

woodwork of the cornice; or the contraction and expansion may have worked the joints loose. The latter should be closely examined, and, if loose, repaired before painting. We find no difficulty here in keeping gutters, that are simply lined with tin, tight.

(35) C. F. S. asks: 1. Is the radiation of the method of heating private dwellings with furnace in basement and tin pipe leading to different rooms at the floor called direct or indirect? A. Indirect. 2. When this method is used, where should fresh air be admitted to the room thus heated, at the floor or near ceiling? A. Fresh air should be taken from the exterior of the house at the basement, and supplied to the air chamber of the furnace by a special pipe or shaft, which may be of wood; it is this air, when warmed, that becomes the fresh air of the rooms. The fireplace flue will carry off the vitiated air, having its opening near the floor.

Can cast iron be casehardened with prussiate of potassa? A. Yes.

(36) L. W. asks: Will any injurious effects arise from working over and inhaling the vapor or steam arising from boiling or hot aniline dye? A. Yes, it is extremely unhealthy, if from no other cause than induced predisposition of the system to take cold and contract pulmonary complications.

(37) A. H. S. asks: Is it injurious to a person's health to sleep in a printing office after working in it all day? It is said that the antimony in type metal is poisonous. A. If the office is well ventilated, and free from the odor of benzine and other exhalations, it will not be unhealthy. The antimony does not evaporate.

(38) G. G. says: I need a flexible tube to use in kerosene oil. What is the best material to make it of? A. Try one of leather. Rubber will not answer. 2. In a lamp burning kerosene oil, what is the best distance to have base of flame from surface of oil? A. About 2 1/2 inches.

(39) E. T. M. says: I am about to construct a flume for carrying off the smoke from a quick-silver furnace, the smoke being strongly impregnated with sulphurous acid. What effect will it have on a four feet flue constructed of Portland cement, gravel, and sand? A. The effect will be to speedily convert the exposed surfaces of the lime into an oxysulphide, and finally into sulphate of lime, which will resist any further change.

(40) J. W. says: My cellar is always wet. If I dig a drain or two in it, and dig a well down to the gravel, the drains going into it, will the water soak in the gravel? A. It depends upon the nature of the several strata over which your house stands. Better consult some of the older residents of your neighborhood. See query 20, p. 107, vol. 35.

(41) M. E. A. asks: 1. I wish to build an icehouse on my farm, to hold about 8 tons of ice, in which to keep meat, etc. A. You will find a description of one of this size on p. 251, vol. 31 (in which read "7 feet square" for interior chamber instead of 6.) 2. Is it best to build it into a bank and cover the top with earth, or build it all above ground? If the former, how shall I construct it? A. It is not necessary to build it in a bank; let the building be isolated, but the floor about 2 1/2 feet below ground. 3. How should the door be made? A. Provide a canvas on the inside that will allow it to be packed with about 6 inches thick of sawdust. 4. Should the provisions be kept in the same room with the ice? A. No; but in the surrounding passage, as in the description above referred to.

(42) W. D. asks: Can vinegar be made directly from corn or corn meal without first converting the corn into starch, then to dextrin, and then to grape sugar, and then to vinegar? A. No.

(43) J. H. P. says, in reply to B. D., who says: "I have a piece of gold which has been polished with mercury. What will remove the mercury?" A. Cover the gold in a glass vessel with nitric acid. The acid will eat the mercury all off, and will leave the gold less brittle than if heat had been applied to it.

(44) E. P. says, in answer to C. B., who asks how to plow with three horses abreast, and regulate the running of the plow: We often do this by shifting the outer end of the clevis off the beam towards the land, and fastening it at the right distance with a guide pin.

