

RECENTLY PATENTED INVENTIONS.

Engineering.

AIR BRAKE.—Lucien A. Pinkston, Corsicana, Texas. This improvement provides for the use of a direct air brake system in combination with an automatic system, there being, with other novel features, an automatic and a direct reservoir and connections, the pump discharging into the direct reservoir, and the pump governor and mechanism being operated by the reduction of pressure in the direct system to hold the pressure in the automatic system to standard pressure during the application of the direct pressure. In descending long grades the direct pressure can be applied at the start, and the automatic brake used on top of it when desired, or one can be used while pressure on the other is being restored.

HYDRAULIC ELEVATOR LIFTING DEVICE.—Henry R. Koch, St. Joseph, Mo. This is a variable lifting device designed to economize in the use of water, carrying the full load to any given point and then automatically changing for a light lift. The invention consists of a lazy tong pivoted at one end to a fixed support or casing and pivotally connected with the lifting rod, and adapted to be engaged at one of its pivots by the piston beam or slide. When a partial load only is to be carried, the piston rod is thus assisted to move the traveling sheaves their full distance while the pistons travel only part of the distance, thus effecting a saving in the consumption of water.

Railway Appliances.

CAR COUPLING.—Constant Cousy, New York City. In this coupling the drawhead and drawbar are pivoted on a common pivot to swing horizontally beneath a car, there being a vertically movable coupling pin, at one side of which is arranged a spring, while the drawbar has a hook at its front end to engage the pin of an opposing coupling. The coupling is automatically effected, and the cars may be readily uncoupled from the side or top, there being no liability to accidental uncoupling, while the coupling readily accommodates itself to the movement of cars around a curve.

CAR COUPLING.—Morse P. Scott, Woodville, Miss. This coupler has an arrow head capable of limited lateral and vertical movement, a hinged bar above the arrow head having inclined front and rear faces, while the arrow head carries a spring-controlled locking bar adapted for engagement with a gravity latch bar, and a shifting lever is connected with the locking bar. The drawhead may be readily removed from the car when desired, and is capable of coupling with an opposing drawhead of greater or less height, the locking engagement between opposing couplers being positive and firm. The uncoupling is readily effected without exposing the train men to danger.

CAR AXLE BEARING.—Olaus B. Jacobs, Fremont, Washington. This improvement is more especially applicable in railway and street cars, reducing friction to a minimum, and eliminating it from lateral and transverse thrusts, while giving the required strength within a small space. The invention consists of a series of rollers traveling on the axle and passing between it and the brass, the rollers being mounted on ball-bearing spindles held in rings. An end thrust plate is also held on the brass or box, and a ball bearing interposed between the plate and the end of the car axle.

GRIP OPENER.—William P. Courtney, Oakland, Cal. This is an improvement in automatic grip openers in which the grip is released by means of a tripping bar arranged to engage a suitably placed abutment or bearing. The keepers or guides of the grip are arranged to hold a safety bar formed with a shank and a ring or loop extending rearwardly from the lower end of the shank, where it is formed with reversely curved or inclined tripping surfaces.

STOCK CAR.—George C. Faville, Baltimore, Md. A movable slatted floor for cattle cars, so designed that it may be readily applied to any cattle car now in use, has been provided by this inventor. The floor serves as a foot lock to prevent cattle slipping during transit, and can be readily moved out of the way to permit easy cleaning of the cars without injury to the slats. The floor is of inexpensive construction and can be quickly attached to or detached from a car.

Electrical.

PURIFYING WATER.—Henry Roeske, Philadelphia, Pa. A method of and apparatus for purifying water on a large scale, designed by this inventor, consists in passing the water through a body of comminuted iron which is simultaneously agitated and subjected to the action of an electric current, when the oxide disengaged mingles with the water and precipitates the larger portion of its impurities, the remainder being removed by filtration. The filtered water is aerated before entering the distributing reservoir, and the entire plant may be set up and operated at a small cost.

Mechanical.

TAPER GAUGE.—Frank Peterson, Chicago, Ill. For conveniently and rapidly measuring tapers on work suspended in lathes or other machines this inventor has contrived a gauge composed of a U-shaped frame having aligned bearings at its ends, a table fixed on one arm of the frame, at an angle to which is arranged an opposite straight edge, a bar sliding in the other bearing carrying a pivoted straight edge. There is a graduated segment, secured in different adjustments or angles by a clamp screw, and also nearer to or farther from the table. A taper can be readily duplicated by applying the gauge to the sample and then to the work in the lathe.

