

neys, the prominent character of which is the composition of a peculiar granular matter in the substance of the renal gland, together with the gradual atrophy of its cortical and tubular structure.

I have broken the translucent glass of my kaleidoscope. How shall I replace it? A. Obtain a piece of finely ground glass, cut to the exact size of the tube, and fit it as before.

(31) I. H. R. says: 1. Some time since, you published a plan of making the baroscope of Babinet. After the baroscope is constructed, and the red fluid made to rise in the glass tube by blowing into it, must the top be sealed? A. No. It may be drawn out to a point, but the tip of this must be broken off in order that the air may press upon the surface of the liquid in the tube. A very minute hole will answer the purpose. 2. Is it necessary that the baroscope should be placed in the open air for the effect of the atmosphere? A. No.

(32) L. C. E. says: I make black ink, but it corrodes the pen. The ingredients are blue galls, sulphate of iron, acetate of copper, gum arabic, and sugar. How can I remedy this corrosion? A. It is probable that the sulphate of copper is not neutral. Try the addition, with constant agitation, of a solution of carbonate of ammonia until a precipitate just begins to form.

(33) F. R. W. asks: Can the American black walnut be stained or changed to a light color? A. Strong nitric acid changes the appearance of good black walnut to that of light mahogany. Chlorine and chlorinated lime bleach it.

(34) H. R. says: I am driving a circular saw by hand power with a 2 inch belt from a 5 feet driving wheel to a 3 inch pulley on the saw shaft. The objection to this plan is that the large wheel occupies so much room. Please give me some idea of the loss of power I shall sustain by using a countershaft and a smaller driving wheel. A. If the shafting is accurately fitted, the loss will probably not exceed 10 or 12 per cent.

(35) C. J. asks: Is there any chemical that will bleach rosin as it runs out with spirits of turpentine? A. No. It is impracticable.

(36) C. R. asks: What relative efficiency have petroleum and coal as fuel? If you have to generate steam in a boiler, and you use 1 tun good steam coal, how many lbs. crude petroleum would you require, with perfect combustion, to do the same work? A. About 1,366 lbs.

(37) C. P. S. asks: How can light colored tobacco leaf be made dark without injury to the leaf and its burning qualities? A. We know of nothing that we can recommend for this purpose.

(38) A. A. M. asks: Is there anything that can be put into preserves to keep them from canying? A. We do not know of any way of avoiding it with concentrated sirups.

(39) S. O. asks: Would two extra keels, one on each side, just below the water line, a little shorter than the main keel, make a canoe sail closer to the wind, and let it carry more sail? Canoe is 20 feet long by 4 feet wide, and has a keel about 7 inches deep. A. There is some difference of opinion on this subject. If any of our readers have made experiments, we would be glad to hear from them.

(40) G. E. S. says: I wish to put an upright boiler in a steam launch 35 feet long, 6 feet wide, and about 3 feet deep. It is desirable to get the weight of the boiler as low as possible, and to have it as large in diameter as would be safe. What diameter and length of tube would you recommend, to drive two 6x6 inches vertical engines? A. About 4 feet in diameter and 6 feet high.

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

B. F. W.—It is galena or sulphuret of lead.—W. P. D.—It is sulphuret of lead, or galena.—G. W. P.—It contains lead and antimony.

COMMUNICATIONS RECEIVED.

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

- On a Window Stick. By H. T. G.
On the Glacial Period. By F. B.
On a Thread Telegraph. By G. Q. T.
On the Phylloxera. By A. S.
On Alexander Selkirk. By W. R.
Also inquiries and answers from the following:
F. C. R., Jr.—O. K.—G. A.—M. N.—A. B.—B. B.—G. M. R.—J. C. W.—C. E. S.—E. F. T.—W. L.—H. N.—W. C. R.—A. F. P.—H. C. N.—T. S.—R. R.—E. L. E.—J. S. C.—G. W. G.—E. S.—E. T. B.—J. P. O.—W. M. R.—C. G. W. L.

