

ENGINEERING INVENTION.

An automatic railroad switch has been patented by Mr. William H. Stowell, of Eureka, Nevada. A heavy central rail is curved to the deflection required and permanently secured to the cross ties, while a deeply flanged wheel is secured beneath the engine, adapted to be raised or lowered to the level of the central rail, to engage therewith, by which means the direction of the train is controlled.

AGRICULTURAL INVENTIONS.

A corn harvester has been patented by Mr. Jesse L. Lamont, of Atkinson, Ill. The machine is designed to simultaneously remove the ear from the stalk and husk it, the husked ears being pushed rearward and delivered to an elevator or conveyor mechanism which will deliver the ears to a wagon or other suitable receptacle.

An attachment for corn planters has been patented by Mr. William H. Bowman, of South Solon, Ohio. It is a check attachment applicable to any style of corn planter, and may also be used for drilling the corn, the construction also providing means whereby in irregularly shaped fields the checking may be accomplished as regularly as in rectangular fields.

A harrow for listed crops has been patented by Mr. Hugh A. Murphy, of Elk City, Kansas. It consists of a number of narrow harrow sections yielding supported by elevated connecting rods, the harrow sections being made adjustable, the invention providing an implement by which ground that has become hard baked may be broken up and pulverized.

MISCELLANEOUS INVENTIONS.

A nut lock has been patented by Messrs. Frank and John Rennie, of Dayton, Ohio. It consists of a rod formed with a bolt-receiving loop, one of the ends of the rod being bent over upon itself toward the loop to form a nut-locking arm.

A combination lock and alarm has been patented by Mr. Robert Baumann, of St. Louis, Mo. The invention covers a novel construction and arrangement of parts and combinations of the same, making an improved alarm lock for doors, money drawers, etc.

A mop holder has been patented by Mr. Benjamin F. Gilbert, Jr., of Fair Haven, Vt. The bail is pivotally secured to the handle, to which also is pivotally secured a clamp jaw, the bail forming a guide for the ends of the clamp jaw, the handle in no way interfering with the insertion and removal of the mop.

A basket bottom has been patented by Mr. Albert W. Beckett, of St. Catharines, Ont., Canada. It is stamped up from sheet metal or paper or other suitable material, and provided with base corrugations to give the required strength, and with other corrugations and perforations to receive the side standards.

A tension device for the warp beam of looms has been patented by Mr. Chester Bailey, of Janesville, Wis. The tension is increased or diminished according to the locality of a weight upon a lever, the weight being automatically and continuously moved toward the fulcrum as the diameter of the roll of warp diminishes, thus maintaining a uniform tension.

A bottle has been patented by Mr. Henry Ader, of Somerset, Ind. It is a cylindrical body with threaded ends and a cross partition dividing it into two compartments, in which two substances may be carried and kept separate, the upper compartment being available for fluids, while the lower one may be used for pills, powders, etc.

An earth scraper has been patented by Mr. Julius D. Brainard, of Highmore, Dakota Ter. It has a scoop-locking device, a rotary handle bar, and connections between them for operating the locking device, with other novel features, whereby the scraper can be brought back after each dumping action exactly to the point where the previous scraping ended.

A folding stand for camp stools has been patented by Mr. Albert Cooper, of Brooklyn, N. Y. Rods constitute the legs, hinged at their upper ends in a cup or frame, other seat or top rods supporting the seat, hinged at their lower ends in a lower cup or frame, the upper and lower cups or frames being apertured to receive, brace, and guide the seat rods and the legs.

An apparatus for treating cereals has been patented by Mr. Henry R. Robbins, Jr., of Baltimore, Md. The invention relates to a means of cooking cereals by steam in accordance with a former patented invention of the same inventor, for more conveniently and expeditiously charging and discharging the receptacle and economically and uniformly treating the materials.

A felting roll for hat sizing machines has been patented by Mr. Aaron T. Clark, of Newburg, N. Y. It is of a novel yielding construction on its acting surface and throughout the main portion of its body, to have a continuous yielding spiral pressure-like action upon the hat bodies, thereby making the quality of work more even and more closely resembling such work done by hand.

An air pump governor has been patented by Mr. Edward G. Moore, of Wilmington, Del. It is a novel construction especially adapted for the air pumps of locomotives, to prevent an excess of pressure in the train pipes, and to cause an accumulation of air in the air reservoir while the brakes are applied, thus permitting an instantaneous release of the brakes when desired.