SAW HAMMERING MACHINE.—Thomas H. Dillon, Beaumont, Texas. This machine has a sliding anvil adapted to be adjusted to come opposite the various parts of the saw, which can be carried by the machine in such a way as to be held at any desired angle, and an adjustable hammer may be brought opposite the anvil, whereby a blow may be made to expand both sides of the saw equally. The machine is especially

adapted for use in hammering circular saws, facilitating quick and good work.

GANG SAW MILL.—William T. Mackey, Vancouver, Canada. Combined with a vertically reciprocating saw frame is a second frame reciprocating between parallel guide bars adjustable to a vertical or oblique position to change the pitch of the second frame. The invention also presents other novel features designed to afford a cheap and simple mill adapted to operate two gangs of saws in such a way as to saw an entire bolt into shingles or other stuff at one operation, there being means for adjusting the independent gangs of saws in relation to each other so that the desired pitch or bevel may be given to the stuff sawed.

Agricultural.

CHURN.—Downing H. King, Farmersville, Ill. This is a very simple churn adapted to use as a cream pot an ordinary stone jar, placed in the base of an upright frame, there being convenient means for fastening the cover to the jar. The rods of two dashers extend up through apertures in the cover, and the dashers are reciprocated by a simple crank mechanism, a fly wheel affording convenient means for adjusting the stroke of the dashers, and steadying the movement during the operation of churning.

CHURN.—John S. Thomson, Melbourne, Victoria. This churn aerates as well as agitates, and consists of a vertical cylindrical vessel to the bottom of which extends a central tubular spindle having at its lower end tubular and perforated radial arms, the outermost parts of which are bent up and stand parallel with the side of the vessel, to act as beaters and scrapers. The central shaft is connected with operating gear, and there are cocks for admitting either air or liquid to a pump also connected with the shaft, and an outlet for the air. The churn may be used for heating or Pasteurizing milk, by passing into it heated air followed by cool air, and when air and water can be had at the desired pressure no pump is required. The improvement may also be employed as a mixing machine, and for other purposes.

INCUBATOR.—Henry M. Sheer, Quincy, Ill. The casing of this incubator has double sides, top and bottom, and the egg crates rests on transverse cleats within, a central heat flue being surrounded by an air supply pipe, both connected with each other at the bottom. Into the heat flue extends the chimney of a lamp, and in a hot air distributing flue is a thermostatic regulator, permitting the hot air to pass off when the temperature becomes too high. A hot water tank is supported in the casing above the egg crates, and is connected with evaporating pans, whereby the necessary amount of moisture will be disseminated through the casing.

Miscellaneous.

STOVE ASH SIFTER.—Albert E. Trentowsky, St. John, Canada. This is an attachment for base-burning heating stoves or cooking ranges, adapted for a quick engagement and ready removal of the ash receptacle, and affording convenient means for the thorough separation of ashes from partly burned fragments of coal, permitting the latter to be again readily placed in the fire box. The device comprises a pan on which is a rocking prop bar with a leg engaging the floor and a handle, in connection with means for securing the pan below a hole in the base wall of the stove, and a sifting grate pivoted to receive rotatable motion on the cross bar.

KITCHEN BOILER SUPPORT.—William Rowlinson, Englewood, Ill. L-shaped brackets are secured with their vertical members to the kitchen wall, a seat having a circular depression for the reception of the boiler being fitted on to the horizontal members of the brackets, while transverse members on the under side of the seat fit the outer sides of the horizontal members of the brackets. The device is of simple and durable construction and adapted to be readily fastened in place to securely hold the boiler in position.

FIRE ESCAPE.—Robert G. Dalphin, Malone, N. Y. This device, which the inventor styles the "Columbian" fire escape, is of an extremely simple and practical character, and comprises a peculiarly formed spongy friction block, frictionally engaged by a pendent rope hung by one end from the house wall near a window, a flexible seat being suspended from the block. A spring clamping plate, vibrating in a recess of the block, presses the rope in one of the cross grooves, the friction, and consequently the speed of descent of the person in the seat, being regulated by the turning of a winged nut, bringing pressure upon the clamping plate. The device affords a safe, convenient and expeditious means of escape from a burning building.

