

ENGINEERING INVENTIONS.

A railway signal has been patented by Mr. David Tapley, of Woodstock, New Brunswick, Canada. It is a semaphore so constructed that the signal may be set at any distance from the station, and operated by a boy over two thousand feet of wire passing around curves, the invention covering various new and useful improvements.

A steam engine has been patented by Mr. Adam Rosenkranz, of Allegheny, Pa. The engine case is formed with four cylinders, set opposite each other in pairs in the form of a cross, and all opening into a common central chamber in which rotates the crank of the engine shaft, being intended to rotate the driving shaft in either direction, operating under control of a single rotary valve, and fitted with ports and a slide valve to allow instant reversal.

MECHANICAL INVENTION.

An auger bit has been patented by Mr. Charles H. Irwin, of Martinsville, Ohio. It has a solid center stem formed with a single convoluted blade, terminating at its lower end in a single chisel on one side of the stem, with a short additional convoluted blade at the same end of the stem, terminating at its outer end in an additional chisel on the opposite side of the stem, making a partially double and a single twist central stem auger bit applicable for hand and machine work.

AGRICULTURAL INVENTIONS.

A check row planter has been patented by Messrs. August F. Tiede and Jarius Wilcox, of Preston, Iowa. The invention covers a novel construction and combination of parts, the machine being intended to space off the dropping of the seed to secure accurate check row planting over uneven ground, and to distinctly mark the earth so that the regularity of the planting may be tested as the work progresses.

A farm gate has been patented by Mr. Philip Ramminer, of Greenwood, Wis. It is so constructed that when the gate swings either way, a toothed plate on the base of the posts intermeshing with a toothed segment on the gate causes the outer end of the gate to rise gradually, in such a way that it will close automatically by the effect of gravity, the construction being simple and the gate swinging very easily.

A combined cotton seed planter and fertilizer distributor has been patented by Mr. John I. Boswell, of near Chase City, Va. The machine has an opening plow, and is so constructed that the seed and the fertilizer will be guided into the bottom of the furrow opened by the plow, the amount of fertilizer discharged being easily regulated, with other novel features, the invention being an improvement on a former patented invention of the same inventor.

MISCELLANEOUS INVENTIONS.

A pocket protector has been patented by Mr. David J. Scott, of Ridgeway, N. C. It is a novel form of cheap and simple device, to attach to a garment without disfiguring it, for retaining the mouth of a pocket in a closed position, preventing the falling out of pencils, cigars, pocket books, etc.

A shirt has been patented by Mr. William B. Brokaw, of Newburg, N. Y. This invention provides an improved mode of uniting the bosom portions over the breast of the wearer, whereby the fastenings may be readily and quickly detached, thereby permitting the shirt to be conveniently washed, free of any obstructions.

A vehicle for delivering coal oil, etc., has been patented by Mr. Charles H. Weygant, of Newburg, N. Y. In connection with a vehicle adapted to carry a tank or barrels is a pump, measuring tank, and hose and reel, by which the liquid may be measured and conveniently transferred to some distance, and delivered above or below the vehicle.

A bookbinder's gold cleaning and saving machine has been patented by Mr. John N. Ives, of Brooklyn, N. Y. Wipers of soft rubber or other suitable material are employed, carried by a rotating frame inclosed in a box or suitable casing to retain the particles of gold removed by the wipers, the invention covering a novel construction, arrangement, and combination of parts.

A chute for cleaning coal has been patented by Mr. Peter F. Henigan, of Pittston, Pa. This invention covers a novel construction and arrangement of the longitudinal bars in a screening chute, providing for the automatic clearance of the slate as well as the culm, making the device a slate picker as well as cleaning chute.

A composition of building material for architectural purposes has been patented by Mr. Carl Straub, of Syracuse, N. Y. It consists of glue, water, boiled linseed oil, and muriatic and sulphuric acids, to be used with calcined sulphate of lime and calcined carbonate of lime, the compounding and use to be in a specially prescribed way.

