

## RECENTLY PATENTED INVENTIONS.

## Engineering.

## HYDRAULIC PROPULSION OF VESSELS.

—James C. Walker, Waco, Texas. This is an improvement on a former patented invention of the same inventor, for a method of jet propulsion in which the vessel has longitudinal pipes with propellers in them, in connection with a ventilated bilge water well connected by branch pipes with the propeller pipes. The invention provides means for draining the bearings of the jet nozzles and ventilating and draining the ship's hold.

**GRATE.**—John L. Baker, Baird, Texas. This grate is more especially designed for use with locomotive boilers, and is arranged to conveniently dump part of the burning fuel in one end of the fire box. A number of grate sections are pivoted in the grate frame and connected with an operating bar, while an auxiliary grate frame is pivoted to the main frame at one end, a grate section pivoted in the auxiliary frame being provided with an arm having a pivotal and sliding connection with the operating bar.

## Railway Appliances.

**CAR COUPLING.**—John Q. A. Johnston, Newburyport, Mass. The drawhead of this device is longitudinally channeled on top at the rear and cross grooved on top at the front, while a link having edge-curved side bars and straight cross bars at its ends is pivoted by a cross bolt in a transverse inclined slot, means being provided to rock and slide the link. The device works automatically to couple cars as they come together, and the uncoupling can be readily and safely effected from the top or side of the cars.

**CAR COUPLING.**—Jacob W. Holmes, Okobojo, South Dakota. In this coupler two links are employed, and a hook, with which the links are connected, while the drawhead differs but little from the ordinary construction with which the old style link and pin are employed. The arrangement is such that the coupling links and hooks ride practically in close contact, while yet having ample lateral and vertical play, whereby the coupling may be effected upon a curved or straight line of track, or where one car is higher or lower than another. The uncoupling may be readily effected from the sides or top of the car.

**CAR BRAKE.**—Harry Thompson, Brooklyn, N. Y. This is a quick-acting brake, more especially designed for electric, cable, or other street cars, and adapted to hold the pressure on the wheels without the use of pawl and ratchet mechanism. The brake handle or crank is on the upper end of a screw rod of quick pitch, which slides without turning, but which turns an internally threaded pinion which engages a spur wheel on a shaft, while a chain connects the sliding screw with the brake levers carried by the car. With this improvement the motorman or gripman can apply the brakes and leave them on, with both his hands free.

## Electrical.

**BATTERY.**—Wilbur M. Stine, Athens, Ohio. This battery consists of one or more positive zinc plates in porous cups, one or more negative plates of carbon or reduced copper oxide, and an electrolyte composed of potassium zincate with an excess of potassium hydrate and also potassium bromide. It may be used as a primary battery and when run down be recharged as a storage battery, and then again used as a primary battery, the electrolyte and electrodes rendering the products of chemical action soluble instead of being deposited on plates, excepting the zinc, so that the charging operation renews both the active electrolyte and the depolarizing mediums.

## Mechanical.

**LATHE TOOL.**—Samuel N. Rapp, Toledo, Ohio. This is a simple and durable tool more especially designed to quickly and accurately turn and finish gas keys, cocks, valve plugs, etc. A holder adjustably held in a revoluble body has a seat for the plug and a slot leading to the seat, while a tool holder is held adjustably on the body, and adjustably held on the holder is a facing tool whose cutting edge extends into the slot of the plug holder. A milling tool also secured to the body extends with its cutting edge concentrically to the small end of the seat, while a drill revolving with the body has at its cutting edge a shoulder for facing the top of the shoulder on the plug.

**SAW MITERING DEVICE.**—James Lumsden, New Rochelle, N. Y. This is an improvement designed for general use by mechanics, to enable one to make square cuts or any desired angular cut, and to take the angle in panel and other work, to make the beveled cut corresponding to the bisection of the angle of the panel. The invention consists of a saw guide frame, arranged on opposite sides of which and pivoted thereto are supporting bars, with which are pivotally connected arms to connect with a block mounted to slide in the guide frame.

**TOOL GRINDER.**—Isaac H. Gilman, Beloit, Wis. This device comprises a special construction of chuck and chuck holder for carrying and holding the tool to be ground to a grinding wheel, the improvement being more especially adapted to accurately grind drills and similar tools to any angle, at the same time giving the desired clearance.

**TIRE SETTER.**—Isaac Lehman, Ashcroft, Canada. This invention provides a means for readily forming a pit and a platform adapted to receive a tire and wheel to be set, located within the pit in such manner that it may be conveniently and quickly raised and lowered, and whereby also the platform may be locked in raised position with a simple and strong locking device. When the unlocking mechanism is released the platform is carried downward to a lower position in the pit.