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 red cedar? Who sells lead pencils? Who sells German silver penholders? Who sells imitation gold pens? Who sells bread-cutting machines? Who makes a machine for ironing collars? Who is the best furnace for burning wet tan? Who sells the best steam trap? Who makes the best fire engine lanterns?" All such personal inquiries are printed, as will be observed, in the column of "Business and Person-

al," 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, April 18, 1876,

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 inventions and their patent numbers, including items like Alarm, burglar, C. M. Ollphant; Alphabet game board, etc., S. T. McDougall; Atomizer, T. J. Holmes; Auger, earth, G. E. Sherry; Bale-tying mechanism, W. Rogers; Barrel head, J. W. Sasseer, Jr.; Barrels, pumping from, S. E. Mallett; Barrels, boxes, etc., carrier for, N. Oak; Battery, galvanic, G. H. Bliss; Bayonet, S. W. Hill; Bed bottom, J. L. Ritter; Bedstead, G. Griesche; Bedstead, wardrobe, Hall, Grisard, & Goslin; Bee hive, C. E. Bost; Bin, meal, Weller, Ayres, & Lintner; Blasting powder, H. Courteille; Boat knees, socket for, D. True; Boiler, hot water, J. D. Keeley; Boiler, sectional tubular, W. H. Dougherty; Boiler, vertical steam, T. W. Godwin; Boiler, heater for steam, R. Thrush; Bolts, swaging threads on, H. E. Coy; Book binding, Deller & Richter; Boot soles, butting, C. C. Greene; Boot tree, H. C. Cass; Bosom board, E. E. Morgan; Bouquet holder, Hoffman & Hoyt; Brush, Davies & Wernli; Brush, C. B. Rogers; Button, D. Heaton; Button, sleeve, E. G. Ladd; Cake cutter, J. Collins; Calves, muzzle for, S. Tilton; Camera stand, J. Haworth; Can, oil, J. C. Slaffer; Candle, artificial, W. A. Kowalski; Candy marble machine, B. & H. Stern; Car bumper spring, J. Hayden; Car coupling, J. Banks; Car coupling, Remaly & Kinnard; Car coupling, J. B. Smith; Car coupling, G. Worden; Car door, grain, A. Packard; Car replacer, S. D. Robinson; Car ventilator, C. H. Kellogg; Car window, G. B. Wright; Cars, colled spring for, A. French; Carburetor, Porter & Grimes; Carburetor, A. Wiggin; Carburetor, B. H. Woolman; Cards, lacing Jacquard, L. A. Upson; Cards, trimming playing, V. E. Mauger; Carpet beater, R. Morris; Carpet stretcher, S. Pennock; Carpet stretcher, J. P. Warner; Carriage step, E. A. Cooper; Carriage handle, F. W. Whitney; Carriage, umbrella top, McRedmond & Chase; Casks, machine for pitching, A. F. Dobler; Chair, rocking, W. E. Buser; Chair seat and back, G. Hunzinger; Chandelier bell, G. B. Riddle; Chestnuts, cleaning, N. B. Little; Chimney cap, E. H. Meigs; Churn, J. Cook; Churn, O. Rost; Cigar pipe, A. L. Munson; Clock, J. W. Hill; Clothes dryer, E. S. Skel; Clothes dryer, D. B. Lovejoy; Clothes wringer, S. F. Leach; Cock, stop, Kromer & Royce; Coffee pot, P. Sours; Coffee roaster, A. A. Story; Coffee sheller, J. A. Mosquera; Cording, etc., waxing soft, R. & W. C. Blackiston; Corn preserver, I. Winslow; Cracker box, H. Bradbury; Cuff holder, Levy & Hirsch; Cultivator, C. Oehrlend; Curtain roller bracket, H. Sechausen; Cut off and gear, J. Knowlson; Dish, butter, G. E. Savage; Dish cleaner and drainer, E. S. Harper; Dish washing machine, E. P. Hudson; Distilling water, D. C. Anthony; Door cushion, C. F. Lovelace; Drilling machine, stone, etc., Grant & Crouch; Drills, making twist, E. S. Taber; Eggs, packing, C. O. Perrine; Elastic adjusting strap, F. Armstrong; Elevator, S. Squire; Engine governor, steam, C. Ackerman; Engine governor, steam, D. Shive; Equalizer, draft, G. W. Harrington; Equalizer, draft, A. C. Latta; Eyeclets, embossing, S. Sternberger; Fabrics, measuring packaged, S. C. Talcott; Feed cutter, W. O. Bryan; Fence iron, D. C. Guttridge; Fence wire, barbed, F. Armstrong; Ferrotypes, coloring, C. H. Collagan; Fifth wheel, D. G. Wyeth; Fire arm, breech-loading, J. Barnett; Fire arm extractor, Smith et al.; Fire arm safety lock, Skerl et al.; Fire board, E. G. Schwartz; Fire-extinguishing apparatus, W. E. Prall; Floor, stall, B. Schaefer; Fruit picker's basket, O. W. Odell; Furnace, desiccating, G. W. Rawson; Furnaces, necks of, L. Ryan; Gas apparatus, B. Sloper; Gas light extinguisher, W. H. Hovey; Gas, wood for, F. H. Elchbaum; Gas tight joint, A. C. Wood; Generator low water alarm, J. W. Kenyon;

