechanical, Mower, Nail plate feeding machine, Nail machinery, Organ stop, Ornamental articles, Paint, Palette, Paper bags, Paper box, Paper, waxing, Pencil, artist's, Pianofortes, Pictures, stereoscopic, Pillow shams, Pipe coupling, Pipe, A. W. Morgan, Planter, S. Lyon, Planter, L. Scofield, Planter, A. M. Southard, Plow, B. F. Chandler, Plow, J. F. Mead, Plow, T. E. Smoot, Plow, A. H. Gale, Plow, G. H. Smith, Printing press, J. B. Rankin, Printing presses, Propeller, Pump, J. W. Lemon, Pump, J. A. Parsons, Quilting machine, Radiator, steam, Rein holder, Roll grinding, T. H. Savery, Roll grinding, J. Megaw, Roofs, snow guard for, Sand pump, Sash fastener, window, Saw, circular, Sawing metal bars, Scaper and ditcher, Scythe, Seeder and cultivator, Seeding machine, Shirt pattern, Slicer, Smoking sign, Snap hook, Soap, R. E. Whittemore, Spark arrester, Spinning mule, P. McGovern, Spinning mule, J. Martin, Stalk cutter, Steam boiler, Steam trap, Stench trap, Stove, O. Edwards, Stove pipe elbow, G. Choate, Stove pipe elbow, J. M. Lauby, Straw cutter, Suspender clasp, Suspender end, Swing, E. Schlueter, Tablet, writing, Target, flying, Tea, coffee, etc., Telescopes, Thill coupling, Thill coupling, Threshing machine, Thrashing machines, side gear for, Tide wheel, Time lock, Time lock, J. Sargent, Tire, F. Mulliner, Tool, A. Knight, Type, hard metal, Umbrella, W. S. Harris, Umbrella cover, Valve, L. Mangold, Ventilator, Vine, espalier, Wagon axle, Wagon, buckboard, Wagon draft attachment, Wagon seat, Wash basin, Wash board, Washing machine, Briggs & Knowles, Washing machine, J. W. Horn, Wash basins, Watchman's time detector, Water closet, Wells, steaming oil, Whiffletree hook, Whip, A. F. Gerald, Whip, F. Hopkins, Windmill, M. S. Hodges.

DESIGNS PATENTED.

- 10,138.—EMBROIDERY PATTERN.—E. Crisand, New Haven, Conn.
10,139.—STOVES.—J. Dwyer, Detroit, Mich.
10,140 to 10,142.—OIL CLOTH.—C. T. & V. E. Meyer, Bergen, N. J.
10,143.—COOKING STOVES.—J. A. Lawson, Troy, N. Y.
10,144.—BOOK COVERS.—J. Becker, Boston, Mass.
10,145.—FRAMES FOR SUGAR BOWLS.—F. Dunworth, New York city.

[A copy of anyone of the above patents may be had by remitting one dollar to MUNN & Co., 37 Park Row, New York city.]