

Business and Personal.

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"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.

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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. Feuchtewanger & 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.

Notes & Queries

(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 90 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 wigglers 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 metal-like appearance are pyrites.—Box marked L. P. contains fine specimens of fluor spar—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.

- Adding machine, M. M. Cram 193,853
Agricultural steamer, J. T. King 193,968
Ammonia salts, S. Cabot, Jr. 193,920
Axle lubricator, L. Johnson 193,962
Bale tie, A. F. Dietz 193,908
Bale tie, cotton, H. Hamilton 193,946
Ballot box, Fricker & Seinecke 193,862
Barrels, W. McMurtrie 193,826
Beehive, Deardorff & Stutzman 193,856
Beehive, J. Hefner 193,869
Beer pump, E. Stewart 194,010
Bell, call, F. Ratcliff 193,996
Bell, door, W. Winkle 194,023
Bell, door and alarm, J. G. Wiggins 193,903
Bellows, J. Agnew 193,907
Belts, etc., W. Eppelsheimer 193,939
Berth for ships, etc., J. C. Thompson 193,837
Bessemer converter bottom, W. H. Haws 193,949
Beton or concrete, J. C. Goodridge 193,865
Boat, F. D. Graves 193,814
Boiler head machine, R. C. Nugent (r) 7,834
Boot and shoe machine, Kimball & Merritt 193,965
Boots and shoes, D. A. Sutherland 194,011
Bottle closing device, W. H. Hicks 193,870
Brake, wagon, T. C. Lawrence 193,878
Bridge, draw, M. McGrath 193,825
Burglar alarm, Wildrick & Darling 193,905
Burner, T. R. Almond 193,796
Button, J. Keats 193,964
Button fastening, F. W. Ludwig 193,976
Button machinery, E. A. Sherwood 194,005
Canal lock, W. L. Marshall 193,885
Cap, S. & W. Katz 193,875
Car axle box, R. B. Eason 193,858
Car bell, street, C. Keppler 193,876
Car coupling, J. Rockville 193,896
Car platform, R. A. Cowell 193,851
Car spring, G. F. Godley (r) 7,832
Carbon paper, A. B. Simonds (r) 7,837
Carburetor, D. E. Bangs 193,911
Carpet fastener, J. Failing 193,940
Carriage, child's, C. H. Bush 193,919
Carriage, child's, C. G. Macht 193,980
Cartridge, I. Davis 193,855
Center board for vessels, W. W. Palmer 193,829
Chair, folding, H. Closterman, Jr. 193,925
Churn, J. & J. S. Weider 193,902
Churn, Brown et al 193,918
Clamp for carpenters, W. Heckert 193,951
Clothes and fruit dryer, G. J. Curry 193,928
Corn-shelling machine, C. P. S. Wardwell 194,018
Cotton harrow, J. F. Price 193,830
Cultivator, D. Stanchfield 194,009
Cultivator, W. G. Barnes 193,912
Cultivator, E. M. & M. L. Kissell (r) 7,833
Currier's knife, R. E. Cherrington 193,806
Cut-off gear, F. F. Hemenway 193,952
Cut-off water, J. G. Diem 193,857
Derrick step, F. Locke 193,824
Ditching machine, J. A. Grove 193,815
Divider and siding hook, H. Sherman 193,898
Door bolt, S. Sargent 194,000
Egg, nest, D. M. Livingston 193,823
Elevator, H. Davies 193,929
Etching glass, W. Campbell 193,921
Evaporating pan, W. M. Dixon 193,934
Fan, M. rx & Blasi 193,886
Fare register, W. H. Hornum 193,858
Faucet, T. A. Andrews 193,840
Feather renovator, H. M. Sinclair 193,835
Feed water heater and filter, W. J. Austin 193,843
Felted fabrics, J. F. Green 193,945
Fence, J. Brinkerhoff (r) 7,830
Fence, Green & Knapp 193,944
Fertilizer, C. F. Pankin 193,890
Fetter, Ladd & Parker 193,868
File, bill, W. L. Woods (r) 7,840
Filter, water, Little & Noite 194,016
Firearm, W. M. Wood 193,906
Firearm, J. Lee 193,821
Firearm, D. Smith 193,836
Fire escape, T. A. Andrews 193,841
Fire escape, B. F. Frank 193,861
Fire escape, B. A. Richardson 193,895
Fire escape, G. J. Taggart 193,901
Fire escape and extension ladder, W. A. Hoyt 193,960
Fire extinguisher, C. T. Holloway 193,855
Fire extinguishing apparatus, A. Tenner 194,012
Flour, bolt, J. L. Detwiler 193,933
Flower pot, J. F. Alt 193,908
Foot, canning, W. K. Lewis 193,890
Fruit, dryer for, G. Harris 193,947
Fruit dryer, Church & Perkins 193,924
Fuel machine, M. E. Cotter 193,942
Furnaces, etc., H. A. Stadler 194,008
Garter, J. L. Moore 193,887
Gas burner, W. & W. S. Bedell 193,845
Gas retort, A. W. M. Maas 193,979
Gate, J. M. C. Bennett 193,913
Grain binder, J. M. Hollister 193,817
Grain huller, C. Schaschue 193,002
Graining wood, R. J. Doolan 193,835
Grate, H. Rogers 193,897
Hame tug attachment, J. A. Criswell 193,927
Harrow and cultivator, Sanders & Nichols 193,999
Harvester, C. C. Bradley (r) 7,831
Harvester binder, P. Peteler 193,994
Hay fork, J. Lux 193,977
Hay rake, G. M. & C. C. Richardson (r) 7,833
Hay rake, S. Ritty 193,832

