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SCIENTIFIC AMERICAN BUILDING EDITION.

APRIL, 1895.—(No. 114.)

TABLE OF CONTENTS.

- 1. An elegant plate in colors, showing a Colonial cottage recently completed for Frank L. Purdy, Esq., at Glen Ridge, N. J. Two perspective elevations and floor plans. An attractive design. Architect, Charles P. Baldwin, Esq., Newark, N. J.
2. Two perspective elevations and floor plans, showing a residence recently completed for George N. Tyner, Esq., at Holyoke, Mass. An elegant design in the Romanesque style of architecture. Mr. H. H. Gridley, Springfield, Mass., architect.
3. A cottage at Nutley, N. J., erected at a cost of about \$4,000. Perspective elevation and floor plans. Architect, Mr. E. R. Siltou, N. Y. A simple but tasteful design.
4. A Colonial residence at Orange, N. J., recently erected for John Hammond Bradshaw, M.D. A pure example of modern Colonial architecture. Two perspective elevations and floor plans. Messrs. Rossiter & Wright, New York City, N. Y., architects.
5. An attractive residence at Indiana, Pa., recently erected for Mr. Harry McCreary, at a cost of \$4,350 complete. Perspective elevation and floor plans. Architect and builder, Mr. E. M. Lockard, Indiana, Pa.
6. Two perspective elevations and floor plans of a handsome residence erected for Samuel S. McClure, at Armour Villa Park, Bronxville, N. Y. A good example of a square rigged house. Cost \$8,000 complete. Mr. Henry S. Rapelyea, architect, Mount Vernon, New York.
7. A cottage at Glen Ridge, N. J. An attractive residence in the Elizabethan style. Two perspective elevations and floor plans.
8. A carriage house at Orange, N. J., recently erected for John Hammond Bradshaw, M.D. The design is treated in the modern Colonial style to correspond with the architecture of his residence. Ground plan and perspective elevation. Messrs. Rossiter & Wright, architects, New York.
9. An elegant residence at Flatbush, L. I., recently erected at a cost of \$11,000 complete. Two perspective elevations and floor plans. Architect, J. G. Richardson, Esq.; builder, J. C. Sawkins, Esq., both of Flatbush, L. I. An attractive design.
10. A house at Park Hill, N. Y., recently erected for Messrs. Lorenz & Morrow, at a cost of \$6,500 complete. Perspective elevation and floor plans. Mr. Edmund J. Maurer, architect, New York.
11. Miscellaneous Contents: Moderne Innen-Decoration.—The evolution of an old building, with 4 views.—Wood stains.—Wood finish chemically and microscopically examined.—A tubular frame house.—To destroy household insects.—Venetian blinds, illustrated.—An improved spring hinge, illustrated.—Cement mortar.—A blind architect.—Frozen water closets.—An electrical mail box, illustrated.—The anchor fence post, illustrated.—Hardwood matching heads, illustrated.—Porcelite.—The Rider engines, illustrated.—The Security sash balance, illustrated.—Improved woodworking machinery, illustrated.
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Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(6496) G. H. G. says: 1. Do you know of any substance which could be substituted for the mica burnt away in a commutator when short-circuited, so that when armature is connected it may be replaced in a car at once without having to take commutator to pieces and putting in new section of mica? A. There is no substance that can be used to repair the burnt-out mica. The correct way is to take the commutator apart and insert mica slips. 2. Could a water motor driven by water at 50 to 60 pounds supplied through a 1/2 inch pipe drive a 1/2 horse power dynamo at 2,700 revolutions, if so could you name the make and price? A. The 1/2 horse power dynamo will require an 8 inch motor, using a 1/2 inch jet, using 12 gallons of water per minute and running at 1200 revolutions per minute. The dynamo may be driven at required speed by band or belt. The 1/2 inch pipe is too small for full effect, the friction of the water will lessen the head. If not over 50 feet long, it should be 3/4 inch pipe. If 100 feet or over, 1 inch pipe.

