

surface with a mixture of 1 part highly calcined umber and 2 parts of borax ground to a fine powder, and then heating the glass in an oven until the coating becomes vitrified. Consult "A Treatise on the Origin, Progressive Improvement, and Present State of the Manufacture of Porcelain and Glass." Address the bookdealers who advertise in this paper.

(20) S. A. H. writes: I have for some time been using a gasoline gas machine which I have made, but I find it rather unsatisfactory, as the gas when burning in a close room gives an unpleasant odor causing headache. A. The cause of the bad odor is doubtless due to the supersaturation of the air with the vapor of gasoline, so that the combustion is imperfect, certain hydrocarbons mixed with much carbonic oxide escaping unconsumed. 2. I cannot get from a gallon of gasoline 88°, more than 100 feet of gas, or the equivalent in light of 100 feet of good coal gas. How much should I get from a gallon? A. About 118 feet under favorable circumstances. 3. My blower is of peculiar construction, and the air when entering it has to pass through a fine spray of water, and thus become saturated with watery vapor. May the odor not be caused by a partial decomposition of this vapor while passing through the flame? I am led to think so from the fact that during intense cold the gas burns without odor, in which case I think the watery vapor is retained in the pipes by freezing. A. The odor is not due to the water. See article on gas machines, page 1, vol. xliii.

(21) "Subscriber" asks: Can you tell of anything that can be worn or used to destroy body odors that daily bathing will not accomplish? Also a deodorizer for bedrooms and bedding? A. Add a little soda to the water used for bathing, and bathe frequently. Frequent changes of bed linen and plenty of airing are the most practical means.

(22) W. S. asks for a method of hard soldering solid gold set rings such as amethyst, cameo, garnet, etc., which will not crack or change the color. Please let me know what mixture, or what would be best. A. Jeweler's solder with gold of a somewhat lower tittle than article to be soldered—borax, flux, and blow pipe, enveloping the other parts with tissue paper and whitening or plaster of Paris.

(23) A. M. G. asks for a receipt for making a blue colored fire, same as used in fireworks. I have tried receipts with only sulphur, nitrate of potassa, and antimony, but they are not satisfactory. I think that realgar (red arsenic) or orpiment (yellow arsenic) are used, but what proportions of each I do not know. Please give me some receipts which you may know to be good and not be very expensive. A. 1. (For theatrical fires, etc.)—Sulphur, sulphate of potassa, and ammonio-sulphate of copper, each 15 parts; niter, 27; chlorate of potassa. 2. Sulphate of copper, 7 parts; sulphur, 24; chlorate of potassa, 69. 3. (For pyrotechnic mixtures)—Chloride of potash, 9 parts; sulphur and carbonate of copper, each 3 parts. 4. (For lances)—Chlorate of potassa, 6 parts; Chertier's copper, 1; calomel, 5; sugar, 4.

(24) E. F. H. asks for information as to curing, removal of fat, and the fishy odor of bird skins, especially salt water birds. I do a great deal of gunning, and should like to prepare some good skins. A. Scrape off as much of the flesh and fat as possible with a blunt knife, and immerse them for 48 hours or more in the following solution: Salt, 4 lb.; alum, 1 lb.; water, just sufficient to dissolve. On removing wash in a weak solution of soda and water.

(25) H. M. P. asks: 1. How much power is required to drive the dynamo-electric machine described in No. 161 of the SCIENTIFIC AMERICAN SUPPLEMENT? A. About one-sixth of a horse power. One man power will drive it. 2. Will a piece of wrought iron pipe 8 inches in diameter do for the shell of a small boiler? What pressure would it stand? A. Yes; it would probably stand 200 lb. per square inch safely, but should be tested to 400 lb. before being put in use.

