ENGINEERING INVENTIONS

An automatic station indicator has been patented by Mr. Charles W. May, of Omaha, Neb The invention covers a novel construction and arrange ment of parts for a device to be actuated by the motion of a car, to automatically indicate the streets, stations, and other prominent points on the route.

A boiler cleaner has been patented by has been once pressed. Messrs. Robert S. Smith and John Meiklejohn, of St. Thomas, Ontario, Canada. It is a five cleaner attached tubes, and clean the latter of accumulations and sediment.

A rail joint has been patented by Mr. George J. Ferguson, of Greenville, Texas. It is a device designed to make the joints equally strong with other parts of the rails, providing for modifications and variations in structure, the improvement being also applicable to close joints at switches, frogs, and guard rails.

An automatic railway station indicator has been patented by Messrs. William B. Bradsby and Edward W. Hagee, of Greenville, Ill. It is for displaying to passengers on cars the names of successive stations along the route, and working automatically, the invention consisting of novel features of construction and the combination of parts.

Messrs. Thomas Kirby and Abram Singer, of Petoskey, Mich. The invention covers certain novel features of construction and the combinations of parts in a coupler designed to be perfectly automatic, and which can be conveniently used in connection with the ordinary drawhead and link coupling.

A dredging machine has been patented by Mr. Cornelius C. Sullivan, of Roorkee, India. It consists essentially in a pair of jaws or cutters, forming when closed a scoop or bucket, and an oscillating hammer for driving the jaws or cutters into the soil by percussion, the jaws and hammer being pivoted on a common axis, with a hoisting chain and subsidiary parts for working the hammer, opening and closing and hoisting and lowering the bucket.

----AGRICULTURAL INVENTION.

A forcing frame has been patented by Mr. Jacob Siem, of Homburg-vor-der-Höhe, Germany. It is an arrangement for producing and maintaining the heat of hot beds for horticultural purposes by means of hot water, a hot water reservoir being arranged below the bed, in which the inlet and outlet pipes are so located that the water heated in a boiler outside con-Fla. It has a slotted shank, with an eye near the crown, tinually circulates to maintain a uniform temperature.

----MISCELLANEOUS INVENTIONS.

John S. Moore, of Corvallis, Oregon. It is made of a William Horsefield, of Morristown, N. J. Combined decoction of tea in water, salt, borax, aqua ammonia, glycerine, bay rum, tincture of cantharides, musk and other perfume, compounded in certain proportions and manner specified.

A shoe sole plate has been patented by Mr. Charles Williams, of Blenheim, Marlborough, New Zealand. It is a metal toe plate, having on its ground bearing surface inner and outer grooves, with apertured countersunk portions to receive screws or other fastenings for attaching the plate to the sole.

Mr. William S. Welch, of Westfield, N. J. It is for use on sloping roofs where the gutter cannot be utilized, and in connection with ordinary ladders to make a swinging scaffold, the invention covering various novel features of construction and the combination of parts.

A paper file has been patented by Mr. John M. D. France, of St. Joseph, Mo. It has a base or main plate, ratchet arms secured thereto having their rack teeth provided with beveled upper surfaces, with a slide plate and locking bar, making a convenient device for filing bills and papers.

A salt cellar has been patented by Mr. Metellus Thomson, of Kenton, Ohio. Its top is provided with a slot or slots, with a disk or disks operating therein, sockets receiving the salt when in the cellar and discharging the salt when the disk is turned to bring the sockets out of the top.

An axle skein has been patented by Mr. Edmund N. Hatcher, of Columbus, Ohio. The in vention consists in forming an axle skein of a single piece of metal, and in cutting the blank in such manner that angular recesses in the edges are avoided, and also in novel details of construction.

An oil cup has been patented by Mr. Samuel D. Mershon, of Rahway, N. J. It is adapted use on moving bearings, as crank pins, cross he and eccentrics, and is of a povel construction, calculated to feed an ample quantity of oil when the machinery is in motion, but none when it is stationary.

that will prick the cow when the calf attempts to draw milk.

An electric door opener has been patented by Mr. Albert C. Woehrle, of New York City. Besides a special construction of the door opener, the invention consists principally in so arranging the electrical connections that the circuit will be broken when the door stands open, also when closed and the button

A galvanic battery has been patented a cleaner plate or carrier, with rods by means of by Mr. Frank J. Crouch, of Eugene City, Oregon. It is which the plate and its cutters may be moved along the of that form in which one of the elements is revolved to constantly bring new portions of the same into contact with the exciting fluid, the invention covering novel features of construction and arrangement of parts.