(6497) W. F. C. writes: Will you please explain why the blocks in locomotive wheels are necessary? How can the upward or downward thrust of the drivingshafts produce pounding on the rails unless the contact of the wheels with the rails is broken? Would not the weight of the locomotive prevent this? As the whole machine is independent of the rails, beyond the fact that they have its weight to bear, how can the application of power to the perfectly circular driving wheels have any tendency to break their contact with the rails or produce pounding thereon? If there is anything in this theory, a man ought to be able to get into a basket and lift himself. A. The counterweighting of the driving wheels of locomotives is for the purpose of neutralizing the centrifugal force of the pin hubs, pins, connecting rods and pistons. The pin hubs, pins, link bars, and part of the connecting rods have a continuous centrifugal force which causes compression of the rail or pounding, which is not of the nature of a blow from a hammer, but has the same effect by varying the pressure and thus vibrating the rail. The counterweight is also further increased to partially neutralize the longitudinal motion of the crosshead, piston rod, and piston. Pounding is only a technical name for variation of rail pressure by the revolution of unbalanced driving wheels. The comparison of the man in the basket is not applicable to this case.

(6498) H. W. E. writes: Quite a discussion has arisen here of late regarding as to how the ice in Moosehead and other lakes in Maine disappears in the spring. Some claim that it gradually melts away, and others that after a little it sinks into the lake. A. The ice in the spring seems to become crystalline in vertical needles by the action of the sun and warmth, the condition when it is called rotten ice; the water is drawn into the crystalline structure by capillary attraction, when it is ready to fall apart by the least agitation of wind or wave.

(6499) J. B. says: Would you kindly inform me how to make the composition that is used on insulating tape? A. Pure gum rubber dissolved in turpentine, with the addition of 5 per cent of raw linseed oil. 2. Yellow pitch, 8 parts; beeswax, 2 parts; tallow, 1 part.

(6500) P. A. K. asks how to treat sheep and goatskins to make them soft. A. To tan or raw skins with the hair on for rugs and other uses, first thoroughly wash the skin and remove all fleshy matter from the inner surface, then clean the hair or wool with warm water and soft soap, and rinse well. Take 1/2 pound each common salt and ground alum and 1/2 ounce borax; dissolve in hot water and add sufficient rye meal to make a thick paste, which spread on the flesh side of the skin. Fold it lengthwise, the flesh side in, the skin being quite moist, and let it remain for ten days or two weeks in an airy and shady place, then shake out and remove the paste from the surface, and wash and dry. For a heavy skin a second similar application of the salt and alum may be made. Afterward pull and stretch the skin with the hands or over a beam and work on it flesh side with a blunt knife.

(6501) L. McH. asks why a single cell of primary or secondary battery cannot be constructed to give over two volts or thereabout. A. Because no available reaction involving higher potential has been discovered. None is likely to be. No general reason can be given.

(6502) F. S. says: I would like to ask a question in regard to the mineral rod or dip needle. Is there any such thing that will work? A. The mineral rod is of no practical value. See the SCIENTIFIC AMERICAN for August 20, 1892, for an article on "Unscientific and Scientific Diving Rods," or "Experimental Science," page 801.

(6503) A. J. asks: What can I coat steel with in brazing it that will prevent the solder or brass from flowing where I do not want it? Have tried lampblack and Spanish whiting, but they burn off. A. Try a wash of clay and black lead.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

April 16, 1895,

AND EACH BEARING THAT DATE.

(See note at end of list about copies of these patents.)

