

(33) C. S. writes: In the side of our cistern where the water remains after passing through the filter a large number of the germs of mosquitoes have made their appearance. In fact the water is thick with them. Is there any remedy? A. Burn a fragment of sulphur in the cistern, and keep the cover on tight; the mosquitoes, finding no outlet, will soon die, and no more will trouble you.

(34) D. W. C. asks: What is the source of the driftwood appearing off the north coast of Ireland every year? The fact is mentioned by Simms in proof of his North Pole theory. A. The wood is probably carried northward by the Gulf Stream.

(35) F. T. asks: Is there a known coppering solution capable of being applied to tin plate? If so, please let me know the ingredients and application. A. Suspend the work to be plated, first thoroughly cleaned, facing a plate of copper of equal surface in a cold saturated aqueous solution of copper diluted with 1/4 volume of water. Then, by means of stout copper wire, connect the work with the negative or zinc pole, and the copper anode with the positive pole of a Smee (1 gallon zinc carbon) battery in zinc surface exposed, somewhat exceeding the surface of the work exposed in the plating bath.

(36) R. F.—Genuine gutta serena is rendered sufficiently soft by boiling water or steam to mould by pressure. It cannot be rendered liquid by heat without partial decomposition. It dissolves readily in carbon disulphide and in warm naphtha or benzole.

(37) J. C. asks for the formula of a baking powder. I have four of the ingredients and lack only the fifth, which you can supply. Cream of tartar 4 lbs., bicarbonate of soda 2 lbs., powdered alum 1 lb., corn starch, 3 lbs. There is still another ingredient. Please let me know what it is, and the proportion. A. See p. 299 (32), vol. 37. Alum is not a proper constituent for baking powder.

(38) L. W. A. M. asks whether grinding iron on an emery wheel is injurious to health. A. Yes, very, unless the dust is carried away by an exhaust fan.

(39) H. E. M.—The simple electric light apparatus described on p. 200 of current volume is designed merely as an experiment. It is not calculated for continued use. It will take 15 or 20 cells of zinc and copper battery.

(40) M. J. C. writes: In observing the planets, and Jupiter in particular, through a first class telescope, can the shadow of the planet be seen projected in space in a direction opposite to the sun? A. No. Has any method ever been discovered by which lenses can be ground accurately in the form of a segment of an ellipsoid, and would not a lens of this form be free from chromatic and spherical aberration? A. Lenses and specula have been ground in parabolic form by hand and by machine. Telescopic specula of this form are free from the imperfections found in spherical mirrors.

(41) W. M. E. writes. 1. Mechanics here say that a patch of new iron put on the inside of the fire-box of a boiler over the old iron, without cutting out the old, will make the old burn out faster than it would without the new patch. I can see that the patch would last longer to have water come next to it, but I claim that the old will not burn out until the new is gone. Is this sound? A. The thicker you make the metal with which the flame comes in contact, the less rapidly will the heat be conducted through it, and hence the more rapidly will it burn out. 2. Are 3/4 inch stay bolts once in 6 inches each way, for 18 horse power boiler, in fire-box, enough to be safe? Boiler iron 5/8. A. It depends on the pressure of steam. 3. Give the best and cheapest outside coating for boiler to keep heat in. A. Wisps of straw with a little clay make a very effective coating. Cow hair felt is also very good.

(42) C. M. S. asks: Will you give me a recipe for a waterproof cement, one that will harden immediately after the application? A. See p. 187, current volume, SCIENTIFIC AMERICAN, and answer to G. P. P., below.

(43) C. A. T. asks (1) If potatoes have any salt in them. A. Salt (sodium chloride) is usually found in small quantities in the ash of potatoes. 2. Is salt a mineral? Can minerals exist in vegetables? A. Yes. You should consult some work on agricultural chemistry.

