

quartz rock, containing arsenopyrite.—E. N. L.—It is not plaster, as you suppose, but calcite or carbonate of lime—Ca CO₃. Several small crystals were found in the calcite, but there were not enough of them for us to determine what they were.—J. O. B.—The dark red material, No. 1, is shale. No. 2 is a limestone containing marmolite.—J. A. H.—It is hematite.—I. L.—It is the cocoon of the attacus cecropia. "The cocoon is fastened longitudinally to the side of a twig. It is, on an average, three inches long, and one inch in diameter at the widest part. Its shape is an oblong oval, pointed at the upper end. It is double, the outer coat being wrinkled, and resembling strong brown paper in color and thickness; when this tough outer coat is cut open, the inside will be seen to be lined with a quantity of loose, yellow brown, strong silk, surrounding an inner oval cocoon, composed of some kind of silk, and closely woven like that of the silkworm. The insect remains in the chrysalis form through the winter. The moth, which comes forth in the following summer, would not be able to pierce the inner cocoon, were it not for the fluid provided for the purpose of softening the threads; but it easily forces its way through the outer cocoon at the small end, which is more loosely woven than elsewhere, and the threads converge again, by their own elasticity, so as almost entirely to close the opening after the insect has escaped."—Harris.

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 Keely Motor. By T. P. W., and by O. On the Weight of the Earth. By J. F.

Also inquiries and answers from the following: A. R. L.—N. J. W.—F. C. S.—N. R. S.—K. B.—F. W. T.—N. H. N.—A. B. F.—R. L.—W. F.—G. F.—A. G.—J. W. D.—C. H. S.—P. S.—G. D.

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Enquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here.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 lenses for telescopes? Is there a good and cheap microscope for student's use to be found in the market? Who sells the best bookbinders' boards? Whose is the best gear wheel cutter?" 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 June 22, 1875, AND EACH RECEIVING THAT DATE. [Those marked (r) are reissued patents.]

Table listing inventions and their patent numbers, including Alarm, burglar, J. A. Weed; Bale tie, Du Bose & Charles; Bale tie, A. Eichholz; Bath tub showering attachment, W. H. Rowe; Battery, galvanic, T. Chutaux; Bed bottom, spring, J. A. Reeds; Bedstead fastening, G. Supter; Bedstead, invalid, G. Pence; Bee hive, E. Gerry; Bell pull, W. Richardson; Belt fastener, J. B. McElroy; Belt shifter, W. H. H. Sium; Belt twisting apparatus, M. P. Wilmarth; Billiard register, electrical, Russell & Sax; Blank book, I. Reynolds; Body brace, H. R. Allen; Boller plates, punching, Carroll et al.; Boller, steam, M. W. Shapley; Boller, wash, J. Rieth; Boller, feed water heater, S. W. France; Book clasp, N. Harlan; Boot and shoe, Meyer & Freiburgh; Boot and shoe crimp, C. Heller; Boring apparatus, earth, O. Martin; Bottle stopper or cork, J. Schrink; Box girder, compound, A. Hay; Boxes, machine for making, J. W. Bowers; Bridge fastening, draw, C. J. Atkins; Brush, fountain, F. McDaniel; Building composition, A. T. Lyon; Burner, argand gas, E. P. Gleason; Burner, hydrocarbon, J. W. Neely; Butter tubs, fastening for, H. C. Carter; Cake cutter, J. H. Winslow; Calves from sucking, preventing, S. Tilton; Can vent and stopple, E. M. Crandal; Canal coats, construction of, W. Ball; Car coupling, C. Bowman; Car coupling, W. S. Burton; Car coupling, J. Jacobson; Car coupling, M. Sisco & Warner; Car coupling, N. Nilson; Car coupling, J. B. Stamour; Car truck, C. W. Mansfield; Carding machine, Blamires & Marsden; Carpet cleaner, D. B. Scofield; Carriage and chair, Tenney & Hobbs; Cartridge box, M. V. B. White; Cartridge, shot, B. D. Wilson; Cat handle, C. Strong.