Table listing inventions and their patent numbers, including items like Girder, compound, R. A. Healy; Glove fastening, W. Hassall; Gold and silver ores, etc., pulverizing, R. M. Fryer; Grain binder, J. Garrard; Granulating machine, A. R. Gullder; Gums, &c., treating refuse, L. Butler; Hair-heading machine, E. J. Crosby; Hammer, atmospheric, J. C. Butterfield; Hammer sockets, forming, C. A. Williams et al.; Harrow, shovel, J. Stoever; Harvester, W. F. Goodwin; Harvester, W. N. Whiteley; Hat holder, W. H. Hampton; Heater, J. Reynolds; Heater, feed water, S. N. Hartwell; Heater, locomotive feed, Waters et al.; Hinge, spring, A. A. Stimson; Honey package, C. O. Perrine; Honey, filling packages with, C. O. Perrine; Hook, snap, Washburne et al.; Hook, trace, W. G. Reeves; Horse detacher, J. A. Mackinnon; Horse power, H. K. Andrews; Horses, quarter boot for, R. G. Clark; Hose coupling, G. W. Price; Hose reel and water cock, W. Neracher; Injector, S. Rue; Inkstand calendar, G. R. G. Jones; Ironing board, King and Irvine; Jack, lifting, Fayette et al.; Jugs, etc., cleaner for, L. Gott; Key, door, W. C. Frederick; Key hole guard, E. Witt; Kiln and germinator, malt, V. Noback; Knitting machine, rib, C. J. Appleton; Knitting yarn guide, A. B. Johnson; Ladder step, J. C. Blauvelt; Lamp chimney, W. L. Fish; Lamp chimney and shade, T. B. Atterbury; Lamp wick gage, W. Y. A. Boardman; Lamp lantern, street, A. S. Bunker; Lasting machines, wire for, L. Goddu; Latch, gate, H. Jones; Lead trap, cast, Adee and Foley; Lead traps, T. F. Stevenson; Leather crimping machine, S. W. Jamison; Leather dressing, Chamberlin et al.; Leather, softening, H. Cunningham; Leather, treating, W. E. Brock; Lightning conductor, O. Preston; Lithographic damper, F. Rhell; Locket bezel, D. P. Fitzgerald; Mail bag, E. W. Roberts; Mat, A. Thompson; Mattress supporter, J. H. Spofford; Metal, cutting, Schofield et al.; Meter, fluid, J. B. Button; Mills, grinding, Witt and Smith; Millstone, J. W. Truax; Millstone exhaust, F. A. Howland; Mirror, H. Goldberg; Mitering machine, S. R. Pay; Mortises, laying out, W. S. Dickinson; Mosquito bar, L. E. Ladd; Mosquito net frame, J. H. Spofford; Motor, spring, D. Shive; Mower, H. K. Kenyon; Mudlage holder, W. J. Schilling; Musical key board, T. F. Simpson; Mustache guard, V. A. Gates; Nail plate feeder, R. C. Turner; Nail-separating machine, B. Bevelander; Nut lock, J. Morton; Nuts, making, C. G. Gustafsson; Ore feeder, Cochrane and Hendy; Organ, reed, S. Hale; Organ, reed, M. J. Matthews; Oven, coke, S. Stutz; Packing, stuffing box, B. T. Babbitt; Pantaloon, shaping, P. Howe; Pantaloon protector, H. Gardner; Paper box, D. K. Osbourn; Paper collar, E. E. Mack; Paper-cutting machine, E. Schlenker; Paper cylinders, making, C. O. Perrine; Paper, glazed plaid, J. F. Marsh; Paper vessel, J. Stevens; Pavement, asphalt concrete, S. R. Scharf; Pipe joint, plumber's, O. Collins; Pipe mold, concrete, S. Hastings; Plane, bench, Traut and Richards; Planter, check row, J. Rothchild; Planter, corn, E. Morgan; Planter, seed, A. J. Branham; Planter, seed, H. C. Locke; Planter, seed, Martin, Bunford, and Ege; Plow, A. E. Jester; Plow, S. Mead; Plow, gang, W. W. Pusey; Plow mole, J. Scott; Plowshares, making, C. H. Thompson; Plow whiffletree, T. B. Baldwin; Pocket guard, watch, J. Koehler; Powder ejector, C. Chinnock; Press, cotton, J. A. Adams; Press, cotton, W. B. Villard; Press, hydraulic cotton, P. B. Tyler; Press, tobacco, E. Herbert; Printing on spools, Hall & Averell; Printing addresses, H. Slosson; Printing press delivery, J. L. Firon; Pump, malmquist; Pump, air, B. T. Babbitt; Pumping oil wells, D. C. Brawley; Purifier, middlings, Nilson & Olson; Railway switch, street, B. Bevelander; Railway tie, G. D. Blaisdell; Rake, revolving sulky, J. J. Lucas; Ratchet wheel fastening, E. F. Stoddard; Refrigerating apparatus, J. Parlette; Sad iron, self-heating, G. W. & J. A. Gerow; Saddle, riding, J. H. Spofford; Sash fastener, L. B. Clark; Sawmill logs, moving, A. Rodgers; Scraper, revolving, E. Huber; Seal, metallic, A. Friedrick; Seed and fertilizer sower, E. D. Mead; Separator, middlings, Reel & Seyler; Sewing machine platform, C. L. Schuyler; Sewing machine ruffer, J. D. Sourwine; Sewing machine tension, S. A. Witherspoon; Sewing strap, metallic, L. Wilkinson; Ships' rudders, G. H. Couvrette; Shoe nail strips, hanging, P. H. Howe; Skirt supporter, W. A. McMillan; Skirt supporter, A. H. Pike; Spindle bobbin, J. H. Sawyer; Spoke-setting machine, T. S. Morgan; Spokeshave, Traut & Richards; Spoke socket, P. Wineman; Spool for thread, Hall & Averell;

