

Are these things so? A. If the muck beds be well covered, there is practically little danger of loss, liable to arise from exposure to direct sunlight.

(43) W. E. E. says: I have a lot of black rubber chains, and they have all turned to a grayish color. How can I get the color back? A. We could not suggest a remedy without examining the material or learning more precisely under what conditions the change had occurred.

(44) E. P. B. asks: Is oil made from fresh butter good for oiling farm machinery? Can the salt be taken out of salt butter so as to make an oil fit for oiling harness? A. No. Such oil is not suitable for either purpose.

(45) W. J. R. says: By what means can I take iron rust out of marble? A. It is impossible to do this, without injury to the marble, by purely chemical means.

(46) C. T. G. says: Please give me a recipe for cleaning baryta crystals and stalactites. A. If the crystals are really sulphate of baryta, try steeping them for some hours in hot muriatic acid, containing a very little nitric acid.

(47) C. H. W. says: In soldering tinware without a soldering iron, with a candle or lamp, the place to be repaired is first covered with an acid. Can you tell me how that acid is prepared? A. Digest zinc in strong muriatic acid until the acid will dissolve no more of the metal.

(48) H. M. asks: 1. How many strokes should a fret saw give, to one turn of the crank, to give the best results? A. About 25 or 30. 2. Would a friction wheel covered with india rubber of about 2 inches diameter, to be driven by a larger wheel, have power enough to drive the above saw? The 2 inch wheel is to be connected to the under part of the saw, by a crank pin run in a slot in the lower arm of the saw.

(49) E. A. F. says, in reply to J. W. O., who asks whether a horse can draw a vehicle more easily if hitched close to it: Several friends say that the closer a horse is to his load, the easier it is to pull, and vice versa. You say that you cannot see why the draft increases with the distance except by the additional weight of chain or rope and friction on the ground, if the rope touches the ground.

(50) D. M. says: As many of your readers seem to take an interest in the baroscope of Babinet, of which I sent you a description which has been published in *Wrinkles and Recipes*, allow me to suggest a change which experience has taught me.

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

S—The powder consists of oxide of zinc together with finely ground resin. It would be necessary to make a quantitative analysis in order to determine the proportions of each ingredient.

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 Calcification of Tubercles. By C. B.
On the Water Grate. By F. G. W.
On a Small Engine. By T. B. R.
On the Vicksburg Cut-Off. By C. G. D.
On Voracious Fishes. By L. S.
On an Indelible Ink. By A. J. F.

Also inquiries and answers from the following: S. & S.—J. R.—J. G. S.—I. W. H.—E. L. R.—C. S.—G. S.—J. D. T.—P. K.—R. E. M.—W. H. E.—C. M.

HINTS TO CORRESPONDENTS.

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.

Enquiries 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 sells electric bells? Who is the best parlor organ? Who makes diving apparatus? Who is the best engine-turning lathe?" 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.

[OFFICIAL]

INDEX OF INVENTIONS

FOR WHICH Letters Patent of the United States were Granted in the Week Ending June 20, 1876, AND EACH BEARING THAT DATE.