ACCORDION.—Wilhelm R. Muhlmann, Klingenthal, Germany. This accordion is provided with a handle made hollow and adapted to be attached to one side of the bellows, a melody reel board held in the hollow handle containing the reeds, and the reel board dividing the hollow handle into two compartments, of which one is connected with the interior of the bellows, there being key valves for opening and closing the apertures leading to the sounding chambers of the other compartment. Ready access may thus be had to the melody reeds without disturbing the bellows, and the instrument is of simple and durable construction.

FRET FOR MUSICAL INSTRUMENTS.—John F. Stratton, Brooklyn, N. Y. This fret has in its shank recesses or grooves, adapted to be filled by the wood expanding after the fret is driven in place, there being then no danger of the fret coming loose on the shrinking of the wood into which the fret is driven.

DENTAL ARTICULATOR.—George W. Simpson, Santa Barbara, Cal. This is an improvement in devices for holding casts of artificial teeth in position to have the teeth perfectly articulated. It has no small parts to be detached and lost, is designed to afford substantially the movement of a human jaw, to be quickly and easily adjusted to bring the cast-holding jaws the correct distance apart, to permit the movable

jaw to be arranged to correspond with a jaw or mouth of any peculiar shape, and may be conveniently used for either single or double sets of teeth.

ROWLOCK.—Lewis Minerley, Kingston, N. Y. This invention consists of a ring provided with a pintle, and an interior recess adapted to be engaged by the projecting ends of a pin held on the oar stem passing through the ring. It affords a swivel rowlock adapted to enable the boatman to easily and properly feather the oar without danger of displacing it.

SPRING GUN.—William H. Cram, Penawawa, Washington. A suitably supported breech-loading barrel has a pivoted hammer connected by a spring with a swinging trigger, and the latter is connected with a lever from which extends a bait rod, whereby bait may be so held in front of the barrel that the disturbance of the bait will cause the discharge of the gun. The improvement affords an extremely cheap and simple substitute for traps for killing all kinds of wild animals, and it may be safely carried and easily loaded and unloaded.

SLICING MACHINE.—Pierce Ford, Chicago, Ill. This machine comprises a wheel carrying sets of knives, each set containing a gauge plate and a knife blade, and a feed tube is engaged at its discharge end by the knives to cut the material passed through into slices. A screw adjusts the wheel to hold the knives against the tube, and a feed screw in the tube feeds the material to be cut. The machine is more especially designed for slicing or cutting grain after it has been steamed or cooked and hulled for preparing a food product.

Designs.

PHONETIC PRINTING TYPE.—Robert S. Avery, Washington, D. C. This design is for a font of phonetic script, complementary to a font of phonetic printing type heretofore patented by the same inventor, the printing being in imitation of handwriting.

ORNAMENTAL METAL SHEET.—Leopold Kahn, New York City. This design comprises curved fern fronds with intervening meshed work, there being an ornamental marginal band at the base, near which are arched fern fronds.

BRUSH BACK, ETC.—Charles Osborne, New York City. This design consists of a wreath-like border formed of raised connected scrolls, with leafy rosettes at intervals in the border.

BUCKLE AND SNAP HOOK.—George L. Frederick, Ebensburg, Pa. The lines of this buckle are longitudinally in the form of a compound curve, the cross bar lying out of the plane of the curved body. The lines of the snap depart from one end of the buckle about centrally, and are narrowed a short distance from the buckle.

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.

A STANDARD DICTIONARY OF THE ENGLISH LANGUAGE. 1893. New York: Funk & Wagnalls Co. Prospectus and sample pages, 4to. Pp. 34, colored plates. Price 25 cents.

The definers are working in the letter T, so that we may expect the completed work possibly next December. The Standard Dictionary will be a remarkable work. It will embody many new principles in lexicography. It will contain 2,200 pages of 4to size, over 4,000 illustrations, made expressly for the work, and 280,000 words. The editors number two hundred and \$500,000 will represent the cost of the dictionary. It is indorsed by Professor Skeat, of Cambridge, and Dr. Murray and Professor Sayce, of Oxford, Professor R. Ogden Doremus, Dr. G. Brown Goode, and many others. Advance subscribers are treated in a liberal manner, as they receive the book for \$8, while \$12 is to be the retail price. We recommend all who are interested either in teaching or in a good common sense dictionary to send for the prospectus.

METAL PLATE WORK. Its patterns and their geometry. By C. T. Mills. London: E. & F. N. Spon. New York: Spon & Chamberlain. 1893. Pp. xi, 377. Price \$3.50.

