

move the causes of the debility existing in the constitution by tonics, especially chalybeates and phosphoric acid, and (where defective nutritive power prevails) by means of preparations of iron and arsenic, and to stimulate the skin locally by abundant brushing and some gentle stimulant, such as cologne and aqua ammonia used at the same time.

(30) H. L. H. says: What will make a cheap jet composition, such as is used for making cheap jet ornaments, which can be worked at the heat of an ordinary fire? A. We believe the materials that have been employed for this purpose are pure asphalt, plumbago or animal charcoal, and gutta percha.

(31) J. S. W. says: I have two rain water cisterns, the water of which is quite offensive. Can any solution be introduced in the cisterns which will correct it? A. Try the remedy recommended to I. E. S., on this page.

(32) W. F. B. asks: On p. 268, vol. 33, you give a formula for writing ink. What is the best process by which to prepare this ink? A. Digest the crushed galls with a portion of the water (hot) for about 48 hours. Then add by degrees the sulphate of iron in a fine powder, with constant agitation until completely dissolved. When this is effected, gradually add the sulphate of indigo, with continued agitation, and allow to cool. Dissolve the gum in the remaining portion of the water (cold), add this solution to the former, stir well, and allow to stand in closed vessels for several weeks. Finally, filter through a bag of fine muslin, and bottle. The ink improves by age.

(33) S. W. asks: Will carbonic acid gas injure the color of fabrics of silk, cotton, and wool, and rust metals? A. No; but in the presence of moisture and carbonic acid, some of the metals rust very rapidly.

(34) J. E. S. says: I have a rain water cistern 12 feet deep; it holds water well, and, so far as the cistern is concerned, there is no imperfection. The water at this time of year becomes purified, having a slimy look and taste; it emits a scent and has the taste of water in which there are dead animals. Can you tell me a remedy? A. Try the addition of a bushel or two of well burnt charcoal in coarse powder.

(35) J. S. says: I am using raw beef hides for covering saddle trees, and use chrome yellow to get a beautiful color, but do not get it perfect. How can I get the hide perfectly transparent, to have the yellow show through? A. This is impossible.

(36) B. S. C. asks: Is there any chemical process that will turn the hair gray? A. Frequent washing of the hair with a diluted mixture of strong nitric and muriatic acids will accomplish this result. The proportions should be about 1 part of nitric and 3 parts hydrochloric acids, and 20 or 30 parts warm water. The nitric acid will stain the flesh slightly yellow, but this is not permanent.

(37) C. B. M. asks: How can I make asbestos waterproof, and not liable to rot, if placed 3 or 4 feet underground? A. Asbestos is waterproof, and is not liable to decay or rot under either of the conditions mentioned.

(38) W. S. M. says: I have seen a small blood tester, with a ball at one end and a glass cylinder at the other. In this cylinder, there is a lemon-colored liquid with a little glass figure (hollow) in it. If the blood is very warm and feverish, you can keep this liquid bubbling, and this keeps the figure up. Please explain this. A. The liquid is probably ether, and the bulb and cylinder is filled with the ethereal vapor, the air having been completely expelled. The boiling point of ether being very low, the heat of the hand is sufficient, under these circumstances, to cause ebullition; and the increased tension thereby caused in the bulb grasped in the hand causes the liquid to move from bulb into cylinder.

(39) J. M. S. asks: 1. What are the proportions of elements in champagne? A. Analysis of genuine champagne, of specific gravity 1.0341 at 60° Fah., gives the following: Absolute alcohol 7.95, sugar 10.63, total acidity .052, potash 0.05, water 89.85; total, 100. 2. How are liquids clarified? A. As a general rule, heat to about 170° Fah., filter, and bottle.

(40) C. J. D. asks: Which can be seen the further, a white or red light? A. A white one.

(41) W. S. G. says: 1. Your recipe for marine glue gives 1 lb. glue to 2 quarts skimmed milk. I find the following difficulties: 1. Small white specks through it after cooling. 2. It molds if exposed to the air. 3. It dries or sets very slowly. I made it in an earthen vessel in a water bath, using the best white glue, and as fresh skimmed milk as I could obtain. Can you help me? A. Filter the milk just before using, and add a little alcohol or spirits of wine. 2. What is acid chromate of lime? A. It is a combination of lime with two equivalents of chromic acid. 3. When a recipe calls for parts, and there are liquids and solids mentioned, what am I to understand? A. They are parts by weight.

(42) J. B. asks: Is there any alloy which melts at about 1,000°, suitable for the cylinder of a toy engine? A. Try the following: Melt together 4 1/2 lbs. tin, and 1/2 lb. each bismuth, antimony, and lead.