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 inventions with patent numbers and names of inventors, including Alarm, burglar, H. F. Green; Alarm, burglar, A. P. Norman; Alarm, bu glar, W. H. Reiff; Atomizer, D. J. Tapley; Bag holder, L. H. Bristol; Bands and ropes, making, L. Binns; Barrel-making machine, Hodgen & Yelton; Basins, valve for, Doyle & Bayles; Bed bottom, spring, G. H. Evans; Bed book support, etc., G. B. Norgrove; Bedstead, cabinet, D. A. Green; Bee hive, H. H. Roush; Blackboard rubber, J. Haggerty; Boiler, agricultural, W. K. Stevens; Boiler, rotary steam, C. W. Pierce; Boller, furnace, G. Morrison; Bolt-heading die, F. Mutlmer; Boot stiffeners, making, J. R. Motitt; Boot sole edges, setting, C. A. Lake; Boot sole protector, S. Y. McNair; Boot, rubber, J. A. Bates; Boots, abrasive paper for finishing, J. G. Buzzell; Bracket, ornamental wall, E. A. Hale; Brick, hollow partition, J. Borie; Bridle bit, J. Letchworth; Brush, sponge, H. S. Kerr; Bucket ear, J. G. Krichbaum; Buggy top, G. Gabriel; Buoy, automatic signal, J. M. Courtenay; Burner, gas, V. Zeis; Burner, lamp, H. A. Chapin; Butter worker, E. M. Pike; Can and box, sheet metal, H. C. Leland; Can jacket, J. G. Low; Can, sheet metal, G. H. Chinnock; Cans, sheet metal, E. A. Leland; Car coupling, Babes & Borgersrode; Car starter, F. A. Hull; Cars, tube for propulsion of, A. S. Hallidie; Carburetor, J. T. Stewart; Card playing, I. Levy; Carpet rag looper, C. F. Gronquist; Carpet stretcher, S. Thompson; Carriage pole, adjustable, F. W. Bishop; Ca lags top setter, W. H. Nogle; Caster, furniture, S. Konz; Chair back, W. W. Marshall; Chandeller, drop, H. Prescott; Coat patterns, laying out, J. H. Nichols; Coffee holder, S. C. Johnson; Colds, etc., remedy for, A. M. DeWitt; Cooler, air, W. E. Richardson; Cork extractor, J. L. Hyde; Crib, child's, H. Ocorr; Crimping machine, L. P. Lum; Cultivator, J. M. Crabtree; Cui lvtator, J. Gildens; Cup holder, J. Scherer; Curry comb, G. Nolin; Curtain fixture, A. H. Knapp; Cutter head, P. G. Finn; Cattle fish holder, A. H. Alverson; Cattle fish holder, C. H. Rentz; Detonating compound, J. D. & W. C. Schooley; Door check, J. H. Swift; Door securer, G. M. Lindsey; Dredging apparatus, F. C. Prindle; Dredging machine, J. Howe, Jr.; Drilling machine, rock, Clarke & Utter; Dyeing woven fabrics, G. C. Gibbs; Engine, explosive, C. Hardy; Engine, reversible valve, F. Murgatroyd; Eraser and pencil protector, C. B. Sheldon; Excavator, J. P. Bonnell; Faucet, beer, T. C. Perkins; Fence, O. D. Beebe; Fence barb tool, wire, H. W. Prindle; Fever and ague remedy, A. M. De Witt; Filter, liquid, R. Stewart; Fire arms, stock for, G. Smith; Fire escape, H. L. Holmes; Fireproof construction, L. Hornblower; Flower stand, bracket, W. H. Shirley; Fruit, etc., preserving, C. A. Dards; Fruit, etc., drying, W. Brown; Funnel tongs, G. B. Clarke; Furnace-feeding mechanism, T. Henderson; Furnace for steam boilers, G. Morrison; Furnace, heating, J. Reynolds; Furnace, metallurgic, Silvester & Kirk; Furnace, soldering iron, E. G. Adams

