

ENGINEERING INVENTIONS.

A sectional steam boiler has been patented by Mr. Lawrence W. Chadwick, of Milnes, Va. This invention covers an improvement on a former patented sectional boiler of the same inventor, and consists in the combination with the vertical pipes of vertical pendent water leg pipes depending from the upper chamber, and having a fire flue through the same and a lateral connection with the other vertical pipe.

A railroad tie has been patented by Mr. Arnold N. D. Delfs, of Bedford, Tenn. The bed pieces are made of beton concrete, so moulded as to have one or more iron rods or wires embedded in the material, extending through the whole length of the tie, to strengthen it, combining concrete, iron, and wood, to make a tie that is strong, sufficiently elastic, and at moderate cost.

A reversing gear for engines has been patented by Mr. Thomas Moore, of O'Fallon, Ill. A spiral shaft is journaled in disks on the shaft, having at one end a crank engaging with an eccentric disk, a spiral shaft passing through a sliding disk on the shaft, so by sliding the disk the spiral shaft is turned and its crank moves the eccentric disk and adjusts it as may be desired.

A car coupling has been patented by Messrs. William H. Adams and James D. Felthousen, of Albany, N. Y. The coupling head has flaring mouths and slots, with beveled forward ends in its upper and lower sides, the hook having a slot in its rear end, with two link seats in its throat and a projection on its lower side, so the coupling will sustain the draught strain securely, and the cars will couple automatically when run together.

MECHANICAL INVENTIONS.

A ring spinning frame has been patented by Mr. Jean B. Rolland, of Paris, France. This invention relates to parts adjoining the spindle, and has for its object to facilitate the stopping of the spindle when it is desired to join or piece broken threads, and to effect the thorough lubrication of the spindle.

A die block has been patented by Mr. Geo. W. Simmons, of Brockton, Mass. It consists of a series of cubical blocks with two central apertures crossing each other, and a bolt passing through one of the apertures, so the blocks may be reversed to present any of their faces to form a new surface.

A bolt dresser has been patented by Mr. Henry Egeberg, of Napa, Cal. It is a machine which can be more conveniently applied to the bolt than the ordinary stocks and dies, and is composed of two hinged jaws having on one end removable dies and at the other end an expanding screw provided with a spring cover, in which dies of different sizes may be kept.

MISCELLANEOUS INVENTIONS.

A surgical device for relief of hemorrhoids and similar affections has been patented by Mr. Lewis Chamberlain, of Tarborough, N. C. It consists of a seat formed with an ovoid, concave, and a central aperture, the size to be proportioned to the individual.

An anchor has been patented by Mr. Peter C. Herman, of Dartmouth, N. S., Canada. The flukes project from the bottom and top surfaces in such a way that, in whatever position the anchor drops, one of the flukes will always catch on the bottom.

A corkscrew has been patented by Mr. Martin F. Williams, of Bastrop, La. In combination with a bracket adapted to hold a bottle is a lever projecting over the bracket and a corkcrew held to turn in the lever, with various other novel features.

A detachable fur collar has been patented by Mr. Charles F. Butterworth, of Troy, N. Y. It is formed of a single piece and made to fold longitudinally, having its skin of increased fullness on one side of the fold, the lining strips being cut and folded to present reverse concaves.

A hydraulic jack has been patented by Mr. Elvath Hall, of Laitingtown, Glen Cove, N. Y. This invention consists of the adaptation of a former patented jack for lifting weights on a plane below itself, thereby greatly extending the applications and uses to which it may be put.

A two wheeled vehicle has been patented by Messrs. Enoch P. Hincks and George H. Johnson, of Bridgeport, Conn. It has a three-sided front, two of the sides of which are doors hinged in the rear to open on or toward the wheels, and the driver's seat is in the rear of the carriage.

A shaft loop has been patented by Mr. Edwin D. Moseley, of Shopiere, Wis. It is made of metal with a convex or rounded inner surface, and has a claw on its upper side, with a billet at the front and one on its under side, the claws being double or single according to the kind of buckle used.

A razor has been patented by Mr. James P. Tryner, of Denver, Colo. This invention consists in mounting one or more set screws on the razor guard, and loosely connecting them with the back of the razor, so that by turning a screw the blade may be adjusted in either direction.

A centrifugal machine for drying hides and skins, spent tan and other matters has been patented by Mr. Emil de Solminihac, of Pont Aven, France. It is a rotary skeleton drum of spaced apart bars having clips or means to stretch the hides or skins upon the circumference, the drum having a wirework lining.

A broiler has been patented by Mr. George B. Siegenthaler, of Wooster, Ohio. This invention provides for a broiler so made that it may be held down in a stove hole closer to the fire than is the case with ordinary broilers, thus enabling meat to be broiled or breadtoasted in less time.