(44) G. P. P. asks: What is the strongest and best cement made, and is there any cement made that will unite rocks or pebbles tightly together? Is there any glue that water will not affect? A. For general purposes those given in answer to T. B. A., J. L., and others, p. 187, current volume, SCIENTIFIC AMERICAN, are excellent. Of these Nos. 2, 3, 4, and 5 are quite waterproof.

(45) S. W. M.—As far as we can judge from the small sample, the liquor is simply raw whisky containing a notable amount of fusel oil (amylic alcohol).

(46) J. S. A. writes: Can you give me the method used in preparing "buttons" of lampblack for use in the Edison carbon telephone? A. The carbon is compressed in suitable moulds under great pressure.

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

L. P. S.—Principally iron sulphides—contains a little copper.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges with much pleasure the receipt of original papers and contributions on the following subjects: The Gas Engine. By A. A. T. How to Test a Lathe. By C. A. S. Forming a Right Angle. By A. M. W. Mine Explosions. By C. W. J. Telephone. By A. T. Railroad Signals. By S. F. Telephone Experiments. By J. H. R. Steam Joint. By J. H. B. Constructing a Right Angle. By W. L. T.

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending September 3, 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 Accordion, Auger handle, Axle skein, Baby walker, Bag framing machine, Bale tie, Bale tie, C. Lester, Basin trap, Bed bottom, Bed slat coupler, Beehive, Belting for wool washers, Bending wood, Blower for blacksmiths' forges, Boiler, sectional steam, Boiler, steam, W. M. Kilgore, Boilers, steam generator, etc., Books, leaf holder for, F. C. Gerard, Boot and shoe sole, H. C. Goodrich, Boot and shoe sole finisher, F. E. Larrabee, Boot, plowman's, J. H. Walker, Box and fastening, G. W. Bradley, Brush and blacking box holder, W. H. Andruss, Brushes, making, J. L. Whiting, Buckle, L. Wilson, Buckle tongues, making, W. F. Osborne, Butter worker, Howell & Cole, Button, C. E. Bates, Cans, locking, sealing, etc., milk, P. Shaw, Car coupling, C. Gifford, Car coupling, J. Lahmeyer, Car door fastening, B. F. Jackson, Car platforms, fender for, A. Hance, Car, street, W. L. Everitt, Cars, heater for railway, A. S. Brownell, Cars, draw bar for railway, J. R. Fish, Carpet sweeper, Gore & Edgecomb, Carriage running gear, R. R. Miller, Carriage top, Grinnell & Bulckens, Carving machines, bit for, C. F. H. Huff, Chains, making ornamental, J. E. Orry, Chair, barber's, J. W. Coffey, Chair, barber's, J. M. Worlidge, Chair bottom, Woodbury & Gray, Chair, child's convertible, G. M. Patten, Chair, dental, W. S. How, Chair, opera, R. Mitchell, Chair pad, P. W. Pratt, Churn dasher, C. Friedeborn, Clasp, P. F. Tunny, Clothes drier, Benstine & Osborn, Coat facing, M. C. Swift, Coffee pot, H. Nutrizio, Colter, rolling, A. H. Burlingame, Cooler, milk, M. S. Allyn, Cooler, milk, Hill & Prentice, Cork cutting machine, J. Plesco, Cork extractor, W. W. Tucker, Cotton cleaning machine, R. H. Shotwell, Crochet machine, S. L. Otis, Cultivator, R. K. Niece, Cultivator, J. Smith, Currycomb, C. W. Paget, Curtain fixture, O. Steinhofner, Cutting gauge, S. Elliott, Dashes, apparatus for making, J. E. White, Dental engines, motor for, A. H. Best, Dental plate, B. M. Wilkerson, Door hanger, S. H. & E. Y. Moore, Draught equalizer, C. Leach, Eggs, preserving, Reden & Thole, Electrode for electric lights, O. Lugo, Electrotyping shells, pan for backing, M. Crane, Engine, reciprocating, E. Baines, Engine, wind, W. A. Aldrich, Eye shade, J. B. Ricketts, Fare controller, conductor's, C. F. Peck, Fare register, W. H. Hornum, Faucet, E. Duchamp, Feed bag, T. & J. Hawkes, Feed water heater, etc., J. C. Stead, Fence post, E. S. Sanford, Fences, barbed wire for, J. Brotherton, Firearm, breech-loading, W. Soper, Firearm, magazine, W. Trabue, Fire escape, E. M. Ball, Fishing rod joint, H. L. Leonard, Frame structures, erecting, S. R. King, Fruit drying oven, Lippy & Linn, Furnace, puddling, W. L. McNair, Furnace, wood burning, H. A. Wood, Gas apparatus, J. Hanlon, Gas fixtures, extension slide for, W. H. Sheppard, Gate, J. T. Garrett, Glass, hardening, etc., F. Siemens, Glass vessels, mould for blowing, J. W. Haines, Glove, boxing, A. C. Butts, Governor and cut-off for engines, D. O. Ladd, Grader, road, A. Donason, Grain binder, G. T. Gifford, Grain binders, spool and take up for, S. D. Locke, Grain meter, H. Snider, Grain spout register, J. Miller, Gun, machine, H. R. Leonard, Gun sight, H. Rowell, Hame fastener, D. Free, Harmonica, T. Meinhold, Harness trimming, M. E. Zeller, Harrow, S. Elliott, Harrow, rotary, S. Hartman, Harvester guard finger, H. R. Fuller, Hat holder, R. O. Dunning, Hinge, S. M. Wade, Hoisting apparatus, O. S. Presbrey, Hoisting jack, R. O. Keefe, Hoop, J. B. Dougherty, Horse detacher, W. G. Cummins, Horseshoe, J. C. Hamilton, Horseshoe calk sharpener, J. M. Hunter