Table listing inventions with patent numbers and names of inventors, including Furnace damper regulator, A. C. Norcross; Furnaces, heating air for, C. Thonger; Gas, making, A. Duchesne; Gas, making hydrogen, J. M. Hirsh; Gas tar, separating ammonia, J. J. Thomas; Gasaliers, smoke bell for, J. Fox; Generator, steam, J. A. Miller; Glass panel, J. Budd; Grain binder, J. E. Buxton; Grain binder, Randall & Rayment; Grain sheaves, tie for, R. Richeson; Grinding machine, C. Majer; Harrow tooth, H. B. Fargo; Harvester rake, J. Garrard; Heater and filter, feed water, G. F. Jasper; Hog cholera, remedy for, C. B. Lake; Horse protector, W. S. Marsh; Horseshoe, E. Murraine; Horseshoe, Rattray & Robertson; Horseshoe pad, D. W. Horne; Hose coupling, C. L. Martin; Hydraulic drawback, C. Sellers; Indicator, station, J. R. Balsley; Indicator, Goddard et al.; Indicator, station, C. M. Sexton; Iron, holding bars of, W. Sellers; Iron, etc., welding and shaping, G. H. Sellers; Ironing apparatus, Ashton & Metz; Jack, lifting, H. H. Sherwood; Journal bearings, etc., metal for, S. Doubleday; Kiln, charcoal, B. Kane; Kiln for burning brick, gas, Seger et al.; Labeling mineral specimens, C. W. Cannon; Lamp, C. Godfrey; Lamp lighter, F. W. Rentsch; Lamp-lighting device, R. S. King; Latnwork, G. K. Osborn; Latch, door, S. Oppenheimer; Latch for doors, thumb, H. C. Hill; Latch, reversible knob, W. M. Griscom; Latch, thumb, C. S. Jennings; Leather straps, etc., cutting, C. Gahr; Ledger, mechanical, O. Sallbach; Leech, surgical, F. Klee; Lock, combination, T. M. Seaton; Lock, time and combination, F. McDuffee; Lock, seal, Slack & Fisher; Lock, time, T. W. Spencer; Mail pouch tag holder, Metz et al.; Marquetry, making, W. E. Brock; Mats, etc., protector, G. H. Bliss; Mechanical movement, C. Sandermann; Mechanical movement, R. Swarbrick; Motion, multiplying, Corlett et al.; Nail-plate feeder, J. Newell; Nut lock, A. E. Brown; Oil cloths, printing, Randall et al.; Ovals, cutting, H. McAdams; Oven, domestic, S. P. Whitcomb; Paddle wheel, feathering, J. H. Clow; Paint composition, C. Dubois; Pan, cake, A. Lang; Paper-cutting machine, J. P. Dunwald; Paper binder, temporary, E. W. Stiles; Paper, puncturing, A. N. Lewis; Paving block, S. J. Whiting; Pen, fountain, R. Douglass; Pen holder, C. C. Hart; Pen, writing, H. D. J. Pratt; Piano action, upright, F. Koth; Pipe cutter, Jacob & Jamer; Pipe, waste and overflow, G. E. Waring, Jr.; Plow, F. R. Bell; Plow, S. W. Pope; Plow, J. Shickel; Plow and cultivator, sulky, E. W. & J. N. Russell; Plow, shovel, M. Schlessman; Plow, sulky, J. W. Grimes; Plow, tile-laying mole, S. H. Reynolds; Plows, land skimmer for, G. J. Thomson; Pneumatic switch lock, etc., W. E. Prall; Press, hay and cotton, F. M. Nash; Printer's galley, H. E. Hanna; Printing oil cloths, Randall et al.; Projectile, J. M. Pollard; Propellers, etc., raising screw, E. Ralph; Pump, air, R. H. Holbrook; Pump, double-acting, J. D. Carr; Pump, oil and liquor, W. L. Carlson; Puzzle, picture, Hyatt & Pruyn; Radiator, steam, J. T. Kelly; Railway, endless traction, A. S. Hallidie; Railway electric signaling, Rousseau & Smith; Rake, horse hay, W. S. Archer; Rake, horse hay, E. E. Leach; Rattan veneer, S. H. Penley; Reflector, C. Cothren; Revolver cartridge ejector, R. White; Revolver cartridge extractor, O. Jones; Rolling axles, machine for, G. K. Dearborn; Sad iron, F. Perrier; Sash fastener, S. Brown; Sash fastener, W. H. Taylor; Saw file and set, combined, E. M. Boynton; Saw filing machine, W. S. Newton; Saw fane, E. C. Atkins; Scraper, earth, E. A. Kinson; Scraper, road, W. Patterson; Separator, grain, L. C. Royer; Sewing machine hemmer, E. T. Thomas; Sewing machine offer, A. M. Leslie; Sewing machine treadle, W. H. Stewart; Sewing machine feed, T. S. Huntington; Shade cord retainer, R. W. Fittzell; Shingle machine, P. T. Burgher; Shingle sawing machine, F. A. Huntington; Shoes, making, C. H. Krippendorf; Shrimps, etc., preserving, G. W. Dunbar et al.; Sign, illuminated, F. McLewee; Sleigh draft bar, J. P. Thompson; Soap holder, J. L. Stackhouse; Soldering iron, W. H. & W. J. Clark; Soldering iron furnace, E. G. Adams; Speed regulator, N. U. Metz; Spice box, G. W. Putnam; Spinning stop motion, O'Donnell & Walker; Spinning wheel, J. W. Mullins; Spool cabinet, S. Schmittner; Stair rod, G. W. Hill; Stalk-cutting machine, E. E. Leach; Staves and laths, sawing, G. W. Herring; Stereotyping machine, S. V. Essick; Stock gallows, W. G. Hyder; Stone and glass, polishing, Purdy & Blue; Stool, camp, W. A. Graham; Stool, camp, L. Sauter; Stove, heating, A. T. Lanphere; Stove or furnace, D. N. Allen; Stove platform, J. W. Elliot; Stud or button, W. R. Duteuple; Sugar safe, L. C. Parker