(43) J. S. asks: Please describe the process of clarifying raw beef hides? A. When the hides are received fresh from the slaughterhouse, they are washed, if water be abundant, and the horns are removed. Dried or salted hides are soaked in water for 10 or 14 days, with occasional friction; and in some cases a kind of fulling mill is used to produce the soft, supple condition which is necessary for the working. After the washing, green hides are worked with a knife on the flesh

side, to get rid of the flesh and fatty matters. The next operation is to get rid of the hair and scarf skin, for which purpose the hides are put into troughs or pits containing a mixture of lime and water, of three or four different strengths in the different pits. They are left for a day or two in the weakest, and then transferred to the others in succession, until, in the course of two or three weeks, depending upon the texture of the hide and the state of the atmosphere, the lime has dissolved the hair sheath, and combined with the fat of the hide to form an insoluble soap. During the operation the hides are handled, or removed from the pits, and allowed to drain in a heap for several hours every day, in order to equalize the action of the lime. When the hair and epidermis yield to the touch, the skins are taken out and scraped upon a cylindrical table with a suitable knife, called the unhairing knife. The remaining flesh and fat are then completely removed from the flesh side of the skin; they are washed with water, and are then ready for tanning.

(44) F. D. says: I have attempted to coat wax figures with copper, by first giving them a good coating of plumbago; but when I lower them into the copper solution, the greater part of the plumbago comes off. Please describe a remedy. A. When you have coated the figures with a fine even covering of plumbago, gently heat the surface.

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

A. J. W.—No. 1 is quartz rock with silicate of alumina. No. 2 is quartzite with oxide of iron. No. 3 is carbonate of copper. No. 4 is clay and decomposed mica. No. 5 is quartz with clay and oxide of iron. No. 6 is quartz, iron, and lead, no silver.—M. M. S.—It is probably a variety of web resembling that of the spider. If it could be collected in any considerable quantity, there would be little difficulty in soon making a market for it.—R. L. They are sulphides of iron and copper.—J. F. M. E.—It is a variety of steatite, a kind of soapstone.—N. W. E.—No. 1 is a silicious clay containing a small percentage of lime and magnesia. No. 2 has some red ochre; but you must have more of it and a softer rock to be of use. No. 3 is a basalt. It contains some iron, but it could not be profitably extracted.

COMMUNICATIONS RECEIVED.

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

- On Baling Cotton. By J. G. T.
On the Mississippi River. By J. S.
On the Financial Problem. By J. G.
On Ventilation. By W. M.
Also inquiries and answers from the following:
J. J.—J. H. R.—A. P. B.—J. McB.—F. W. S.—J. K.—J. C. W.—W. B. A.—B. L.—J. B. D.—J. M.—M. B.—T. W.

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 bicycle wheels? Who sells telescope eyepieces? Who is the best student's microscope? Who sells microscopic objects mounted? Who makes the best chronometers?" 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, May 9, 1876, AND EACH BEARING THAT DATE.

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 Abdominal supporter, Anchor tripper, Axle lubricator, Bag, grain, Bags, clip for traveling, Bale tie machine, Bale tie, wire, Basin valve trap, Bath tub, portable, Battery, galvanic, Bit stock, Boat, A Pitman, Bobbin winder, Boiler, agricultural, Boiler, steam, J. G. and J. H. Thompson, Boilers, supplying feed water to, Boot edges, polishing, Boot tacking machine, Boot, button, C. Stickle, Bottle, nursing, S. A. Whitney, Bracket, for...

