

RECENTLY PATENTED INVENTIONS.

Engineering.

FEED WATER HEATER.—Loveatus Norton, Escanaba, Mich. This invention is designed to utilize the exhaust steam of locomotives to heat the water before it enters the boiler, there being provided for this purpose in advance of the smoke chamber a supplemental chamber with the bottom of which the exhaust communicates, the feed water pipe being extended through and having a coil located in the supplemental chamber.

ROD PACKING.—James Walker, London, England. This is a packing formed of metal and asbestos or other fibrous strands, interwoven into a sheet and folded bellows-like into layers, with metallic pins embedded in the packing and exposed on its working face, the folds to open to the steam, making a packing of great elasticity, designed to resist the heat of high pressure steam in triple expansion engines.

HYDRAULIC PRESS PUMPING ENGINE GOVERNING GEAR.—Charles Davy, Sheffield, England. Two patents have been granted this inventor, covering improvements on a former patented invention of the same inventor, for controlling the speed of the engines of a press for forging or other purposes where the water is pumped against a variable resistance, there being combined with the steam regulating valve a plunger acted on by the hydraulic pressure opposed to the engines and opposed by a spring, a hand lever being pivoted to the plunger and connected to the valve, with an adjustable stop, or connected to the valve and working in a slot in the plunger, whereby the movement of the valve beyond a certain point is dependent on the position of the plunger and the movement of the lever, while the valve may be closed independently of the position of the plunger.

Electrical.

TELEGRAPH TRANSMITTER.—Samuel W. Smith, New York City. This device has a revolving shaft carrying sending mechanism, with means for closing the circuit through the shaft pinion and sending mechanism, and other novel features, affording a separate transmitter for each letter, so that a key may be operated to send one letter before the movement of a preceding key is completed, thus facilitating the rapid sending of messages.

ANNUNCIATOR AND INDICATOR.—John E. A. Miller, San Francisco, Cal. The mechanism between the indicating devices and the annunciator bell and battery, provided by this invention, is such that the closing of the external or main signal circuit will operate to close the short annunciator circuit and cause the bell to sound until the short circuit is broken.

Railway Appliances.

CAR COUPLING.—Chauncey W. Smith, Brush Creek, Iowa. The drawhead of this device has an offset with a beveled hood in which a lift arm is pivoted having a recess in which the coupling pin is pivoted, in connection with a spring and means of releasing the pin, the coupling being automatic, while uncoupling is effected from the top or side of the car, and the improved coupler being adapted for use with the old style of link coupler.

CAR COUPLING.—Francis A. Johnson, Powhatan, Ark. The drawhead of this coupling has transversely sliding spring-pressed plates in connection with vertically reciprocating bars and a rocking lever, to control the engagement of an arrow-headed coupling link by the plates, the device being simple in construction, and adapted to couple cars of varying heights without requiring the operator to step between the cars.

RAILWAY AXLE BOX.—Louis Ellert, New York City. Combined with a box shell with a tapered recess across its inner end is a leather packing joint apertured to fit tightly on the journal, and split to receive a wedge from below, making an improved metallic bearing with lubricating device, and method of sealing the aperture when the journal end of the axle penetrates the box.

RAIL BRAKE.—Albert M. Perry, Richmond, Va. This is an inexpensive and easily applied device, with which the wear will be upon the rail instead of upon the wheel, the invention consisting of an arm carrying a brake shoe at its outer end, the arm being fulcrumed loosely on the car axle, and its raising and lowering being controlled from the ordinary brake mechanism.

RAILROAD FROG.—Mason A. Dudley, Buffalo Forge, Va. This invention relates particularly to a spring frog designed to be safe at all times, whether all the parts are in proper working order or not, and provides a fixed wing rail beneath which is a sliding plate carrying a movable wing rail, the plate being adapted to be sprung outwardly when the wheel passes.

CAR TRANSOM LIFTER.—John L. Baker, Greensborough, N. C. Combined with a series of pivoted ventilating windows are horizontal shifting bars with chains or cords connecting the bars and the window bolts, and other novel features, whereby all the windows on both sides of the clear story of a railway coach may be simultaneously opened or closed.

ELEVATED RAILROAD.—David B. Weaver, Hopewell, Pa. This invention covers a plan for an electric, cable, elevated road, in which the operator starts a motor rotating a drum to wind up part of the cable to propel the car, the invention covering novel details and combinations of parts designed to afford means of rapid transit at a low cost.

Mechanical.

