

ting on the pulleys. Some mechanics apply oil and powdered resin to belts to make them hug the pulleys, but the process is not cleanly nor beneficial to the belt. Dry powdered resin might do, but clean belts, tightened sufficiently to hold to their duty, are preferred by good workmen.

(46) B. T. says: Please give me a composition to put on pistol barrels to make them dark blue. A. No composition is used. The barrels are first nicely polished and then burnished. The work is then immersed in powdered charcoal, wood ashes, or even fine sand, heated over a fire. Keep the work equally heated, and after a sufficient time the required color will be obtained, when the work must be removed from the heating material. It would be advisable to send such work to some manufactory of firearms, where experts are employed.

(47) F. A. R. asks: Can you give me a simple way of making ice? A. See p. 82, vol. 33, for a description of Carré's freezing apparatus. The principle therein embodied is simple. It would probably meet your wants.

(48) T. A. informs M. A. that by dissolving 1 oz. cyanide of potassium in 1 quart of soft water he will have a dip in which he can wash his spoons and instantly remove the sulphide of silver. The solution must be kept in a bottle that is tightly corked and labeled poison.

(49) W. S. L. says, in reply to T. McC., who asked if there is any liquid that will dissolve glue without the application of heat or water, that whiskey or alcohol will do this; and on the evaporation of the whiskey the glue will become exceedingly hard.

(50) W. D. P. informs M. H. H. that he can make a good wash for brick walls of water lime or cement and skimmed milk, and says it will be good for ten years.

(51) A. E. S. is informed that hats are sized with lac solution and stiffened with a thin size of glue. For rubber cement see back numbers of the SCIENTIFIC AMERICAN.

(52) C. H. B. says: How can I etch on brass, and how can I join a brass tube, as I do not want to soft solder it? A. Dilute nitric acid may be used for etching on brass. The etched surface will not be of brass but of copper, as the zinc dissolves much more rapidly than the copper, and to some extent, by galvanic action, protects the latter. This cannot be avoided. To join the tube, braze it with spelter solder, using borax as a flux.

(53) J. R. B. says: I want a recipe for making a good lacquer for brass? A. Use shellac varnish tinged with saffron, annatto, or aloes, and apply with a brush to the work, which has been previously warmed. This will give a golden color to the metal.

(54) E. C. H. is informed that he will find an exhaustive article on cone pulleys in "Wrinkles and Recipes," p. 128. Exposing the saw to the heat of the sun will not cause the saw to lose its temper. In casting the Babbitt metal the trouble probably lies in there being no vent, and the confined air caused the imperfect filling. Drill a small hole in the upper portion of the box, so as to let out the confined air.

(55) P. R. says: Please give directions for plating small brass articles with either silver or nickel without a battery. A. A cheap method of silvering is to mix 1 part of chloride of silver with 3 parts pearl ash, 1 1/2 common salt and 1 part whiting. Clean the articles well and apply the plating mixture by rubbing it with a cork or a roll of soft leather. When silvered, wash thoroughly and wipe dry. For information about nickel plating without a battery see directions for so doing at end of article on "Nickel," in *Appleton's American Cyclopaedia*.

(56) J. W. S. asks: Can you tell me how I can take a duplicate, in type metal, of bookbinders' hand stamps, also of embossing stamps? A. You can produce copies of the stamps by casting or stereotyping in plaster moulds. It would be better to obtain them by the electrotype process. Various cyclopedias will give you information of the first, and you can obtain books devoted to the second process.

(57) H. J. B. asks: What preparation can I use to reprime rim-fire cartridge shells that have been used once, so they may be loaded again? A. Perhaps the composition used for percussion caps will be best adapted to your purpose, which is fulminate of mercury mixed with half its weight of niter. After the fulminate is inserted in the shell, cover it with a film of thin shellac varnish.

(58) J. B. J. asks if phosphor bronze will bear the explosive force of gunpowder equally as well as decarbonized steel, etc., and is referred to Nos. 45 and 48 of the SCIENTIFIC AMERICAN SUPPLEMENT, where he will obtain the desired information.

(59) J. G. M.—You are probably correct in regard to your idea of the fruit you mention.

(60) W. H. B., London, Canada, is informed that if he will address a letter to the institute he will receive circulars that will give him all information.

(61) O. H. N. informs A. J. that he has an invention for throwing a paddle wheel off its center.

(62) D. R. is informed that the largest shipments of canary birds are made from Germany. He may correspond with Louis Ruhe, 98 Chatham street, New York city.

(63) A. A. B. is informed that the oriole is a very difficult bird to rear in confinement. Inexperience in management and improper food was the cause of the death of the birds.