Table listing inventions and their patent numbers, including items like Stamp, perforating, A. S. Bunker; Staples, making, S. H. Wheeler; Steamer, vegetable, E. Stangeland; Steel waste, utilizing, W. Fields; Still, S. Van Syckel; Stockings, manufacture of, J. Holmes; Stove leg, C. D. Woodruff; Stoves, collar for cook, D. Stuart; Stud spirals, winding, F. Richardson; Stump extractor, Ballet & Demarest; Table, extension, G. Zelslein; Table, folding, W. H. Tambling; Table, ironing, C. Blom, Jr. (r); Table, ironing, H. A. Negus; Table, ironing, C. Wirth; Tack driver and carpet stretcher, J. McWilliams; Telegraph transfer, A. J. Russell; Temple roller, A. F. Dow; Thrashing machine, J. A. Throp; Ticket holder, W. U. Bohm; Tobacco press, E. Herbert; Tool socket die, J. D. Allison; Toy box, J. Kayser; Track clearer, J. H. Pieler; Trousers, apparatus for shaping, J. B. Eggleston; Trunk, G. B. Jenkinson (r); Truss, Johnson & Young; Valve, governor, D. Shive; Vehicle top, E. M. Lawrence; Vehicle rope gripping device, A. E. Hovey; Wagon brake, J. Hamelback; Wagon end gate, N. B. Little; Walls, constructing, P. A. & I. S. Knapp; Warp threads, tying, I. L. G. Rice; Watch regulator, W. B. Tucker (r); Watch, stop, H. A. Lugin; Water conductors, cut-off for, W. P. Myer; Water wheel, J. Shortridge et al.; Water wheel, W. Whitney (r); Wells, pumping oil, D. C. Brawley; Wheel, split, B. G. Mills; Wheelbarrow, W. E. Jacobs; Wind wheel, A. T. Page (r); Windlass, J. P. Manton; Windmill regulator, S. Vermilya; Wrench, C. Fleisch; Wrench, W. I. Noel; Yarn, removing bunches from, E. E. Valentine;