Table listing inventions with patent numbers and names of inventors, including Tag, C. H. Clark; Tanks, constructing wooden, E. M. Morgan; Tannin juices, treating, J. Foley; Tea and coffee pot, E. B. Manning; Telegraph, dial, E. Van Hovenbergh; Thill and pole attachment, E. E. Leach; Top, spinning, C. E. Vetter; Torpedo, oil well, E. E. Swett; Track clearer, M. Pluck; Traction wheel, W. H. Laubach; Truck and bag holder, combined, L. Tandy; Turning handles, Seely & Chilcote; Twine holder, Gardner & Hill; Type casting machine, J. M. Conner; Valve, balanced slide, J. J. De Lancey; Vehicle spring, J. Kauffman; Vehicle wheel, L. Dorman; Vehicles, propelling, H. W. F. Carstens; Vessels, swinging berth for, H. C. Smith; Wagon brake, M. Schlessman; Wash board, G. R. Wright; Washing machine, E. J. Robinson; Washing machine, H. L. Vestal; Washing machine, G. S. Walker; Watch cases, calendar for, C. K. Pevey; Watch escapement, J. R. Hopkins; Watches, safety pinion for, M. C. Smith; Water wheel, turbine, I. Sherek; Welland cistern top, J. M. Bull; Well torpedo, oil, E. E. Swett; Windlass, R. D. Thayer; Wire-appling tool, R. L. Taylor; Wrench, W. Britton; Wrench, pipe, T. Booth; Wringer, G. S. Walker; Zinc from its ores, extracting, F. L. Clerc

DESIGNS PATENTED.

- 9,345.—MEDAL.—W. Conn, Philadelphia, Pa.
9,346.—STOVE.—J. A. Lawson, Troy, N. Y.
9,347.—STOVES.—A. Richmond, Brooklyn, Conn

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

SCHEDULE OF PATENT FEES.

Table listing patent fees: On each caveat \$10; On each Trade mark \$25; On filing each application for a Patent (17 years) \$15; On issuing each original Patent \$20; On appeal to Examiners-in-Chief \$10; On appeal to Commissioner of Patents \$20; On application for Reissue \$30; On filing a Disclaimer \$10; On an application for Design 3 1/4 years \$10; On application for Design (7 years) \$15; On application for Design (14 years) \$30

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The inexperienced purchaser of a patent does not generally appreciate the importance of having its claims examined, and their validity and scope defined by some person experienced in such matters, before parting with his money. It is not unusual for the assignee, just as he is commencing the manufacture of articles under his recently purchased patent, to find that it is an infringement upon some previously issued patent, and that he has not only made a worthless investment, but that he is likely to get mulcted in damages if he proceeds with his manufacture.

We therefore recommend any person who is about to purchase a patent, or about to commence the manufacture of any article under a license, to have the patent carefully examined by a competent party, and to have a research made in the Patent Office to see what the condition of the art was when the patent was issued. He should also see that the claims are so worded as to cover all the inventor was entitled to when his patent was issued; and it is still more essential that he be informed whether it is an infringement, as above suggested, or not.

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