A fire escape has been patented by Mr. John Dittrick, of Perth, Ontario, Canada. It has a shaft with two drums, cog wheel, and fan governor, and another shaft with cog wheels in combination with a drum and two descending ropes, to be placed in a building near a window frame, and operating so that each descent serves to set the opposite rope ready for another descent.

A hat holder has been patented by Mr. Edmund B. Culver, of Great Barrington, Mass. It consists of a spring strip, a hook, and an elastic band, the latter serving as a connection between the strip and hook in such way that the hat may thereby be suspended from the clothing of the person or from any fixed support.

A guard for windows and doors has been patented by Mr. Alfred Heath, of Jersey City, N. J. It consists of a single wire formed into a series of overlapping loops, with indentations formed at their points of intersection, and with screw-threaded ends and nuts, making an easily detachable guard for windows and the like, to prevent children from falling out, etc.

An air ship has been patented by Mr. James M. Wheeler, of Fish's Eddy, N. Y. It consists of a boat with a mast, and aeroplanes fitted for bodily movement on the mast, with wings adapted to open and close as the planes are reciprocated, combined with a cylinder containing expansive fluid under pressure, with a piston and rod connections therefrom for operating the aeroplanes.

A telephone has been patented by Mr. Charles S. Bell, of Columbus, Ohio. The invention covers a multipolar magnet, composed of a permanent magnet having a longitudinal bore, with a soft iron core inserted therein, and an insulating cylinder of non-magnetic material surrounding the core, with a helix surrounding the parts, in combination with the diaphragm of a telephonic instrument, and is intended to work in any place and way where a telephone connected with a battery can be worked.

Business and Personal.

The charge for insertion under this head 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.

Inventors' and Manufacturers' Exhibition, Boston.—Parties having inventions for sale, wishing to exhibit their goods, address Chas. Babson, Jr., 24 Congress St., Boston, Mass.

For Sale—A good paying saw manufactory business, or a part interest. Address "Saws," P. O. box 77a, New York.

Power, 113 Liberty St., N. Y. \$1 per yr. Samples free. Get estimates from Christiana Machine Co., 206 North 4th St., Philadelphia, Pa., for shafting, pulleys, hangers, and gearing before ordering elsewhere.

An A No. 1 patternmaker wanted. Steady work and first class wages to a good man. Address L. C. & Son, P. O. box 773, New York.

Just Published.—A new and enlarged catalogue of scientific books, furnished free of charge on application by addressing Munn & Co., 361 Broadway, N. Y.

For Sale—Machine shop plant, in operation. Best tools. Address Chas. W. Griggs, 175 Dearborn, Chicago.

Engines and boilers, 1 to 4 H. P. Washburn Engine Co., Medina, O.

The Australian-American Trading Co., 20 Collins St., West Melbourne. Sole agencies for American novelties desired. Correspondence solicited. Care of Henry W. Peabody & Co., Boston.

The Knowles Steam Pump Works, 113 Federal St., Boston, and 93 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.

For the latest improved diamond prospecting drills, address the M. C. Bullock Manf. Co., 163 Lake St., Chicago, Ill.

Link Belting and Wheels. Link Belt M. Co., Chicago.

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

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 Bro. & Co., Chicago, where full assortment of Anti-Magnetic Watches can be had. Send for full descriptive circular.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J. 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.

Woodworking Machinery of all kinds. The Bentel & Margedant Co., 116 Fourth St., Hamilton, O.

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 modern design. New Haven Mfg. Co., New Haven, Conn.

Catalogue of books on civil and mechanical engineering, electricity, arts, trades, and manufactures, 116 pages, sent free. F. & F. N. Spon, 35 Murray St., New York.

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

Curtis Pressure Regulator and Steam Trap. See p. 45.

Cushman's Chucks can be found in stock in all large cities. Send for catalogue. Cushman Chuck Co., Hartford, Conn.

Half interest in foreign patents of an article of universal household utility given for cost of such patents. J. D. H., 3620 Spring Garden St., Philadelphia, Pa.

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

Friction Clutch Pulleys. D. Frisbie & Co., N. Y. city.

Veneer Machines, with latest improvements. Farrell Fdry. Mach. Co., Ansonia, Conn. Send for circular.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv., p. 28.

