

(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.

Accordion, T. Meinhold 207,759, 207,760 Auger handle, Lovett & Gibson 207,667 Axle skein, vehicle, C. A. Poland 207,677 Baby walker, L. Want 207,698 Bag framing machine, R. W. Chapman 207,714 Bale tie, W. G. Anderson 207,703 Bale tie, C. Lester 207,749 Basin trap, W. Vanderman 207,632 Bed bottom, W. W. Maughlin 207,758 Bed slat coupler, L. J. A. Roswall 207,776 Beehive, C. W. Gale 207,731 Belting for wool washers, F. G. Sargent 207,626 Bending wood, H. C. White 207,635 Blower for blacksmiths' forges, W. H. Rankin 207,775 Boiler, sectional steam, W. H. Page 207,771 Boiler, steam, W. M. Kilgore 207,662 Boilers, steam generator, etc., for, E. G. Good 207,732 Books, leaf holder for, F. C. Gerard 207,601 Boot and shoe sole, H. C. Goodrich 207,602 Boot and shoe sole finisher, F. E. Larrabee 207,610 Boot, plowman's, J. H. Walker 207,733 Box and fastening, G. W. Bradley 207,642 Brush and blacking box holder, W. H. Andruss 207,704 Brushes, making, J. L. Whiting 207,786 Buckle, L. Wilson 207,787 Buckle tongues, making, W. F. Osborne 207,769 Butter worker, Howell & Cole 207,742 Button, C. E. Bates 207,706 Cans, locking, sealing, etc., milk, P. Shaw 207,627 Car coupling, C. Gifford (r) 8,392 Car coupling, J. Lahmeyer 207,663 Car door fastening, B. F. Jackson 207,605 Car platforms, fender for, A. Hance 207,736 Car, street, W. L. Everitt 207,736 Cars, heater for railway, A. S. Brownell 207,727 Cars, draw bar for railway, J. R. Fish 207,761 Carpet sweeper, Gore & Edgecomb (r) 8,397 Carriage running gear, R. R. Miller 207,734 Carriage top, Grinnell & Bulckens 207,743 Carving machines, bit for, C. F. H. Huff 207,672 Chains, making ornamental, J. E. Orry 207,593 Chair, barber's, J. W. Coffey 207,730 Chair, barber's, J. M. Wolridge 207,789 Chair bottom, Woodbury & Gray 207,621 Chair, child's convertible, G. M. Patten 207,711 Chair, dental, W. S. How 207,764 Chair, opera, R. Mitchell 207,680 Chair pad, P. W. Pratt 207,737 Chair, P. H. Height 207,737 Churn dasher, C. Friedeborn 207,652 Clasp, P. F. Tunny 207,694 Clothes drier, Benstine & Osborn 207,586 Coat facing, M. C. Swift 207,629 Coffee pot, H. Nutrizio 207,768 Colter, rolling, A. H. Burlingame 207,589 Cooler, milk, M. S. Allyn 207,584 Cooler, milk, IIII & Prentice 207,738 Cork cutting machine, J. Plesco 207,772 Cork extractor, W. W. Tucker 207,631 Cotton cleaning machine, R. H. Shotwell 207,770 Crochet machine, S. L. Otis 207,707 Cultivator, R. K. Niece 207,767 Cultivator, J. Smith 207,778 Currycomb, C. W. Paget 207,673 Curtain fixture, O. Steinhofner 207,690 Cutting gauge, S. Elliott 207,597 Dashes, apparatus for making, J. E. White 207,785 Dental engines, motor for, A. H. Best 207,707 Dental plate, B. M. Wilkerson 207,699 Door hanger, S. H. & E. Y. Moore 207,765 Draught equalizer, C. Leach 207,611 Eggs, preserving, Reden & Thole 207,623 Electrode for electric lights, O. Lugo 207,753, 207,754 Electrotyping shells, pan for backing, M. Crane 207,645 Engine, reciprocating, E. Baines 207,639 Engine, wind, W. A. Aldrich 207,701 Eye shade, J. B. Ricketts 207,624 Fare controller, conductor's, C. F. Peck 207,675 Fare register, W. H. Hornum 207,740 Faucet, E. Duchamp 207,646 Feed bag, T. & J. Hawkes 207,658 Feed water heater, etc., J. C. Stead 207,779, 207,780 Fence post, E. S. Sanford 207,685 Fences, barbed wire for, J. Brotherton 207,710 Firearm, breech-loading, W. Soper 207,689 Firearm, magazine, W. Trabue 207,782 Fire escape, E. M. Ball 207,705 Fishing rod joint, H. L. Leonard 207,665 Frame structures, erecting, S. R. King 207,746 Fruit drying oven, Lippy & Linn (r) 8,398 Furnace, puddling, W. L. McNair 207,669 Furnace, wood burning, H. A. Wood 207,788 Gas apparatus, J. Hanlon (r) 5,402 Gas fixtures, extension slide for, W. H. Sheppard 207,687 Gate, J. T. Garrett 207,600 Glass, hardening, etc., F. Siemens (r) 8,399, 8,400 Glass vessels, mould for blowing, J. W. Haines 207,656 Glove, boxing, A. C. Butts 207,591 Governor and cut-off for engines, D. O. Ladd 207,608 Grader, road, A. Donason 207,594 Grain binder, G. T. Gifford 207,655 Grain binders, spool and take up for, S. D. Locke 207,612 Grain meter, H. Snider 207,638 Grain spout register, J. Miller 207,618 Gun, machine, H. R. Leonard 207,747 Gun sight, H. Rowell 207,684 Hame fastener, D. Free 207,729 Harmonica, T. Meinhold 207,616 Harness trimming, M. E. Zeller 207,791 Harrow, S. Elliott 207,725 Harrow, rotary, S. Hartman 207,657 Harvester guard finger, H. R. Fuller 207,730 Hat holder, R. O. Dunning 207,722 Hinge, S. M. Wade 207,697 Hoisting apparatus, O. S. Presbrey 207,661 Hoisting jack, R. O. Keefe 207,661 Hoop, J. B. Dougherty 207,721 Horse detacher, W. G. Cummins 207,718 Horseshoe, J. C. Hamilton 207,608 Horseshoe calk sharpener, J. M. Hunter 207,744

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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. Edmunds, 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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