

## ENGINEERING INVENTIONS.

An alarm for railway trains has been patented by Messrs. George E. Carpenter and Albert F. Tucker, of Jersey City, N. J. Electrical connections are made between each car of the train that the accidental separation of any of the cars will be signalled to the engineer, and also to the caboose, when used on freight trains.

A railway tricycle has been patented by Mr. William Hayes, of Los Angeles, Cal. The invention consists of a trailing wheel free to swing within certain limits, and without flanges, with a seal placed at right angles to the main wheels, the object being to avoid friction of the flanges of the wheels on curves, as well as on straight tracks.

A rail joint has been patented by Messrs. Maria E. Lewis and Carlton A. Dodge, of Orange City, Iowa. The fastening consists of a sectional fishplate, one section being apertured and having inclined recesses or notches, and the other having inclined projections and longitudinal slots with enlargements, a double-headed bolt with one head of greater diameter than the other, and a wedge, with other novel features.

A car coupling has been patented by Messrs. George C. McKitterick, Thomas R. Morgan, and John J. McKitterick, of Jackson, Ohio. The drawhead has a link chamber, and an upper longitudinal slot and groove connected therewith, with other novel details, besides a coupling dog of novel construction, the coupling being also for use with cars having the ordinary pin and link coupling.

A car axle box has been patented by Mr. Stephen R. Stinard, of Pompton, N. J. The principle of the invention is giving a support to oiled waste or similar material quite closely to the axle journal, in such manner that settling or packing will not cause it to leave the journal, but rather to bear all the more closely, to insure constant lubrication without waste of the lubricant.

## AGRICULTURAL INVENTIONS.

A combined pulverizer and plow has been patented by Mr. Daniel W. Evans, of Sims, Dakota Ter. Combined with the plow is a series of vertically adjustable colters, with a series of narrow plows extending between the colters, with pulverizing devices between the colters and main plow, and other novel features, to cut the furrow slices into strips, pulverize them, and then turn them under.

A check row corn planter has been patented by Messrs. John F. Scott and Oliver W. Chesnut, of Templeton, Ind. It is so made that the seed-dropping mechanism and the markers will be operated by the revolution of the axle, while the mechanism can be readily thrown out of gear, and the markers readily adjusted, should the rows get out of line, so that the planting can be done in accurate check row.

A potato planter has been patented by Mr. Charles C. Maves, of East Davenport, Iowa. It is a machine in which the mechanism for gathering and depositing the potato seed is carried by an auxiliary frame whose position is easily controlled by means of a lever, and the machine is so constructed that the potatoes may be planted either in hills or drills, and that the space between the hills may be varied, as also the distance between the seed, when the potatoes are planted in drills.

## MISCELLANEOUS INVENTIONS.

A sign has been patented by Mr. George H. Kitchen, of New York city. This invention relates to illuminated signs where opal glass is used to form the letters, and glass ball eyes for ornamenting, and consists in the means of holding the ball eyes in place in the body of the sign, and in the means of forming the letters with the glass.

A steam generator has been patented by Mr. William P. Crater, of Salamanca, N. Y. It consists of two water tanks placed one above another, connected by pipes and surrounding a fire grate, fire pot, and air feeder, with a peculiar draught arrangement, being simple in construction and designed to generate steam rapidly without using much fuel.

An elevator and perambulator for invalids has been patented by Margaret Hammond, of Port Madison, Washington Territory. It consists of a main frame with wheels, elevating devices, frames or bars with wheels and clamps, and other novel features, whereby a patient can be raised from bed and carried to any part of the house on the arms of the machine, or, by applying the large wheels, can be conveyed a distance or over rough roads.

An article of jewelry has been patented by Mr. Jethro C. Cottle, of New York city. This invention covers an improvement in ornamental pins for neck scarfs, handkerchiefs, etc., embodied in the form of an insect or bird made of gold, silver, or other suitable metal, the feet or claws serving to attach the pin, which is acted on by a concealed spring, the wings serving as levers to overcome the tension of the spring, to separate the claws, to detach the article from clothing.