A stove for burning light fuel has been patented by Mr. Raymond O. Peyton, of Terre Haute, Ind. It has a cylindrical body of sheet iron, adapted to rest unattached upon the stove legs, one head of the cylinder being permanently attached while the other head is detachable and constitutes the door, with other novel features, making a cheap portable stove.

A flour bolting reel has been patented by Mr. Washington Gilleland, of Land, Ga. The sections of bolting cloth are secured to the reel frame in a novel and improved manner, the construction being such that the reel will work faster and the flour be bolted cleaner, while the sections of bolting cloth may be removed separately from the reel for repair or replacement without disturbing the other sections.

A soot collector for gasoline stoves has been patented by Margaret M. Joslyn, of Grand Meadow, Minn. It consists of an inverted funnel placed over the burner while the gasoline is being burned, with its wider end opening downward and its narrower end closed by a perforated sheet metal disk, the smoke passing through the apertures of the disk being received on a moistened cloth thrown over the funnel.

A cotton press has been patented by Messrs. Peter L. and William Brady, of Hearne, Texas. It has two series of rollers arranged in a circle, one series journaled in a movable carriage, and both series receiving motion from drive wheels on opposite sides of the machine, the cotton being compressed by a continuous operation as received from the gin, and the bale cover wrapped around and fastened by ties when the bale is wholly inclosed by the press.

A road machine and road digger and scraper form the subject of two patents issued to Mr. Alberto Finks, of New Berlin, N. Y. The invention covers a carriage or main frame, a digger bar and scraper bar, and elevating devices, the invention consisting particularly in the novel constructions for elevating the bars and adjusting the angle of the scraper bar, while the scraper, being concaved in front and under edge, gives better results than a straight scraper, covering more surface in its travel, and the machine is simple and strong.

SCIENTIFIC AMERICAN
BUILDING EDITION.

MARCH NUMBER.—(No. 29.)

TABLE OF CONTENTS.

1. Elegant plate in colors, showing perspective elevations and floor plans of a cottage of moderate cost, together with full specifications, sheet of details, etc., etc.
2. Plate in colors of a handsome suburban residence, costing about Twelve Thousand Five Hundred Dollars, with floor plans, specifications, sheet of details, etc.
3. Elevations and floor plans of two dwellings of moderate cost.
4. Perspective view and floor plans of a house for Six Thousand Dollars.
5. Floor plans and elevations of a substantial residence at Tuxedo Park.—James Brown Lord, architect.
6. Perspective and two plans of a Cape Cod cottage of moderate cost.
7. Plans and perspective of a double house, costing about Six Thousand Five Hundred Dollars.
8. Elevation and plans of an alteration of a dwelling on Long Island.
9. Sketch of a one story residence erected at Birmingham, Ala., at a cost of Four Thousand Five Hundred Dollars.
10. Floor plans and perspective view of a neat cottage for Seventeen Hundred and Fifty Dollars.
11. Plans of an English country house.
12. Sketch of a handsome double house at Cleveland, Ohio. Cost, complete, Six Thousand Dollars.
13. Illustration of a house costing Three Thousand Dollars.
14. Designs of two substantial churches, costing about Four Thousand Dollars each.
15. Elevation and floor plans of a brick residence at Newark, N. J. Cost, complete, Seven Thousand Six Hundred and Seventy-five Dollars.
16. Sketch of the hall and stairway of a luxurious English dwelling.
17. Design for a carriage house and stable. Cost, Fifteen Hundred Dollars.
18. Plan of an old plaster ceiling, South Quay, Yarmouth.
19. Architectural Suggestions.—A Stairway in the Hotel Cluny.—A Stairway in Rouen.
20. Miscellaneous Contents: Ancient Water Works.—Making the House Water-Tight.—Mahogany.—Vibration of Buildings.—Building Accidents.—The Column Vendome, Paris.—Learning to Design Buildings.—Non-Inflammable Wood.—Large Redwood Boards.—An Experiment on the Expansion of Iron in Buildings.—Ornamental Hedges.—The Acoustics of Buildings.—Suggestions on House Painting.—Right and Left in Landscape Painting.—Furniture Woods.—Range Boiler Explosion, with illustrations.—Plastering of Walls, Westminster Hall.—Notes on Bricks.—Mineral Wool.—The Jackson Ventilating Grate, illustrated.—The Spencer Hot Water Heater, illustrated.—The Alsop Furnace, illustrated.

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.

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.

Wanted—Active, influential men, capable of dealing with principals, who can introduce the Edison recording steam gauge to the notice of steam users in their vicinity. For particulars address Jarvis B. Edison, 91 Liberty St., New York.