A substitute for caoutchouc has been patented by Mr. John J. Haug, of St. Petersburg, Russia. It is prepared by boiling skins and glycerine under pressure, and mixing with the mass obtained glycerine and chromate or bichromate of potash or other salt acted on by light, with or without the addition of ground cork, ox gall, and color.

A cartridge implement has been patented by Messrs. William G. Jesse and George E. Paxton, of Georgetown, Ky. It is a simple device for removing spent caps from discharged cartridge shells, and reloading and recrimpling the same, the parts being easily separable, so that the apparatus may be conveniently carried by spongers in the pocket.

A telegraphic transmitter for unskilled operatives has been patented by Mr. Theodore Ames, of Hackensack, N. J. By this apparatus a person wishing to telegraph depresses the corresponding keys in the same manner as in operating a type writing machine, but the receiver must have a knowledge of the Morse characters.

A corrugated pan for salt making has been patented by Mr. Joseph A. Cook, of Auburn, N. Y. The pan is made of boiler plates or cast sections to be bolted together with longitudinal corrugations, and the salt crystals are drawn from the bottoms of the corrugations by endless belts of cloth or other suitable material, to which are attached cross cleats.

A gas making machine has been patented by Messrs. Abel and Thomas Henning, of Sacramento, Cal. This invention covers novel details of construction and arrangement for an automatically working machine to make gas out of gasoline, feeding itself so as to give a steady supply, and so there will be no danger of any gas escaping.

A drain and sewer pipe has been patented by Messrs. John Cooper and Henry Bieg, of Brooklyn, N. Y. The pipe section has at one end a flange forming a socket with internal annular grooves, and at the opposite end external annular grooves and a tapered neck, so the joints can be well cemented, while the pipe is very strong and durable.

A transom lifter has been patented by Mr. Samuel A. Bishop, of Smithport, Pa. This invention relates to devices for opening and closing transoms, skylights, and other windows that are out of reach, and is a device for holding the transom when closed, to apply power advantageously in opening it, and to hold it braced in the open position.

A brick kiln has been patented by Mr. Thomas M. Bannister, of Lone Pine, Cal. This invention provides for furnaces arranged in the front and rear walls of a brick kiln, with top openings having tilting automatically closing valves, and car tracks arranged along the front of the furnaces, with various novel features.

A fruit jar has been patented by Mr. John J. Quiuby, of Armonk, N. Y. It has a long neck, a shoulder at the bottom of the neck, and two diametrically opposite quadrant ridges a short distance below the shoulders, with a cover having a shoulder and similar ridges to hold the cover on the jar, and close very tightly, to make the jar air tight.

An improved brick wall or pavement forms the subject of a patent issued to Mr. Louis R. Sassinot, of New Orleans, La. The invention consists in forming walled receptacles or chambers by arranging certain of the bricks edgewise, and afterward lining the chambers with a plastic substance, and filling them with a concrete mass having a waterproof surface.

A hame has been patented by Mr. Daniel H. Grant, of Raymore, Mo. It is made in sections arranged to be adjusted edgewise to a greater or less curve to suit the collar and the shape of the horse's neck, the central section having a removable plate and eye or staple for holding the hame tug, the staple being adapted to be adjusted for raising or lowering the draught.

An apparatus for securing animals while being shod has been patented by Mr. James H. Lewis, of Bismarck, Ill. It is made of hinged beams, with posts and braces, with hearings to receive rods attached to the ends of a strap or straps, one of the rods having a ratchet wheel, pawls, and a lever, for tightening and loosening the straps, and supporting or releasing the animal.

A projector stopper for bottles and flasks has been patented by Messrs. Georges Pinaud and Pierre Guichard, of Paris, France. It is a system of stopper and cork to use with all kinds of bottles or flasks, for projecting the liquid, by pressure applied to a hollow India rubber ball fixed to the top of the stopper, whereby the liquid may be projected in one or more jets according to the number of holes in the ball.

A means for assisting persons in putting on outside wrappings has been patented by Mr. Greenup Sutton, of Rushville, Mo. It consists of a frame-work with clamping jaws for holding the coat collar, a treadle for operating the jaws, and hooks or supports for distending the sleeves of the garment, the apparatus being especially designed for feeble persons, cripples, or those not well able to wait on themselves.

An air pump has been patented by Mr. Hermann Meckert, of Hannibal, Mo. It consists of an outer rigid metal cylinder and an inner cylinder of flexible material, impervious to air, secured to one end of the outer cylinder and to a piston working therein, so that when the inner cylinder is being extended air is drawn into it, and by compressing the cylinder the air is compressed and expelled.

A turn table for horse cars has been patented by Charles F. Bollwitt, of New Orleans, La. It has a pivoted locking bolt to engage with catches on the platform surrounding the turn table, a lever being under the locking bolt, which can be shifted by devices operated automatically by the turning of the turn table, and adjusted so as to lock the turn table in any desired position.