> A stove has been patented by Mr. Richard A. Rew, of Pomeroy, Washington Ter. The invention covers a peculiar construction of the supply pipe, and the combination of the pipe and stove, where by the air will be taken from the lower stratum in the room, thus withdrawing the foul air, at the same time preventing danger from sparks.

A door check has been patented by Messrs. James P. and James H. Swift, of Evansville, Ind. The invention provides for the ready adjustment of a curved locking bar for variously hinged doors, furnishing a latch for working the check bolt, with arrangement for locking the latch, locking the door, and A car coupling has been patented by sounding an alarm by the turning of the door knob.

A thermotic valve controlling device has been patented by Mr. Henry Deymann, of Toledo, Ohio. One of the connected pipes has an air chamber at its upper end, a tube extending into the pipe and into the air chamber and connecting with a diaphragm upon which is supported a rod or stem, the upper end of which fits into the flame passage of the burner

A process of waxing paper has been patented by Messrs. Charles A. Wilkinson, of East Somerville, and William S. McDonald, of Boston, Mass. It is a process wherein the web of paper is drawn over a blanket saturated with heated wax or paraffine, the wax being distributed upon a web in contradistinction to being distributed upon a sheet of paper.

A car starter and brake has been patented by Mr. Charles Merckelbagh, of Brussels, Belgium. By the ordinary brake shaft and handle an apparatus is set in motion whereby the car may be stopped, while the momentum is taken up by springs, which, when released, operate upon the axles to give the car a forward impetus

A folding anchor has been patented by Mr. Thomas G. Edmondson, of Tarpon Springs. and is so made that the stock may be readily folded along the sides of the flukes to render the anchor compact when stowed, while it may be readily cleared when the flukes become fouled by obstructions

A laurer has been patented by Mr. with the ladder is a screw rod to pass through the side pieces of the ladder and enter the side of the building to hold the ladder in upright position, there being also side projections to space the ladder from the side of the building, particularly adapting it for painters' use

An animal trap has been patented by Mr. Evans Wood, of Lyons, Texas. A spear is fitted to slide in a frame, there being a spring to force the spear down, a pivoted trigger, and other novel features, the trap being designed to catch burrowing animals, of A scaffolding has been patented by simple construction, and one which will operate equally well when set vertically or at an angle.

> A stirrup has been patented by Mr. John P. Walker, of Grand Forks, Dakota Ter. It has lower and upper rollers journaled on its main frame the frame and its lower rollers being swiveled to the stirrup strap loop, with other novel features, the construction being such that, should the rider be thrown, his feet would slip readily from the stirrups.

An electric gas lighter has been patented by Mr. Justus B. Entz, of New York City. This invention relates to burners in which the gas is auto-matically turned on and a spark produced at the burner. It is the space of the John Crouse Memo-rial College for Women, Syracuse University, Syracuse, New York. tip to ignite on closing the lighting circuit, and on closing the extinguishing circuit the gas is turned off, the device being compact, efficient, and economical,

The cleansing, disinfecting, and testing of drain pipes in dwellings and other structures forms the subject of a patent issued to Mr. William D. Schuyler, of New York City. The drain pipe common to all the receptacles has independent discharge connections, with valves between the receptacles and the drain pipe, with independent hand valves in the drain pipe below, and other novel features.

A templet for use in gaining stair stringers has been patented by Mr. William H. Parry, of New York City. The plate is formed with slots meeting at an angle bounded on either side edges and having rounded extremities, with other novel features, making a convenient device for gaining stair stringers for the recention of treads and risers, and readily adjustable for stairs and winders of different pitche

Md. It is a device for administering electricity, so constructed that the circuit will be broken except just at the time when made operative by the insertion of a coin or other detached article, so that the instrument may be set up in public places to care for itself and make its own collection.

A velocipede has been patented by Mr. David Horn, of Carterville, Ill. It is designed to make the main wheels seven to eight feet in diameter and the steering wheel four to five feet in diameter, the weight of the rider being carried from a point below the axles of the main wheels, making a vehicle which can be propelled at high speed on ordinary roads and readily steered in any direction.

A fishing reel has been patented by Mr. Elbert B. Porter, of Penn Yan, N.Y. It has a fixed spring barrel and friction spring therein, in combination with a driving spring, a reel inclosing the barrel, planetary gearing between the barrel and reel, and a system of gearing for winding the spring, whereby perfect control of the line and the fish may be secured, and the tension of the line accurately regulated.