A gas burner attachment has been patented by Mr. Francis E. Mills, of Pittsburgh, Pa. The invention consists in enclosing the broad thin sheet of flame of a burner, for one-third or more of its height, with an oblong or elongated cage, the two sides opposite the flat sides of the flame having small interstitial perforations, through which air is drawn in against the flame, the ends opposite the edges of the flame being closed.

A gate hinge has been patented by Mr. David J. Olinger, of Anson, Tex. The upper hinge may be of any suitable construction permitting the gate to rise slightly on being operated, but the base hinge is made with a dish-like attachment to the post, the hinges of which on either side have to be traveled by a section attached to the gate as the latter is opened or shut, there being also notches on either side of the post attachment which hold the gate in position when fully opened.

## Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Metallic Pattern Letters and Figures to put on patterns of castings. Knight & Son, Seneca Falls, N. Y.

Wanted—To open negotiations with some party or firm who control and are now engaged in, or wish to become engaged in the manufacture of good salable articles that consume steel in quantities. One having an established business that could be moved would be preferred. The location would command the very best natural gas and railroad facilities, and is near a steel works that has been using the gas for years. Parties offering something to be made of steel that would be new and salable will be considered. Address C. T. S., P. O. box 181, Pittsburgh, Pa.

Wanted—To manufacture on royalty patented articles capable of being made in tin or other light metals. Beardon & Ennis, 811 River Street, Troy, N. Y.

Territorial rights in thoroughly tested process for making stone, brick and marble. Strongest testimonials. More than five years' test in Chicago, Baltimore, and elsewhere. Immense profits. Address Weems Stone and Marble Co., 124 Dearborn St., Chicago, Ill.

The Wonderful Success of Claremont Colony is due to the unusual inducements offered by J. F. Mancha, Claremont, Va.

"Some said, 'John, print it!' others said, 'Not so.' Some said, 'It might do good!' others said, 'No.'" If the discoverer of Dr. Sage's Catarrh Remedy had shared the senseless prejudices of a certain class of physicians, he would have refused to print the good news, to proclaim to the world the glorious tidings that an infallible remedy for that most loathsome disease, catarrh, had been discovered. But he advertised liberally, and the result has justified him in the course he pursued. Dr. Sage's Catarrh Remedy never fails. All druggists.

Link Belting and Wheels. Link Belt M. Co., Chicago. For Sale—Shop, Foundry, Boiler, Engine, etc. Price, \$2,800. Address Plow Works, Ghent, N. Y.

Mechanic's Own Book. Full instructions for drawing, casting, founding, forging, soldering, carpentry, carving, polishing wood and metals, turning, reaming, etc. 702 pages; 1,420 illustrations. \$2.50, post paid. E. & F. N. Spohn, 35 Murray St., N. Y.

Boilers for sale—Excellent, rebuilt, second-hand.

Plain Tubular, Horizontal Boilers.  
One 100 H. P., 6' x 17', 3" tubes, \$650.  
Two 80 H. P., 6' x 17', 3" tubes, each, \$550.  
Two 75 H. P., 4 1/2' x 15', 3" tubes, each, \$525.  
Two 60 H. P., 4 1/2' x 15', 3" tubes, each, \$400.  
Three 60 H. P., 4' x 15', 3" tubes, each, \$300, \$325, and \$350.  
Four 45 H. P., 4' x 15', 3" tubes, \$275, \$300, \$325, and \$350.  
One 40 H. P., 4' x 15', 3" tubes, \$275.  
One 30 H. P., \$200.

Vertical Boilers.  
Three 150 H. P., Corliss, 2" tubes, each \$300.  
Three 125 H. P., 2" submerged tubes, each, \$275.  
One 100 H. P., 2" tubes, \$250.  
One 60 H. P., 2 1/2" tubes, \$400.  
One 25 H. P., 2 1/2" tubes, \$300.