(45) J. M. L. says, in reply to H. P. B., who asks if eggshells can be utilized: Eggshells form one of the best clarifiers for cider and wine. One pint of pulverized eggshells will clarify one barrel of cider or wine in from 24 to 48 hours, according to the clearness of the weather. As eggshells cannot always be had in sufficient quantities, can you tell me of a substitute for eggshells? What is the lime composition of the same? A. It is the small quantity of residual adhering albumen, and not the lime salts composing the shell, that exerts the clarifying action upon the liquor. A good substitute for the expensive egg albumen may be obtained from water that has been used to wash the starch from wheat flour or scraped potatoes, by allowing it to stand until it becomes clear, and then boiling it. By this means it is rendered turbid, and, after a short time, a flaky white substance deposits, which has the same properties as white of egg, and is known as vegetable albumen. The shells are chiefly composed of the carbonate and phosphate of lime, together with a little organic matter. In some parts of Europe and elsewhere, it is common to clarify wines, etc., by heating for a short time with ordinary clean papier maché, and then filtering through bags of fine linen.

(46) N. A. B. asks: 1. Can I arrange the motive power of an electric clock so that a regulator will not be necessary, and so that slight variations in the force of the current will make no difference in the time kept? A. No. 2. I have an instrument for producing shocks by the extra current; it has no secondary coil. If I should attach a condenser to it, could I obtain any of the effects of frictional electricity, or is the secondary coil necessary? A. A secondary coil is necessary to obtain static effects of any considerable tension.

(47) J. V. A. says: Is there any metal or other substance that is perfectly or almost perfectly impenetrable to magnetism? If I take a magnet and place a plate of some substance above it, could the magnetism be prevented from going through it, so that it would have no influence on a piece of iron placed above it? A. No. There is nothing which will cut off magnetism except iron, which does so by itself absorbing the magnetism produced.

(48) W. H. asks: 1. How can hard cistern water be made soft and good for table use? The hardness arises from the cistern being built of cement. A. Boiling the water usually causes precipitation of some of the foreign matter. 2. Is a partition of common brick laid in cement, dividing the receiving conductor from discharge pump pipe, a good filter for a cistern? A. We think not.

COMMUNICATIONS RECEIVED.

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

- On Water Supply for Seaboard Towns. By H. B. M.
On Shrunken-On Parts of Machinery. By T. I. B.
On the Radiometer and its Uses. By S. H. T.
On the Pyramid and the Sphinx. By C. R.
On the Sinking of a Large Pond. By J. N.
On Working Men's Demonstrations. By J. E. E.
On a Submarine Railway. By P. S.
On Building Prisons. By H. G. K.
On the Hidden Key. By J. E. W.
On Preparing Ornamental Leaves. By M. A. K.

Also inquiries and answers from the following: T. P. P.—J. B. H.—W. G. W.—W. W. K.—M. W. W

M. G. P. asks: Are not meerschaum pipes sometimes boiled in wax etc., to bring out the color? If so, what is the process?—F. S. K. asks: Please give me a recipe for keeping the weevil from corn after it is cribbed in the shuck.

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 bicycles? Who bores for water by driving well tubes, and what is the cost of the operation? Who sells wooden clocks? Who makes envelope machinery? Who makes machinery for preparing moss for upholsterers' use?" 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 August 15, 1876, 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 and their patent numbers, including Alarm electric burglar, Animal tether, Ax, Baking and broiling, Bale band tightener, Bale tie tightener, Bale tie, wire cotton, Ballthrower, mechanical, Bark, roasting and grinding, Bellows, valve for, Belt, chain, J. Behel, Belt fastener, J. P. Burnham, Belt shifter, A. Crosby, Bill holder, revolving, S. W. Maynard, Bin, meal, D. C. Clous, Bits, etc., holding, W. H. Barber, Boiler and setting, steam, T. R. Butman, Boiler furnace, steam, W. Swindell, Boiler furnace, steam, J. E. Wooten, Bolts, etc., rolling screw threads on, T. T. Prosser, Bone black, drying, P. Farley, Boot heel, C. Schwerdtfeger, Boots, etc., screw for, A. Angst, Bosom form, A. W. Thomas, Bottles, cork fastener for, W. D. Balcom, Bracket, Jenks & Hyatt, Brick machine, R. A. Drawdy, Broom, S. Hobbs, Brush, R. Rosenthal, Brush and sprinkler, G. Birtwistle, Buckle, Clinton & Bassett, Buckle, A. B. Woodard

