

ENGINEERING INVENTIONS.

A car door has been patented by Mr. William J. Keyes, of Wheeling, Ala. This invention relates to improvements especially adapted for freight car doors, and provides means for effectively securing the door, and also for readily opening and automatically closing it.

A car seat has been patented by Mr. John O. Buerk, of Red Bank, N. J. This invention covers a novel construction and combination of parts, to so improve the striker arms of car seats that an ordinary form of seat may be simply and readily converted into a comfortable reclining seat.

A car coupling has been patented by Mr. Isaac Shotwell, of Bancroft, Mich. This invention provides a novel link lifter and link guide, with means for raising and dropping the pin without the necessity of trainmen going between the cars, the improvement being applicable to the ordinary form of drawhead, link and pin.

A car coupling has been patented by Mr. John Clarridge, Sr., of Libertyville, Ohio. In the drawhead is a spring-pressed follower adapted to support the coupling pin, the follower having a transverse link slot, and there being a second coupling at the rear of the drawhead recess, the device being capable of use for automatic coupling with the ordinary form of link and pin.

AGRICULTURAL INVENTIONS.

A hand planter has been patented by Mr. Thomas N. Lupton, of Winchester, Va. It is an improved device capable of use in planting corn, beans, and other seeds, the device being adapted to be carried by one hand and to have its movable part or parts operated by the handle grasped by the hand.

A cotton scraper and chopper has been patented by Mr. William E. Morris, of Crutchfield, Ky. The machine provided by this invention is for scraping, weeding and freshening the earth at each side of a row of plants, and also to chop the plants to a stand, the scraping and chopping devices being detachable to allow plows, harrows, etc., to be used with the sulky.

A combined plow and harrow has been patented by Anna Trexler, of Sabin, Minn. This invention provides a simple and inexpensive harrow attachment adapted for connection to a plow beam, and operating to pulverize the earth freshly turned over by the plow, to economically and efficiently accomplish the harrowing while the plowing progresses.

MISCELLANEOUS INVENTIONS.

A fire escape has been patented by Mr. Jacob M. Fink, of New York City. This invention provides a ladder of hinged sections, constructed and arranged to be located at the top of a building when not required for use, but which can be readily released and extended down the side of the building.

A bolt has been patented by Mr. John J. Holland, of New Orleans, La. It is for fastening window blinds, doors, etc., and consists of a sliding bar with a hole, a nut being fitted to the blind or door, and a screw fitted to the nut and operative through the bar hole from outside the bar when the bar is projected.

A wrench has been patented by Mr. William H. Brock, of Brooklyn, N. Y. It is of that class in which a chain is used with a serrated shoe to grip the pipe or other article, a dog engaging the chain, the invention covering an improved form of shoe for better gripping the pipe, and a more readily operated dog.

A duplex hand stamp has been patented by Mr. Robert Robinson, of Albany, N. Y. This invention provides an improved stamp for use by conductors, or as a check upon salesmen in any mercantile business, providing for the distribution of coupons to the purchaser and for the retaining of a record of the amounts paid for the coupons.

A wagon end gate has been patented by Mr. Ulysses S. Tym, of Ridgeley, Neb. The invention covers a peculiar locking contrivance applied to one end of the gate, with an eye bolt secured in the bottom of the wagon body, which receives a bevel-ended hook secured to and holding the end gate against rising.

A button has been patented by Mr. Isaac Drechlinger, of New York City. The invention covers an improvement in buttons on a shank having an eye or loop, and is designed to obviate the lateral swaying or hanging down of the button to expose the fastening, by the use of a novel form of doubled wire shank.

A water elevator has been patented by Messrs. John W. and John J. Adams, of Charlotte, N. C. This invention relates to a form of elevator with a sprocket wheel carrying a chain whose ends are attached to a bucket, the buckets being arranged to have a reverse motion, the improvements patented consisting in the means for reversing the action of the buckets.

A piano truck has been patented by Messrs. Louis Miller and Thomas A. Wheeler, of Greenville, Ohio. It has a base frame on rollers, with detachable vertical frame, sliding adjustable clamp blocks, brace rods, and other novel features, making a movable scaffold for supporting and moving upright pianos on and off a wagon and over steps or stairs.

A straw burning attachment for stoves has been patented by Mr. Myron T. Andrews, of Iroquois, Dakota Ter. The attachment has a pouch forming a front extension to the stove to give increased capacity for holding straw or stalks used for fuel, with a novel construction of grate and means for adjusting it, and means for fitting the appliance to stoves of various sizes.

A reversing switch and rheostat for electric circuits has been patented by Mr. Charles G. Bickley, of New York City. The invention consists in

a three-part switch, a series of adjustable resistance coils or bobbins, a contact maker, and in details in the circuit, with especial reference to use in electroplating, to avoid reversals of current from polarization of the electrodes dipping in the electrolyte.