(26) E. E. T. asks: 1. Could I obtain good results by constructing a dynamo-electric machine with electro-magnets consisting of a piece of gas pipe (wrought iron) of extra thickness, split lengthwise so as to form the two poles, and wound circumferentially with wire? Also, would the armature made of a cross-shaped section be any better than if made according to Dr. Siemens' plan? I constructed a machine, as described in SCIENTIFIC AMERICAN SUPPLEMENT, No. 161, and am much pleased with it. A dynamo machine constructed according to your plan would prove a failure. 2. I am working in a sugar house with a view of learning the business. Do you consider the analysis of sugar a special branch of chemistry, and how long would it take a man of average intelligence to learn it? A. Yes. To become expert in the use of the saccharometer under favorable circumstances does not require many weeks' study. To become thoroughly acquainted with sugar chemistry may require a year of application. 3. Will sponge platinum become luminous in ordinary coal gas? A. Yes, when freshly prepared. 4. In making phosphorescent sulphides, as described in SCIENTIFIC AMERICAN of February 5, 1881, is it necessary to heat red hot? A. Yes.

(27) W. T. asks: 1. What is meant by electroplaters' machines, and is any apparatus necessary for silver plating besides Bunsen's battery? A. Dynamo-machines, used in large electroplating establishments in place of batteries. 2. Can I obtain any publication with the latest methods for electroplating? A. See pp. 81, 116, 3, and 33 current volume, and 153, vol. xliii., SCIENTIFIC AMERICAN. 3. How is aqua-ammonia, as sold in the drug stores, prepared, and can I prepare it for my own use and how? A. Usually by decomposing the ammonia salts such as the chloride (sal-ammoniac) by means of lime, with the aid of heat, and passing the ammonia (gas) evolved into water which absorbs it and becomes aqua-ammonia (ammonia water).

(28) W. C. asks for a receipt for a good black polish for leather suitable for cartridge boxes and belts. I want a polish that will not wash off, and make a good appearance at inspection. A. Shellac, 12 parts; white turpentine, 5; gum sandarac, 2; lampblack, 1; spirit of turpentine, 4; alcohol, 96. Stir and digest in a

covered vessel until solution is complete. 2. What is the cause of center punches and cold chisels becoming magnetized when used for a short time? I think it is caused from the friction of the center punch on the iron. A. The magnetism is derived by induction from the earth. Articles of steel when held in certain positions and repeatedly struck become magnetic.

(29) D. A. S. asks: Is there any known substance that, if placed between a magnet and steel, will prevent attraction? A. No.

(30) C. M. E. asks: 1. To what height will an ordinary steam suction pump lift (not force) water and work successfully? A. About 26 feet. 2. In ascertaining such height in the winter, when the river is frozen over, would you measure from the top or under side of the ice? A. Underside.

(31) J. R. K. writes: In your January number of SCIENTIFIC AMERICAN, in answer to J. R. S. No. 35, you give following receipt for making those pads, etc.: "Water, 130 parts; sulphate of baryta, 75 parts; sugar, 30 parts; gelatine, 30 parts; glycerine, 180 parts." Wanting one of the articles badly, I took your paper to a chemist in this city, to have the articles prepared, and he informed me that sulphate of baryta is insoluble in water, and he advised me to send East (there being none of the article in this town) for a pound of sulphide of barium. Will you in next issue of your paper let me know about correctness of the above, also whether sulphide of barium will answer for sulphate of baryta, as stated in receipt? A. The sulphate of baryta is simply mixed, not dissolved; it gives consistence and color to the composition. The sulphide cannot be used instead.

(32) G. A. N. asks: What is the best way to remove white paint from the surface of white pine house stair steps? A. Moisten the paint well with naphtha or good benzole, repeating as often as necessary. As soon as the paint becomes soft remove by means of a rag, aided by a scratch knife and stiff brush, moistened with the naphtha or benzole. A strong aqueous solution of caustic potash is sometimes used to destroy such paint. but it is apt to stain the wood or unfits its surface for receiving a fresh coat at once.

COMMUNICATIONS RECEIVED.

- On a Meteor. By C. P. K.
On Extraordinary Parhelia of the Sun and Venus.
On Remarkable Parhelia. By M. B.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were