Locomotive Fire Box Patterns.  
Three 100 H. P., 4" tubes, \$500, \$550, and \$600.  
Three 80 H. P., 3 1/2" tubes, \$450, \$500, and \$550.  
Five 80 H. P., 3 1/2" tubes, \$600 each.  
One 60 H. P., 3" tubes, \$575.

Engines and boilers, portable and stationary; wood-working and general machinery. Send for estimates, stating exactly what you want. W. E. Drew, agent B. C. Forsyth Mach. Co., Manchester, N. H.

The Railroad Gazette, handsomely illustrated, published weekly, at 73 Broadway, New York. Specimen copies free. Send for catalogue of railroad books.

Friction Clutches from \$2.25 on. J. C. Blevney, Newark, N. J.

Protection for Watches.  
Anti-magnetic shields—an absolute protection from all electric and magnetic influences. (Can be applied to any watch. Experimental exhibition and explanation at "Anti-Magnetic Shield & Watch Case Co.," 18 John St., New York. F. S. Giles, Agt., or Giles Bros. & Co., Chicago, where full assortment of Anti-Magnetic Watches can be had. Send for full descriptive circular.

Complete Practical Machinist, embracing lathe work, vice work, drills and drilling, taps and dies, hardening and tempering, the making and use of tools, tool grinding, marking out work, etc. By Joshua Rose. Illustrated by 356 engravings. Thirteenth edition, thoroughly revised and in great part rewritten. In one volume, 12mo, 450 pages. \$2.50. For sale by Munn & Co., 351 Broadway, New York.

Concrete patents for sale. E. L. Ransome, S. F., Cal. Woodworking Machinery of all kinds. The Bental & Markedant Co., 116 Fourth St., Hamilton, O.

A Catalogue on the Locomotive. By M. N. Forney. With 19 plates, 22 engravings, and 800 pages. \$2.50. Sent on receipt of the price by Munn & Co., 351 Broadway, New York.

Quill & Garrison's Steam Pump Works, Brooklyn, N. Y. Pumps for liquids, air, and gases. New catalogue now ready.

The Knowles Steam Pump Works, 44 Washington St., Boston, and 38 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

Presses & Dies. Ferrante Mach. Co., Bridgeton, N. J. Nickel Plating—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions, etc. \$100 "Little Wonder." A perfect Electro Plating Machine. Sole manufacturers of the new Dip Lacquer Kristalline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

Iron Planer, Lathe, Drill, and other machine tools of moderate size. New Haven Mfg. Co., New Haven, Conn.

Wrinkles and Blemishes. Compiled from the SCIENTIFIC AMERICAN. A collection of Practical suggestions, processes, and directions for the Mechanic, Engineer, Farmer, and Housekeeper. With a Color Tempering Scale, and numerous wood engravings. Revised by Prof. Thynston and Vander Weyde, and Engineers Buel and Rose. 12mo, cloth, \$1.00. For sale by Munn & Co., 351 Broadway, New York.

The Improved Hydraulic Jacks, Pumps, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

If an invention has not been patented in the United States for more than one year, it may still be patented in Canada. Cost for Canadian patent, \$40. Various other foreign patents may also be obtained. For instructions address Munn & Co., SCIENTIFIC AMERICAN patent agency, 351 Broadway, New York.

Curlic Pressure Regulator and Steam Trap. See p. 142. New Portable & Stationary Centering Chucks for rapid centering. Price list free. Cushman Chuck Co., Hartford, Conn.

Holting Engines. D. Friebie & Co., New York city. Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 28.

Supplement Catalogue.—Persons in pursuit of information of any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Catarth Cured.  
Acoleryman, after years of suffering from that loathsome disease, catarrh, and vainly trying every known remedy, at last found a prescription which completely cured and saved him from death. Any sufferer from this dreadful disease sending a self-addressed stamped envelope to Dr. Lawrence, 212 East 9th St., New York, will receive the recipe free of charge.

