

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**STEAM SHOVEL**—Jake M. Boudrie and Thomas McManus, Rulo, Neb. This improvement provides for the shovel a platform consisting of flat cars, with means whereby the shovel may be made to travel from end to end of a train of cars, thus dispensing with the heretofore necessary side track in the loading or unloading of flat cars. Means are also provided whereby the loading of a train may be commenced at one end, and as each car receives its proper load, the shovel may be carried to the next car, and so on, until the desired number of cars has been loaded. The shovel is so placed upon the flat car that when the shovel is in operation it may be rigidly held upon the car.

**FURNACE TAP**—Edward P. Mathewson, Pueblo, Col. According to this improvement a water-cooled tube is adapted to extend into the furnace to pass into the molten slag nearly to the matte level, the outer end of the tube being adapted to discharge into a slag spout arranged on the outside of the furnace. The invention relates to a former patented invention of the same inventor, and provides a simple and durable construction arranged to conveniently separate and quickly run off the slag at all times.

## Railway Appliances.

**CAR COUPLING**—William F. Donnell, Rush Tower, Mo. The drawback, according to this improvement, has a rearwardly curved hook on its front end and a longitudinal slot at each side of the hook where a link may hang pendent, while there is an inclined tilting plate to the rear of the hook, the latter being loosely engaged by coupling link. The device is designed to automatically couple two approaching cars, and effective means are provided for uncoupling, either from the top or sides, the construction being very simple and practical.

**RAIL SHOE AND BRACE**—Andrew B. Snider and William H. Roberts, Bartholow's, Md. This device consists of a plate having on one side a hook-shaped rail base flange and on the other side a shoulder, forming a rail seat between them, with spike holes at the edge of the shoulder and opening into the rail seat, the plate being extended horizontally upon one side and having spike holes on the extended side only. The device is especially devised to effectively hold the rails on curves where they are subjected to excessive pressure in one direction.

**ELECTRIC RAILWAY SIGNAL**—José Ortega y Espinosa, Mexico, Mexico. This invention provides a signaling system consisting of two independent electric circuits, one extending along the line of the roadbed and provided with electro-magnets controlling the connection of contact faces and current-shifting devices with automatically operated signals at the stations, and the other circuit being carried by the car, having a signal bell and terminating in electrical contacts adapted to come into bearing with those on the roadbed. The system is designed to notify not only the stations of the road, but also the engine running over the road that another engine is coming in the opposite direction, thus lessening the liability to collisions.

**ELEVATED RAILWAY**—John N. Vallev, Jersey City, N. J. This is an improvement in a line with several similar inventions by the same inventor relating to a class of railways in which the track is supported from posts, the track rail being suspended from a longitudinal stringer. The invention provides a ready and simple means of grading the track rail to compensate for irregularities of the ground, there being an adjustable support for the track whereby the point of connection with the posts may be made higher or lower as desired, the grading being thus effected by unskilled labor.

## Mechanical.

**COMBINATION TOOL**—Charles Becker, Little Berger, Mo. A tool especially adapted for use as a pipe wrench and cutter has been designed by this inventor. By its use a pipe may be firmly gripped and turned without injury, and it may also be quickly adjusted to cut a pipe of any size, while by separating the head from the remainder of the tool it may be made into a convenient hammer and screw driver.

**TOOL HANDLE FASTENER**—Leon R. Ligier, Douglas, Wyoming. This improvement is especially designed for fastening the handles on picks, hammers, etc. A collar slides over the tool handle nearly to the eye of the tool, and the collar is then connected by braces with the tool proper at each side of the eye, very firmly securing the tool to its handle.

**PLIERS**—Frank C. Neuhaus, Kinkler, Texas. In this tool the gripping faces of the jaws have a longitudinal ridge and a corresponding groove, with opposite meeting faces on each side of the ridge and groove, thus forming a tool adapted to bite and kink a wire in a novel and superior manner, and one well adapted to facilitate the stretching of wire in building wire fences.

**BRICK MOULD**—Charles A. Shultz, Rondout, N. Y. According to this improvement, bricks with rock faces may be made in any of the ordinary brick machines, and as economically and rapidly as bricks of the ordinary pattern. The mould is divided into compartments, each of a size to form a double brick, but with a rib marking the normal line of separation, and when the double brick has become partially dried the parts are separated on the line of the rib, forming an uneven face where the portions are broken away from each other.

**PRINTING PRESS**—Hynek Breuer, New Prague, Minn. This is a hand press in which the impression is made by the cylinder being rolled across the bed, and the invention provides therefor an automatically rocking tympan, whereby, as the impression is made, the type will contact only at the point at which the impression is taken, the tympan automatically carrying the paper or other material printed immediately away from the face of the type after receiving an impression. The press is also adapted to print a clear, sharp, and fine impression, effectually preventing smudging, and doing the work rapidly.