Table listing various inventions and their patent numbers, including Buckle and snap, R. S. B. Chinnery, Buckle and snap hook, F. J. Deisz, Buckle, harness, W. F. Whitney, Building block, cellular wall, N. J. Clayton, Bustle, E. J. Ham, Butter package, B. Beller, Button pliers, C. M. Platt, Can, square, J. H. Scott, Cannon, R. B. H. Leighton, Car coupling, E. Zorger, Car draft bar, railway, W. R. Cross, Car, sleeping, W. H. Paige, Car truck, J. Ireland, Cars, dust guard for, W. Carr, Carpet fastener, U. S. Dieffenbacher, Casting, collapsing core for, J. K. Dimmick, Casting die plates, J. B. McCune, Chain, C. W. Levalley, Chair, folding, W. B. Cogger, Chair, folding, A. Matthlessen, Chair, folding, F. F. Parker, Chair, folding, J. H. Travis, Chair, perambulating, T. Divine, Chair, reclining, T. M. Birtwistle, Chair rocker, P. C. Ingersoll, Chair, tilting, H. Parry, Chamber and urinal, P. F. Campbell, Chimney cowl, J. M. Davies, Churn, P. K. Parkhurst, Cigar box, T. A. Dodd, Cigarette papers, case for, Beebe et al., Clock dial, H. F. Henderson, Cloth-cutting machine, R. B. Sanson, Clothes dryer, E. B. Gildersleeve, Coal hods, bottom for, G. F. Sawyer, Commode, S. E. Smith, Cooler, beer, W. Lawrence, Cooler, milk, T. Sexsmith, Corkscrew, R. Decker, Cotton, baling, R. De Gray, Cotton chopper and scraper, W. M. Sanders, Cotton, borated, C. G. Am Ende, Cotton gin, H. A. Stearns, Cotton gin feeder, F. W. Flynn, Cradle for children, Frawley & Eviston, Cultivator, J. W. Chase, Cultivator, H. D. Green, Cultivator, corn, G. Bradley, Cultivator, prairie sod, W. J. Robertson, Curtain tassel clasp, J. M. Homiston, Cutter head, J. H. Whitaker, Desk, C. A. Atkinson, Digger, potato, E. Bartlett, Digger, potato, A. L. Libbey, Digger, potato, S. Martin, Dish and clothes washer, A. C. Jackson, Disks of metal, etc., cutting, D. Brix, Distilleries, mashing, etc., for, G. Ellenberger, Dock, floating, T. J. Wneeden, Drag teeth clasp, J. Gmelner, Drawing frame stop, I. N. Edgerly, Dryer, Adams & Blondin, Elevating and carrying, B. T. Snyder, Elevator, J. G. Kurtz, Elevator and purifier, water, T. T. Bishop, Elevator, brick and mortar, T. Mann, Elevator, hydraulic, T. Stebins, Engine, compound, E. F. Althaus, Engine cut-off, steam, J. C. Debes, Engine, rotary, A. C. Speer, Engine valve, pumping, Cope et al., Engines, valve for steam, T. & A. Shary, Eyeglass, J. S. Spencer, Faucet-locking device, L. Bleier, Feather renovator, W. M. Shelton, Fire kindler, S. S. Brown, Flour bolt, W. D. Murray, Flying machine, F. X. Lamboley, Fountain for mineral waters, etc., A. D. Puffer, Frame for family records, L. Patterson, Fruit and jelly masher, etc., A. Conrady, Fruit dryer, A. M. Mortimer, Fruit jar, H. D. Hall, Furnace for roasting ores, H. G. Livermore, Furnace, heating, T. Angell, Gasmachine, A. C. Rand, Gasalliers, tube retainer for, J. C. Cassidy, Gate, U. W. Hardy, Gearing, double, J. Smith, Generator water indicator, E. H. Ashcroft, Glove, J. L. E. Ranniger, Governor attachment, C. Neer, Grate, transverse racking, H. Swindell, Grating, burglar-proof, C. P. Haughlan, Gravestone, metallic, W. J. Dew, Grindstone hanging, C. Hefft, Gun barrels, turning, H. C. S. Dyer, Gun, battery, A. E. Miltmore, Hame, A. H. W. Michaelis, Harness pad, Ridgley et al., Harrow, J. De Moss, Harrow tooth, D. W. Hughes, Harrow teeth blanks, making, G. Donaldson, Harvester, W. H. Fritz, Harvester spring lever, F. S. Brown, Hay and stock rack, J. F. Temple, Hay for fuel, twisting, J. S. Foster, Hinge, spring, I. Buckman, Hoof spreader, McIntosh et al., Horse collar, C. J. Fox, Hydrant or water plug, E. R. Jones, Ice cream freezer, C. L. Dexter, Ironing board, M. A. Bryant, Knitted goods, finishing, J. L. Williams, Lamps, torch for lighting, F. Billingham, Lantern, T. B. Osborne, Lantern, signaling, H. H. Schulte, Latch and lock, W. H. Taylor, Lathe, gage, L. Hull, Lathe shaping attachment, W. Brede, Limekiln door, W. Gwynn, Lubricating compound, Lyon et al., Match holder, W. Ferguson, Mattress, life-preserving, G. N. Torrence, Metals, refining, Corson et al., Microscope, J. Zentmayer, Millstone dress, J. K. Snavely, Mosquito bar, A. L. Edwards, Mowing machine coupling, D. Manning, Music leaf turner, O. W. Clark, Nut lock, Haldeman & Stewart, Ores, reducing, M. Ladin, Ornamenting surfaces, M. Dietrich, Overall, G. R. Eager, Overall, S. Laskey, Painter's duster, etc., J. V. Richardson, Paper bag, J. S. Ostrander, Pen-handle attachment, W. H. Foye, Penholder, fountain, L. Berg, Planoforte, bell, Hill & Wing, Pistols, extensible stock for, E. Wilson

