

## ENGINEERING INVENTIONS.

A steam actuated valve has been patented by Mr. John S. Bartlett, of Akron, O. This invention covers a novel construction and combination of parts for a steam actuated slide valve for steam engines, in which there is a long hollow piston, working in a cylinder immediately over the top of the slide valve.

A car coupling has been patented by Mr. George J. Ferguson, of Greenville, Texas. The invention consists mainly in a special construction of coupling device in combination with a spring for holding it to the opened or closed position, and co-operating with the same for automatic action, the ordinary link being used, and the draught being taken in the same way as by the common pin.

A car coupling has been patented by Mr. Otto C. Meusebach, of Marion, Tex. The drawhead has a raised portion in the bottom of its cavity, a shaft journaled in the drawhead extending to the sides of the car, and having a tongue with its ends bent and provided with weights, a lever being pivoted on the top of the car, with a rod connected therewith and with one bent end of the shaft.

A car coupling has been patented by Mr. Winslow Forbes, of Riverhead, N. Y. This invention covers a novel construction by which cars may be coupled or uncoupled without requiring the trainmen to go between them, and the device is of such a nature that, by providing a special link socket and pin hole, cars may be coupled to other cars having the ordinary link and pin drawhead.

A grate bar has been patented by Mr. Joseph B. Miller, of Wilkesbarre, Pa. It is made with perforated and grooved top plates having narrow spaces between their adjacent ends and cast upon lugs cast upon the supporting ribs, whereby air can circulate freely through and around the top plates, and the whole so made that the grate bars will not be injured by expanding and contracting when heated and cooled.

A car coupling has been patented by Mr. Thomas L. McKeen, of Easton, Pa. The drawhead has longitudinal guides, and a grooved, spring pressed follower, there being also other novel features, the invention being intended mainly to improve car couplers formerly patented by the same inventor. Another coupler also patented by the same inventor provides mainly an attachment for a sliding block which relieves the coupling pin of friction when being lifted, and supports it when raised, with a stop to prevent it from being wholly withdrawn from the drawhead.

## MECHANICAL INVENTIONS.

A lathe has been patented by Mr. Jackson O. Haas, of Hepler, Pa. The principal feature of this invention consists in providing a lathe with two stationary center plugs, so that the face plate or spindle of the lathe is not affected by the weight of the work placed between the two stationary pointed center plugs.

A lathe chuck has been patented by Mr. Calvin Wilson, of Caro, Mich. Combined with a centrally bored body having a slanting hole in its side, is a centering rod, spring, and pin, fitted to the slanting hole, with other novel features, the invention being more especially designed to facilitate the holding of work in a watchmaker's lathe.

## AGRICULTURAL INVENTIONS.

A rotary harrow has been patented by Mr. James R. Hicks, of Kansas City, Mo. This invention covers a novel construction, intended to keep corn or cotton stalks down among the harrow teeth, to break them and prevent their running up through the harrow, and also so to hang a pair of harrows that either may remain fixed on the ground while the other revolves around it in turning corners.

## MISCELLANEOUS INVENTIONS.

A wheel guard has been patented by Mr. Alma B. Cole, of Kingston, Ill. It consists of a metal frame with its top curved down toward the rear, upwardly projecting bars and a sheet metal covering, to prevent persons being killed or mutilated by the wheels of street or railway cars.

An automatic fan has been patented by Mr. Alistair M. Richardson, of Charleston, S. C. This invention consists mainly in pivoting the standard in which the frame is pivoted so as to permit of adjusting the standard at different inclinations, being an improvement of a former patented fan of the same inventor.

A school desk has been patented by Mr. Elgin R. Shepard, of Northfield, Minn. By this invention the seat may be tipped to a vertical position, the back of each seat used as a receptacle for books and as a desk for the next seat behind, an arm rest is provided that may be folded out of the way, and the seats may be folded out of the way when not in use.

A still has been patented by Mr. Martin V. Monarch, of Owensborough, Ky. The object of the invention is, by a simple construction, to efficiently extract the volatile oils, especially fusel oil, before such vapor reaches the flake stand or condenser, together with other deleterious substances, and to conduct them back to the stills.

A siding gauge has been patented by Messrs. Leander C. Benson and Eugene F. Perry, of Susquehanna, Pa. It is a tool formed with two flat tongues that can be slipped up under the siding nailed to the building, and held in position by a cam-shaped holding blade, that cuts into the siding board against which the tool is placed.

A repeating watch has been patented by Messrs. Charles Morlet and Eugene Dupuis, of New York city. This invention is for simplifying the construction of repeaters, so fewer parts will be required, so the striking mechanism can be driven from the main spring and can be easily removed, and to materially reduce the cost of the watch.