**PUMP.**—Theodore W. Bleach, Kearney, Neb. This is a combined air and water pump, adapted for simultaneous operation by a single actuator, and together discharging into a sealed receptacle, producing

air pressure on a body of water in the receptacle, and thus affording power to raise water through a pipe connected to the receptacle and discharge it at an elevated point. The apparatus is inexpensive and has a gravity-controlled pressure equalizer adapting it for a regular discharge of water at a given point, together with an air-cushioned water discharge pipe affording an elevated water supply as needed.

**CLOTH PRESSING MACHINE.**—Ernst Gessner, Aue, Germany. This invention relates to a formerly patented invention of the same inventor for a machine in which cloth is pressed between a revolving cylinder and bed plates, and the improvement provides means for moving the bed plates to or from the cylinder almost instantaneously. The invention comprises as a main feature a toggle of peculiar construction, whereby two oppositely arranged vertical lever arms are connected with one another, the toggle being operated by a winch handle or hand lever.

## Agricultural.

**CHURN.**—Martin O. Barke, Fergus Falls, Minn. This is a churn of the cylindrical barrel, vertical dasher class, with a novel and superior lid. The lid is cupped on its upper surface, and apertured for the discharge of cream into the churn, such aperture being adapted to be filled by a scraper spoon, the lid and the spoon being adjustable to seal the churn body and prevent cream from splashing outwardly.

**CONVERTIBLE BOX OR COOP.**—George Bernhard, Dayton, Ohio. This box has permanent sides, ends and bottom, and the top sections form a cover of such character that the box may be used as an ordinary packing case or may be readily converted into a coop for chickens, ducks, or other fowl, or may be employed as a dog house, thus converting a waste box into a useful article.

## Miscellaneous.

**TREATING GOLD AND SILVER ORE.**—Manuel V. Ortega, Mexico, Mexico. This inventor has devised a process for the treatment of gold and silver ores to rapidly and economically amalgamate the precious metals without the use of chloride of sodium or other chloride, as heretofore employed. The process consists in subjecting the ore to the action of a mixture of sulphate of copper and hyposulphite of sodium or calcium, with the proper amount of mercury. With this process it is not necessary to previously roast the ore or inject steam to assist amalgamation, and the apparatus may be of any kind already in use, such as pans, barrels, etc.

**BICYCLE STAND.**—Fred G. Hurlbut, Fond-du-Lac, Wis. This stand consists of a horizontal bar supported by branch arms from floor posts, there being at intervals on the bar forwardly projecting spring clamps with jaws adapted to receive the handle bar or head of the bicycle. The improvement affords convenient and inexpensive means for holding a number of bicycles in upright position, and so that they may be readily removed.

**POST HOLE AUGER.**—Alvin De Witt, Elliott, Iowa. This device comprises opposing shovels or curved spring blades connected by their shanks, while a dirt holder is removably and pivotally located between the shovels. The dirt holder is designed to receive and lift out the dirt loosened by the auger.

**CARPET STRETCHER.**—Simon Livingston, New York City (No. 1670 Third Avenue). This is a cheap, strong and simple device by means of which the carpet may be easily stretched and nicely fitted when in place on the floor. It has a slotted open frame with transverse arch, a slotted bar extending from the arch to the outer cross bar, which has depending teeth, while a hand-operated lever is adapted to engage a T-shaped stretcher bar.

**SASH FASTENER.**—John Dohnal, New York City. Two hinged spring-pressed bars are, according to this invention, adapted to be secured to the window sash, and arranged to press opposite sides of a guide strip fixed to the window casing. The device is simple and inexpensive, and will securely hold the sash in any desired position without the use of weights, while permitting of conveniently sliding the sash up or down.

**DOOR SECURER.**—Charles H. Yokey, New Orleans, La. This is an auxiliary fastening for doors opening inwardly, and the device is so made that it may be quickly and easily applied to any door. It consists of a clamping bar pivoted to one side of a support upon the rear of which is pivoted a locking bar, so that when the clamping bar is turned down the locking bar will engage and lock it. The device is preferably combined with a pocket knife, within which it may be contained without interfering with the blades.

**MAIL BOX.**—Oliver P. Johnston and Calvin M. Gates, Butte, Montana. This box has a nearly cylindrical upper portion with an open top, a chute being arranged in the upper portion and adapted to deliver into the box body, while a sliding hood turning on the cylindrical portion covers the chute. A receiver plate carried by the hood turns beneath the chute when the hood is raised. The construction of the box is inexpensive, provision is made for the easy insertion of matter, and it is impossible to steal anything from the box except by breaking it or by breaking the lock.

