

(31) J. R. D. asks: 1. Can ordinary paraffine, such as is used in making so-called wax candles, be dissolved by heat or made to fuse with boiled linseed oil, and if so fused will it remain? What will dissolve the same, and how can it be made into a liquid or semi-liquid form and remain in that form? A. Stir the paraffine into the hot oil—this will afford an emulsion, if not a true solution. Paraffine is quite soluble in benzole. 2. What is the substance used in making the gloss on rubber shoes? A. A benzole solution of asphaltum and caoutchouc is used, we believe.

(32) A. L. S. asks: 1. Would a Leclanche battery with a proper induction coil give a spark the required length for an electric pen? A. Yes, but it is hardly constant enough for continued use. 2. How large a coil should I need? A. A coil that will yield an eight inch spark will do. For full directions for making induction coils, see SCIENTIFIC AMERICAN SUPPLEMENT, No. 160.

(33) J. L. C. writes: With feed water at a temperature of 206°, I am burning 142,000 lbs. of coal in a given time. What per cent of fuel can I save if I increase the temperature of feed water to 225°, the increase of temperature to be effected by conveying the water through pipes located at or near base of chimney, or flue leading to same? A. One and seven tenths per cent nearly.

(34) D. P., Jr., writes: We have a 36 inch crosscut circular saw which is geared as follows: line shaft 240 revolutions to minute, 32 inch pulley on line shaft running on 12 inch pulley on counters, 18 inch pulley on counter connecting with 11 1/4 inch pulley on mandrel. We think this should give the saw a speed of 1001 revolutions, but it evidently has not that speed. Is the fault in the counter pulleys being too small? We have tried working tight belts, yet the desired speed is not attained. A. If there be no slip to your belts you should obtain the speed named, but the first pair of pulleys are small for their work, and the slip is probably 5 to 8 per cent. Substitute a 34 or 36 inch pulley for your 32 inch one.

(35) F. A. S. asks: 1. Is it a fact that building paper is merely a nest for rats, mice, and various pestiferous vermin? A. No; when of sufficient thickness, and well lapped and nailed at the joinings, it is beneficial in keeping a house warm. 2. Do you know of any way of using battens, in the construction of a cottage, and still make the building as warm as if siding were used? A. Yes; by tonguing and grooving the boards, and driving them tight together, before covering the joint with the batten. 3. Is a house, framed as is the custom when battens are used, rigid enough for this climate? A. Yes, if the posts and studs are placed close enough together and well braced. More studs, of course, should be placed on the sides of the house that support the ends of the floor beams, than there need be in the front and rear. 4. Is there any way of preventing the battens from warping, or in case they do lose their shape, exclude the air from the house? A. Make them quite narrow and nail them well. Should any battens show a tendency to warp and spring loose, secure them again with screw nails driven with the hammer.

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

R. G.—A test of the sample revealed neither gold nor silver; it is a piece of red sandstone containing a small quantity of lime carbonate.—E. A. M.—It is not a meteorite, but marcasite embedded in quartz. The brown coloration is due to the conversion of ferric sulphide into ferric oxide.—T. B. F.—No. 1 is a weathered sedimentary rock, consisting principally of aluminous silicate, lime, and oxide of iron. No. 2 is limonite—hydrous iron sesquioxide—aniron ore. No. 3 contains magnetic and ferric sulphides.—J. V. R.—No. 1 is orthoclase. No. 2, chert. No. 3, serpentine or greenstone. None of these are of value. We cannot judge of the possible mineral value of the properties from the samples.—J. K. B.—No. 1. Chalcocite or copper glance—when pure composed of copper 79.8, sulphur, 20.2. No. 2. It contains altered serpentine, quartz, and ferropyrrite. No. 3. Calcite—crystallized calcium carbonate—with serpentine. No. 1 may be of some value.—C. S. W.—The substance consists of iron oxide and black oxide of manganese—the latter is of some commercial value.—W. R. R.—The small fragments consist chiefly of iron sulphide. It contains traces of gold. Some of this ore may prove of value.—W. B. M.—It is mica schist of no value.

[OFFICIAL.]