Iron and Steel Wire, Wire Rope, Wire Rope Trams. Trenton Iron Company, Trenton, N. J.

Lick Telescope and all smaller sizes built by Warner & Swasey, Cleveland, Ohio.

Send for catalogue of Scientific Books for sale by Munn & Co., 351 Broadway, N. Y. Free on application.

## TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent law of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 351 Broadway, New York.

## INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

December 14, 1886,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Advertisement card, T. W. Bartholomew..... 354,174  
Advertisement card, W. Homan..... 354,138  
Agricultural implement, J. M. Landes..... 354,824  
Air or other gases, automatic hydraulic compressor of, H. C. Boff..... 354,487  
Air ventilator, warm fresh, A. MoArthur..... 354,162  
Alarm. See Railway train alarm.  
Annunciator, electrical, G. E. Painter..... 354,289  
Anti-wind clamp, horsehoe, J. A. Richards..... 351,236  
Asbestos sheet, R. H. Martin..... 354,158  
Auger, earth, J. S. Stephen..... 354,266  
Axle bearings, composition of matter for the manufacture of, G. F. Godley..... 354,126  
Axle box, car, L. Pängst..... 354,219  
Axle box, car, S. R. Stinard..... 354,448  
Ballot press, H. Purrier..... 354,517  
Ballon, O. U. Hartung..... 354,413  
Ballot boxes, registering and cancelling mechanism for, W. T. Butler..... 354,180  
Batteries. See Galvanic battery. Secondary battery.  
Beartrap, O. Gravel..... 354,470  
Beating for velocipedes, J. Knoss..... 354,511  
Beef press, corned, C. Koerber..... 354,512  
Beer apparatus, pressure regulator for, J. G. Mueller..... 354,482  
Bell, door, F. Sanderson..... 354,351  
Blender, automatic, Whiteley & Bayley..... 354,286  
Bit. See Bridge-bit.  
Bit holder, R. W. Perry..... 354,485  
Blackening stand or case, J. C. Bicen..... 354,175  
Blower, fireplace, H. F. Baker..... 354,173  
Blowing engine, P. L. Wetmer..... 354,279, 354,453  
Board. See Guide board. Washboard.  
Boiler. See Locomotive boiler. Steam boiler.  
Wash boiler.  
Bolt blanks, machine for threading and pointing. E. N. Beecher..... 354,089  
Book covers, mechanism for lettering, C. H. Shrader..... 354,253  
Boot, M. E. Kaber..... 354,380  
Boot or shoe sole, W. W. Reid..... 354,232  
Boot or shoe vamp, R. G. Salomon..... 354,349  
Booster shoe, rubber, J. L. Thomson..... 354,496  
Boots, attaching wear points to rubber, J. L. Thomson..... 354,495  
Boots or shoes, making sewed, G. W. Willey..... 351,289  
Boring machine, J. P. Burnham..... 354,179  
Bottle stopper, B. E. Dorwart..... 354,106  
Bottle washing machine, Stotz & Heusch..... 354,492  
Box. See Axle box. Butter box.  
Box, M. Marx..... 354,159  
Bracelet clasp, K. Wallinger..... 354,278  
Bracket. See Lamp bracket.  
Brake. See Railway brake. Self-acting brake.  
Sewing machine brake. Vehicle brake.  
Brick machine, J. Creaker..... 354,464  
Brick machine, W. L. Gregg..... 354,129, 354,187  
Brick machine, C. W. Raymond..... 354,226  
Bridges, guard for pivot or swing, W. Deveraux..... 354,405  
Bridle bit, G. M. Hubbard..... 354,474  
Bridle bit, G. M. Hubbard..... 354,263  
Bucket, milk, G. C. Bovey..... 354,384  
Buckle, back band, L. Hewitt..... 354,417  
Bullet mould, A. Jewett..... 354,422  
Burner. See Gas burner. Lamp burner.  
Butter box, J. N. Hayes..... 354,415  
Butterworker, E. W. Cronch..... 354,504  
Buttner, C. E. Cooverly..... 354,306  
Button, collar or cuff, H. H. Summa..... 354,421