**DISPLAY ENVELOPE.**—Charles J. Billwiller, Brooklyn, N. Y. This envelope is made of one piece of material, the sides folding over the back and ends folding over the sides, while flaps are fastened to the under side of the back. It is more especially designed for inclosing embroideries, laces, trimmings and other goods, and displaying a portion to permit of inspection without removing the entire piece from the envelope.

**INK FOUNTAIN.**—Otis M. Moore, Hoquiam, Washington. This is a subsidiary or supplementary ink fountain adapted to be placed and used in the ordinary long fountain of any printing press to facilitate chromatic color printing, as in printing show bills in colors in such a way that one color blends with another

where the form is printed at one impression. The ordinary long fountain constitutes a holder within which are set the subsidiary fountains having slots and adjustable gates, and inclined bottoms provided with flanges for supporting them.

**POCKETBOOK.**—Daniel M. Read, New York City. Externally upon this pocketbook is located a box pocket adapted to carrying stamps, cards, etc., in such manner as to be readily accessible, and at the same time be protected from moisture and soiling. The book is so connected with the box pocket that the outer face of the latter is practically flush with the face of the book, but the box is so shaped and placed as not to interfere with the inner pockets of the pocketbook.

**DANCING TOY.**—Thomas B. Thorn-dyke, New York City. A dancing platform is, in this toy, supported by two sets of springs, and one or more figures are arranged to keep regular step on the platform by tapping the latter with the fingers. The figures may also be suspended above the platform by a spring connection with a bracket.

**John T. Waller, Pasadena, Fla., has registered a trade mark of which the essential feature is the words "Cedar Tree." Used in the orange, lemon and peach trade.**

**NOTE.**—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

## NEW BOOKS AND PUBLICATIONS.

**HOW TO WIRE BUILDINGS: A MANUAL OF THE ART OF INTERIOR WIRING.** By Augustus Noll. New York: C. C. Shelley. 1893. Pp. vi, 162. With many illustrations. Price \$1.50.

The subject of electrical wiring is here excellently treated. The subject is not a very large one, but the author manages here to bring before the reader salient and interesting points relating to it, giving many excellent suggestions of his own in addition to the supply of examples of the methods in use by electrical constructors. Under theater lighting the two systems which are shown of maintaining foot lights below the level of the stage floor are interesting. The destruction of wires by moisture is an interesting topic treated under the head of electrolysis. Converter work, fuse wires, the distribution of light, and hints to foremen are types of the subjects treated, and illustrate the very practical nature of the book.

**AN ELEMENTARY TREATISE ON FOURIER'S SERIES AND SPHERICAL, CYLINDRICAL, AND ELLIPSOIDAL HARMONICS, WITH APPLICATIONS TO PROBLEMS IN MATHEMATICAL PHYSICS.** By William Elwood Byerly. Boston: Ginn & Company. 1893. Pp. ix, 287. Price \$3.

Those who are fond of the higher mathematics in their applications to concrete problems will here find much to rejoice them. In this work the calculus is applied to actual problems, making the book a treatise on what may be termed the applied calculus. Naturally such a work does not lend itself to review, but to any one who has studied calculus in the past and has become somewhat rusty in it, a work like this will always seem attractive and bring with it the desire that time, seconded by inclination, will enable him to go through it. The absence of an index is not to be regretted in this particular book, as an analytical table of contents fully takes its place.

**MARINE BOILER MANAGEMENT AND CONSTRUCTION.** Being a treatise on boiler troubles and repairs, corrosion, fuels and heat; on the properties of iron and steel, on boiler mechanics, workshop practices and boiler design. By C. E. Stromeyer. London and New York: Longmans, Green & Co. 1893. Pp. xviii, 343. Price \$5.

Marine boilers, owing to government supervision, to the system of awarding premiums for efficiency of naval machinery and to Board of Trade inspection, have become perhaps the leading type of boiler. In them the highest efficiency is looked for, and the highest pressures are employed. This work devoted to their construction may be taken really as a treatise on the best boiler practice and boiler management. Its characteristic is thorough practicability. Everything is treated from the practical as well as the theoretical standpoint, and numerous illustrations cover all the details of construction, even to the proper use of the calking iron, the protection of cracks and weak points, the determination of fractures and other similar points. It is emphatically a work that every boiler maker should have.