Automatic taper lathes. Heading and box board machines. Rollstone Machine Co., Fitchburg, Mass.

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 new and complete catalogue of Scientific Books for sale by Munn & Co., 361 Broadway, N. Y. Free on application.

SCIENTIFIC AMERICAN BUILDING EDITION.

MAY NUMBER.

TABLE OF CONTENTS.

1. Plate in Colors of a Country House, in perspective, enlarged and improved at moderate expense, with floor plans, also sheet of details, specifications, bills of estimate, etc. 2. Plate in Colors of a Dwelling at Orange, N. J., with plans, sheet of details, description, etc. 3. The Queen of England's Cottage at Cannes, with half page engraving. 4. A Twenty-five Hundred Dollar Cottage. Page engraving, showing perspective, and floor plans. 5. New Apartment House in Brooklyn, with perspective view and floor plans. 6. A Two Thousand Dollar House, with three-quarter page engravings, including perspective and floor plans. 7. An E stlake Cottage, with elevation and floor plan. 8. The New Law Courts Birmingham, page engraving—a splendid example of recent architecture. 9. Design for Local Offices. Half page engraving. 10. A Double Cottage of Moderate Cost, two pages of engravings, with elevations floor plans, and partial specifications. 11. A Thirty-five Hundred Dollar Cottage, with elevation and floor plans. 12. New Hotel at Mentone, page engraving, showing perspective and plans. 13. A Dwelling of Moderate Cost, page engraving, perspective and floor plans. 14. Design for a Seaside Cottage, perspective view and plans. 15. A Country Church costing \$5,000, a picturesque design in perspective, with floor plan. 16. A Church in Stone, to cost from \$20,000 up. An elegant design, with plans. 17. Shop Fronts in Birmingham, a suggestive and elegant design. 18. The Ponce de Leon Hotel, at St. Augustine, Fla. An elegant and unique specimen of architecture; two engravings. 19. Mode of Raising and Repairing the old U. S. Court House at Boston, with three engravings. 20. The Arch of Triumph at Karlsruhe. Designed by Prof. Gotz. Half page engraving. 21. Design for a Monument and Mausoleum to Gen. Grant, by George Matthias; half page engraving. 22. Miscellaneous Contents: Heating by Hot Water, illustrated.—Architectural Wood Turning, illustrated.—Ruling and Section Lining, illustrated.—Iron Ceilings, with illustrations.—Rust covered Porches, with engraving.—Tin Roofing, with an engraving.—Planning Mill Construction, with diagrams.—Reservoir with Automatic Valve, engraving.—How to make Good Roads.—How to make a Cold Room for Eggs, etc.—New way of building Concrete Walls under Water.—How to remove Paint.—Embossed Wood, how made.—Knottling, and Its Uses.—Strength of Plaster of Paris.—Water Back Explosions.—Stone Filters.—Experiments in Drying Woods.—Shrinking of Seasoned Timber.—Cement Buildings.—The Acropolis of Athens.—Architectural Excellence.—Artificial Rubies.—Gelatine Moulds for reproducing Carvings.—Paper Roofs.—Floors and Ceilings, Ancient and Modern, by C. Powell Karr.—Built-up Doors.—Staining Wood.—Shelter Belts and Hedge Screens. Building Constructions under Water.—How to Finish in Natural Wood.—Best Arrangement of Plumbing.—Bursting of Lead Pipes.—Costs of Different Kinds of Walls.—Imitation Stone.—How to Grain Walnut.

The Scientific American Architects and Builders Edition is issued monthly, \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LARGEST CIRCULATION of any Architectural publication in the world. Sold by all newsdealers.