Table listing various inventions such as Horseshoe nail plates, etc., rolling, D. Fraser, Jr., Kiln, lime, etc., P. F. Mabile, Knitting machine burr, W. H. Carr, Lantern, Cash & Baron, Lantern, J. A. Cowles, Lantern, E. S. Ritchie, Latch, D. C. Geer, Latch, B. R. White, Letters, thumb stall for sorting, J. S. Boyer, Lock, permutation, S. A. Mann, Loom picker, A. Holbrook, Loom picking motion, L. B. Howland, Lumber edging machine, M. J. Egery, Metals from solutions, separating, J. Tunbridge, Milk, device for skimming, R. Lapham, Millstone exhaust apparatus, S. L. Dean, Oil cloth, floor, T. Potter, Ore separator, P. Plant, Packing, piston, G. Dryden, Packing valve stems, Luckett & Belanger, Paper bag machine, O. W. Allison, Passenger register, Fowler & Lewis, Pendulum, F. A. Lane, Pigment, W. Prescott, Pipe, sheet metal, G. W. Ketcham, Plane, bench, H. A. Foss, Planters, attachment for corn, G. L. Rider, Plow, J. Long, Plowshare or point, J. Long, Plow, sulky, S. Dixon, Plow, sulky, J. B. Fisher, Plow sulky, D. O. Fosgate, Plow, sulky, D. W. Palmer, Pump, J. S. Adams, Pump, H. Cadwalader, Pump, steam, J. A. Burnap, Pump valve, J. Watson, Railway tie, W. E. Curtiss, Railway track, portable, F. B. & R. M. Miles, Ratchet wheel mechanism, F. J. Ribble, Roofing and paving pitch kettle, G. W. Evans, Roofing slates, securing, L. E. Gannon, Rowlock, F. Gould, Sadiron, Moores & Shepherd, Sand papering machine, J. Taylor, Sawing machine, scroll, W. F. & J. Barnes, Scale beam, H. L. Grisell, Scales, platform weighing, J. F. Milligan, Seeding machine, J. D. Harrison, Sewer trap, J. Clark, Sewer trap, W. A. Pitt, Sewing machine braid guide, E. T. Thomas, Sewing machine, straw braid, W. Menkhoff, Sewing machine thread cutter, F. Flather, Sewing machine treadle movement, P. F. Jonte, Shearing, etc., metals, machine for, H. O'Neill, Shoe soles, napping the fibers of, F. Winslow, Shutter, A. Bijur, Sieve, H. H. Water, Spinning rings, etc., device for, C. E. Trowbridge, Sprinkler, lawn, T. Maguire, Steam gauge, C. R. Vaillant, Stocking supporting clasp, L. Loebenstein, Stove, coal oil, J. M. Adams, Stove, cooking and heating, C. A. Hamlin, Stoves, shaking grate for, W. Miller, Straw cutter, T. E. Marable, Straw cutter, J. S. & J. Matthews, Sulky, D. Bushor, Telegraph, duplex, T. A. Edison, Thill coupling, H. E. Braunfeld, Tiles, etc., ear for drain, Arnold & McGuire, Tool and handle, farmers', A. T. Clark, Tool handle, D. Steele, Tool handle attachment, G. P. Morrill, Torpedo for oil wells, H. L. Porter, Tortoise shell, imitation of, A. Miller, Treadle, W. Levin, Type, elastic faced printing, A. H. Rogers, Valve gear, D. O. Ladd, Valve, water, J. Cantelo, Vegetable chopper, T. Leonard, Veneer cutting machine, H. S. Smith, Vise, hollow screw pin, J. Parmelee, Watch cases, center rim for, Pearce & Taft, Water closet valve, W. McElroy, Whiffletree, A. E. Schatz, Whirligig, H. D. Forbes, Wick tube, H. McConnell, Wind wheel, H. F. Hodges, Window cleaner, W. C. Gayton, Wood polishing machine, J. Creager, Wood staining, A. B. Tripler, Wool on the felt, preparing, etc., P. Puech, Wrench, H. V. Brett