Table listing various inventions such as Bread cutter, Broiler, C. N. Knapp, Buckle, Junkin & Gunn, Buckle, W. Leser, Bulletin board, Crandall & Taylor, Bung air vent attachment, J. Talley, Jr., Burner, gas, A. W. Dinsmore, Burner, gas, S. C. Salisbury, Button, J. Keats, Calf weaner, Maughlin & Marr, Canister, J. J. Curran, Car coupling, Brown, Martin, & Gilbert, Car coupling, J. K. Griffin, Car coupling, W. Halsted, Car lamp, Hicks & Smith, Cars, propelling, J. W. D. Eckles, Carbonizing iron or steel, S. W. Young, Carbureter, I. Cook, Carbureter, W. S. & G. H. Deeds, Carriage spring, W. H. Richards, Carriage thill, N. Mitchell, Cartridges, loading, Davison & Bean, Cartridge shells, punching heads of, A. C. Hobbs, Cartridge shells, drawing, A. C. Hobbs, Cattle from stalls, detaching, H. S. Neff, Chair, J. W. Barnes, Chandeller, combined gas and oil, G. P. Clark, Churn, W. B. Nunn, Churn, rotary, G. C. Eastman, Cigar lighter composition, W. J. Littlefield, Clocks, starting pendulum, E. A. Lourdelet, Coach pad tree, L. O. Smith, Cock, compression, M. S. Clark, Cock, stop, H. Watkeys, Coffee pot, J. Landgren, Coffee pot, S. Theobald, Coffin, J. Gilbert, Coffin, artificial stone, T. E. Daniels, Collars, pasting the ends of, E. Cary, Cooker, feed, Rogers & Winters, Coop, folding, C. C. Allen, Corn huller, G. W. Richmond, Corn stalk cutter, etc., I. & J. F. Wentzell, Cotton gin feeder, I. F. Brown, Cruelties, preparing, J. Irwin, Cultivator, Ellwood & Pitcher, Cultivator, W. Louden, Cultivator, wheel, H. H. Perkins, Curry comb, W. E. Lawrence, Dental plugger, Richmond & Warner, Dental plugger, etc., I. M. Seaman, Dish drainer, V. Chandler, Door and window fastener, J. H. Daniels, Drafting implement, W. A. Lorenz, Drawing, stop motion, etc., E. Boyden, Drop lifter, F. Seward, Drop light, H. Idan, Drying apparatus, S. Davis, Electric apparatus, L. L. Pulvermacher, Elevator, hay, W. Carroll, Elevator, hay, M. C. Shellberger, Elevator, hay, H. & C. Toofs, Elevators, safety clutch for, W. S. Smith, Engine valve gear, steam, G. H. Corliss, Equalizer, draft, J. F. Donoghue, Fan, automatic, J. A. Williams, Feed box, W. M. & J. J. Walton, File, W. T. Nicholson, File blanks, stripping, W. T. Nicholson, File blanks, stripping, W. T. Nicholson, Files, cutting, W. T. Nicholson, Filter, reversible faucet, M. S. Clark, Fire bricks, S. P. Harbison, Fireplace arch bar, I. M. Wickersham, Flat iron stove lid, G. R. Moore, Fork, horse hay, J. L. Saunders, Furnace, house-heating, Peterson & Irwin, Furnace, regenerator, F. H. Eichbaum, Gage, water, J. Nicholas, Garbage box, B. Burling, Gas making, W. H. Tupper, Gate, sliding, S. E. Daniel, Gearing, frictional, M. Ray, Generator, sectional steam, B. Densmore, Glass melting furnace, E. Jones, Glassware, making, A. A. Adams, Grinding machine, roll, G. Gavitt, Gypsum, treating, C. T. Tomkins, Hammer, spring power, R. F. Livermore, Harness, C. H. Corcy, Harrow, P. J. Jacoby, Harvester, J. H. Edward, Harvester, J. Harris, Harvester, J. J. Pligott, Hats, blocking, H. V. Snow, Health lift, H. U. Johnson, Hides, drying, J. Finnigan, Hoc, G. Wright, Holdback, W. P. White, Hoof parer, Burroughs & Carrothers, Hook, button, S. M. Broughman, Horseshoe nails, finishing, N. W. Goodrich, Hose pipe adjustable nozzle, T. Haley, Ice creeper, Abrahams & Lumzig, Ice pick, H. F. Dernel, Injector, W. B. Mack, Inkstand, J. Oesterling, Invalids, supporting rest for, P. T. Clement, Ironing board, Catt & Harrod, Ironing board, folding, J. Rayner, Jack, lifting, G. G. Howe, Jar lifter, C. E. Gillespie, Journal and coupling, T. Weaver, Kettle and cooking apparatus, B. Temple, Kiln, brick, F. F. Ingersoll, Knit mittens, making, W. H. Abel, Ladder, fireman's, I. H. Corbin, Lamp, C. E. Ball, Lamp, car, Hicks & Smith, Lantern, submarine, Striedinger et al., Last, J. M. Barnett, Last block fastening, H. J. Pratt, Leather, punching, Rickey et