MUNN & CO., PUBLISHERS, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted April 19, 1887, AND EACH BEARING THAT DATE. [See note at end of list about copies of these patents.] Aerial vessel, J. Neubrand..... 361,442 Air box, cold, Short & Kellogg..... 361,475 Air ship, J. M. Wheeler..... 361,475 Album clasp, W. Lowery..... 361,384 Alkaline phosphates, producing soluble, T. Twynam..... 361,656 Anchor tripping device, W. T. Oliver..... 361,539 Aprons, supporting band for, A. M. Morrison..... 361,537 Auger bit, C. H. Irwin..... 361,522 Axle boxes, dust guard for car, W. S. G. Baker..... 361,255 Axle, car, C. S. Bates..... 361,391 Bag. See Tobacco bag. Bag holder, A. H. Smith..... 361,461 Ball. See Tube welding ball. Bar. See Grate bar. Bayonet, C. Schillo..... 361,328 Beating-out machine, C. E. Holland..... 361,628 Bedclothes fastener, J. D. Mitchell..... 361,440 Bedstead, J. E. England..... 361,496 Bell and letter box, combined door, J. H. Pierce..... 361,448 Belt tightener, C. G. Lott..... 361,303 Berry box, E. M. Thompson..... 361,557 Bevel, miter, L. H. Lewis..... 361,532 Bicycle, L. B. Gaylor..... 361,230 Bicycle, Monnin & Filiez..... 361,310 Bicycle backbone bending machine, Jeffery & Co..... 361,523 Bit. See Auger bit. Bit brace, J. L. Osgood..... 361,368 Bit stock, Cilley & Carroll..... 361,488 Board. See Stove board. Boiler. See Locomotive boiler.