- Hay rake, J. H. Thomas 194,013
Hemmer, J. P. Ioor 193,873
Hoisting, clamp for, T. Maxon 193,982
Hoisting tackle, T. A. Weston 194,019
Holeback iron, S. E. Winslow 193,839
Horse power, Kramer & Boke 193,820
Horseshoe, J. A. Conkey 193,807
Horseshoe, T. Henry 193,953
Horseshoe nails, D. B. Loring 193,975
Hose coupling, T. W. Eccleston 193,810
Ice plows, N. P. Nelson 193,828
Ink, N. T. Tilman 194,015
Iron, dividing cold rolled, J. S. Atkinson 193,812
Jacquard machinery, W. P. Jennings 193,874
Journal boxes, D. A. Hopkins 193,818
Kettle, J. I. Burr 193,804
Kitchen boiler, E. H. Frazier 193,860
Lamp extinguisher, S. N. Long 193,882
Lathes, G. S. Rix 193,834
Lathes, C. A. Cooley 193,850
Leather, etc., H. R. Cassel 193,922
Lifting jack, S. & D. Barrow 193,844
Lifting jack, T. R. Day 193,931
Lightning rod, W. H. Patterson 193,901
Lumber, compound, etc., C. F. Ritchel 193,883
Match box, H. Ellig 193,859
Moccasin, S. Berry 193,914
Mold for plaster casts, J. Borden 193,917
Motor for light machinery, A. J. Hood 193,956
Movement, mechanical, A. E. Hotchkiss 193,871
Mower, C. Lindbom 193,881
Nail plate feeding machine, E. J. Couch 193,926
Nail machinery, J. M. E. Baekes 193,910
Organ stop, A. Trowbridge, Jr. 194,017
Ornamental articles, etc., Bliss & Badger 193,846
Paint, W. Longman 193,974
Palette, W. F. White 193,904
Paper bags, F. H. Melville 193,888
Paper box, G. A. Denison 193,932
Paper, waxing, S. Hammerschlag 193,877
Pencil, artist's, O. P. Gash 193,813
Pianofortes, T. S. Gould 193,943
Pictures, stereoscopic, H. A. Reynolds 193,998
Pillow shams, J. R. Cross 193,854
Pipe coupling, H. Pennie 193,903
Pipe, A. W. Morgan 193,827
Planter, S. Lyon 193,978
Planter, L. Scofield 194,004
Planter, A. M. Southard (r) 7,838
Plow, B. F. Chandler 193,923
Plow, J. F. Mead 193,963
Plow, T. E. Smoot 194,007
Plow, A. H. Gale 193,941
Plow, G. H. Smith 193,899
Printing press, J. B. Rankin 193,995
Printing presses, W. F. Widmayer 194,022
Propeller, M. D. Nelson 193,989
Pump, J. W. Lemon 193,822
Pump, J. A. Parsons 193,891
Quilting machine, J. J. Crall 193,852
Radiator, steam, J. J. Lawler 193,877
Rein holder, D. C. Montgomery 193,986
Roll grinding, T. H. Savery 194,001
Roll grinding, J. Megaw 193,984
Roofs, snow guard for, P. A. Dugan 193,809
Sand pump, W. H. Birge 193,915