Table listing various inventions such as Liquors, Rosskam, Gerstley & Co., Lumber, G. Bell & Sons, Paints and colors, A. Levesque, Preparations of cocoa, J. Epps & Co., Refined petroleum, Bowring & Archibald, Spool cotton, W. Warren, Wagons, carriages, etc., R. M. Stivers

DESIGNS. Carpeting, E. Pettit, Coffin handles, W. R. McComas, Playing cards, J. W. Nunen, Plug tobacco, Gravely & Lawson, Spoons, H. W. Hirschfeld

English Patents Issued to Americans.

From September 13 to September 24, inclusive. Air compressor—W. F. Garrison, Brooklyn, N. Y. Arbor for spinning machine.—A. W. C. Williams et al., Hartford, Conn. Breech-loading arms.—J. Blumel, San Francisco, Cal. Brush binder.—M. W. Marsden, Connellsville, Pa. Door knobs.—J. F. Peacock et al., Reno, Nevada. Electric conductors.—E. F. Phillips, Providence, R. I. Fare register.—C. B. Harris, New York city. Glass targets.—C. A. Tatum, New York City. Horseshoe machinery.—J. W. Chesnut, Pomeroy, Ohio. Marine engine governor.—J. A. Svedberg, Washington, D. C. Mowers.—C. H. McCormick, Chicago, Ill. Ore separator.—E. B. Hastings et al., Palmer, Mass. Paper machinery.—I. Frank, New York City. Pulley block.—J. L. Pope, Cleveland, Ohio. Rail joint.—J. L. Pope, Cleveland, Ohio. Railway switch.—J. S. Williams, Riverton, N. J. Railway truck.—E. R. Esmond, New York city. Show case.—J. H. Smith, Brooklyn, N. Y. Spinning frames.—G. D. Edmonds, Milford, Mass. Stamp canceler.—R. Smeaton, Milwaukee, Wis. Thills and harness.—R. B. Boynton, West Townsend, Mass. Tongas.—W. L. Lay, Oil City, Pa. Turbines.—J. H. Lidgerwood, New York City. Veneer cutters.—H. S. Smith, N. Y.

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