Table listing inventions and their patent numbers, including Chair, spring, A. W. Coates; Chuck, C. H. Powers; Cigars, case for freshing, Chandler & King; Cloth steaming machine, J. Shinn; Clothes dryer, C. Hauser; Clutch for power presses, A. H. Merriman; Coffin handle, M. H. Crane; Comb cutting machine, J. W. & I. S. Hyatt; Cooler and condenser or heater, C. H. North; Cotton gin, W. Koehl; Cradle and bedstead, C. W. Chamberlain; Curtain fixture, W. H. Sparks; Dental forceps, A. Engel; Dental rubber dams, clamp for, D. Palmer; Dominoes, spotting, I. S. Hyatt et al.; Door check, W. H. Willis; Door securer, L. Marks; Drill ratchet, J. M. Koeberle; Drilling mechanism, rock, A. E. Allen; Drop lights, friction slide for, J. T. Bruen; Electrical timing apparatus, R. J. Sheehy; Elevator, water, W. Walter; Embroidering machine, Michael & Bourget; Engine governor, steam, F. M. Merrill; Engine, pneumatic, P. M. Conolly; Engine, steam, H. P. Case; Engine, steam fire, W. Knaust; Engines, valve gear for steam, J. L. Hewes; Envelope, A. N. Lewis; Escutcheon, seal, E. J. Brooks; Etchings on glass, producing, E. Dallienne; Excavating apparatus, C. G. Force, Jr.; Excavator, G. W. Gonca; Fan leaves, machine for cutting, P. Hufeland; Fans, manufacture of, P. Hufeland; Fare box, A. E. Hovey; Fats for rendering, cutting, P. L. McDowell; Faucet, L. Chalze; Fence, farm, L. M. Wheelock; Fence, iron, P. Haffa; Fifth wheel, J. Hodge; File blanks, bending circular, Beyer and Heusch; Files, tempering, W. T. Nicholson; Fire arm, breech loading, B. Fasoldt; Fire extinguisher, chemical, A. E. Hughes; Fishing rod, J. L. Graves; Flooring clamp, J. T. and G. J. Moss; Fruit can, S. W. McOmber; Fruit jar, Stevens and Lumley; Fuel, etc., compression of, F. J. Hamel; Furnace, W. E. Haxton; Furnaces, supplying gas to, W. Rogers; Game table, N. W. Moulton; Gas and air, etc., carbureting, L. E. Fish; Gas extinguisher, L. Boore; Gas, illuminating, F. H. Eichbaum; Gate, automatic, H. Hammond; Gate, lifting, W. Lundy; Glass annealing oven, T. B. Atterbury; Governor, W. D. Marks; Grain conveyor, H. W. Caldwell; Graining wood, G. F. Mehling; Grate bar, hollow, W. L. Gregg; Grate for cooking ranges, drop, J. E. Baum; Grinding wheel, Putnam and Esty; Hame fastener, H. J. Wilson; Harrow, C. Brodrick; Harvester, H. N. Bridenthall, Jr.; Harvester nger bar, V. N. Collins; Harvester reel, J. F. Black; Hay rack, J. Hall; Heelshave, N. A. Sweet; Hing, sheet metal, S. Scott; Hog catching implement, W. R. Ames; Horseshoe, die for spurs on, Clarke and Chase; Horseshoes, machine for bending, H. Levy; Hose coupling, E. Dayton; Hydrant, G. Hillegaas; Hydrant, W. H. McMillan; Hydrant, J. G. Murdock; Hydrocarbon burner, J. W. Neely; Ice breaking attachment for vessels, J. T. Martin; Incubator, A. Corbett; Inkstand, S. Darling; Ironing apparatus, N. Hall; Knife, shoe, H. S. Cushman; Knife, tobacco, E. T. Shelton; Ladder, fire escape, D. Sanford; Ladder, step, E. G. Hildreth; Lamp, J. S. and T. B. Atterbury; Lamp and oil can, combined, W. Roberts; Lamp, street, J. Henrich; Laster, foot power, F. J. Davis; Latch for door, O. W. Stow; Leather, bronze dressing for, E. M. Fennessy; Life preserving apparatus, H. A. Duc, Jr.; Limekilns, W. S. Sampson; Links, machine for forming, J. H. Helm; Liquids, preserving, J. G. L. Boettcher; Lock, bag, F. W. Mix; Locomotives, increasing traction of, J. W. Murphy; Loose harness, J. Sladdin; Mail bag catch, H. M. Dick; Measure, speed, S. F. Minton; Medical compound, J. Cooper; Meter, liquid, E. Marsland; Mill, cider, Galt and Tracy; Mill, cider, S. Maies; Mill, rolling, I. Hahn; Mill spindle, J. A. Harner; Molding machine, J. R. Locke; Monument, J. Sharkey; Motion, device for converting, G. Turner; Musical game apparatus, E. Draper; Nut lock, O. B. Latham; Nut lock, W. F. Marthens; Nut lock, W. P. Olden; Oils, refining, A. T. Schmidt; Organ tremolo, W. D. Parker; Organ tremolo, read, R. W. Pain; Paint, compound, A. T. Lyon; Paper barrels, making, W. G. Pennypacker; Paper boards, making, B. F. Field; Paper box, L. A. Kettle; Paper clip, Pack and Vanhorn; Paper, compound for sizing, J. Hogben; Paper cutting machine, W. I. Reid; Paper machine, C. L. Crum; Paper, cutting and delivering, W. Scott; Paraffin, etc., purifying, F. X. Byerly; Photographic dark trunk, F. Robbins; Photometer, portable or hand, W. W. Goodwin; Piano tuning pin lock, G. P. Reeves; Planos, stringing, A. Moeller; Pickles, preparing, Reckhow and Stafford; Pipes for buildings, steam, C. C. Walworth; Plane, bench, L. Bailey; Planing machine, E. Benjamin; Planing machine, H. C. Holloway; Planing machine, C. R. Tompkins; Planking set for ship carpenters, E. Sloan.