Button fasteners, packing case for, F. H. Richards..... 354,234, 354,235  
Buttonhole stitching machines, cropping mechanism for, H. H. Cummings..... 354,103  
Can watering machine, Merrell & Lennox..... 354,308  
Candy, Christmas tree, C. Grimm..... 354,309  
Cane, stripping and cleaning saw, H. A. Hughes..... 354,510  
Car coupling, J. Booth..... 354,301  
Car coupling, W. H. Kaltenbeck..... 354,371  
Car couplings, G. C. McKitterick et al..... 354,285  
Car couplings, link lifter for, J. H. Huber..... 354,478  
Car platform, F. D. Spalding..... 354,443  
Car seat, E. B. Goslet..... 354,127  
Car wheel, Peckham & Lams..... 354,214  
Cars, grip for traction, J. S. Luke..... 354,479  
Carbon conductors, manufacture of, T. A. Edison..... 354,810  
Card, fancy show, C. Kernitz..... 354,152  
Card for playing games, H. C. Kirk..... 354,424  
Carriage and wagon jack, Bower & Evans..... 354,386  
Carriage jack, G. C. Bovey..... 354,382  
Cartridge extractor, J. C. Macmillan..... 354,157  
Cartridge loading machine, J. E. Steele..... 354,384  
Cartridge pack, reloading, D. B. Wesson..... 354,454  
Cash register, T. Munnell..... 354,483  
Casting, core for, J. R. Whitney..... 354,287  
Chain, W. A. Peck..... 354,438  
Chair. See Photographer's chair. Piano chair.  
Railway chair.  
Chart, anatomical, J. T. White (r)..... 10,780  
Cheese cutting device, H. M. Handahy..... 354,410  
Cheese making apparatus, F. Gebhardt..... 354,314  
Chopper. See Cotton chopper.  
Chuck, lathe, A. H. Stetson..... 354,268  
Cigar bunching machine, W. M. Steidle..... 354,444  
Cigar machine, W. M. Steidle..... 354,491  
Clamp. See Floor clamp. Rubber dam clamp.  
Clasp. See Bracelet clasp.  
Cleaner. See Horse and cattle cleaner.  
Clock, B. F. Flint..... 354,123  
Clock, calendar, S. W. Ralph..... 354,346  
Clocks, circuit breaker for electric, V. Himmer..... 354,526  
Clod crusher, pulverizer, and seeder, D. Lubin..... 354,513  
Closet. See Water closet.  
Clutch, friction, E. L. Street..... 354,494  
Clutch, friction, E. Salomon..... 354,462  
Cock, stop and waste, J. H. Johnson..... 354,148  
Coffee pots, float and percolator for, M. Sheahan..... 354,490  
Coffin, A. E. Rank..... 354,437  
Collar, horse, I. Bergman..... 354,317  
Commode, arm, C. G. Udell..... 354,364  
Condenser for pyroigneous acid, J. A. Mathien..... 354,330  
Cooker, steam, H. P. Roberts..... 354,240  
Copper matte, treating and desilverizing, J. J. & R. Crooke..... 354,182  
Corn sheller, C. Roberts..... 354,529  
Corset fastening, C. K. Pevey..... 354,219  
Cotton gins, combined feeder and hopper for, J. P. Ketteringham..... 354,523  
Cotton chopper, J. W. Rykard..... 354,519  
Cotton press, A. D. Thomas..... 354,270  
Coupling. See Car coupling. Thill coupling. Vehicle coupling.  
Crusher. See Clod crusher.  
Cuff fastener, T. E. Barrow..... 354,572  
Cuff fastener, S. P. Willcox..... 354,288  
Cuff holder, F. J. Hall..... 354,471  
Cultivator, D. M. Bourne..... 354,381  
Cultivator, G. W. Brown..... 354,388, 354,389  
Cultivator, J. F. Smith..... 354,380  