A gas check for fire arms has been patented by Mr. John E. Tyler, of Roxobel, N. C. This invention covers a special construction and arrangement of parts to provide a means for preventing gas generated by the discharge of a cartridge from escaping through the space between the adjacent ends of the cylinder and barrel.

A thill coupling has been patented by Mr. Abijah L. Romans, of Sinclairville, N. Y. Combined with an axle clip is a spring held thereon, and a latch pivoted to the clip and acted upon by the spring, the latch preventing the withdrawing of the bolt, the object being to securely couple the thills and prevent rattling.

A burial vault has been patented by Mr. Leonard Dydynski, of Buena Vista, Ohio. This invention provides a special construction for a vault of stone or other indestructible material to be air and water tight, and with such locking that the lid cannot be taken off without breaking the slabs composing the vault.

A machine for making fellies has been patented by Mr. Henry D. Jeffrey, of Winona, Minn. Combined with a cutter head is a standard and gauge rod held parallel with the plane in which the cutter head revolves, with other novel features, to form seats on the inner edges of the fellies, or on any stick around the mortises in the fellies.

A cork cutting machine has been patented by Mr. James L. Murphey, of Pittsburg, Pa. It has a sliding and revolving tubular shaft through which a rod passes loosely, a pivoted lever on which a cam acts being connected with the rod, the machine being adapted for cutting cylindrical and tapering corks, feeding itself and ejecting the corks.

A burglar alarm has been patented by Mr. Frederick D. Hill, of New York city. It has an angular plate carrying a clockwork with a bell, with an arm on its escapement post to engage with a pin attached to a pivoted lever connected by a rod and band and pulleys with a roller, whereby a movement of the window sash can be made to spring the alarm.

A wagon gearing has been patented by Mr. Henry Seeman, of Durham, N. C. Combined with a wagon box or frame is a segmental guide held on its under side at each end, axes being held against the outer edges of the guides by clips, and curved braces or bars uniting the axles, so no king bolts are required, and the wagon can be turned very short.

A bark mill has been patented by Mr. John McKendrick, of New York city. It is for grinding and reducing bark for tanners' use, and besides a rotary cutting cylinder with removable teeth, has a feed cylinder and pressure roller, both held to their work by springs, and the latter holding the bark in position upon the cutting or face plate.

A sign board has been patented by Messrs. William H. Bushnell and William H. Van Gilder, of Perryville, O. It is of sheet metal or covered therewith, on which metal or other raised letters are to be used, and so made that the letters are protected to a great extent from snow, rain, etc., and so water cannot leak between the board and its metal covering.

A culm bar has been patented by Mr. Silas M. Hess, of Bloomsburg, Pa. It consists of parallel bars united by cross pieces and perforated sections having on their under sides transverse lugs, so that the cooling bars are not liable to get hot enough to burn out, and in case one burns out it can be replaced very easily and an entire new bar is not required.

A drawer for drawing paper and documents has been patented by Mr. Alexander Russell, of Hot Springs, Ark. The front and a portion of the bottom are hinged to swing out of the way, and the bottom portion has a shoulder joint to rest on a portion of the drawer bottom to hold the door in position to serve as a paper rest.

A nut lock has been patented by Mr. Alfred Fisher, of Edwards, Miss. The nut has a plane-sided stud on its back, the lock plate having an enlarged slot at one end to permit the turning of the nut-stud when screwing home the nut, and there is a dog adapted to act against the nut to prevent backward movement of the lock plate, with a shoulder to enter the slot of the plate.

A hoop for barrels, tubs, etc., has been patented by Mr. James H. Bard, of Jackson, Tenn. It is made of wire, the extremities of which have a lock consisting of a band of each wire and a coil of the extremities of the wire loosely fitting upon each side of the band, together with a spacing sleeve, to adapt the same wire hoop for different sizes of barrel or different sections.

A churn has been patented by Mr. Eli H. Wood, of Cherry Valley, Mo. Combined with a cream tub and frame is a rocking shaft having a rack on one end and cross piece on the other, the ends of the cross piece being connected with foot levers pivoted on the frame, and the rack engaging with a beveled pinion on the upper end of a shaft journaled in the top plate of the frame, its lower end receiving the dasher shaft.

An apparatus for concentrating ores has been patented by Messrs. Howard C. and James A. Henderson, of Cherokee, Iowa. It consists of an outer tank, an inner filtering tank with fabric ends, with perforated feed box and other novel features, to save and concentrate the light and fine particles of ore, such as sulphurets and chlorides of silver and gold, now frequently carried away with the waste water.

A cotton harvester has been patented by Mr. Charles L. Walker, of Boston, Mass. This invention covers a novel construction and combination of parts of a machine to enable the cotton to be picked from the plants and delivered to bags without damage to the plants, the machine to be drawn by one or two animals walking between the rows of plants.