Table listing inventions with patent numbers. Includes items like: Abrading and polishing annular articles, machine; Abrading and polishing circular articles, machine; Acid phenylamidonaphtholulfo, A. Weinberg; Advertising purposes, automatic device for, Lynn & Pallen; Agricultural digger, Galland & Granjon; Air brake, M. B. Mills; Alloys of iron or steel with nickel, manufacturer, N. McDowell; Anger, earth, W. A. Smith; Automatic sprinkler, P. W. Swan; Awning, F. A. Waaner; Awning, cab or car, T. A. Johnston; Axle box, M. F. Deiminger; Bangare winding machine, N. B. Waldron; Bank, cash registering savings, J. H. Greefken; Barrel, C. Wittkowsky; Bath tub, H. C. Weeden; Batteries, etc., glass vessel for secondary, H. Kroeker; Battery, See Secondary battery; Bearing for windmills, ball, W. Kouns; Bed bottoms to bedsteads, device for attaching, H. A. Pinkham; Bed, folding, E. E. Peck; Bed, sofa, M. E. Leonard; Bedstead clamp, H. Neill; Berth raising and lowering mechanism, G. H. Poor; Bicycle, A. F. Hood; Bicycle, D. E. Ross; Bicycle handle bars, machine for bending, G. Schacht; Bicycle speed changing gear, J. W. Tygard; Bicycle stand, Reid & Bullard; Billet loop, F. J. Bringham; Bicycle machine, G. W. Poole; Board, See Pressing board; Boiler, See Steam boiler; Boiler, C. J. Galloway; Boiler, S. P. Hedges; Boilers, manhole closure for steam, W. H. Cahill; Book, letter, A. G. Brown; Bottles, device for preventing the redling of, W. H. Payne; Box or trunk tray, C. A. Snyder; Brake, See Air brake, Bicycle brake, Car brake, Railway brake, Vehicle brake; Buckle, W. Eaton; Burnishing machine, G. E. Smith; Butter packer, Fargo & Brown; Button fastener package, A. W. Ham; Cabinet for liquids on draught, combination, H. D. Bremer; Calculating, etc., instrument, trigonometrical, A. L. Lacoste; Camera, See Photographic camera; Candy congealer, H. W. Becht; Car bolster, W. Case; Car brake, R. E. Andrews; Car brake adjuster, J. H. Baker; Car brake handle, street, Bouquet & Flood; Car coupling, R. E. Andrews; Car coupling, Grady & McMillan; Car coupling, T. Kleinmeier; Car coupling, W. H. Brown; Car drop fender, street, L. H. Finney; Car fender, J. H. A. Struck; Car fender, G. Keller; Car fender, I. L. Vansant; Car safety guard, J. S. Collins; Car strap, S. Wilson; Card punch selecting machine, Jacquard, J. Hough; Card, shipping or defect, A. Nembach, Jr.; Carriage bracket and step, W. J. Kaufman; Case, See Egg cell case, Paper case; Cash receiving, delivering, and recording device, J. R. Sapp; Cash register, J. H. Voss; Casket lowering apparatus, J. C. Stevens; Casing, etc., for electric motor, A. J. Fisher; Check watch, G. E. Shields; Chlorine, making, H. W. Wallis; Chopper, See Cotton chopper; Churn and butter worker, Brown & Fargo; Churns, etc., apparatus for operating, W. H. Crawford; Cigar stamping machine, Cusson & Gouthoud; Clamp, See Bedstead clamp; Clothes drier, T. W. Schmidt; Clothes line, J. G. Work; Clothes wringer, E. S. Combs; Coal, etc., elevator, H. B. Hays; Coal removing, piles of, J. M. Dodge; Commutator, G. E. Painter; Condensing apparatus, W. P. Hawley; Cooker and evaporator, steam feed, W. Rippley; Cooling and refrigerating apparatus, O. K uphal; Cotton chopper, M. P. Scott; Cotton gin, roller, J. Doig; Coupling, See Car coupling, Hose coupling, Hose or pipe coupling; Crematory, S. H. Brown; Crimino machine, U. D. Alexander; Cultivator, Neel & Dale; Cushion making machine, C. E. Kistner; Cut-out and lightning arrester, combined, M. J. Wightman; Dam, F. H. Bainbridge; Dam, etc., device for swaging, J. C. Parker; Designing engine, E. B. Benham; Desk, A. Boogher; Digger, See Agricultural digger; Display apparatus, H. F. & C. G. Zimmerlin; Display device, F. J. Schneider; Display stand, H. H. B. Hays; Distillation, alcohol, etc., apparatus of and apparatus for fractional, O. Perrier; Doll B A Trufant; Door opener or closer, S. A. Crawford; Door or window protector, C. J. Andersson; Drying apparatus, J. H. Halverson; Drier, See Clothes drier; Drilling machine, C. P. Russell; Dye, orange, Schmid & Jedicke; Ear protector, A. W. Johnson; Egg cell case, L. W. Merriam; Electric distribution system, E. W. Rice, Jr.; Electric machine, regulator, dynamo, W. S. Moody; Electric meter, H. T. Harrison; Electric switch, H. P. Ball; Electric switch, E. M. Hewlett; Electric switch, A. Metzger; Electric switch, J. J. Wood; Electrical conductors, safety support for overhead, A. D. Poole; Electrical interrupter, G. J. Andersson; Elevator safety appliance, C. A. Macy; Elevator safety device, M. J. Cunningham; Elevator, automatic stop attachment for hydraulic, W. E. H. Otto; Engine, See Designing engine, Gas engine, Hot air engine; Engine, F. C. Rinsche; Engine cylinders, mechanism for steam, J. M. Brown; Engines, device for increasing stroke of steam or other, J. J. Hanlon; Envelope, B. Waters; Envelope making machine, J. H. Dale; Exhaust head, steam, J. W. Parker; Fan oil guard, electric, P. Diehl; Faucet, H. V. Crozier; Feedwater apparatus, R. Schulz; Fence post, W. S. Crawford; Fence tightener, wire, J. B. Morris; Fender, See Car fender, Car drop fender; Filter, J. McCabe; Filter, C. L. Sherwood; Floor construction, J. W. Rapp; Floor spacing strip, J. J. White; Flue thimble cover, safety, A. A. Gustafson; Fly switch, F. W. Wood; Furnace, See Hydrocarbon furnace, Plumber's blast furnace, Smoke consuming furnace; Game apparatus, H. A. Felt et al.; Garment stretcher, R. Bloeser; Garment supporter, S. W. Varney; Gas and water, gas and oil, means for separating, P. Becker; Gas burners, shade or globe and holder for incandescent, W. E. Barrows;