## Miscellaneous.

**POWDER AND FUSE WARMER**—Albert Price, Marysville, Montana. A case is divided into partitions having at the top a powder tray, at the sides fuse compartments, and centrally a heating compartment. A metallic candle holder supports the candle to be burned in the latter, and the partitions are perforated, thereby affording a dry heat for thawing or softening powder, fuses, or anything containing nitroglycerine, there being no possibility of overheating the powder chamber.

**HORSESHOE**—Arthur E. Ogden, Ashley, North Dakota. This shoe has two sections of unequal length pivoted together, each section having an inwardly and upwardly extending flange, the longer section with a recess at its pivoted end and the shorter section with a latch head entering the recess, a rod passing through apertures in the ends of the sections. The shoe also has removable calks, readily placed or removed, the shoe being adapted to fit the foot perfectly and so shaped that the weight of the animal will hold the calks in position.

**WIRE STRETCHER AND HOLDER**—John R. Brabston, New Bell, Miss. A chain having a hook plate on its free end is shackled to a forked handle bar, another chain in two sections being shackled to the bar near its opposite end, a snap hook connecting the chain sections, and there being a claw hammer head on the straight end of the bar. The implement is especially adapted to hold a wire taut while being secured to a post, to hold loosened wires in position while a post is removed, and also to readily remove fence wires, serving also as a reel shaft when old wire is to be reeled for use again.

**CLOTHES PRESS**—Huldah A. Shepard, Nelsonville, Ohio. This is an apparatus for pressing clothes to remove the moisture, and is especially designed for laces, table linen, and clothing which may be evenly folded. It has an outer and inner vessel, the bail of the latter having a central bearing for a hand-operated screw on the lower end of which is a follower, by means of which pressure can be brought to bear on the clothes, folded and placed between boards, or double perforated hollow partitions or spaces.

**DOOR CHECK**—John Speirs, Jersey City, N. J. This is an adjustable fastening device comprising a locking link with an eye contracted at one end, the link being offset to bring the contracted end of the eye at an angle to its larger portion, while a separate chain moves freely through the larger portion of the eye, but interlocking with the link when in its contracted end. It is not only adapted for use as a door securer, but may be employed for suspending and lowering ships' boats from the davits and for other purposes.

**WINDOW**—William Wallace, New York City. A perfectly air, water and burglar proof window has been devised by this inventor, the window being also readily opened to be cleaned from the inside. Pivot plates or bearings on the sash have adjustable pivots entering sockets in the frame, and the weather strips have a ridge entering a recess in the sash and an opposite ridge overlapping the edge of the window frame.

**HANGER**—William H. Case, South Oil City, Pa. This is a simple and inexpensive device designed to conveniently support a normal length shade roller and curtain pole, irrespective of the width of the window. It is made of a single piece of wire formed at its ends with integral brackets, provided with curtain roller and shade roller brackets, the wire between the brackets being corrugated vertically to provide for lengthening or shortening the hanger.

**BOOKBINDER**—John B. Johnston, Malta, Ill. This device comprises grooved strips having lugs at each end adapted to clasp a cover and through which binding wires are adapted to be passed, the ends of the wires being turned down in the strips and held by cap pieces. It is an extremely cheap and simple binder, readily applicable to newspapers, magazines, etc., and for holding covers on periodicals, while it may be made quite ornamental.

**DRUM**—Morton E. Converse, Winchendon, Mass. This invention relates to the head sections of drums, which are so made as to be readily removed from the body, the chimes and flesh hoops remaining as securely connected as when each head section is upon the body, thus enabling the drums to be dismounted and the heads and bodies nested for shipment.

**EXHIBITING DEVICE**—Edwin B. Lunbeck and Clarence P. Cummings, Monte Vista, Col. This is an exhibit especially adapted to hold and advantageously display mineral specimens. It comprises a blank of spring metal formed with struck up tongues whose free ends form notches, one of the tongues being bent to operate in connection with an adjacent tongue, and the blank being fastened to a suitable supporting base or in position in a case.

**BUCKING BRONCHO TOY**—Elmo F. and Lewi B. Kellum, Cripple Creek, Col. This is a mechanical toy representing the broncho and its rider, and as the platform on which the animal is mounted is drawn forward or pushed backward, the animal automatically assumes alternately a normal and a bucking position.

**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.

**THE SNOW-CHURCH COMPANY'S LEGAL AND BANKING YEAR BOOK FOR BANKERS, LAWYERS, AND THE BUSINESS PUBLIC, 1893.** Collection laws revised to May 31, 1893. New York: The Snow-Church Surety Co. Pp. 1315. Price \$5.