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending February 11, 1879, 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 order, 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 Bayonet, intrenching knife, S. C. Lyford; Bed bottom, spring, E. T. Gilmore; Bit stock, Peck & Powers; Boiler furnace, steam, J. F. & M. Selberling; Boot and shoe burnisher, M. V. B. Ethridge; Boot and shoe brushing tool, C. W. Chase; Boot and shoe heel trimmer, etc., A. E. Stirkler; Boot and shoe sole edge trimmer, J. R. Moffitt; Boot and shoe stiffener, L. Cote; Boot and shoe upper cutter, Copeland & Crisp; Boot, India-rubber, G. Watkinson; Boot jack, W. H. Burdick; Boot and shoe nailer, Shepherd & Whitcomb; Borer and excavator, Haas & Manning; Bosom pad, M. A. Bryson; Bottle fastener, S. Martinelli; Box nailer, I. H. Hatch; Bracelets, etc., ornamenting, E. F. Presbrey (r); Brick machine, C. C. Zeh; Bridle, Cahoon & Teas; Brush, shoe, J. A. Stahl; Buckle, J. F. Molloy; Buckle, trace, G. H. Drury; Building block, Luke & Davis; Burial robe front, B. Rice; Cans, safety nozzle for, J. Lucas; Car seat head rest, J. O. Adsit; Car wheel mould, Baker & Hyson; Carding engine driver, G. Mallison; Carriage, F. Swift; Cartridge, shot, H. H. Barnard; Caster, stereotype, M. J. Hughes; Cement, hydraulic, J. A. Francis; Cheese box, J. A. Knight; Cheese safe, I. S. Fornbrook; Chimney cap, M. McNamara; Churn, W. A. Reich; Cleanser and drier, metallic articles, M. Bray; Clock dial, G. A. Harcourt; Clock striking mechanism, W. Lindon; Coffin, J. Shannon; Collar and stove pipe chimney fastening, Barnhart & Hazelton; Corset, H. H. May (r); Corset, J. C. Tallman; Cut-off rearing, N. W. Twiss; Dental plugger, magnetic, A. Shiland; Door check, G. S. Perkins; Doorspring, O. Seely; Door and window bar holder, R. F. Loper, Jr.; Drawers, J. M. Haffeligh; Egg carrier, J. L. Stevens; Electric light regulator, C. F. Brush; Elevator and operating engine, H. W. Sherrill; Envelope, W. H. Campbell; Envelope machine, letter sheet, L. H. Rogers; Exercising machine, E. A. Tuttle; Faucet, R. W. Tavener; Faucet hole cover for ice boxes, C. Hanson; Feed water heater, W. H. D. Sweet; Fence bar cutter, etc., E. & A. G. Children; Fence post, metallic, W. J. Lewis; Filter, P. Brady; Firearm, magazine, L. A. Merrim; Fireproof box for papers, etc., N. C. Fowler; Flat iron and heater, W. McCarty; Flue cap, ventilating, J. D. McLinden; Fluting iron, S. L. Storey; Fluting machine, C. B. & J. K. Clark; Forging ox shoes, die for, R. R. Miller; Fuel, artificial, F. F. E. Muck; Glass and furnace therefor, R. M. Atwater; Glass tray, H. Franz; Glassware, F. S. Shirley; Glue heater, E. J. Wood; Goblet, pocket, G. H. Hazelton; Governor, engine, F. Burns; Grain binder knot tier, H. E. Pridmore; Grain binder, strawband attachment for, G. Davis; Grinding mill and feed cutter, T. Clarke; Harness, A. K. Diefenbach; Harness pad, E. R. Cahoon; Harrow, Emery & Eberly; Harrow, J. T. Vanaustral; Harvester elevator, Craver & Wishart; Harvester rake, W. K. Miller; Harvester rake, K. H. C. Preston; Harvester machine, R. Dutton; Hay, etc., loader and unloader, F. A. Kelley; Hinge, J. W. Morgeneier; Hoes, manufacture of, E. L. Keeler; Hot air furnaces, etc., casing for, D. B. Muchmore; House ventilator, A. B. Nott; Knitting machine, J. Dow; Knob, door, H. Tucker; Lamp, J. Ives (r); Leather cutting gauge, C. F. Wardell; Leather gauge, M. Vassar, 2d.; Leech, artificial, A. Berger; Life raft, S. M. Badger; Loom temple, J. B. Stamour; Loom, welt thread knitting, L. E. Salisbury; Meat and vegetable cutter, I. W. Heysinger; Meat or vegetable cutter, Schurch, Jr., & Cooper; Mechanical movement, G. & A. Raymond; Middlings separator, Wirt & Clouser; Millstone driver, J. C. Dane; Millstone setting, W. L. Teter; Moistening device, W. W. Beach; Mowing machine, D. Crowell; Mowing machine, R. Dutton; Music box, A. Pallard; Ordnance, gas check for breech-loading, S. Crispin; Ore pulverizer and amalgamator, E. Y. Harrison; Organ, reed, J. Hill; Overalls and jumper, G. Schollan; Paper bag machine, J. Wells (r); Paper bag machine, Maltby & Martin; Paper pulp from wood, etc., making, E. Johnson; Peanut roaster, T. Lee; Pens, fountain for writing, I. W. Heysinger; Photographic lens, J. A. Knapp; Pipe cutter, J. O. Morse; Pipe cutter and screw former, J. O. Morse; Planter and cultivator, Bowles & Farmer; Planter and drill, corn, D. G. Sterling; Planter, check row, M. J. Barron; Planter, corn, R. H. Avery; Planter, corn, T. B. McConaughy; Planter, seed, J. C. Barlow; Pliers for attaching shoe and glove fastenings, F. G. Farham; Plow, T. Carlson; Plow, W. A. Estes; Plow, M. L. Gibbs; Plow, L. E. Woodward; Plow, sulky, C. C. Clover; Plow, wheel, G. Kimball; Pocket-book, satchel, etc., fastener, E. Schnopp; Printing press, C. B. Cottrell; Pruning implement, P. H. Fellows; Pump, R. M. So.

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