**EXPERT BOOKKEEPING AND "100 HELPFUL HINTS."** By Marcus A. Emmons, expert accountant. Detroit, Mich.: The Bookkeeper Publishing Company. 1893. Pp. 200. Price \$3.

To properly review this book one should be an expert. A casual examination, however, makes it very evident that the subject has been thoroughly worked up and put into the most practical shape. The 100 helpful hints are very interesting. A chapter on signatures gives curious examples of bank cashiers' autographs, and is very entertaining.

**A LABORATORY GUIDE FOR A TWENTY WEEKS' COURSE IN GENERAL CHEMISTRY.** By George Willard Benton. Boston: D. C. Heath & Co. 1893. Pp. 163. Price 40 cents.

This is a high school book, a book for use by young students in chemistry. It is interleaved throughout, carrying out the idea that the student shall make notes of his work on the blank pages. Among the appendices we note references for all of them to Remsen, Shepard, Fresenius, Atfield, and other scientific works, so that if

desired, each experiment can be followed up in detail as far as the literature of the subject is concerned. The arrangement which it follows is excellent.

**A HAND BOOK ON THE STEAM ENGINE, WITH ESPECIAL REFERENCE TO SMALL AND MEDIUM SIZED ENGINES FOR THE USE OF ENGINE MAKERS, MECHANICAL DRAUGHTSMEN, ENGINEERING STUDENTS, AND USERS OF STEAM POWER.** By Herman Haeder. London: Crosby Lockwood & Son. New York: D. Van Nostrand Company. 1893. Pp. vii, 440. Price \$3.

This excellent and reasonably complete work bears a distinctly English aspect. The time, however, has come when every American is rather in favor of than against a technical work. Even American locomotive engineers are awaking to the fact that a compound locomotive is not only a practical, but may be a highly advantageous form of structure. So that this profusely illustrated hand book, describing principally English work, may be warmly commended to our engineers.

**PALLISER'S MODEL DWELLINGS.** By Palliser, Palliser & Co., architects. New York: J. S. Ogilvie. Pp. 95. Price \$1.

Plans of numerous low-priced houses, with accompanying text of considerable interest, makes up this publication. The dwellings cover a wide range of cost, and it would seem that those desirous of building country houses would be sure to find in so comprehensive a work something adapted to their needs.

**PEOPLES' POCKET STAIR BUILDER AND CARPENTERS' HAND BOOK.** By William Peoples. Pittsburg, Pa.: Nicholson. 1892. Pp. xvii, 247. Price \$5.

The author states that the object of this book is to supply a manual for the young stair builder, carpenter and joiner, that would be to them what Haswell and Trautwine are to the engineer. The author has worked at the trade of carpentry and stair building for 43 years, so that his exhaustive treatise, for such it is, with its 51 folding plates, should be a *sine qua non* for the intelligent builder.

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

## SCIENTIFIC AMERICAN

## BUILDING EDITION.

JANUARY, 1894.—(No. 99.)

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1. Elegant plate in colors showing a suburban dwelling at Bridgeport, Conn., recently erected for L. D. Plumb, Esq., at a cost of \$4,500 complete. Floor plans and perspective elevation. An excellent design. Mr. C. T. Beardsley, architect, Bridgeport, Conn.
2. Plate in colors showing the residence of Thomas C. Wordin, Esq., at Bridgeport, Conn. Two perspective views and floor plans. Cost \$3,600 complete. Mr. Joseph W. Northrop, architect, Bridgeport, Conn.
3. A colonial dwelling erected for Philip Lucas, Esq., at Mount Vernon, N. Y. Perspective and floor plans. An excellent design. Cost \$7,000 complete. Mr. Louis H. Lucas, architect, Mount Vernon, N. Y.
4. A cottage at Cranford, N. J., erected at a cost of \$5,000. Floor plans, perspective view, etc.
5. Engravings and floor plans of a suburban residence erected at Brookline, Mass. Mr. E. L. Rodgers, architect, Boston, Mass. A very attractive design.
6. A dwelling recently erected at Elizabeth, N. J., at a cost of \$5,500. Floor plans and perspective elevation. Mr. J. E. Baker, architect, Newark, N. J.
7. A new frame schoolhouse at Elizabeth, N. J., erected at a cost of \$16,000 complete. Elevation and floor plans. Messrs. Charlock & Howard, Elizabeth, N. J., architects.
8. A dwelling recently erected for W. E. Clow, Esq., at Buena Park, Chicago, Ill. A picturesque design. Two perspective views and floor plans. Mr. Greg Vigeant, architect, Chicago.
9. A town library of moderate cost at Colchester, England. Perspective view and plans.
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