A corkscrew has been patented by Mr. Ernest D. Williams, of Boston, Mass. The handle has a socket carrying a spring pawl, in combination with a pointed screw or worm which carries a ratchet and is formed with a squared portion just below the ratchet, being operated with a rotary reciprocating motion to advance the screw into the cork, while the turning of the handle to the left withdraws the cork.

A sash fastener has been patented by Messrs, Nicholas B. McGrath and John H. Pierce, of Plantsville, Conn. It is adapted to be attached to either the upper or lower sash, or to either the right or left hand side of the sash, the construction being cheap and simple, and such that the main parts can be cast without cores and put together without boring or extra fitting.

SCIENTIFIC AMERICAN BUILDING EDITION.

DECEMBER NUMBER.

TABLE OF CONTENTS.

- Elegant Plate in Colors of a Suburban Dwelling costing about Nine Thousand Two Hundred and Fifty Dollars, with floor plans, specifica-tions, sheet of details, etc.
 Plate in Colors of a Dwelling erected near Wareham, Mass., at a cost of Twenty-eight Hundred Dollars, with full specifications, floor plans, sheet of details, etc.
 The Schoteneere Monecial at Stratford upon
- The Shakespeare Memorial at Stratford-upon-Avon.
- 4. Perspective view and floor plans of a Residence to cost Eight Thousand Dollars.
- 5. Engravings of Five Taster II Residences recent-tion of the sector of
- Perspective view, detail drawings, specifica-tions, roof, and floor plans of a Two Thousand Five Hundred Dollar California House. 6.
- Engravings showing interior and front view of Chateau of Castelnaudary. M. Aubry, Archi-7 tect.
- 8. Lea Hurst, Derbyshire, the home of Miss Flo-rence Nightingale. 9,
- Elevations and floor plans of Homes of Factory Operatives at Willimantic, Conn.
- 10. Bathing House and Saloon at Vittel. Built by Charlies Garnier, Architect, of Paris. 11. Floor plans and perspective sketch for a Cot-tage costing about Five Thousand Five Hun-
- tage costing and dred Dollars.
- Perspective view and floor plans of a Cottage costing Four Thousand Two Hundred Dollars. Front and rear perspectives, with plans, for a Handsome Stable being erected in Brooklyn, N. Y. Cost, Five Thousand Five Hundred Dollars.
- Perspective view and floor plans of a Residence for Five Thousand Dollars. 14.
- 15. Perspective view and plans of a Neat Dwelling costing Four Thousand Two Hundred Dollars
- 17. Plans for a French Cottage, Hotel de Peintre, Meudon.

of Wood.—Gangways v. Staircases.—How we have Grown.—A Great Building.—Proportions of Rooms.—How a Marble Statue is Made.— The Wainwright Horizontal Feed Water Heat-er, illustrated.—An Improved Double Surface Planer, illustrated.—How to Make a Cheerful Fireplace, illustrated.—The Sounding Board in St. Paul's Cathedral.—Gleason's Double Sur-face Planer, illustrated.—The Popular "For-tune" Hot Air Furnace, illustrated.—An Im-proved Hand and Foot Power Band Saw, illus-trated... Plants for Room Decoration. The Scientific American Architects and Builders Edition is issued monthly. \$250 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; form-ing, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with line engravings, illustrat-large the most interesting asympties of Modern lag the most interesting examples of Modern Architectural Construction and alleed subjects. The Fullness, Richne, Chapness, and Conve-nience of this work have won for it the LARGEST CIRCULATION of any Architectural publication in the world. Sold by all newsdealers.

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.

Castings for $2\%'' \times 3''$ and $3\%'' \times 4''$ vertical engines. end for circular. F. W. Adams, Watertown, N. Y.

Situation Wanted-As foreman of iron foundry, making a specialty of fine castings, by "Yankee," of ex-perience. A No. 1 references. Address box No. 7, Union City, Conn.

Drawings for mach'y and factories, buildings included. Indicator tests of steam and gas engines. Consultations. T. H. Muller, 319 B'dway, room 10, New York. Wanted.-Manufacturers for perpetual calendar; all sizes; any material. Patent applied for. Address "Cal-

well House," White Sulphur Springs, W. Va. Lacquers.-Zapon, Brilliantine, Brassoline, Opaline,

and other lacquers and special varnishes. Brilliant. hard, durable. Send for catalogue. The Fred'k Crane' Chemical Co., Short Hills, N.J. N.Y. agent, Horace Van Sands, 733 Broadway.

Paint mills. Chas. Kaestner & Co., Chicago, Ill.