Table listing inventions with patent numbers. Includes items like: Gas engine, Weinman & Euchenbofer; Gas meter, color-controlled preparation, T. Thorp et al.; Gate, See Railway gate; Gem cluster setting, M. E. Oppenheimer; Gold from moving water carrying auriferous matter, apparatus for collecting, A. G. Tingman; Grain separator timothy cleaning attachment, E. G. Clymans; Guns, breech-action for rapid-fire, A. C. Koerner; Guns, recoil locking bar for bolt, T. G. Bennett; Hair fastener, E. Moore; Hanger, See Joist hanger; Harvesters, combined compressor and trip mechanism for, M. A. Keller; Hay cleaning and separating machine, baled, G. M. Gillet; Hay rack, W. J. Erskine; Hay, straw, etc., preparing and preserving baled, D. A. Frye; Heels with nails, machine for loading, E. Woodward (r); Hinge, gate, C. N. Meriwether; Hinge, sanitary closet set, L. A. Cornelius; Hoist, lifting, W. O. Gunckel; Hoisting apparatus, J. R. Hall; Holdback and thill holder, E. Hause; Hook, See Lacing hook; Horse boot, S. S. Green; Horseshoe, J. Laroche; Hose coupling, J. S. Blackburn; Hose or pipe coupling, E. Couley; Hose reel, C. G. Petherbridge; Hot air engine, C. A. Anderson; Hub, vehicle, M. L. Killam; Hydrocarbon furnace, R. Altschul; Ice shoe nail for horses, etc., C. A. E. Schiek, Jr.; Insulator, electric wire, D. M. Rothenberger; Iron, See Sad iron; Iron, steel, etc., apparatus for preparing strips of, Hewlett & Sanford; Joist hanger, wrought metal, J. H. Van Dorn; Knitting machine, circular, J. A. Burleigh; Knitting machine looping attachment, A. Brown; Lace fastener, J. Strassburger; Lacing hook, shoe, F. Egze; Ladder, fire, M. A. Walker; Lamp, electric arc, E. L. Crosby; Lamp, electric arc, L. C. H. Mensing; Lamp, electric arc, C. A. Pfleger; Lamp, incandescent electric, E. Thomson; Lamps, evacuating incandescent, A. Malgarni; Lamps, filament and carbon for electric, P. Steins; Lamp, machine for securing filament holders in globes of incand escent, Spiller & Massey; Last attachment, split, E. W. Hastings; Latch, J. S. Boyum; Lathe center rest, F. G. Rabus; Leaf turner, Z. Thout; Letter, See Address; Life-preserver, M. Collins; Lifter, See Wagon box lifter; Lifter, W. F. Greene; Lock, Mann & Akers; Lock, F. W. Mix; Loom, weaving, W. F. P. Lumber, machine for manufacture of, O'Connor & Donovan; Manometer, capillary, O. Steimle; Measuring, bagging, and registering machine, grain, J. Nowotny; Measuring instrument, electric, E. Thomson; Mechanical movement, J. H. Peterson (r); Meter, See Electric meter, Gas meter; Mould for formation of ticket racks, W. Mann; Mosaic, etc., process of and apparatus for manufacturing, H. C. Mueller; Mower, See Spring mower, Wave motor; Mower, lawn, J. Shanks, Jr.; Music leaf turner, automatic, Southwell & Lloyd; Nail, See Ice shoe nail; Nut cracking, G. L. North; Nut lock, W. H. Helton; Nut lock, W. H. Lewis; Oar, bow facing, R. H. Paar; Oil for fuel, apparatus for