A means for securing glass or mica in sheet metal structures has been patented by Messrs. Charles A. Fletcher and William H. Wilder, of Gardner, Mass. This invention covers a novel metal plate with a frame composed of open belts or bands united with the main portion of the plate by flexible lugs or projections,

forming a yielding receptacle for glass or mica, more especially intended for securing mica in the chimneys of oil stoves.

A faucet has been patented by Mr. Henry P. Drew, of New York city. Combined with the stock, plug, spring, and screw plug, are a washer and screw, and the faucet is so made that the plug springs can be readily adjusted as the pressure to which the faucets may be exposed may require. The same inventor has likewise patented a cock for gas, steam, and water fittings, as an improvement of one of his former patented inventions, so that such cocks will be more convenient to use and less liable to break or get out of order.

## NEW BOOKS AND PUBLICATIONS.

PRACTICAL AND ANALYTICAL CHEMISTRY, BEING A COMPLETE COURSE IN CHEMICAL ANALYSIS. By Henry Trimble, Ph.G. Philadelphia: Blakiston, Son & Co., 1885.

The field of elementary chemical analysis is already very well occupied. What the analyst really needs most is a more advanced and complete work, such as a younger Fresenius would write; but still, there is always room for any book which presents even the elements in a simpler and more compact form, and such has been the purpose of the author of the present volume. The great secret of successful analytical work is the cultivation of accuracy in the various chemical manipulations, for it is this faculty alone which will yield trustworthy results. Many a student whose theoretical knowledge is unimpeachable fails utterly in practical work, because he lacks this requisite delicacy of touch, which seems almost to be intuitive in the born chemist. Professor Trimble has therefore done wisely in introducing his subject by a short preliminary course on the different operations of filtration, evaporation, ignition, etc., which are to form so important a part of the student's afterwork. The main body of the book is devoted to qualitative determinations. A few new features have been introduced in the grouping of the elements, but for the most part it follows Galloway and the older chemists. In this respect, indeed, any radical change is hardly possible. The merit of such a work must depend almost entirely upon its arrangement and material excellence. The third division, on quantitative analysis, is too fragmentary to be of much value. It is a book which will be found very useful where but little time can be devoted to the study of analytical chemistry, for it has been made admirably clear and compact, and these qualities will recommend it highly to a busy student.

THE AMERICAN ENGINEERING REGISTER. Lewis M. Haupt, A.M., C.E., editor. New York: Engineering News Publishing Company, 1885.

Some years ago, Professor Haupt began the practice of publishing a register which gave the names, occupation, and address of his own students in engineering who had graduated at the University of Pennsylvania; and though intended only for private circulation, it proved so very useful as a means of communication between the members of a profession necessarily widely separated that this larger work, including the whole brotherhood of American engineers, cannot fail to be greatly appreciated. Its purpose is the same. It is intended to furnish a ready means of communication between our large and increasing class of constructive engineers. The general alphabetical list contains the names of all who could be reached, and though in this first issue there are doubtless many omissions, the system followed by the editor promises in time to render the register very complete. Classified lists are given in addition, so that the same names which appear in the general list also come under their appropriate heading. The value of the work is increased by the insertion of some of the fundamental formulae in use by the several groups of engineers. An alphabetical list of American railways and the names of their chief officers is also added, and will be useful to engineers interested chiefly in locomotion. Professor Haupt's position in the engineering world, and his large acquaintance among members of the profession, eminently qualify him for the work which he has undertaken. With the co-operation of his fellow engineers, the register will become undoubtedly an authoritative reference, and the careful work already done has placed the profession under obligations to its editor.

A PRACTICAL TREATISE ON THE CONSTRUCTION OF TALL CHIMNEY SHAFTS IN BRICK, STONE, IRON, AND CONCRETE. By Robert M. and Francis J. Bancroft. Manchester: John Calvert, 1885.

The authors of this new little treatise have acted on the principle that experience is the best teacher, and aside from a brief introduction on general questions of foundation, strength of materials, and requisites of good chimney construction, they have devoted their space to the description of shafts already constructed, and of various problems connected with straightening, moving, and demolishing, which have been solved in different localities. The examples selected are naturally for the most part English, but a number of American structures and a few on the Continent have also been described. American engineers will occasionally be annoyed at the indefiniteness of the information about localities on this side of the water, such as the statement that a foundation of piles was used for an iron chimney constructed at Ohio, U.S.A., but on the whole they will find much to interest them. The American shafts selected by way of example include the principal ones of any great height, such as that of the Merrimac Manufacturing Company, at Lowell, Mass., which is 283 feet, and of the Amoskeag Manufacturing Company, at Manchester, N. H., 255 feet. The descriptions are all brief and clear, and give usually just about such information as one would wish. In a number of cases the cost of construction has also been given, which, in spite of the wide variations in the price of material and labor, will be of value as affording a basis of comparison and estimation. The book is illustrated with 82 diagrams.

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