Works by Huxley, Spencer, etc., tifteen cents. J. Fitzgerald, 24 E. 4th St., New York. Catalogue Wanted-A foreman for a foundry job shop. About

40 moulders employed. Address, stating age, reference, and salary expected, Foundry, box No. 3143, Boston, Mass.

Situation Wanted-By a man of experience as super intendent or foreman of iron foundry. References given. Address P. O. box 783, Providence, R. I.

Perforated metals of all kinds for all purposes. The Robert Aitchison Perforated Metal Co., Chicago, Ill.

For the latest improved diamond prospecting drills, address the M. C. Bullock Mfg. Co., 138 Jackson St. Chicago, 111.

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

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.

Link Belting and Wheels. Link Belt M. Co., Chicago. Presses & Dies. Ferracute Mach. Co., Bridgeton, N.J. Portable grinding mills. Chas. Kaestner & Co., Chicago, Ill.

Good agency wanted, mechanical or process. Muller & Sieghortner, 319 Broadway, room 10, New York.

Nickel Plating .- Sole manufacturers cast nickel andes, pure nickel salts, polishing compositions, etc. \$100 "Little Wonder." A perfect Electro Plating Machine. Sole manufacturers of the new Dip Lacquer Kristaline. Complete out 't 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 nodern design. New Haven Mfg. Co., New Haven, Conn.

Supplement Catalogue.-Persons in pursuit of information of any special engineering, mechanical, or scien-tific subject, can have catalogue of contents of the SCI-ENTIFIC 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.

The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application. Curtis Pressure Regulator and Steam Trap. See p. 364.

Pedestal tenoner. All kinds woodworking machinery. C. B. Rogers & Co., Norwich, Conn

Iron, Steel, and Copper Drop Forgings of every description. Billings & Spencer Co., Hartford, Conn.

Chucks-over 100 different kinds and sizes in stock pecialsmade to order. Cushman Chuck Co., Hartford, Ct. Steam Hammers, Improved Hydraulic Jacks, and Tube

Expanders. R. Dudgeon, 24 Columbia St., New York. 60,000 Emerson's 1887 EF Book of superior saws, with

Supplement, sent free to all Sawyers and Lumbermen. Address Emerson, Smith & Co., Limited, Beaver Falls, Pa., U. S. A.

Safety Elevators, steam and belt power ; quick and nooth. D. Frisbie & Co., 112 Liberty St., New York.

"How to Keep Boilers Clean." Send your address

A post hole digger has been patented by Mr. James H. Humphrey, of Platte City, Mo. This invention relates to a device with plungers for removing the earth from the cylinder when filled, and also for packing the earth in the cylinder to retain it therein when being raised out of the hole, there being various novel features of construction and arrangement

A harness pad has been patented by Mr. William S. Webster, of Newark, N. J. The back pad is formed without a jockey, the skirt on each side being made continuous from the saddle to the lower end and an opening being formed therein for the back band to pass under the skirt at a point somewhat below the terret.

A calf weaner has been patented by Mr. Robert L. Rickman, of Graham, Texas. It consists of a simple arrangement of pivoted plates, which can be readily adjusted upon the nostrils of a calf so that

A wagon brake has been patented by Mr. Charles W. Loomis, of Otisville, N. Y. An arched shaft forms the main crank or lever of the brake, and the brake blocks upon the ends of this shaft are each acted upon by a spring coiled about the shaft and con nected to the blocks in such a way as to normally hold the upper end of each block away from the wheel, the brake being very powerful.

A shell capper and extractor has been patented by Mr. Peyton A. Lee, of Coushatta, La. Combined with a shell holder having a capper is a magazine at right angles to the holder and having a cap-receiving track, its delivery end terminating in a space in the path of the capper, with a spring-impelled follower to automatically force the caps out of the magazine into the path of the capper.

A coin operated induction coil has it will breathe without difficulty, with projecting points been patented by Mr. William R. Pope, of Baltimore,

MUNN & CO., PUBLISHERS, 961 Broadway, New York,

Talcott's Wilson and combination belthooks. Providence, R. I.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Engines and boilers. Chas. Kaestner & Co., Chicago, III.

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

NEW BOOKS AND PUBLICATIONS.

THE NEW ASTRONOMY. By Samuel Pier-pont Langley, Ph.D., LL D. Illus-trated. Boston: Ticknor & Co. 1888.

This work is emphatically an edition de luxe. It is devoted to an attractive presentation of the recent work in the photographic, photometric, and spectroscopic branches of astronomical investigation. To these the author has given the name of the new astronomy, and