An automatic station indicator has been patented by Mr. Edward Blamey, of Jersey City, N. J. This invention covers a novel construction and combination of parts, whereby a station or street may be automatically indicated within a car, or stations on a main and branch road may be indicated, and wherein the apparatus will automatically advance and reverse, with other novel features.

A pipe wrench has been patented by Mr. Beverly Reagan, of Ouchita, La. It has a fixed jaw with ratchet teeth and a block on its shank carrying a movable jaw, a pawl being carried by the block and arranged to be forced into engagement with the ratchet teeth of the shank of the fixed jaw, the construction being designed to facilitate quick and accurate adjustment of the jaws to clamp and hold pipes of varying diameter.

A rotary corn popper has been patented by Mr. William C. Moore, of Springfield, Mo. It consists of a receptacle mounted on a shaft, and formed with a fixed portion and a portion movable endwise, a fastener for holding the movable portion in open and closed position, the shank having a crank handle and a loosely mounted supporting handle, the holder being grasped in one hand and the receptacle rotated by the crank handle with the other hand.

SCIENTIFIC AMERICAN
BUILDING EDITION.

OCTOBER NUMBER.—(No. 36.)

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1. Elegant plate, in colors, of a suburban dwelling costing eight thousand five hundred dollars. Floor plans, sheet of details, etc.
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3. A residence at Richmond Hill, N. Y., lately built, at a cost of ten thousand dollars. Perspective and floor plans.
4. A dwelling for three thousand five hundred dollars. Floor plans and perspective.
5. Villa at Fontainebleau—M. E. Brunnarius, architect. Cost, eight thousand six hundred dollars. Floor plans and perspective.
6. View of the new Protestant church at Lyons, France. Cost, eighty thousand dollars.
7. Page of engravings showing the house at Stratford-on-Avon in which Shakespeare was born—Anne Hathaway's cottage, near Stratford-on-Avon—Trinity church, Stratford-on-Avon, where Shakespeare is buried. The residence of Mary Arden, the mother of Shakespeare. Old Elizabethan house, Stratford, showing the domestic architecture of the time of Shakespeare.
8. The chancel, Holy Trinity Church, Stratford-on-Avon, showing the Shakespeare memorial bust and tablet, and the stained glass window, the gift of American visitors.
9. A suburban villa lately built at Sound View Hill, Long Island Sound, near New York. Perspective view and floor plans. Cost, five thousand eight hundred dollars.
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14. Miscellaneous contents: A new regimental armory, New York City.—Ventilating pipes.—National Zoological Park.—Lime from oyster shells, showing pit for burning shells.—Roman road construction.—Beauty of the larch.—Sewage disposal in Great Britain.—Orchids, illustrated.—Test of fireproof wire lathing.—A clematis porch illustrated.—Some ways of using the Virginia creeper, illustrated with 3 figures.—Feeding coal to the fire.—Wood that will not blaze.—Fall of a stone church tower.—A ruined city in Texas.—Loofah as a substitute for sponge.—A California farm.—Defects in plumbing in the Maine Insane Asylum.—An improved reversible shaper, illustrated.—Improved hand and foot power saws, illustrated.—Practical hints on disinfection.

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For Sale—U. S. patent, No. 388 321, on sweet potato transplanter. C. E. Tobey, Arkadelphia, Ark.

Just Published—Elements of Electric Lighting, including electric generation, measurement, storage, and distribution. By Phillip Atkinson, A.M., Ph.D., author of Elements of Static Electricity. 260 pages; 104 illustrations. Price, \$1.50. For sale by Munn & Co., 361 Broadway, New York.

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The Railroad Gazette, handsomely illustrated, published weekly, at 73 Broadway, New York. Specimen copies free. Send for catalogue of railroad books.

Wanted.—Thoroughly competent men to instruct evening classes in forging, foundry, and machine shop work. Address, stating experience, C. R. Richards, Pratt Institute, Ryerson St., Brooklyn, N. Y.

The Knowles Steam Pump Works, 113 Federal St., Boston, and 93 Liberty St., New York, have just issued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

Link Belting and Wheels. Link Belt M. Co., Chicago.

Presses & Dies. Ferracuta Mach. Co., Bridgeton, N. J. The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application.

Lockwood's Dictionary of Terms used in the practice of Mechanical Engineering, embracing those current in the drawing office, pattern shop, foundry, fitting, turning, smith's and boiler shop, etc., comprising over 6,000 definitions. Edited by a foreman patternmaker. 1888. Price, \$3.00. For sale by Munn & Co., 361 Broadway, New York.

Patents Bought & Sold. H. W. Booth & Co., Detroit, Mich. Hodges' universal angle union makes pipe connection at any angle. Rollstone Machine Co., Fitchburg, Mass.

The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York.

Wrinkles and Recipes—Compiled from the SCIENTIFIC AMERICAN. A collection of practical suggestions, processes, and directions for the mechanic, the engineer, the farmer, and the housekeeper. Illustrated colored frontispiece. Edited by Park Benjamin, Ph.D. Third edition. Price, \$2.00. For sale by Munn & Co., 361 Broadway, New York.