(64) C. G. H. asks: What will remove the stain of nitric acid from black woolled goods? A. Wash with a strong, hot solution (in water) of carbonate of alumina. If this does not remove the stain it may be concluded that the acid has destroyed the coloring matter—this is usually the case. If the yellow stain remains, the only remedy will be to re-dye the material.

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

Correspondents sending minerals should number or otherwise designate each specimen, and legibly mark the package containing them with name and address of sender.—W. S.—The hard stone is a red porphyry, the one containing bright specks of pyrites is quartzite. The large one contains silicate of alumina, iron, and lime.—Miss E. M. K.—You failed to number or otherwise designate the minerals. The large one contains orthoclase and biotite, the smallest the same. The others are orthoclase, kyanite, milky quartz, muscovite and some biotite, and tourmaline.—F. K.—It contains alumina, lime, and oxides of iron and chromium.—E. M.—The powders sent were found mixed. The mixture contains sulphate of quinia and chalk, milk sugar, and a phosphate.—The minerals in a tin box marked Eagleswood (no letter) are mostly hornblende. The red substance is a zinc ore. It contains oxides of zinc and manganese. The large crystal is carbonate of lime—calcite.—E. A. S.—We cannot tell anything about your minerals without having seen them.

**COMMUNICATIONS RECEIVED.**

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

- On Ashes. By J. M. B.
  - On Formulas of Problems. By H. M.
  - On Curving a Base Ball. By H. C.
  - On Guns and Armored Vessels. By J. M.
  - On a Perpetual Motion. By C. M. L.
  - On Reducing Silver Ore. By I. H. H.
  - On the American Toad. By C. F. S.
  - On the Mind. By J. H. R.
- Also inquiries and answers from the following:  
W. H. R.—A. C. F.—J. E. T.—N. B. H.—P. C.—C. M.—T. A. P.—A. M. S.

**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.

Inquiries 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 makes the best magnetic motor? Who makes crucible steel? Who makes or sells ice machines? Who sells the best modern books on engineering. Who deals in lithographic printers' materials? Who sells books that treat upon lithography?" 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 12, 1877,

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 with patent numbers and names of inventors, including items like Air carbureting, Alkaline wastes, Animal matter, Ash sifter, Auger, Axle nut, Bag fastener, Bag holder, Belting machinery, Billiard cue, Bill, apparatus for framing, Bit stock, Bit stock, Boat, submersible, Boilers, Book clasp, Boot lasting machine, Boot sole machine, Boots, lining for, Boot machine, Bosom pad, Breech-loading firearm, Brick machine, Broom, J. Davidson, Burial casket, Car axle box, Car axle box, Car bumper, Car coupling, Car, dumping, Car frame, Car starter, Car starter, Car starter, Car window, Carbon in retorts, Carbonic acid gas generator, Carriage body, Carriage top, Cartridge, pyrotechnic signal, Chair brace, Chair, opera, Chandellers, Check rein, Cigar lighter, Cigar machine, Coffee roaster.