U. S. and Canada patent rights for sale—No. 365,181 and 274,100, issued in 1887. Witter's improved bevel. For terms, address F. E. Witter, Brooklyn, Ct.

Patent foot power scroll and circular saw, mortisers, lathes. Seneca Falls Mfg. Co., 666 Water St., Seneca Falls, N. Y.

Finished wood boxes of all kinds made by F. D. Martin & Co., N. Springfield, Vt. Correspondence solicited.

Portable grinding mills. Chas. Kaestner & Co., Chicago, Ill.

Burnham's turbine wheel is sold at net price to mill owners. Catalogue free. Address York, Pa.

The Dieble Manufg. Co., Philadelphia, Pa., manufacturers of the Challenge Emery Grinding and Polishing Machinery, invite correspondence with all needing this class of machinery. Catalogues and prices on application.

The Diamond Prospecting Co., 22 W. Lake St., Chicago, Ill., general agents for the Sullivan diamond prospecting drills.

Foree Bain, 76 Market St., Chicago, designer and constructor. Electrical apparatus, fine and special machinery, etc.

Nickel Plating.—Manufacturers of pure nickel anodes, pure nickel salts, polishing compositions, etc. \$100 "Little Wonder." A perfect Electro Plating Machine. Agents of the new Dip Lacquer Kristaline. Complete outfit for plating, etc. Hanson, Van Winkle & Co., Newark, N. J., and 92 and 94 Liberty St., New York.

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

The Railroad Gazette, handsomely illustrated, published weekly, at 73 Broadway, New York. Specimen copies free. 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.

Feed grinders. Chas. Kaestner & Co., Chicago, Ill.

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

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

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.

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

The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application.

Lathes for cutting irregular forms a specialty. See ad. p. 62.

Curtis Pressure Regulator and Steam Trap. See p. 77.

Billings' Drop Forged Steel C Clamps. Drop Forgings, all kinds. Billings & Spencer Co., Hartford, Conn.

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

Gang drills for light work, 3/8 and under. Automatic or lever feed. Dwight Slate Machine Co., Hartford, Conn.

60,000 Emerson's 1887 Book of superior saws, with Supplement, sent free to all Sawyers and Lumbermen. Address Emerson, Smith & Co., Limited, Beaver Falls, Pa., U. S. A.

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

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

Practical working drawings of machinery made by A. K. Mansfield & Co., 230 Broadway, N. Y. Correspondence invited.

"The Improved Greene Engine." Flat slide valves, both steam and exhaust. Providence, R. I., Steam Engine Co., sole builders.

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

"How to Keep Boilers Clean." Send your address for free 88 page book. Jas. C. Hotchkiss, 120 Liberty St., N. Y.

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, Ill.

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.

ANIMAL LOCOMOTION. By Eadweard Muybridge. 1872-1885. Plates. University of Pennsylvania.

Mr. Eadweard Muybridge may justly claim a title to the remembrance of posterity as being a systematic worker in photographic studies of animal movements. His first work was done in California, and at once attracted the attention of the world. Recently he has carried on his investigations under the auspices of the University of Pennsylvania, and as a result has secured many hundred plates of human beings and of animals in motion. He has selected representatives of both sexes, of average and of abnormal sizes and of different ages, and has studied the movements of each. He has photographed successive phases of running, jumping, dancing, and every form of motion. A child creeping on hands and knees is reproduced, showing the same succession of steps that are found in the regular progression of animals. In an elaborate analytical table the different plates are classified, in order that any given selection can be made. For

artists especially the work is invaluable. With its results to study there should be no excuse in painting for the constrained positions often servilely copied from a tired model. The complete series comprises over 100 large photographs from instantaneous plates, each plate showing from 12 to 36 figures in different positions. It is a remarkable work, and its realization has involved a vast amount of labor and perseverance.

THE GEOLOGICAL EVIDENCES OF EVOLUTION. By Angelo Heilprin. Philadelphia: Published by the author. 1888. Pp. 99.