Table listing inventions and their patent numbers, including Plow, O. J. Glasoe; Plow, A. Griggs; Plow colter cleaner, Wallis and Case; Plow die, C. H. Thompson; Polishing wheel, H. Hard; Postage stamp holder, P. W. Hall; Press, baling, J. C. Stokes; Press, hay, cotton and wool, W. H. McBurney; Press, screw, J. H. Clapp; Presses, clutch for power, A. H. Merriman; Printing in colors, W. H. Holmes; Propeller, chain, E. R. Austin; Pulleys, machine for grinding, A. Wood; Pump, Arndt & Ayres; Railway crossing, E. J. Patterson; Rail support, C. B. Sheldon; Railway signal, electric, H. W. Spang; Railway switch, J. Walker; Railway track, R. Banolas; Ranges, drop grate for cooking, J. E. Baum; Refrigerator, Mason & Sinclair; Refrigerator building, T. Krausch; Regulator and alarm, automatic heat, S. A. Day; Road rammer, A. Q. Ross; Roofing material, D. McDaniel; Saddle, harness, A. V. Sargeant; Sash fastener, C. B. Gardner; Sash fastener, P. Meyer; Sash fastener, W. B. Swallow; Sausage machine, D. J. Howenstein; Saw jointer and gage, R. E. Poindexter; Sawing machine, Scroll, Wescott & McGregors; Scaffold, J. E. Sanders; Screw driver, I. C. Cowles; Screw heads, die for forming, F. Rhind; Sede drill, J. R. Symmes; Seeding machine, J. B. Bushnell; Sewing machine binder, G. Wissler; Shawl strap handle, L. Loeser; Sheet metal rings, making, S. R. Wilmot; Ship carpenters, planking set for, E. Sloan; Shoe knife, H. S. Cushman; Shoe nail, H. F. Whidden; Signal, electric railway, H. W. Spang; Signal operating device, F. Culham; Sled, bob, J. J. Sandgren; Smoke drum, J. Bowman; Smokestack, J. L. Mason; Soap holder, J. P. Bryan; Spark arrester, W. Stamp; Speed measure, S. F. Minton; Spike, G. N. Sanders; Spinning machines, top roll, E. Card; Spoke tenoning machine, Coleman & Myers; Stamp canceler, M. Lewis; Stone, artificial, Osborn et al.; Stove, A. Hamilton; Stove, H. J. Winterlich; Stove, camp, H. L. Duncklee; Stove, coal oil, J. L. Sharp; Stove pipe elbow, J. F. Piel; Stove, reservoir cooking, R. M. Hermance; S. gar cutting machine, F. Rochow; Swing, child's, G. A. Fanjoy; Tables, folding work, B. Fairchild; Table, ironing and kitchen, A. Aitken; Tanning hides, Baldwin & Holcombe; Telegraph and circuit, duplex, J. B. Stearns; Thill coupling, G. W. Ladd; Tobacco knif, E. T. Shelton; Toy, C. A. Bailey; Toy, bell, F. Arnold; Toy, electric, W. J. Decker; Transom for doors, J. Berndt; Trap, fly, J. M. Harper; Trap, hog, J. M. Kimball; Type casting machines, J. A. T. Overend; Valve for water tanks, J. Hadfield; Valve gear, W. L. Newsham; Vehicle bodies, corner for, Acker & Robinson; Veneer cutting machine, G. W. Swan; Ventilator, sidewall, W. G. Creamer; Wagons, brake block for, Wieterhold & Oak; Wardrobe, M. B. Coburn; Warp holder, piercing, H. S. Houghton; Washing machine, M. Newton; Washing machine, cylinder, S. and A. F. Wekey; Watch key, J. C. Duerber; Watch wheels, pivoting, F. R. Bucklin; Water closets, disinfecting, G. Jennings; Water tank valve, J. Hadfield; Water wheel, J. Erikson; Water wheel, turbine, G. Arrowsmith; Water wheel turbine, J. M. Jensen; Wells, pumping, Nickerson & Streeter; Window sash, L. P. Haradon; Window screen, S. Parker; Wood preserving compound, P. Werni; Wrench, J. Norton.

