

a dark gray permanent color? It is called "steel bronze" dip. A. The gray or black dip referred to is prepared as follows: Hydrochloric acid, 12 lbs.; ferrous sulphate (copperas), 1 lb.; arsenious acid (pure white arsenic), 1 lb.; dissolve in the acid. Dip the articles bright in dilute nitric acid, rinse in clean water, and immerse in the bronze dip until the proper color is developed. Rinse in cold water and dry in warm sawdust. The green lacquer usually employed is made by digesting together in a warm place, with occasional agitation, shellac, 5 ozs.; sandarac, 4 ozs.; gamboge, 1 oz.; turmeric, 6 ozs.; wood spirit, 1/2 gallon.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated: E. A. S.—They are iron garnets—the well formed crystals are sometimes used as jewelry.

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COMMUNICATIONS RECEIVED.

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

- Government Manufactures. By F. M. S. Bromide of Ammonium. By E. H. W. Aluminum as a Negative Element in Galvanic Batteries. By J. M. S. Acoustic Telephones, etc. By J. J. B. On Small Steamboats. By G. H. S. On Economy of Weight in Gearing. By J. O. B. On the History of the American Lead Pencil Manufacture.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending October 22, 1878, 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 various inventions such as Air tight vessel, Alloy for coin, Alphabet block, Axle box lid, Axle skein, Bag fastener, Bag fastener and tag holder, Bands, corders, and ropes, Barrel and keg, Barrel heads, Barrels, Basket, Bed bottom, Beers in kegs, Berth for vessels, Bibb or cock, Binder for manifold writing, Binder, temporary, Boiler cleaner, Boilers, incrustations from, Boot and shoe insole, Boot, India rubber, Bracket, Brake, Brush, Butternut, Button and fastener, Can for fluids, Candles, reflector for, Cars, heating railway, Cars, sand box for street, Carriage top prop, Cartridge, Casting sash weights, Chart, dress, Churn, V. Seachrist, Churn, reciprocating, Cloth measuring apparatus, Cloth drying machine, Clothes drier, Clothes pounder, Coin detector, Cooker and steam washer, Corset clasp, Countersink, Crane for hoisting car wheels, Crayon mould section mould, Cultivator, riding, Cultivator, wheel, D. Argerbright, Cultivator, wheel, A. Geppert, Curtain cord tightener, Curtain fixture, Dish, covered, Door sealer, Draught equalizer, Dredging machine, Egg beater, Elevators, hydraulic, Engine, portable, Evaporator and fruit drier, Feather renovator, Feed water heater, Felly for vehicle wheels, Fence post, Fire escape, Fire extinguishing apparatus, Flour bolt, Furnace, annealing, Furnace, annealing, Furnace, gas generating, Furnace, steam boiler, Furnaces, combustion in, Furnaces, cylinder from blast, Gas, manufacturing, Gate, Hadley & Dean, Gate fence.