Curtain fixture, C. Wohlers..... 354,269  
Cutting and forming machine, rotary, H. Mortenson..... 354,188  
Cyclometer, G. H. Gould..... 354,128  
Dam, subterranean water collecting, D. H. Valentine..... 354,276  
Dampers, apparatus for opening and closing, R. J. Flinn..... 354,512  
Dandy roll, W. H. Pool..... 354,488  
Direct-acting engine, C. C. Worthington..... 354,524  
Dish washer, C. B. Saunders..... 354,246  
Ditching and grading machine, H. Henderson..... 354,136  
Door check, A. McNicol..... 354,536  
Doors, device for lifting, H. Busalng..... 354,461  
Door plate, Johnson & Mosher..... 354,156  
Door spring, F. L. Becker..... 354,087  
Draught equalizer, W. H. Randall..... 354,225  
Drill stock, R. J. Baker..... 354,065  
Drying apparatus, J. H. Lorimer..... 354,199  
Dyeing apparatus, L. Weldon..... 354,281  
Easel, plaque, S. B. Pay..... 354,211  
Eaves trough and gilder therefor, B. S. Baker..... 354,272  
Electric circuits, resistance block for, M. M. M. Slatery..... 354,257  
Electric out-out, C. Rehwel..... 354,466  
Electric lighting systems, distributing appliance for, E. W. Rice, Jr..... 354,233  
Electric machine, regulator, dynamo, E. Thomson..... 354,273  
Electric machines, armature for dynamo, D. Williamson..... 354,282  
Electric motor, N. H. Edgerton..... 354,111  
Electrical conductor, E. H. Johnson..... 354,320  
Electrical conduit, underground, B. Williams..... 354,290  
Electrical distribution, apparatus for, M. M. M. Slatery..... 354,258  
Electricity by means of secondary batteries, apparatus for the distribution of, E. Thomson..... 351,272  
Elevator cars, safety attachment for, C. R. Whittier..... 354,306  
End gate, W. A. Phares..... 354,241  
End gate, wagon, W. Beckwith..... 354,098  
Engine. See Blowing engine. Direct-acting engine. Pumping engine.  
Engines, apparatus for stopping, Fothergill & Briggs, Jr..... 354,468  
Explosives, composition for neutralizing fumes of, T. Price..... 354,345  
Extractor. See Cartridge extractor.  
Eyeglasses, G. W. Haswellund..... 354,317  
Faure, bottle, C. T. Jones..... 354,150  
Feed water heater, W. Herd..... 354,194  
Feed water heater, H. Wilson..... 354,293  
Feed water regulator, Cook & Thoms..... 354,099  
Feeder, time stock, L. DeGuenant..... 354,308  
Fence, M. J. Gordon..... 354,405  
Fence coupler, wire, W. M. Clow..... 354,096  
Fence, food, G. W. Martin..... 354,301  
Fence gate, wire, W. M. Clow..... 354,095  
Fence machine, wire, Fletcher & Tatum, Jr..... 354,118  
Fender, B. V. Butts..... 354,501  
Fibers from leaves, etc., machine for obtaining, G. Sanford..... 354,244  
Filter, J. W. Hyatt..... 354,143  
Firearm, magazine, G. E. Albee..... 354,371  
Firearm, magazine, W. Mason..... 354,327 to 354,329, 351,277  
Fire escape, F. B. Peters..... 354,217  
Floor clamp, J. P. Hill..... 354,418  
Flue cap, F. E. Heink..... 354,193  
Fine cleaner, adjustable steam, G. G. McLaurin..... 354,204  
Flooding tank, Atkinson & Murphy..... 354,456  
Folding screen, H. C. Tripp..... 354,450  
Foot power stand, C. E. Stevens..... 354,446  
Frame. See Lantern frame.