Granted in the Week Ending

February 1, 1881,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, 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. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Table listing various inventions and their patent numbers, including items like Air compressor, Air drying and refrigerating apparatus, Amalgamator, Annunciator, Anvil and vise combined, Bath tub, extension, Bedstead, folding cot, Beverage, table, Blocks, machine for manufacturing cylindrical, Boiler furnace, straw burning, Book protector, Book stitching machine, Boot and shoe, J. Pluess, Boots and shoes, swivel heel for, Bow, G. A. Badger, Boxes, method of and apparatus for fastening, Bracelet, A. Vester, Brick kiln, J. C. Gibson, Bridle winker, R. Manning, Broiler or toaster, reversible, Johnson & Bigelow, Brush, dust, M. E. Armstrong, Bucket, well, J. B. Shaffer, Buckle, A. Mills, Buckle, A. Owen, Buoy, luminous signal, N. F. D. Barbier, Button, W. M. Van Wageningen, Button and fastening combined, G. W. Prentice, Button, lacing, G. W. Prentice, Buttons, etc., machine for moulding, W. F. Niles, Buttons, etc., method of and machine for removing the burr from, J. W. Westervelt, Buttons, etc., treating hoof for the manufacture of, W. F. Niles, Camera shutters, apparatus for opening and closing, R. Buchanan, Car brake automatic, T. E. Thompson, Car coupling, J. A. Burns, Car coupling, F. M. Ricker, Car door, grain, N. Moser, Car starter, B. G. Fitzhugh, Cars, lighting railway, R. De Lan, Carriage top lock, W. Gates, Cartridge capping implement, T. Curley, Cartridge reinforce pasting machine, A. C. Hobbs, Casting bolt holes in chilled mould boards, B. B. Harris, Celluloid, etc., process and apparatus for moulding hollow forms of, W. B. Carpenter, Chills, coating for metallic, H. A. Howe, Chimney top protector, H. J. Kampman, Chuck for watchmakers' lathes, A. French, Churn, J. M. Webb, Cigar and cigarette holder, H. A. Stone, Cigar wrapping machine, C. M. Mann, Clipper, hair, H. A. Candrian