This very excellent work is devoted largely to the development of surfaces for the laying out and cutting sheet metal for different articles made of tin plate. It is very fully illustrated, the problems being treated by practical methods based on descriptive geometry. Although an English technical manual, it is refreshing to find it written without reference to some specific examination, so that the author is not limited to the requirements of the London University. It will be found quite applicable to the American.

A PRACTICAL TREATISE ON FOUNDATIONS. Explaining fully the principles involved. By W. M. Patton. First edition. New York: John Wiley & Sons. 1893. Pp. xix, 402. Price \$5.

A work upon foundations alone seems particularly timely at the present day. The demands made upon the earth in the way of supporting weight are so much greater than formerly, owing to the increase in height of buildings and of sizes of structures generally, that so elaborate a treatise as the present is particularly valuable. The author has drawn on the principle that theories and formulae are of little value in this class of work, so that the book is written entirely from a thoroughly practical standpoint. As in all books published by this firm, an excellent index is given.

THE SOIL IN RELATION TO HEALTH. By H. A. Miers and R. Crosskey. With illustrations. New York and London: Macmillan & Co. 1893. Pp. xvi, 185. Price \$1.10.

This little work purports to be based on the principles of geology, as far as they concern sanitary science. It

begins with the subject of rocks and soils, micro-organisms of the soil, the distribution of water, constituents of water derived from the soil, the soil in its relation to air, and the geological distribution of diseases. The work contains an excellent index, and the examples of danger from cesspools and surface pollution are excellently selected and mentioned. It is to be wished that more attention was given to this subject by sanitarians.

LECTURE NOTES ON THEORETICAL CHEMISTRY. By Ferdinand G. Wiechmann. First edition. New York: John Wiley & Sons. 1893. Pp. xiv, 225. Price \$1.50.

This little work by Dr. Wiechmann is warmly to be recommended to the chemist as being up to date, and as in that sense supplying some of the deficiencies inevitable to the larger works. It appears adapted to form an admirable supplement to the larger works, and would seem to be a peculiarly useful laboratory handbook. It possesses the quality of individuality in the place which it fills and in the information which it contains—a thing which gives a book a special interest.

LECTURES ON SANITARY LAW. By A. Wynter Blyth. London and New York: Macmillan & Co. 1893. Pp. xi, 287. Price \$2.50.

Although devoted to English law, this book possesses a character of general interest in being written by a fellow of the Institute of Chemistry, who is also a barrister at law and a professor of hygiene, for these three positions are occupied by Professor Blyth. The blending together of the information incident to these different occupations makes the book peculiarly good, the knowledge of the lawyer being supplemented by the technical acquirements of the chemist.

THE CARAVELS OF COLUMBUS. Compiled from original documents by Nestor Ponce de Leon. New York: N. Ponce de Leon. Pp. 41. Price 50 cents.

In this book of Mr. De Leon's are given the original sources of information on which the designing of the famous caravels was based. The story of the buildings of the caravels from a technical aspect is told in this monograph. It then goes into more minute particulars of their equipment. It even describes the instruments used by Columbus. The flags, lights, galleys, pumps, and religious observations on board, with other details, are all very fully treated.

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SCIENTIFIC AMERICAN BUILDING EDITION.

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2. Plate in colors showing the colonial residence of L. Allyn Wight, at Montclair, N. J., erected at a cost of \$15,400 complete. Perspective view and floorplans. Messrs. McKim, Mead & White, architects, New York. An attractive design.
3. A cottage erected at Portland, Me. Perspective view and floor plans. A model design. Cost \$3,400 complete. Mr. J. C. Stevens, architect, Portland, Me.
4. A Queen Anne cottage, erected at Wayne, Pa., at a cost of \$6,000 complete. Floor plans, perspective view, etc. Messrs. F. L. & W. L. Price, architects, Philadelphia, Pa. An excellent design.
5. Engraving and floor plans of a dwelling recently erected for A. B. Root, Esq., at Springfield, Mass., at a cost of \$2,500 complete.
6. Engraving and ground plan of Grace Episcopal Church, at Plainfield, N. J., erected at a cost of \$40,000, complete. Mr. R. W. Gibson, New York City, architect.
7. A dwelling recently completed at Brookline Hills, Mass., at a cost of \$5,130, complete. Perspective elevation and floor plans.
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9. Wood and stone dwelling at Narberth, Pa. A unique design. Perspective elevation and floor plans. Estimated cost \$5,000, complete.
10. Design for a village library.
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