An apparatus for distilling low wines has been patented by Messrs. Nels Peterson and Henry Sommer, Jr., of Davenport, Iowa. There is a receiving tub over the still, a charge pipe communicating between the tub and the still, a vapor pipe communicating with the stock tub, and various other novel features to better adapt a distilling apparatus to the manufacture of vinegar.

A truck skid for railroad cars has been patented by Mr. Adolphus E. Kiel, of Montrose, Iowa. It is fitted to slide in ways beneath the car, and tied to it by a chain connected at one end to the skid by a bail,

having a ring at the other end, which slips along a bar fixed to and running crosswise of the car, so the skid may be run out for use at either side of the car, and may be run into the car to receive the load and out again to discharge it.

NEW BOOKS AND PUBLICATIONS.

THE MAGAZINE OF ART (Cassell & Co.), New York, for October is rich in papers and pictures for artists and art lovers. The head of Christ, from a cartoon by Lionardo, illustrates a good article by Julia Cartwright. It contains descriptive and critical text, with sketches of some of the works in the last Royal Academy exhibition. There are several historical articles on art and artists, and the usual good summary of art news in the concluding pages of the number.

SCRANTON, PA., CITY DIRECTORY. Lant & Silvernail, compilers, Valatie, N. Y. The review of the city's growth and the exhibition of its business given in the preface furnish a chapter worthy of remark, even in this fast growing age and country. In 1860 the population was but 9,233; in 1884 it had grown to 67,062. The city is located in the center of a great anthracite coal field, and coal, iron, steel, and lumber make the principal staples, which, with the most ample transportation facilities, seem to give good promise of a continuous rapid growth in the future.

HARPER'S MAGAZINE.

The October number is well stocked with interesting matter, and with its sixty well executed engravings presents a very attractive appearance. The pen of Mr. John Macmullen, who has for a lifetime been engaged in educational work in this city, has produced a most interesting article on the founding of Kings College, which title was the name of Columbia College previous to the Revolution. The name was changed in 1784. Mr. Macmullen gives some very interesting reminiscences of the college and its presidents previous to the Declaration of Independence. According to the writer, the earliest mention of Kings College to be found is in 1703, when the rector and wardens of Trinity Church were called upon by Lord Cornbury, then Governor, to know what part of Kings farm, then vested in Trinity Church, had been intended for the proposed college. To the alumni of Columbia College this well written article will have peculiar interest.

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.

Clark's Rubber Wheels. See adv. next issue.

Of the very choicest tobacco leaf—choicest because the firm can command it—is made Blackwell's Durham Long Cut. Gentlemen may regale themselves with a pipe, or roll it into fragrant cigarettes. Either way it is the most luxurious of all tobaccos. Trade mark of the Durham Bull.

1 H. P. Horizontal Steam Engine for sale. New; fitted with governor and all fixtures; cost, \$80.00. Will sell at big discount. Address E. T. Shaw, Beverly, Mass.

Blake's Patent Belt Studs, the strongest and best fastening for Rubber and Leather belts. Greene, Tweed & Co., N. Y.

All books and everything relating to electricity cheap. School of Electricity, N. Y.

For Sale.—A patent right of Weighing Scales for any purposes. Address T. Ziersch, Dedham, Mass.

For Sale.—Eighteen volumes of SCIENTIFIC AMERICAN—1866 to 1874 inclusive. Address Box 244, Lancaster, Pa.

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Mechanics and others send for Prospectus. Sons of Labor League, Canton, O.

Shafting For Sale.—Excellent 2d hand, with its couplings and coupling bolts all fitted, true, and polished; with or without hangers, as customer may prefer; any part or all; 14' 4"; 24' 3 1/2"; 21' 2 1/2"; 24' 2 1/2"; 18' 2 3/4"; 12' 2 1/4"; 16' 1 1/2"; 32' 1 1/2"; 58' 1 7/8"; 27' 1 1/2". Send for full particulars and prices per lb., stating size and amount required. Forsyth Machine Co., Manchester, N. H.

For Sale.—Two new, first class engine lathes; each back-g'd, sc-cut, rod-f'd, power cross f'd, compound rest, full counter, friction pulleys, center rest, face plates, etc. One 16' x 26"; \$625; one 16' x 20"; \$416. E. Cornish, Manchester, N. H.

Required.—Cash capital of \$5,000 to advertise and introduce a valuable patented invention for saving power and economy of space in all kinds of Belt Driving machinery. This patent has already been adopted by one of the principal electric light companies of this country, and is in use in England and France. Attention of a manufacturer with the above amount to invest is especially solicited to this splendid opportunity for a good investment. For full particulars apply to S. S. Saper & Co., No. 134 Pearl Street, New York.