This little work, elegant in its printing and illustrations, is an amplification of a lecture delivered by Prof. Heilprin, at the Academy of Natural Sciences, Philadelphia. It is an earnest argument in favor of Darwinism, which the author regards as conclusively proved. He ends by saying that if the geological facts cited are not conclusive in favor of evolution, then "science is a delusion and a snare, and we will be compelled to begin anew our conception of the universe." The history of science in the past is a history of errors, and the assertion, while meant to be very broad, can hardly be so regarded in the light of the small extent of modern knowledge. Until some few of the primary facts in nature are accounted for, until gravitation, light, electricity, and molecular and atomic forces are put upon an intelligible basis, it is too soon to consider any purely theoretical conception as proved. The well known clearness and precision of the author's style are discernible throughout the work and make it most agreeable reading, whether we consider that the Darwinian theory is proved or not by the facts brought forward in less than one hundred small pages. The elegant plates which represent fossil remains with photographic accuracy form one of the pleasing features of this admirable book. Prof. Heilprin's work is every day acquiring more recognition, and this treatise will be no detriment to it.

HARVARD REMINISCENCES. By Andrew P. Peabody, D.D., LL.D. Ticknor & Co. Cloth. Price \$1.25.

This little work contains a number of sketches of the prominent men whose names appeared as college officers at Harvard nearly sixty years ago. Among them may be mentioned Josiah Quincy, Edward Everett, Henry Ware, John G. Palfrey, Charles Follen, John Langdon Sibley, C. C. Felton, Benj. Peirce, etc. The memoirs consist of personal reminiscences of the authors. The work concludes with a picture of college life at Harvard when the author was a student there, in the twenties, and a more striking illustration of the change that has taken place in our customs can hardly be found. Morning prayers at six in the morning, evening prayers at six o'clock, a recitation immediately after morning prayers, and then breakfast, which consisted simply of coffee and hot rolls. Dinner at half-past twelve, and in the evening tea and rolls for supper. The rooms were furnished with plain pine furniture, a bed and washstand and table or desk and a few chairs being the full complement of a well equipped room. A carpet was a luxury only indulged in by the very rich, and even then only during the latter part of one's course. The book will be of interest to Harvard graduates.

DES EMPLOIS CHIMIQUES DU BOIS DANS LES ARTS ET L'INDUSTRIE. Par Othon Petit. Ingenieur Librairie Polytechnique. Baudry et Cie., Paris, France. 1 vol. 8vo, paper. 1888. Price \$5.

The author treats of the subject of wood and the various processes by which the composition of the wood is destroyed or altered in such a way as to liberate certain of its elements, such as carbon, methyl alcohol, acetic acid, cellulose, tannic acid, etc. Combustion produces a complete chemical transformation of the elements of which the wood is composed. The manufacture of tannin and paper pulp alone have brought on a perfect avalanche of patents, many of which are based upon principles that are faulty or incomplete. The object of the present work is to furnish such data as may be of future use in the treatment of wood by chemical processes, and also a description of the apparatus employed in carrying out these processes. The treatise comprises papers on the composition of vegetable tissues, upon wood considered as combustible, on the extraction of carbonate of potash, on the manufacture of charcoal, tar, turpentine, on distillation of various spirits, on the manufacture of tannin and paper pulp, and the transformation of wood into glucose. There is also a list of French patents relative to the extraction of tannin and the manufacture of paper pulp from January 1, 1870, to January 1, 1887.

WIDE AWAKE. An illustrated magazine. We have received copies of this eminently "Wide Awake" monthly magazine, published at \$2.40 a year by the D. Lothrop Co., of Boston, Mass. In its elegance of illustration and typography it leaves nothing to be desired, while its wide range of topics should please every taste. Many of the articles are accompanied by fac-similes of the author's signature, which to many is a feature of interest. The cover, a floral design in subdued tints of the crushed strawberry type, is extremely delicate and attractive.

Received.

PRACTICAL PHYSICS FOR SCHOOLS AND THE JUNIOR STUDENTS OF COLLEGES. ELECTRICITY AND MAGNETISM. By Balfour Stewart, F.R.S., and W. W. Haldane Gee, B.Sc. London and New York: Macmillan & Co. Pp. 221. Price 60 cents.

HOT WATER SUPPLY. A Practical Treatise upon the Fitting of Hot Water Apparatus for Domestic and General Purposes. By F. Dye. London and New York: E. & F. N. Spon. Pp. 82. Price \$1.

HOME SANITATION. A Manual for Housekeepers. By the Sanitary Science Club of the Association of Collegiate Alumnae. Boston: Ticknor & Co. Pp. 80. Price 50 cents.

HANDBOOK FOR STEAM USERS. Being Rules for Engine Drivers and Boiler Attendants, with notes on Steam Engine and Boiler Management. By M. Powis Bale. London and New York: Longmans, Green & Co. Pp. 95. Price 75 cents.

Any of the above books may be purchased through this office. Send for new catalogue just published. Address MUNN & CO., 361 Broadway, New York.