This extensive work contains the collection laws of the different States of the United States revised to May 31, 1893. The laws are arranged under alphabetical heads, and separately for each State, so that it forms an exceedingly convenient summary for use by business men. Various useful tables, such as those of area and popula-

tion of different States and of points accessible to banking towns, are given. It is designed not necessarily to supplant legal consultation, but in many cases may precede the same with advantage.

**ADDRESSES DELIVERED BEFORE THE WORLD'S RAILWAY COMMERCE CONGRESS.** Held in Chicago, Ill., June 19-23, 1893. Official report. Chicago: *The Railway Age and Northwestern Railroader*. 1893. Pp. v, 265. Price \$3.

The railway law and legislation, railway management and operation, railway employes and railway history and development are the topics covered in some 25 papers and divisions of this work, as representing the main advanced thought of the railway men of this and other countries. The book is to be highly recommended.

**COMPOUND LOCOMOTIVES.** By Arthur Tannatt Woods. Second edition. Revised and enlarged by David Leonard Barnes. Chicago: *The Railway Age and Northwestern Railroader*. 1893. Pp. xiv, 330. Price \$3.

Cornell University, of which Mr. Woods is a graduate, is in a certain sense identified with compound engines. This excellent treatise, with glossary, satisfactory index, and appendices illustrated liberally, should, at the present day, be peculiarly welcome to engineers when the movement in favor of compound engines on railroads is so very pronounced. The important subjects of condensation in cylinder and the starting power of locomotives, both of so much importance in compound locomotive engines, are especially treated. Three and four crank compounds and automatic starting gears are examples of the author's topics, while a short chapter is devoted to the reasons why economy obtains in compound locomotives—a subject very little understood by many, perhaps even by many of their advocates.

**AN ELEMENTARY TREATISE ON THEORETICAL MECHANICS.** By Alexander Ziwet. Part II. Introduction to Dynamics. Statics. New York and London: Macmillan & Co. 1893. Pp. viii, 183. No index. Price \$2.25.

The second part of Professor Ziwet's treatise is devoted to the introduction of dynamics and to statics. The calculus and higher mathematics are used throughout and at the end of the book are given the answers to the problems.

## SCIENTIFIC AMERICAN BUILDING EDITION. DECEMBER, 1893.—(No. 98.)

## TABLE OF CONTENTS.

- Elegant plate in colors showing a colonial residence at Stamford, Conn., recently erected for C. Cooper Clark, Esq., at a cost of \$9,500 complete. Floor plans and two perspective elevations. An excellent design. Mr. Augustus Howe, architect, New York.
- Plate in colors showing the residence of Thomas C. Wordin, Esq., at Bridgeport, Conn. Two perspective views and floor plans. Cost \$5,000 complete. A very attractive Queen Anne design. Mr. Henry A. Lambert, architect, Bridgeport, Conn.
- A dwelling erected for Edward W. Alling, Esq., at New Haven, Conn. Perspective and interior view and floor plans. An excellent design. Cost \$4,500 complete. Messrs. Stilson & Brown, architects, New Haven, Conn.
- A very attractive residence recently erected for R. Burton, Esq., at Hartford, Conn., at a cost of \$7,800 complete. Floor plans, perspective view, etc. Mr. Henry D. Hooker, architect, New York. An excellent design.
- Engravings and floor plans of a suburban residence erected for H. McKay, Esq., at Boston, Mass., at a cost of \$2,400 complete. Mr. Austin W. Pease, architect, Boston, Mass. A very attractive design.
- A dwelling recently erected for P. H. Lucas, Esq., at Chester Hill, Mt. Vernon, N. Y., at a cost of \$7,000. Floor plans and perspective elevation, also an interior view. Mr. Louis H. Lucas, architect, Mt. Vernon, N. Y.
- A cottage at Mystic, Conn., erected at a cost of \$3,000 complete. Elevation and floor plans and an interior view. Mr. John S. Rathbone, architect, New London, Conn.
- A dwelling recently completed at Stamford, Conn., at a cost of \$3,500 complete. A picturesque design. Two perspective views and floor plans. Messrs. Munn & Co., architects, New York.
- Miscellaneous Contents: The education of customers.—How to catch contracts.—Hints to readers.—The latest and best designs for houses.—Labor Day.—Tests of paving materials.—The World's Columbian Exposition, a general view.—The builders' friend.—A durable and ornamental roof, illustrated.—An improved woodworking machine, illustrated.—The Pasteur filter, illustrated.—The Rochester parlor heater and improved oil stove, illustrated.—A stovepipe radiator, illustrated.—An electric passenger elevator at the Exposition, illustrated.—Woodworking machinery at the Fair.—A new building material.—Torsion braided wire mattresses, pillows, cushions, etc., shown at the Exposition, illustrated.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Fortv 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 heading 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 the following week's issue.