Table listing various inventions and their patent numbers, including Planter, corn, S. E. Owen, Pliers, W. P. Huntoon, Plow draft, A. F. King, Plow, stock, J. A. Price, Plow, sulky, A. Hamilton, Plow, sulky, J. M. Payne, Plows, weed turner for, W. Banworth, Post hole borer, Caler & Merrick, Press, cotton, W. Golding, Printing press, E. Hely, Privy seat, Howard & Allard, Pump, chain, J. S. Corbin, Pump, submerged, J. W. Collet, Pump valve, Hill & Rowland, Pump bucket, chain, Potter et al., Railway gate, M. Fulcomer, Railway rail joint, J. De Pew, Railway signal, automatic, J. E. Ross, Railway time signal, J. C. Paige, Railway track lifting, R. Aldred, Rake and tedder, hay, E. J. Knowlton, Rake, horse hay, A. W. Coates, Refrigerator, J. J. Ross, Rivets, etc., making, E. E. Pierce, Roofing, making composition, C. L. Fowler, Ruler and protractor, G. D. Wyckoff, Sawtooth, A. Boynton, Scales, automatic, C. A. Whedon, Scales, weighing, A. Pangburn, Seeds, coating, W. R. Brandriff, Separator, grain, T. C. & J. W. Jory, Separator, middlings, C. F. Keller, Sewers, expansible gate for, Brady & Manning, Sewing machine, shuttle carrier, A. W. Eldredge, Sheet metal box, O. M. Sloat, Shirt bosom, S. Laskey, Shoes, etc., fastening, G. W. Lascell, Sign, revolving, J. O. Belknap, Skirt elevator, A. W. Thomas, Smoke, consuming, J. Todd, Soda fountain, G. F. Heinichen, Spinning filter, F. P. Holt, Stone channeling machine, N. J. Green, Stool, blacking, A. Waterman, Stove attachment, cooking, T. R. Timby, Stove, cooking, J. C. McClamroch, Stove leg or foot, self-locking, W. W. Tice, Stove, summer, C. H. Chase, Studs, etc., making, Potter & Hurlington, Sugar machine, centrifugal, E. Rochow, Sugar, refining, J. Wilhelm, Swing, A. Steaforth, Syringes, etc., piston for, R. Vander Emde, Tanning process and compound, W. Farris, Telegraph circuit, fire alarm, J. P. Barrett, Toilet cabinet, D. Daggett, Tool, combination, M. Reynolds, Toy blow horn, C. W. Fallows, Toy gun, C. W. Fries, Toy spring gun, S. G. Stryker, Transplanter, J. E. Goodwin, Trap, animal, J. Martin, Trap, animal, F. E. Rice, Trap, fly, C. Olson, Trap, roach, R. Hagen, Umbrella, G. Bockstaller, Umbrella, Hayward & Hoyland, Umbrella supporter, A. H. Wright, Valve, cut-off, F. B. Rice, Valve gear for reversing, W. H. Downing, Valve, oscillating, W. Bellis, Wagon beds, attaching derricks to, G. H. Smith, Wagon cover, C. Cremer, Wagon, steam, S. B. Stone, Washer, steam, C. C. Carter, Washing machine, J. J. Daly, Washing machine, G. W. Marlatt, Washing machine, G. L. Witsell, Washing machine, J. Zeller, Watch key, W. S. Hicks, Water conductor fastener, L. Berger, Water wheel, B. C. Lambeth, Water wheel, L. Long, Weather strip, J. H. McIntire, Windmill, M. T. & M. C. Chapman, Windmill, A. Humphrey, Windmill, W. W. Marsh, Windmill, D. Nyswander, Writing instrument, C. M. Johnson