DECORTICATING MACHINE.—Jose Garcia Hernandez, Havana, Cuba. Combined with reciprocating double knives is a fixed and a movable presser bar, and intermittent feed rollers arranged after a novel plan, with other distinctive features, the machine being designed to break ramie, jute, hemp, and

other fibrous plants, cleaning the fiber of woody matter and rendering it smooth.

FILE CUTTING MACHINE.—Julius Erlenwein, Edenkoben, Germany. Combined with an automatic feeding mechanism is a device for holding a cutter, a mechanism to intensify the blow, a screw gear which operates the automatic cutting mechanism, and causes the cuts to be wider in the center, in connection with a table and carriage which operate automatically, and enable the serrations in the files to be cut at any desired angle.

MIDDINGS PURIFIER AND DUST COLLECTOR.—Ferdinand C. Miller and John H. Walker, Oregon City, Oregon. This invention covers novel details and combinations of parts in a machine designed to effectively purify and grade middings, and at the same time collect all separated dust and other impurities, the middings not being subjected to any harsh treatment so as to become floured or broken.

LUMBER DRESSING MACHINE.—Robert L. Patterson, Wellington, Kansas. This machine has a wheeled frame with a vertical shaft carrying a dressing head, in connection with a clamping frame and longitudinal track, for dressing floors or the surface of lumber, the faces and edges of the wood being conveniently and effectively dressed with knives or with sandpaper or emery, the dressing head being revolved by operating a crank.

BORING MACHINE.—George L. Campbell, Williamsport, Pa. This is a machine specially designed for conveniently boring holes in joists of a ceiling or floor for the passage of concealed electric wires, being a hand implement in which is a boring bit and operating mechanism mounted in an open two-part frame.

BORING AND MORTISING MACHINE.—William C. and John A. Aycock, Griffin, Ga. This is an improvement on a former patented invention of the same inventors for a blind stile boring machine, with which a mortising machine is so combined as to rapidly and automatically bore the apertures and make the mortises at the same time, a rotary boring bit passing through a reciprocating non-rotary hollow mortising tool, with means for independently reciprocating the bit.

BRICK KILN.—John B. Griswold, Zanesville, Ohio. This invention covers an improvement on a former patented invention of the same inventor, the kiln being designed to effect a thorough combustion of the fuel and gases, and the arrangement being such that the products of combustion enter at the top or bottom, while alternate direct or indirect draughts may be used, and the heat can be quickly directed to any part of the kiln, and cut off at other parts, or sent through the kiln at different angles.

CALCINING CEMENT.—Paul Krottnauer, White Hall, Pa. This invention provides an improved kiln for the continuous burning of cement or lime, designed to economize fuel, prevent slagging adhesion of material on the wall of the combustion chamber, and utilize escaping heat to generate steam employed in the burning process and for general uses.

SAND SCREEN.—Charles Prescott and Moses H. Bennett, Fairmount, Neb. The frame of this screen has a circular opening in its front through which projects a double angle bracket forming one of the bearings of a shaft carrying a rotary screen revolved by a crank arm, whereby fine sand may be quickly separated from coarser materials, gravel, etc.

Agricultural.

PLOW AND FERTILIZER DISTRIBUTER.—William F. Moss, Fitzpatrick's, Ala. This is a combination machine in which the hopper box is self-adjusting for height on the plow, and a distributor roller is revolved as the plow moves forward, spring plates in the hopper box contacting with grooves in the roller, whereby the fertilizer is distributed as a growing crop is cultivated, or a powdered fertilizing compound may be thoroughly mixed with the soil.

POWDER DISTRIBUTER.—Merritt C. Barden, West Pawlet, Vt. This is a device to be carried by hand, consisting of a cylindrical receiver with central bottom aperture, below which is retained a pan with suitable holes in its bottom, the receiver delivering the powder on the screen-like bottom of the pan, from which it is sifted by agitating the pan.

BUTTER WORKER.—Thomas Muir, Margaretville, N. Y. This invention covers an improvement on a former patented invention of the same inventor for a butter worker which is simple and durable in construction and not liable to get out of order by warping, leakage or other causes, the invention covering various novel details and combinations of parts.

Miscellaneous.

CALENDAR.—James D. Watters, Belair, Md. This is an improved universal calendar composed of three sections, the second turning within the first, and the third within the second, the first section having the dominical letters, with the names of the months arranged in relation thereto, a movable disk registering therewith the days of the week, and another movable disk registering the days of the month with the days of the week.

TWINE REEL.—John B. Holmes, New York City. This invention provides a frame with swinging arms to support a spool or ball of twine in such way as to readily give off only the desired amount of twine required at a time, a retainer preventing further unwinding and tangling.