The new material, "Linenoid," Westfield, Mass.  
"C. S." metal polish. Indianapolis Samples free.  
For best hoisting engine. J. S. Mundy, Newark, N. J.  
Improved iron planers. W. A. Wilson, Rochester, N. Y.  
Handle turning machinery. Trevor Mfg. Co., Lockport, N. Y.

Microbe Killer Water Filter, McConnell Filter Co., Buffalo, N. Y.  
Wanted—Light machinery or specialties to build. P. G. Fleming's Machine Works, Elizabeth, N. J.

Pipe frame truck baskets, steel and wooden trucks, etc. L. M. Moore, Rochester, N. Y. See page 399.

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

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Tazight and Canal Sts., New York.

Metal spinning, nickel plating, brass castings, experimental brass works. S. Newman, 64 Main St., Cin'ti, O.

Centrifugal Pumps. Capacity, 100 to 40,000 gals. per minute. All sizes in stock. Irvin Van Wie, Syracuse, N. Y.

## Medical Depot.

Send for free catalogue of tricks for parlor and stage. 284 Asylum St., Room D, Hartford, Conn.

Emerson, Smith & Co., Ltd., Beaver Falls, Pa., will send Sawyer's Hand Book on Circulars and Band Saws free to any address.

Guid & Garrison, Brooklyn, N. Y., manufacture steam pumps, vacuum pumps, vacuum apparatus, air pumps, acid blowers, filter press pumps, etc.

The "Olin" Gas and Gasoline Engines, from 1 to 10 horsepower, for all power purposes. The Olin Gas Engine Co., 222 Chicago Street, Buffalo, N. Y.

Send stamp for circular of castings and parts of the dynamo-motor advertised on page 336, Scientific American. Elbridge Electrical Mfg. Co., Elbridge, N. Y.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4; Munn & Co., publishers, 361 Broadway, N. Y.

For the original Bogardus Universal Eccentric Mill, Foot and Power Presses, Drills, Shears, etc., address J. S. & G. F. Simpson, 26 to 36 Rodney St., Brooklyn, N. Y.

Send to P. O. box 75 Beaver Falls, Pa., or 79 Dearborn St., Chicago, for illustrated list of universal safety fence. Covered by five patents. Traveling and local agents wanted.

Competent persons who desire agencies for a new popular book, of ready sale, with handsome profit, may apply to Munn & Co., Scientific American office, 361 Broadway, New York.

A handsome souvenir of their exhibit at the World's Fair and of their one hundred years of steel making will be mailed free on application to Wm. Jessop & Sons, Limited, 91 John St., New York.

Notice to Inventors of devices in wood wishing assistance in patenting, making, or marketing their inventions. Communicate with the subscriber, who has a large factory, where all kinds of hard and soft woodwork is done. Johnson, care of Scientific American, N. Y. City.

## Notes &amp; Queries

## HINTS TO CORRESPONDENTS.

Names 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 in this department, each must take his turn.  
Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.  
Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.  
Scientific American Supplements referred to may be had at the office. Price 10 cents each.  
Books referred to promptly supplied on receipt of price.  
Minerals sent for examination should be distinctly marked or labeled.

(5638) C. W. B. asks: 1. What adhesive substance can be used to hold firmly glass mounted on wood? Must be strong enough to resist the suction of rollers on printing press. A. Scaling wax. 2. What can be used to prevent hydrofluoric acid from etching on glass, i. e., for relief work? A. Beeswax or paraffine wax.

(5639) C. E. N. asks: 1. Could a 1/4 horse power motor be run by Leclanche batteries, if not run over 1 minute at a time and not more than ten times a day? If so, how many would it take? A. It would require about 200 cells. 2. Also, how can I make a silver plating solution? A. For electroplating see our SUPPLEMENT, No. 310, 10 cents by mail.

(5640) S. G. asks: 1. At what temperature will sulphur sublime? A. About 732° F. 2. What cantharidin? A. It melts at 425° F. to 450° F., and sublimes freely below 450° F. 3. Can I extract cantharidin from cantharides by sublimation? A. Extract with ether. Do not try to sublime it directly. 4. Will dry salt sublime, either alone or with other dry substances? If so, what is it? A. Yes, at a white heat, unmixed. 5. Can I make clear glass bottles answer for retorts? A. No; use regular retorts or round-bottomed chemists' flasks. 6. Is there any publication on the use of retorts? A. Not on this subject alone. We send you our book catalogue, whence you can order anything that meets your ideas. 7. Will you please tell me how a sand bath is prepared? A. It is a plate or tray filled with sand and kept hot over a fire.

(5641) F. R. D. asks what treatment to give horn (scrap) in order to get in condition for moulding in steel dies with hydraulic pressure. A. Horn scrap can be softened for moulding by heating to a temperature of 275° to 300° Fah., by steam or a lincsed oil bath. For