al., Lock, hasp, E. S. Young, Lock, time, S. A. Little, Loom, temple, W. W. Dutcher, Looms, protection rod for, G. Hetherington, Measure, liquid, J. D. Muller, Middlings, purifying, etc., R. L. Downton, Mill staff, Dale & Eastell, Mine hoist, safety, N. Libotte, Mosquito net, S. P. Whitcomb, Motor, water, I. F. Good, Ores, drying and roasting, Walker et al., Ore-concentrating table, J. U. Tolles, Organ stop action, E. H. Schofield, Oven, W. H. Teeling, Oyster opener, Lum & Sanford, Painter's wheel horse, A. D. Osgood, Pan, bake, J. Gilbert, Pan, roasting, Peace & Wingfield, Paper box, R. Ritter, Paper cop tube machine, L. Smith, Paper-drying apparatus, H. Braunhold, Paper-drying drum, E. Cary, Peg float, G. I. Davis, Planter, corn, A. Borneman, Planters, marker for corn, C. W. Spear, Plow, I. R. Kern, Plow, gang, Richardson & McInnes, Plow, hand, Mays & Tigrett, Plow, side hill, H. F. & G. F. Shaw, Plowshares, bar for, I. N. Pyle, Power, foot, W. F. & J. Barnes, Press, balling, P. K. Dederick, Press, hay, P. K. Dederick, Printer's tank galley, J. F. Hannan, Printing on cans, J. B. Weaver, Propeller, vibrating, H. Mulhollen, Propellers, steering, F. G. Fowler, Pulley rope, strain equalizer, S. Woolston, Pump, chain, W. A. Cherry, Pump, force and lift, F. Miller, Pump, rotary, O. F. Schultz, Railway rail, compound, M. Feeley, Railway rail fastener, Houston et al., Railway rail joint, H. Allen, Railway switch chair, Fox & Hayward, Rake, horse hay, J. Hiatt, Rake, horse hay, J. F. Trader, Ram, hydraulic, I. B. Milington, Refu, driving, J. P. Tolman, Reflector, W. S. McLeewe, Regulator, draft, I. Hayes, Roof, sheet metal, C. A. Smith, Saddle tree, side, O. V. Flora, Sash fastener, E. H. Fenton, Sash fastener, I. W. Sylvester, Sash holder, R. Holcroft, Sash holder, D. P. Shaw, Sawdust, separating waste from, D. C. Newell, Saw frame, buck, Hayten & Potter, Saw gummer, E. McCloy, Saw set, H. Hitchcock, Saw set and clamp, E. Day, Scales protector, platform, D. A. Gilbert, Scarf, C. Loeb, Screws, making wood, C. D. Rogers, Screws, threading, C. D. Rogers, Separator, grain, J. W. Johnson, Separator, middlings, T. Hart, Sewing machine presser foot, D. A. Sutherland, Sewing machines, operating, G. L. Townsend, Shoe, E. Shaw, Shoe, J. C. Weil, Sleigh runner, W. G. Calkins, Snow plow, R. S. Van Zandt, Spinning machine flyer, Abbot & Smith, Steamer, culinary, H. S. Neff, Stove, A. A. Pitz, Stove door knob, R. Strickland, Stove pipe elbow machine, W. T. McMillan, Stove extension shelf, A. T. Jones, Stoves, etc., lining, Eagan & Plumb, Sun dial, M. Wheeler, Teaching penmanship, L. D. Harvey, Thermostat, J. H. Guest, Thill coupling, E. Soper, Ticket holder, D. Shamberger, Tobacco box, plug, B. F. Jaques, Tongs, pipe, G. M. Curry, Top prop operator, G. N. Spink, Toy wind wheel, P. Raffa, Trace, rope, P. Hayden, Tree protector, fruit, S. W. Hill, Trunk stay, J. M. Strout, Tubing, colling, H. Dorning, Umbrella tip cup, F. S. Brown, Vacuum pan, J. Fairburn, Valve gear, exhaust, G. H. Corliss, Valve grinding machine, W. T. De Luce, Vehicle hub and axle, A. B. G. A. Williams, Vehicle spring, W. F. Whitney, Ventilator, A. J. Robinson, Vessels, water closet for, A. B. Sands, Vise, J. E. Brundage, Voltaic battery, I. L. Pulvermacher, Wagon body, extension, J. K. Milnor, Wagons, side bar, E. Soper, Wagon spring, G. W. Marble, Washing machine, S. L. Denney, Watch ratchet stop, etc., J. D. McAnlis, Water closet for vessels, A. B. Sands, Water wheel, turbine, T. Holmcs, Whip socket, T. L. Whitacre, Wind wheel, W. Bowes, Windmill, E. Williamson, Window blind, metallic, M. & V. Rathkecht, Window, show, O. B. Potter, Yarn, etc., making rosettes of, O. Boehme.

DESIGNS PATENTED.

- 9,272.—HASSOCKS.—A. A. Garland, Brooklyn, N. Y.
9,273.—STATUE.—H. Gebhard, New York city.
9,274.—FENCES.—J. E. Ricker, Lock Haven, Pa.
9,275.—CANISTER.—J. B. Bohman, Philadelphia, Pa.

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