Table listing various inventions such as Grain binder, Grain cleaning machine, Grain separator, Grindstone frame, Gun cleaner, Hammock and tent, portable, Harvester cutter bar, Hat tip, Hides and skins, scouring, Hitching post, Holdback, Hops, disintegrating stalks of, Horses' heels, pad for, Hose reel, Index, revolving, Indexing apparatus, Indicator and alarm, low water, Indicator, station, Injector, Inkstand, calendar, Insulating railway tracks, Journal bearings, composition for, Ladder, firemen's, Ladle, metal foundry, Lamp wick attachment, Lamps, lantern for street, Keefe & Orsburn, Lantern, A. W. Paull, Lantern, E. Tufts, Last channeling machine, Lashing machine, Copeland & Crisp, Lifting jack, C. F. Asire, Lightning rod, Locomotive, Log turner, Loom let-off mechanism, Loom take-up and let-off, Main and pipe, Middlings separator, Middlings separator, A. Morley, Milker, cow, S. G. Major, Mill, fulling, Arnold & Alken, Mill, water, S. N. Stewart, Mills, measurer for fulling, Moulding machine, J. Hackett, Muff, J. H. Kappelhoff, Music leaf turner, Oyster package, Packing, rubber, Paddlewheel, feathering, Padlock, permutation, Pails, bail ear for, Pantaloon protector, Paper damping implement, Paper pulp, wood grinder for, Paper, waxing, S. Hammer & Schlegel, Pin, flower, Pipe connections, lining for, Pipe moulding machine, Pipes, etc., locker for gas and water, Plane, bench, Planter, corn, Plow, J. Lane, Plow, T. F. McNair, Plow, W. McGreggor, Plow standard, Plow, sulky, Pressure regulator or governor, Pulley, G. Taylor, Pump, oil well, Railway rail, Railway signal, electric, Railway track cattle guard, Railways, construction of, Raker and loader, hay, Razor strop, Razor strop case, Reapers, adjustable reel for, Refrigerator, G. F. Smith, Refrigerator, A. Zinsser, Roof battening, Roof, fire and water proof, Rubber tubes, vulcanizing, Saddle, harness, Sand paper holder, Saw set, Sawing machine, scroll, Scales, spring, Sewing machine, C. K. Miles, Sewing machine, C. K. Miles, Sewing machine fan attachment, Sewing machine, wax thread, Sheep rack, Ship building, Slate grinding machine, Sleigh knee, Smoke and spark conveyer, Smoke stack, Smoothing iron, Spinning spindle, Spoke trimmer, Spring, carriage, Spring, vehicle, Springs, coil for spiral, Stall for vessels, horse and cattle, Stamp, ore, Stamp rods, tappet for, Stirrup, O. V. Flora, Stock feeding device, Stuffing box and packing, Sugar centrifugal machine, Sulky, T. H. Brown, Surveying instruments, tripod head for, Syringe, W. T. Reaser, Table leaf support, Tallow, artificial, Target, ball, Tea pot handle, Telegraph repeater, Telephone, speaking, Telephone switch, Telephone transmitter, Tension wheel, Thill coupling, Ticket and label holder, Top, spinning, Toy, W. La Montagne, Umbrella support, Valve, globe, Valve, slide, Varnish, M. Mackay, Vise, W. X. Stevens, Wash board, Water closet, C. Rogers, Water wheel, turbine, Well, paraffine from oil, Wheat heater, Whistle, fog and alarm, Wood steaming apparatus, Wool washing machine.

Table listing various inventions such as Alloy of metal, Baking powders, Braid and tape, Bread, A. Brown, Cigars, Seubert & Warner, Cigars, J. D. Culp & Co., Cigars, M. Jacoby, Cigars, C. G. Petersen, Cigars, cigarettes, etc., Cough remedies, C. White, Flavor for porter, D. D. Williamson, Medicated lozenges, Mineral water, Apollinaris Company, Photographs, etc., Artotype Company, Salt, A. Deakin, Shaving soap, C. Pauly, Smoking tobacco, Roulhac & Co., Soap, F. Treukamp, Spool cotton, R. W. Ferguson, Steel pens, L. Dreka, Theatrical and gymnastic apparatus, W. Farini.

Table listing various inventions such as Carpet, J. Magee, Carpet, J. Neil, Carpet, T. J. Stearns, Cigar box, E. Hantsche, Moulded cards, J. Holley, Padlocks, J. Gerard, Pencil cases, C. W. Gessner, Spoon and fork handles, G. W. Hull.

Table listing various inventions such as English Patents Issued to Americans, From November 15 to November 19, inclusive. Firearms, D. B. Wesson, Springfield, Mass., Hemp machinery, J. Good, Brooklyn, N. Y., Illuminating glass, O. Lugo, Flushing, N. Y., Mashing process, A. E. Ferre et al., Tivoli, N. Y., Pavement, wooden, A. Whitehead, Cincinnati, O., Refining saccharine liquids, J. W. Decastro, N. Y. city, Sheaves or pulleys, H. Loud, Boston, Mass.

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