Table listing inventions with patent numbers and names of inventors, including items like Corn planter, Corner stake, Corset, Corset spring, Crank shaft, Cultivator, Cultivator, Cultivator, Cultivator, Current wheel, Curry comb, Curtain fixture, Cutter head, Dental bracket, Desk, school, Door bolt, Dough raiser, Drain, G. C. Mesler, Dryer, Drive cock, Druggist's file, Elevator, Embroidery pattern, Engine, electro-magnetic, Engine, pulp, Engine, traction, Eyeglass, Eyeglassholder, Faucet, G. Gorman, Faucet, R. Hathaway, Faucet vent, Feed steamer, Feed water heater, Feed water heater, Felted fabric, Fence, J. Garrett, Fence, barbed, Fence, barbed, Fence post, Fence post, Fence strip, Fence strip, File holder, Fire escape, Fire escape, Fire escape, Fire extinguisher, Fire extinguisher, Fire kindler, Fire, extinguishing, Fishing line reel, Fly fan, Folding machine, Folding machine, Fruit dryer, Furnace, Gas carbureter, Gas apparatus, Gas apparatus, Gas, manufacture, Gas, manufacture, Gas, manufacture, Gas, manufacture, Gas regulator, Gas works, Gate, J. E. Q. Maddox, Gate, T. B. Piburn, Gate, F. Bau, Glass tool, Grain binder, Grain binder, Grain binder, Grain binder, Grain binder, Grain separator, Gun, spring, Hame, H. Mason, Harness, J. F. Best, Harness, Cahoon & Teas, Harness pad, Harrow, J. W. Greer, Harvester reel, Hat, M. J. Nascimento, Heating buildings, Horse power, Horse rake, Horse rake, Horses, to weight, Horseshoe, Hose nozzle, Hose nozzle, Hot air apparatus, Hydrocarbon burner, Hydrocarbon oils, Ice creeper, Illuminating scale beams, Indexing, Injector, Inking apparatus, Insect powder, Journal, W. C. Shipperd, Lamp, E. C. McCloy, Lamp burner, Lamp chimney, Lamp extinguisher, Lamp refractor, Lamp shade, Lantern, R. Hammill, Lathe cutting taps, Leather folding machine, Leather splitting machine, Level, S. Gissinger, Lifting jack, Liquid measure, Lock, door, Keating & Taylor, Lock, latch bolt, Locks, hub for, Loom for weaving hair cloth, Loom shedding mechanism, Loom temple, Lubricator, Marble, machine for cutting, Mash, preparing, Mechanical movement, Mechanical movement, Mercury condenser, Metal plates, securing, Milk can, Milk cooler, Millstone dresser, Millstone driver, Mortising machine, Motion, friction device, Motive power, Motor, weight, Mucllage holder, Oar blades, Ore stamp, Organs, reed pipe, Packing case, Packing for piston rods, Paper bag machine, Paper pulp from wood, Pavement, artificial, Pen, fountain, Pen, fountain, Pencil, F. Sholes, Pencil paint, Photographic printing frame, Pianoforte action, Picture frame, Pin box, Pipe joint, Pitcher, C. Moyer, Plaiting machine, Plaiting machine, Plants, transplanting, Plow, McNutt & Furman, Plow, A. Pirch, Post driver, Potato and corn planter, Potato digger, Potato vines, removing bugs, Press, household, Printers' rolls, composition, Pulley block, Pulleys, grooved, Pump, air, Pump, T. B. Swan, Pump valve, chain, Pumping machinery, Railway signal, Railway signal, Railway switch signal, Razor sharpener, roller, Roll for reducing tubes, Rowlock, Rule, bevel, Sad iron, T. H. McCaffrey, Sad iron, H. L. Wells, Sadi ron holder, Sash balance, Saw gage, Sawmill head block, Saw mill head block, Saw mills, Sawing machine, scroll, Screws, forming threads on, Screw thread, machine, Seal, metallic, Seed planter, Seed planter, Seed sower, Seeding machine, Sewage, treating, Sewing machine, J. Keats, Sewing machine attachment, Sewing machine trimmer, Shafting box, Shirt bosom protector, Shoe clasp, Hammond & King, Sink, G. Jennings, Skylight, S. M. Howard, Sled brake, Smoking pipes, Snap hook and buckle, Snap hook and buckle, Spool case, N. Waterbury, Stair rail machine, Steam generators, Steam heater, Stirrup, S. J. Harkness, Stone, artificial, Stove, A. Lynd, Stove, gas, Stove, portable lamp, Stove pipe drum, Stove polish, Stuffing box, Sugar rodder connections, Sugar apparatus, Sulphurous anhydride, Surgical tube, Syringe, J. S. Parsons, Tables, etc., device for packing, Tackle block, Telegraph, C. H. Rudd, Thermometer, Thrashing machine, Thrashing machine feeder, Tinner's scrap, Tobacco, D. C. Lyall, Tobacco, printing, Tool handle, C. Groth, Tool handle, L. Landeker, Top, spinning, Towel rack, Merritt & Eckenfeldt, Truck for moving buildings, Tubing, joint for, Twine holder, Twine holder, Umbrella support, Urinal, J. W. Osborne, Valve engine, Valve or water cock, Valve, steam engine, Valve, steam safety, Vaporbath, Vehicle hub, Vehicle, Throop & Doyle, Velocipedes, step for, Vessels, sheathing, Wagon brake, Wagon brake lever, Wagon seat, Wash for ingot molds, Washing machine, Washing machine, Washing machine, Watch dust cap, Water closet, A. B. Seymour, Window blind, Wood drying, Wrench, E. K. Holley.

**DESIGNS PATENTED,**

- 10,047.—BUTTONS OR STUDS.—O. P. Goggeshall, Providence, R. I.
  - 10,048.—EMBROIDERY PATTERN.—Alice Donlevy, New York city.
  - 10,049.—BRACELET.—C. H. Graef, Edgewater, N. Y.
  - 10,050.—CHAIR FRAMES.—S. C. Hopkins, Boston, Mass.
  - 10,051.—POCKETBOOK CLASPS.—J. Messer, New York city.
  - 10,052.—GROUP OF STATUARY.—J. Rogers, New York city.
  - 10,053.—INDIA RUBBER ERASERS.—F. Stith, Washington, D. C.
  - 10,054.—BADGE.—R. O. Wood, Buffalo, N. Y.
- [A copy of any one of the above patents may be had by remitting one dollar to MUNN & Co., 37 Park Row, New York city.]