Table listing various inventions and their patent numbers, including items like Cloth cutting machine, E. S. Hoopes et al., Cloth tentering machine, G. P. Wood, Coffee pot, Welch & Bowman, Coffins, removable face glass for, R. H. Arnold, Collar pad, swivel horse, J. N. Nesson, Composing stick gauge, J. D. Parker, Cord balls, device for putting up, E. P. Haff, Corset, M. Adler, Corset, H. M. C. Nichols, Cotton gins, combined cleaner and feeder for, W. L. Crowson, Cotton scraper, chopper, and cultivator, combined, J. A. Moore, Cotton separator, G. C. Thompson, Crushing mill, centrifugal, C. H. Griffin (r), Cuffs, fabric for, Thayer & Hart, Jr. (r), Desk, folding, Burdge, Desk, school, E. G. Durant, Diving apparatus, S. P. M. Tasker, Dovetail pattern, J. B. Vallee, Dovetailing wood, stone, etc., machinery for, N. Jenkins, Dredging apparatus, C. J. Ball, Drop light, C. Johnston, Drop light fixture, C. F. Spencer, Dust pan, G. Macardie, Elevator, R. L. Carr, Emery in the manufacture of grinding tools, preparing, F. B. Norton, Envelope machine, G. H. Plaice, Excavator, B. Sluser, Eyeglasses, nose piece for, W. J. Suttie, Feed water heater, H. Mason, Felting or hat body sizing machine, N. Harper, Fence, B. A. Welds, Fence, portable, V. L. De Mow, Fence post, W. C. Dentler, Fence wire, barbed, W. A. Root, Fence wire, machine for barbing, W. A. Root, Ferryboat, N. B. Estep, File cutting machines, chisel holder for, A. Weed, File, letter, B. Brower, Filter, J. C. Stock, Filtering apparatus, Senff & Casamajor, Finger ring and the art of manufacturing the same, Powell & Barnett, Fire escape, S. R. Pinckney, Fire extinguisher, C. M. Martin, Fish trap, W. B. Atkinson, Folding crate, W. B. Van Hutton, Fruit drier, C. Dickenson, Furnace, O. A. Waggoner, Furniture, O. S. Garretson, Gear wheel cutter, O. J. Beale, Glass, cutting polished, J. B. King, Gold and silver from their ores, extracting, C. De Vaurial, Governor, steam, A. B. Wood, Grain binder, J. R. Severance, Grate bar, P. Reilly, Grinding mill, G. & A. Raymond, Grinding mills, cooling and ventilating device for, J. Mills, Handle for pocket cutlery, etc., N. B. Slayton, Harvester rake, P. S. Wiseman, Hat trim trimming machine, C. H. Reid, Hatchway, ventilating, G. W. Baird, Hay rake, horse, C. F. Walker, Hog cholera compound, B. Bowshier, Horse quarter boot, E. Barnard, Horseshoe, G. K. Flower, Horseshoe, W. P. Tinsley, Hose coupling, G. H. Reynolds, Hub, vehicle wheel, C. H. Guard, Injector, J. Fergus, Inkstand, H. D. Forbes, Kettle holder, D. E. Williams, Key bolt, spring, C. Stevenson, Knit fabric and stocking, C. E. Wakeman (r), Lacing studs for shoes, gloves, etc., machine for making, E. J. Warner, Ladder, flexible, J. F. Cook, Ladder, step, P. H. Webster, Lamp, electric, E. Burgin (r), Lamp, electric, H. S. Maxim, Lamp regulator, electric, C. D. Haskins, Lamp shade holder, E. S. Drake, Lamps, manufacture of mill, F. Wall, Lantern, Porterfield & Clinton, Lathe cutter, turning, W. F. Niles, Letter box, G. D. Paul, Life raft harness, E. L. Perry, Link making machine, E. Amsden, Liqueur mixer, L. H. Williams, Loom harnesses, coating and finishing, W. H. Gibbs, Loom temple, J. Cocker, Loom temple, J. B. Stamour, Mechanical movement, J. F. Gordon, Medical use, electro-magnetic apparatus for, J. Butler, Metal plates, machine for trimming, H. Miller, Middlings purifier, Weber & Rector, Milk cooling apparatus, C. D. Elder, Millstone dressing machine, D. Vaughan, Millstone driver, S. C. La Hatt, Millstones, mounting, W. C. Hale, Mouldings for gliding, machine for preparing, C. C. Stuart, Mouldings with whitening, machine for covering, F. Brachvogel, Mower and reaper knives, machine for grinding, King & Williams, Mower, lawn, Drury & Paxson, Music box, electric, L. G. Woolley, Musical instrument, electrical, W. F. & H. Schmoele, Muzzle, W. D. Harris, Nail plate feeding machine, D. K. Miller, Ore grinding mill, G. Johnston, Ore separator, Woodman & Siefken, Oven, Japanning, J. Hill, Oyster float, D. G. Weems, Oyster tongs, G. C. Brown, Packing box, F. Siddall, Paper bag machine, H. A. House, Pen, F. W. Holdt, Pen holder, fountain, W. W. Stewart, Photographic background, D. N. Carvalho, Photographic focusing frame, D. N. Carvalho, Photographic printing frame, D. N. Carvalho, Piano action, R. E. Letton, Planter, corn, C. J. Hofund, Planter, hand, C. J. M. Harrison, Plow, B. S. Benson (r), Plow, C. Grattan, Pole climber, T. Hill, Press, M. Stonehouse, Pressure gauge, steam, J. Burrell, Printing presses, device for giving positive motion to sliders of, J. H. Cranston, Pulley, split belt, P. Medart, Pulp, making wood, C. B. Carter (r)

DESIGNS.

Table listing designs and their numbers, including items like Carpet, T. J. Stearns, Chair seat, R. L. Bent, Handkerchief and shawl, R. Brooks

TRADE MARKS.

Table listing trade marks and their numbers, including items like Carbon black, Carbon Black Company, Medicated pad, D. Parker, Starch compound, F. M. Williams & Co.

English Patents Issued to Americans.

Table listing English patents issued to Americans, including items like Berth, sleeping, The Brunswick Berth Co., Boston, Mass., Bottle stopper, N. Thompson, Brooklyn, N. Y., Chains, driving, J. M. Dodge, Chicago, U. S., Gas burner pressure regulator for, J. N. Chamberlain et al., Hampton, Mass., Hides, feshing, A. W. Reid et al., Schenectady, N. Y., Loom, W. Talbot et al., Philadelphia, Pa., Ore crusher, C. Forster, Pittsburg, Pa., Sewing machine, J. H. Morley, Holyoke, Mass., Starch, manufacture of, T. A. & W. T. Jebb, Buffalo, N. Y., Wheat smutting machine, W. Lauhoff, Detroit, Mich.