Sash fastener, window, L. Patterson 193,992
Saw, circular, D. B. McRae 193,985
Sawing metal bars, W. R. Jones 193,963
Scrapper and ditcher, J. Rice 193,893
Seythe, G. Bishop 193,916
Seeder and cultivator, D. Mack 193,883
Seeding machine, Van Brunt et al (r) 7,839
Shirt pattern, H. Dyer 193,936
Slicer, J. B. Howard 193,559
Smoking sign, H. J. & W. D. Davies 193,930
Snap hook, W. Heath 193,950
Soap, R. E. Whittmore 194,024
Spark arrester, J. A. Pae 193,990
Spinning mule, P. McGovern 193,887
Spinning mule, J. Martin 193,884
Stalk cutter, M. W. & P. Resser 193,997
Steam boiler, H. S. Coleman 193,848
Steam trap, D. Edwards 193,988
Stench trap, O. M. Rice 193,831
Stove, O. Edwards 193,937
Stove pipe elbow, G. Choate 193,847
Stove pipe elbow, J. M. Lauby 193,970
Straw cutter, W. H. Sullenberger 193,900
Suspender clasp, F. Eckeremann 193,811
Suspender end, J. H. Murfey 193,889
Swing, E. Schlueter 194,003
Tablet, writing, H. Laurence 193,971
Target, flying, E. M. Leavitt 193,879
Tea, coffee, etc., strainer, etc., H. C. Rice 193,894
Telescopes, E. Gundlach 193,816
Thill coupling, Ganay & Wilson 193,863
Thill coupling, J. A. Whipple 194,020
Thrashing machine, J. P. & J. W. Gordon 193,866
Thrashing machines, side gear for, Kramer & Boke 193,819
Tide wheel, Andrews & Fuller 193,909
Time lock, L. Lillie 193,973
Time lock, J. Sargent (r) 7,835
Tire, F. Mulliner 193,988
Tool, A. Knight 193,967
Type, hard metal, G. W. Caslear 193,805
Umbrella, W. S. Harris 193,868
Umbrella cover, J. C. Hurcombe 193,961
Valve, L. Mangold 193,981
Ventilator, L. D. Harvey 193,948
Vine, espalier, etc., P. A. Laprade 193,969
Wagon axle, C. E. Cookerly 193,849
Wagon, buckboard, J. L. Phillips 193,832
Wagon draft attachment, T. Andrews 193,707
Wagon seat, Franklin & Feavel 193,812
Wash basin, J. E. Boyle 193,799
Wash board, H. F. W. Liebman 193,972
Washing machine, Briggs & Knowles 193,802
Washing machine, J. W. Horn 193,957
Wash basins, etc., J. E. Boyle 193,801
Watchman's time detector, G. W. Shingleton 194,006
Water closet, etc., valve, J. E. Boyle 193,800
Wells, steaming oil, A. J. West 193,898
Whiffletree hook, N. W. Bowen 193,798
Whip, A. F. Gerald 193,864
Whip, F. Hopkins 193,872
Windmill, M. S. Hodges 193,854

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