mollers, preventing incrustation of steam, H. Gregg..... 361,281 Bolt cutter, J. R. Smith..... 361,554 Bolts, machine for turning, E. P. Baille..... 361,571 Book binder's gold cleaning and saving machine, J. N. Ives..... 361,632 Book holder L. C. Norris..... 361,316 Books, cutting attachment for check, S. W. Paine..... 361,541 Boots or shoes, manufacture of, W. Damer..... 361,269 Boots or shoes, seamless upper for, Balcom & Allen, Jr..... 361,478 Bottle holding attachment for stopper pullers, J. J. Monahan..... 361,640 Bottle siphon, C. De Quillfeldt..... 361,400 Bottle stopper, D. S. Hitchcock..... 361,285 Bottle stopper, L. S. Hoyt..... 361,417 Bottle stopper, E. H. Rice..... 361,547 Box. See Air box. Berry box. Packing box. Tree box. Box, A. Wuensch..... 361,662 Boxes, apparatus for bending and trimming spring, C. O. Wilder..... 361,340 Box clasp, C. Kunze..... 361,424 Box fastener, C. W. Beeher..... 361,574 Box fastener, E. Schandeln..... 361,327 Brace. See Bit brace. Bracket hook, O. S. Judd..... 361,634 Brake. See Car brake. Vehicle brake. Brake block, Johnson & Rickenbacher..... 361,422 Bran and other articles, packer for, S. T. Lockwood (r)..... 10,827 Brick, paving, J. Scott..... 361,329 Bricks, tc., machine for pressing and moulding, R. Stanley..... 361,464 Bridges, operating switches and signals for draw, H. & C. R. Johnson..... 361,420 Bridges, operating switches, signals, etc., for draw, Johnson..... 361,419 Brush, blacking, D. J. Bigelow..... 361,338 Brush, win w, J. C. Flower..... 361,584 Buckle, L. P. Frees..... 361,623 Buckle, harness or trace, R. B. Ashley..... 361,253 Building material for architectural purposes, composition of, C. Straub..... 361,601 Bung for beer kegs, etc., draught, Curtis & Hatch..... 361,618 Burial casket, Heuchan & Mason..... 361,513 Bustle, F. P. Marsh..... 361,432 Bustle, S. A. Munson..... 361,314 Bustle, T. P. Taylor..... 361,336 Button, J. Costello..... 361,490 Button and fastener, F. A. Smith, Jr..... 361,462 Button, collar, G. H. Rose..... 361,324 Button fastener, A. Hall..... 361,410 Camera. See Photographic camera. Can. See Sealed can. Can opener, W. Phillips..... 361,643 Cap, M. Davis..... 361,491 Car brake, G. P. Campbell..... 361,576 Car brake, J. F. Clark..... 361,264 Car coupling, T. Address..... 361,343 Car coupling, F. T. McKenney..... 361,437 Car coupling, W. T. Rodgers..... 361,375 Car coupling, G. W. Shillie..... 361,459, 361,400 Car heater, J. M. Thayer..... 361,469 Car wheel, W. W. Snow..... 361,332 Car wheels, machine for rolling, T. W. Bean..... 361,479 Cars, motor mechanism for, F. R. Estlow..... 361,354 Carding machines, mechanism for reciprocating the tumbler of, G. Dawson..... 361,632 Cards, machine for stitching together Jacquard, W. V. Gee..... 361,406 Carpet beater, A. Lyon..... 361,638 Carpet stretcher, M. F. Gutierrez..... 361,283 Cash carrying apparatus, D. E. Kempster..... 361,235 Cash carrying apparatus, elevator for, F. Pope..... 361,371 Casting tube heads, mould for, A. H. Reynal..... 361,373 Ceiling, wall, or panel, sheet metal, F. Mesker..... 361,488 Chair, P. Charbonneau..... 361,615 Chimneys, device for cleaning, J. W. Gibson..... 361,502 Churn, I. L. Singer..... 361,458 Churn motor, M. E. Johnson..... 361,421 Chute for cleaning coal, P. F. Henigan..... 361,517 Cigars, device for packing, T. M. Wilson..... 361,604 Clamp or press, G. W. Weaver..... 361,339 Clasp. See Album clasp. Box clasp. Clay sharpening instrument, G. E. Treadwell..... 361,559 Cleaner. See Grain cleaner. Tube cleaner. Clock and alarm for hotels, etc., combined, A. B. Harford..... 361,511 Coffee pot, Cornish & Moore..... 361,489 Cofferoaster, spherical, L. R. Witherell..... 361,660 Coffee separator, F. W. Holbrook..... 361,415 Collar fastener, horse, M. T. Hayes..... 361,357 Collar, horse, W. W. Youmans..... 361,342 Confectioners and bakers, dropper for, F. W. Muller..... 361,318 Confectioner's ornamenting funnel, F. W. Muller..... 361,312 Converter, F. W. Gordon..... 361,624 Cooler. See Lead cooler. Cop holders with wire, device for filling, E. Gilbert..... 361,501 Corn sheller, A. V. & M. H. Pitts..... 361,614 Cornet or other valve instrument, Shepard & Field..... 361,553 Corset and dress protector, M. Dewey..... 361,494 Corset fastening, W. Mueller..... 361,593 Coupling. See Car coupling. Cremation furnace, Geronimi & Venini..... 361,407 Crosstie and means for attaching the rails thereof, meta lic, P. J. Severac..... 361,330 Cultivator, P. P. Mast..... 361,307 Cultivator, C. A. Yont..... 361,476 Cultivator, wheel, J. McGee (r)..... 10,828 Cutlery, manufacture of table, L. F. Dunn..... 361,620 Cutter. See Bolt cutter. Dam, D. A. Hoyt..... 361,230 Damper regulator, automatic electric, E. N. Dickerson, Jr..... 361,270 Damper, stovepipe, E. E. Lederle..... 361,301 Decorticating machine, B. Thoens..... 361,381 Die press, E. Jordan..... 361,638 Die press, rang, J. G. Hodgson..... 361,286 Dielectric composition, C. T. Crowell..... 361,347 Digger. See Potato digger. Dish washing machine, D. B. Peck..... 361,320 Disinfectant, B. Laclaverie..... 361,635 Ditching machine, open and tile, T. Danskin..... 361,348 Doll or puppet heads, manufacture of infrangible, J. Schon..... 361,453 Doubling and twisting machine, P. Hebbelynek..... 361,588 Drills, manufacture of, W. H. Sawyer..... 361,452 Drum, heating, D. S. Richardson..... 361,322 Dumb waiter, G. W. Cannon..... 361,263 Electric current wires or cables, subway for, J. MacFarlane..... 361,276 Electric generators, fusible connection for armatures of, J. W. Easton..... 361,273 Electric motor, J. W. Easton..... 361,274 Electrical conductors, branch conduit for, J. M. Clokey..... 361,265 End gate, wagon, Phillips & Alexander..... 361,370 Engine. See Rotary engine. Steam engine.