BOOT OR SHOE CASE.—Simon F. Frazier, Quenemo, Kansas. This case has a series of guides or strips centrally pivoted, with an adjustable partition held in side pieces, the invention being designed to afford a neat and inexpensive case which will hold the boots in place against falling when one or more pairs have been removed, without increasing the size of the box.

STRAP AND BUCKLE SHIELD.—George H. Nicholls, Galveston, Texas. This shield is made of a flat elongated plate with a slot near its center, two pairs of limbs from the side edges of the plate being adapted to loosely clasp a strap, the shield being readily adjustable, and designed to prevent the ordinary wear on a strap resulting from the action of the buckle.

STOVE PIPE FASTENER.—Frank A. Snow, David City, Neb. This is a clamp for use at the chimney flue, and capable of longitudinal adjustment, so that the device may be applied to walls of different thicknesses, to receive the pipe in position, the same size fastener being applicable to stove or furnace pipes of different sizes, and no special tools being needed.

BRACKET BED.—Thomas E. Smith, New Castle, Pa. This is a device by which a crib may be readily attached to or detached from a regular bedstead, the crib having transverse spring bars adapted to pass through bearings on the bedstead, and a longitudinal bearing adjustably secured to the free ends of the spring bars, the crib being permitted to swing up and down freely.

CARRIER AND CLEANER.—Jacob H. R. Wendel, Harrisburg, Pa. This invention consists of a shaft mounted to turn in a handle, and carrying a brush and adjustable arms, by which cuspidores and similar articles may be conveniently carried from place to place and cleaned by the brush without soiling the hands or clothes.

TOY.—Sadie F. Simpson, Saxonville, Mass. This device consists of separated teething rings, of rubber, ivory, or other suitable material, a hollow handle uniting the rings, and there being a rattling device within the handle.

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.

TRIPLE EXPANSION ENGINES AND ENGINE TRIALS. By Professor Osborne Reynolds. New York: D. Van Nostrand Company. 1890. Pp. iv, 191. Price 50 cents.

This little work of the Van Nostrand Science Series gives the results of tests with special engines at the Owens College, Massachusetts, laboratory. While the engines were built for work, they were also especially designed to facilitate tests by the students and professors of the college. The results of such tests are written here, with a discussion on the same when the paper was read before the engineering society.

A DESCRIPTIVE TREATISE ON CONSTRUCTIVE STEAM ENGINEERING, EMBRACING ENGINES, PUMPS, AND BOILERS. By Jay M. Whitham. New York: John Wiley & Sons. 1891. Pp. vi, 900. Price \$10.

The title of this book sufficiently tells its scope, which is the constructive features of steam engineering as regards engines and boilers, with their accessories and appendages. The various types of engines are classified, and the subjects of heat and steam with thermometers and calorimeters are discussed, and the subject of design occupies most of the rest of the book. The work is profusely illustrated with cuts showing actual practice of all of the best firms of engine makers, boiler manufacturers and others, while the diagrams of indicators, tables of constants, etc., add largely to the theoretical value of the book.

THOMAS JEFFERSON'S VIEWS ON PUBLIC EDUCATION. By John C. Henderson. New York and London: G. P. Putnam's Sons. 1890. Pp. viii, 387. Price \$1.75.

The thoughts of the founder of the United States government upon the necessity of education for the people, as here presented, are of unusual value at the present time, when so much attention and discussion is lavished upon educational subjects. The present work is principally made up of extracts from Thomas Jefferson's writings and his views on the imperative necessity of education for youth. A chapter is devoted to "Our Colored Brethren," which, of course, applies to modern times and is only indirectly referred to Jefferson's theories. Finally, a Jeffersonian amendment to the constitution is proposed and enlarged upon in a special chapter.

TRANSACTIONS OF THE KANSAS STATE HISTORICAL SOCIETY, EMBRACING THE FIFTH AND SIXTH BIENNIAL REPORTS, 1886-1888. Vol. iv. Topeka. 1890. Pp. 819.

A great portion of the most stirring period of Kansas history is included in this volume of Transactions of the Kansas Historical Society, which is largely devoted to the reproduction of the official correspondence pertaining to the office of governor of Kansas Territory in 1856 and 1857. It is a very valuable contribution to recent American history and will be welcomed by many students of this department, in which the students are becoming more numerous every year. The alphabetical index of 60 pages, containing almost every name in the entire volume, as well as the subjects, is a great addition.

A SHORT COURSE OF EXPERIMENTS IN PHYSICAL MEASUREMENT. By Harold Whiting. In four parts. Part II. Sound, Dynamics, Magnetism and Electricity. Cambridge: John Wilson & Son. 1891. Pp. vii, 583.