Cotton, Rubber, and Leather Belting. Steam Engine Packing of all kinds. Greene, Tweed & Co., 118 Chambers St., New York.

The Cyclone Steam Flue Cleaner on 30 days' trial to reliable parties. Crescent Mfg. Co., Cleveland, O.

For Steam and Power Pumping Machinery of Single and Duplex Pattern, embracing boiler feed, fire and low pressure pumps, independent condensing outfits, vacuum, hydraulic, artesian, and deep well pumps, air compressors. Address Geo. F. Bake Mfg. Co., 44 Washington St., Boston; 97 Liberty St., N. Y. Send for Catalogue.

Quinn's device for stopping leaks in boiler tubes. Address S. M. Co., South Newmarket, N. H.

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Brush Electric Arc Lights and Storage Batteries. Twenty thousand Arc Lights already sold. Our largest machine gives 65 Arc Lights with 45 horse power. Our Storage Battery is the only practical one in the market. Brush Electric Co., Cleveland, O.

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Send for Monthly Machinery List to the George Place Machinery Company, 121 Chambers and 103 Reade Streets, New York.

Steam Boilers, Rotary Bleachers, Wrought Iron Turn Tables, Plate Iron Work. Tippet & Wood, Easton, Pa. Iron Planer, Lathe, Drill, and other machine tools of modern design. New Haven Mfg. Co., New Haven, Conn. For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

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, 361 Broadway, New York.

Guild & Garrison's Steam Pump Works, Brooklyn, N. Y. Steam Pumping Machinery of every description. Send for catalogue.

Nickel Plating.—Sole manufacturers cast nickel anodes, pure nickel salts, polishing compositions etc. Complete outfit for plating, etc. Hanson & Van Winkle, Newark, N. J., and 92 and 94 Liberty St., New York.

Supplement Catalogue.—Persons in pursuit of information on 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.

Machinery for Light Manufacturing, on hand and built to order. E. E. Garvin & Co., 139 Center St., N. Y.

Drop Forgings. Billings & Spencer Co., Hartford, Conn. Electrical Alarms, Bells, Batteries. See Workshop Receipts, v. 3, \$2.00. E. & F. N. Spon, 35 Murray St., N. Y.

We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure asbestos goods of all kinds. The Chalmers-Spence Co., 419 East 8th Street, New York.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Emerson's 1884 "Book of Saws, New matter. 75,000. Free. Emerson, Smith & Co., Limited, Beaver Falls, Pa.

Barrel, Keg, Hogshead, Stave Mach'y. See adv. p. 173.

Munson's Improved Portable Mills, Utica, N. Y. Solid and Shell Reamers, durable and efficient. Pratt & Whitney Co., Hartford, Conn.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 141.

Catechism of the Locomotive, 625 pages, 250 engravings. Most accurate, complete, and easily understood book on the Locomotive. Price \$2.50. Send for catalogue of railroad books. The Railroad Gazette, 73 B'way, N. Y.

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C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv. page 142.

The Porter-Allen High Speed Steam Engine. Southwark Foundry & Mach. Co., 430 Washington Ave., Phil. Pa.

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

Notes & Queries

HINTS TO CORRESPONDENTS.

Name and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or mail, each must take his turn.

Special Information requests on matters of personal rather than general interest, and requests for Prompt Answers by Letter, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each. Minerals sent for examination should be distinctly marked or labeled.

(1) M. J. B. writes: Can any of your correspondents inform me how and where an eel was generated? A. The function of reproduction in the eel, and the general structure of the organs concerned in it, correspond entirely with the same points in our other ordinary osseous fishes. Much mystery has been attached to them in past ages, but the advance in accurate knowledge of structure has totally dispelled it. Eels breed as do cod, or perch, or shad. The first accurate description of the female organs was made by Mondini, in 1777, in a paper entitled "De Anguillae Ovaris," which was published in the proceedings of the Bologna Academy. But the structure of the male organs was not fully stated or known until they were worked out by Syrski, in the proceedings of the Imperial Academy of Vienna, in 1874. The one point which doubtless has helped in great degree to continue the mystery is the extreme minuteness of the eggs. They have only about one-tenth to one-thirtieth of the diameter of the eggs of other fishes, and in the leaf-like folds of the ovaries are constantly associated with fat globules, from which it is not easy to distinguish them. The spermatozoa are even very much more minute, and can scarcely be detected except by a practical observer, using a microscope of high power. The male eels are much smaller than the females, and never ascend into fresh water; the eggs are hatched in the sea or brackish water, and the young ascend the rivers in myriads, climbing waterfalls most wonderfully to do so.

(2) F. A. L. asks: What will take off the black stain caused by rubbing a parlor match on a