DESIGNS PATENTED.

- 9,437.—UMBRELLA.—G. Bockstaller et al., St. Louis, Mo.
9,438.—SKIRT BORDERS.—G. Bowman, New York city.
9,439.—EMBROIDERY.—E. Crisand, New Haven, Conn.
9,440 to 9,443.—CENTER PIECES.—S. Kellet, San Francisco Cal.
9,444.—FLOWER BOXES.—J. Rogers, New York city.
9,445.—STOVE.—E. Smith, Albany, N. Y.
9,446.—MIRROR FRAME.—R. W. Myers, New York city.
9,447.—FORK HANDLES, ETC.—C. Osborne, New York city.
9,448.—FAN.—J. T. Rowand, Jr., Camden, N. J.

[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.]

SCHEDULE OF PATENT FEES.

Table listing patent fees: On each Caveat, \$10; On each Trade mark, \$25; On filing each application for a Patent (17 years), \$15; On issuing each original Patent, \$20; On appeal to Examiners-in-Chief, \$10; On appeal to Commissioner of Patents, \$20; On application for Reissue, \$30; On filing a Disclaimer, \$10; On an application for Design (3 1/2 years), \$10; On application for Design (7 years), \$15; On application for Design (14 years), \$30.

THE VALIDITY OF PATENTS.

We recommend to every person who is about to purchase a patent, or about to commence the manufacture of any article under a license, to have the patent carefully examined by a competent party, and to have a research made in the Patent Office to see what the condition of the art was when the patent was issued. He should also see that the claims are so worded as to cover all the inventor was entitled to when his patent was issued; and it is still more essential that he be informed whether it is an infringement on some other existing patent. Parties desiring to have such searches made can have them done through the Scientific American Patent Agency, by giving the date of the patent and stating the nature of the information desired. For further information, address MUNN & CO., 37 PARK ROW, New York