DESIGNS PATENTED.

Table listing designs patented, including items like 9,204.—MUGS.—G. B. Fowle, Boston, Mass.; 9,205.—FIREMAN'S CAP.—F. J. Miller, Brooklyn, N. Y.; 9,206.—BOTTLES.—E. Newman, Philadelphia, Pa.; 9,207.—BOTTLE.—R. P. Smith, Philadelphia, Pa.; 9,208.—RANGE PLATES.—N. S. Vedder, Troy, N. Y.; 9,209.—TRAYS.—D. M. Cummings, Enfield, N. H.; 9,210.—SHOW CASES.—J. Lehnbeuter, St. Louis, Mo.; 9,211.—MUG.—J. Oesterling, Wheeling, West Va., et al.; 9,212.—GLASS JAR.—C. K. Sherwood, New York city; 9,213, 9,214.—SALVERS.—A. Conradt, Middletown, Conn.; 9,215.—ORGAN CASES.—J. R. Lomas, New Haven, Conn.; 9,216.—HANDKERCHIEFS.—T. J. Martin, Philadelphia, Pa.; 9,217.—ORGAN CASE.—A. S. Nichols, New Haven, Conn.; 9,218.—GARDEN VASES.—D. W. Lewis et al., Hyde Park, Ms.; 9,219, 9,220.—CHILD'S CARRIAGES.—G. W. Marble, Chicago, Ill.; 9,221.—BURIAL CASES.—J. McGrath, New York city; 9,223.—KNIFE HANDLE.—A. Parker, Greenfield, Mass.; 9,223.—SHOE UPPERS.—L. F. Alden, Brockton, Mass.; 9,224.—BADGE.—R. C. Bierce, Menomonee, Wis.; 9,225.—CARD HOLDERS.—L. S. Davis, Waterbury, Conn.; 9,226, 9,227.—COOK STOVES.—C. Harris et al., Cincinnati, O.; 9,228, 9,229.—PERFORATED PAPER.—G. M. Jacobs et al., New York city; 9,230.—APRON.—C. Jenkins, New York city; 9,231.—MONEY BOX.—R. F. Kane, Cambridgeport, Mass.; 9,232.—FLAG HOLDERS.—J. H. Odell, Philadelphia, Pa.; 9,233.—ARROW HOLDER, ETC.—C. Robinson, Cambridgeport, Mass.; 9,234.—TWINE HOLDERS.—O. F. Fogelstrand, Kensington, Conn.; 9,235.—CANISTERS.—J. B. Rohrman, Philadelphia, Pa.

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