DESIGNS PATENTED.

Table listing designs patented, including 8,406 to 8,408—BREASTPINS.—L. S. Beals, Astoria, N. Y.; 8,409—SCARF RING.—L. S. Beals, Astoria, N. Y.; 8,410—PICTURE FRAME.—E. Beck et al., Lockport, N. Y.; 8,411 & 8,412—EMBROIDERY.—E. Crisand, New Haven, Ct.; 8,413—COMB.—G. G. Miller, Philadelphia, Pa.; 8,414—BORDER.—C. Osborne, North Attleboro, Mass.; 8,415—VASE.—C. F. Pike, Philadelphia, Pa.; 8,416—DESKS.—C. Richter, Dedham, Mass.; 8,417—BOTTLES.—J. Truax, Mt. Union, Pa.; 8,418—CASSIMERES.—E. C. Clark, Rockville, Ct.; 8,419—PRINTING TYPE.—J. M. Conner, Greenville, N. J.; 8,420—TYPE.—P. A. Jordan, Philadelphia, Pa.; 8,421—THERMOMETERS.—C. Kitchell, New York city; 8,422 to 8,425—OIL CLOTHS.—C. T. Meyers, Bergen, N. J.; 8,426—STOVE DOORS.—J. Wormer et al., Albany, N. Y.; 8,427—BIRD HOUSES.—J. White, Philadelphia, Pa.

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 1/2 years) \$10; On application for Design (7 years) \$15; On application for Design (14 years) \$30.

CANADIAN PATENTS.

Table listing Canadian patents granted in Canada, including 4,864.—D. J. Topley, Brooklyn, N. Y., U. S. Fire extinguisher, June 17, 1875; 4,865.—J. H. Morrell, New York city, U. S. Floodway for warehouses, etc. June 17, 1875.

Table listing patents granted in the U.S., including 4,866.—G. H. Longmore, Portland, Me., U. S. Matting roller, June 17, 1875; 4,867.—E. B. Dodge, Peterboro, N. H., U. S. Spring bed, June 17, 1875; 4,868.—G. H. Greenough, Brooklyn, N. Y., U. S. Producing artificial light, June 17, 1875; 4,869.—A. Crabtree, Bacup, England. Middlings separator, June 17, 1875; 4,870.—A. Bedford, Boston, Mass., U. S. Bell target, June 17, 1875; 4,871.—J. P. Sharp, Birmingham, England. Steel process, June 17, 1875; 4,872.—A. Cummings, New York city, U. S. Pouring lip for sheet metal measures, June 17, 1875; 4,873.—R. S. Van Zandt, Williamsburgh, N. Y., U. S. Extension step ladder, June 17, 1875; 4,874.—A. S. Walbridge, Mystic, P. Q. Horse hay rake, June 17, 1875; 4,875.—G. M. Mowbray, North Adams, Mass., U. S. Frictional electric machine, June 17, 1875; 4,876.—G. R. Prouse, Montreal, P. Q. Steam mangle, June 17, 1875; 4,877.—A. L. Davis et al., Port Crane, N. Y., U. S. Vehicle spring, June 18, 1875; 4,878.—F. Van Patten et al., Auburn, N. Y., U. S. Fifth wheel for carriage, June 18, 1875; 4,879.—S. Duck, Victoria, British Columbia. Hub and bevel mortising machine, June 18, 1875; 4,880.—F. Van Patten et al., Auburn, N. Y., U. S. Fifth wheel for carriage, June 18, 1875; 4,881.—F. H. Date, Niagara, Ont., et al. Combined gas retort, June 18, 1875; 4,882.—E. A. Beers, De Kalb Center, Ill., U. S. Gang plow, June 18, 1875; 4,883.—N. E. Smith, Richford, Vt., U. S. Milk cooler, June 18, 1875; 4,884.—H. Ragot, Pittsburgh, Pa., U. S. Glass furnace, June 18, 1875; 4,885.—C. W. Hunt, West New Brighton, N. Y., U. S. Automobile railway, June 18, 1875.

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