The physics of to-day is really the "science of measurement," a term originally applied to electricity only. The present work is an excellent contribution to the "science of measurement" in sound, dynamics, magnetism, and electricity. It is a continuation, and forms the second part of a treatise on the measurements of physics, and it is designed for experimental work. All

the apparatus and experiments shown are such as are peculiarly suited for work in what has been termed the new physics.

WAR AND THE WEATHER. By Edward Powers. Delavan, Wis. 1890. Pp. 202. Price \$1.

A theory has long been held that cannonading produces rain. In "War and Weather" the subject is reviewed, with many opinions from different military authorities as to the water supply of the country, with suggestions as to the production of rainfall artificially for the fertilization of large areas of the country.

INCANDESCENT ELECTRIC LIGHTING. A practical description of the Edison system. By L. H. Latimer. To which is added the design and operation of incandescent stations. By G. J. Field. And a paper on the maximum efficiency of incandescent lamps. By John W. Howell. New York: D. Van Nostrand Company. 1890. Pp. 140. Price 50 cents.

The Edison system has now become recognized as the leading low tension lighting system of this country. The present work, treating of the general condition of the system and the manufacture and efficiency of incandescent lamps, is an extremely interesting contribution to the subject and, we have no doubt, will be appreciated by a large clientage. The book is fully illustrated by engravings and diagrams relating to the subject.

The Campbell & Zell Company, of Baltimore, Md., have just issued a handsomely illustrated catalogue of the Zell improved water tube boiler, which has an established record as a safe, economical, and efficient steam producer. A contract has recently been awarded the company for a 600 horse power boiler for the Metropolitan Railroad Co., of Washington, D. C.

The special machinery and machine tools made by the Dwight Slate Machine Co., of Hartford, Conn., are described in a neat illustrated catalogue issued by the company. Many kinds of drills are shown, fine engine and bench lathes, cutter and reamer grinders, plain and nut milling machines, screw slotting machines, marking machines, cut-off tools, chucks, etc., all of a standard excellence in quality of material used and accuracy of workmanship.

SCIENTIFIC AMERICAN

BUILDING EDITION.

MARCH NUMBER.—(No. 65.)

TABLE OF CONTENTS.

1. Plate in colors showing the residence of P. H. Hodges, at Stratford, Conn. Perspective view, floor plans, etc. Cost complete \$8,000.
2. Handsome colored plate of an elegant residence in Riverside Park, New York City. Floor plans, perspective elevation, etc. Cost \$30,000.
3. Residence at Bridgeport, Conn. Perspective view, floor plans, etc. Cost about \$7,000.
4. Handsome residence of Mr. F. Chamberlain, at Hartford, Conn. Francis H. Kimball, of New York City, architect. Floor plans, perspective elevation, etc. Cost \$60,000 complete.
5. Illustrations of two attractive semi-detached houses erected for Mr. A. L. Pennock, at Philadelphia, Pa. Floor plans and perspective. Approximate cost \$15,000 each. F. U. Beal, New York, architect.
6. Floor plans and photographic view of a residence at Edgecombe Court, Chicago, Ill. Estimated cost \$5,400.
7. A pillar cottage erected for Mr. G. W. Childs, at Wayne, Pa. Cost \$6,000 complete. Perspective and floor plans.
8. Handsome residence at Hartford, Conn., W. B. Tubbey, architect, New York. Cost \$19,000 complete. Floor plans and perspective.
9. Two floor plans and photographic view of an attractive residence at Austin, Chicago, Ill. Estimated cost \$7,000.
10. A very convenient and attractive suburban cottage of modern design, erected for Mr. E. W. Given, at Mont Rose, Orange, N. J. Cost \$5,500 complete. Messrs. Rosster & Wright, architects, New York. Floor plans and perspective.
11. Residence at Alexander Avenue, Buena Park, Chicago. Estimated cost \$5,000 complete. Plans and photographic view.
12. Photographic perspective view of the residence of Mr. Frank Crowell, Minneapolis, Minn. F. E. Joralemon, architect.
13. Miscellaneous contents: Preserving smoke pipes from rust.—Door hanging, illustrated with 6 figures.—Safe construction of buildings, illustrated with 5 figures.—Improved blind sash planing machine, illustrated.—Seamless copper house boiler, illustrated.—Best quality of roofing tin plate.—Blower engines of the Galena.—An efficient sandpapering machine, illustrated.—The "Hero" spring hinge, illustrated.—The Duplex joint hanger.

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