handling, W. S. Rockwell; Oil, process of and apparatus for extracting, A. Schweizer; Ordinance breech mechanism, M. Mondraon; Ore concentrating apparatus, G. L. Cudner; Organ, pipe, J. T. Austin; Pail, packing and shipping, M. H. Johnston; Pan or pot, etc., for cooking, H. Nellis; Paper case, toilet, J. Lucas; Paper, machine for supplying silk fiber to, Crane & Warren; Paper tubes, machine for making, C. S. Bird; Paper, stencil, for manufacture of, J. W. Hollett; Pen, stencil, for manufacture of, J. W. Hollett; Photograph embossing machine, C. J. Dorticus; Photographic camera, E. B. Barker; Piano action, J. R. Perry; Picture frame holder, S. McMichael; Pipe, apparatus for manufacturing, A. M. Hewlett; Pipe drawing apparatus, W. B. Sandford; Pipe drawing tool, A. M. Hewlett; Pipe drawing tool, W. B. Sandford; Pitman box, W. Smith; Planter, corn, F. L. Block (r); Planter, potato, W. M. Brown; Planter, potato, S. Gasser; Planter, tobacco, C. M. Witters; Plow, sulky, F. E. Davis; Plumb and level, combined, T. A. Reimsen; Plumber's blast furnace, J. P. Hayes; Pneumatic, etc., Boyer; Polishing and cleaning wheel, W. B. Keighley; Post, See Fence post; Powder sprinkler, A. Sheibly, Jr.; Press, See Printer's proof press; Pressing board, S. F. Gibson; Printer's proof press, F. W. Howell; Printing machine, W. H. Biakeney; Printing machine bed motion, T. M. North; Printing machines, means for securing plates to cylinders of rotary, J. Michaud; Propeller, vessel, L. L. Leathers; Proofing apparatus, E. G. Birkhead; Pulverizing apparatus, A. Stevens; Pump, sirup, W. J. Austin; Rack, See Hay rack; Railway block signal lock and register, J. Dean; Railway brake, F. Chapsal; Railway conduit system, electric, H. A. Belden; Railway conduit system, electric, A. N. Connett; Railway, electric, Claret & Wulleumier; Railway gate, J. Christopheron; Railway rail bending machine, G. E. Smith; Railway rail joint, W. J. Armstrong; Railway switch, J. P. Hasty; Railway switch and signal connection, F. H. Treacy; Railway switch, automatic, De Grasse & Myrick; Railway train bumper, A. L. Stanford; Railway safety clutch for inclined, M. C. Littleworth; Railways, sectional conductor for electric, J. F. McLaughlin; Ratchet for screwdrivers or drills, Z. T. Furbish; Reel, See Hose reel; Refrigerating apparatus, automatic valve actuating device for, E. W. Howell; Refrigerating machine, E. T. Winkler; Refrigeration, process of and apparatus for, M. Wanner; Refrigerator basket, J. R. Hare; Refrigerator door, E. Sander; Reister, See Cash register; Resawing machine, H. J. Gilbert; Respirator, mask, F. Detourbe; Rim or hub bands, machine for making, C. T. Pratt; Roller, N. H. McAuslan; Rolling mill for manufacture or shaping of chains, O. Klatte; Rolling mills, roll for chain, O. Klatte; Roof, metallic, L. S. Flatau; Rope driving device, B. Arthur; Rope winding apparatus, J. C. 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