Hoisting Engines, Friction Clutch Pulleys, Cut-off Couplings. The D. Frisbie Co., 112 Liberty St., N. Y.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N.Y. See illus. adv., p. 28.

For best quality, order your steel castings from the Buffalo Steel Foundry, Buffalo, N. Y.

Belting.—A good lot of second hand belting for sale cheap. Samuel Roberts, 369 Pearl St., New York.

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Duplex Steam Pumps. Volker & Felthousen Co., Buffalo, N. Y.

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NEW BOOKS AND PUBLICATIONS.

CONKLIN'S HANDY MANUAL OF USEFUL INFORMATION. Chicago: Laird & Lee. Pp. 440. Cloth, 50 cents.

This little pocket reference book is closely crowded with matters both curious and useful, such as all sorts of people are likely to ask questions about. The book has had a phenomenally large sale.

POOR'S MANUAL OF THE RAILROADS OF THE UNITED STATES, 1888. New York: H. V. & H. W. Poor.

This publication, which has now been issued annually for 21 years, brings together in one large volume a vast amount of information of the utmost importance to all who are interested in railroad properties or business. The general exhibit given shows that the total length of railroad lines in the United States laid up to the close of 1887 was 149,912 miles, the mileage of the various roads having been increased during the last calendar year by 13,080 miles. The equipment consisted of 27,850 locomotive engines and 983,805 cars, of which 20,582 were passenger cars, 6,592 were baggage and mail cars, and 956,631 freight cars. The total length of track footed up 189,346 miles, and of this amount 129,959 miles was laid with steel rails, and 60,387 miles with iron rails. The manual also includes the railways of Canada and Mexico, and a directory of the various tramways in the cities of the United States, but, large as is the amount of valuable information furnished in the 1,500 pages of this splendid volume, we wish the

publishers could have included in the scope of their work a summary of the railway construction and business of the rest of the world. Such a statement would add to the value of the work.

TURNING LATHES. By James Lukin. New York and London: E. & F. N. Spon. Pp. 160. Price \$1.00.

This is a manual for technical schools and apprentices in turning, screw cutting, metal spinning, etc., being an elementary work, presupposing no knowledge of tools or lathes. It has numerous illustrations of tools and lathes, and descriptions of various kinds of work, the directions being such as will be most simple to a young beginner.

THE MECHANIC'S WORKSHOP HANDY BOOK. By Paul N. Hasluck. London: Crosby, Lockwood & Son. Pp. 136. Price 80 cents.

This book is especially for young mechanics interested in the manipulation of metal. There are special chapters on iron, steel, and brass working, and on the principal alloys, on solders and soldering, files and filing, tool grinding, drills and drilling, abrasive and finishing processes, etc. The book has a greater variety and extent of matter than is ordinarily found in such manuals, together with a good index.

THE SHEET JOBBING AND PLATE ROLLER'S ASSISTANT. By C. H. Kaufman. Wheeling: West Va. Publishing Co. Pocket book form. Pp. 267. Price \$3.50.

This is a book full of tables designed to assist manufacturers and mill managers in saving time and labor in making calculations, also to assist the boiler maker and sheet iron worker, and the iron roofer, in making estimates for work, and to be of advantage to any one handling sheet iron.

THREE KINGDOMS. A hand book of the Agassiz Association. By Harlan H. Ballard. New York: The Writers' Publishing Co. Pp. 167. Cloth. Price 75 cents.

The Agassiz Association has a membership all over the United States, and to some extent in Canada and England. It is organized in nearly one thousand chapters, having a membership of some fifteen thousand persons, young and old, the object being the systematic study of elementary botany, entomology, geology, anatomy, physiology, etc., under the leadership of competent teachers. This book is designed to answer inquiries concerning the association and its work, and has much valuable information on the collection, preservation, and study of insects, plants, minerals, etc.

SEASIDE AND WAYSIDE. No. 2. By Julia McNair Wright. Boston: D. C. Heath & Co.

This is the second of a series of "nature readers," and describes ants and their work, the earth worm, the house fly, the beetle, the dragon fly, etc., and all in a way well calculated to impart instruction while being delightfully entertaining to the little folks.

WILLIAM SHAKESPEARE PORTRAYED BY HIMSELF. By Robert Waters. New York: Worthington & Co. Pp. 347.

This work is styled by its author "a revelation of the poet in the career and character of one of his own dramatic heroes," and the effort is made to show that Shakespeare is none other than King Henry V.

Notes & 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.

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Minerals sent for examination should be distinctly marked or labeled.

(1) B. J. asks (1) a process by which a wrought iron rod can be converted into steel. A. Your iron rod may be made into steel on its surface only by packing it in an iron tube with horn shavings, closing the ends with clay, and heating the whole to a full red for four hours. If kept too long, it will be of little value as a steel rod. It will become blister steel, which is coarse in grain and blistered on the surface. 2. A black enamel for bicycles. A. Use black japan varnish and bake in an oven at about 270° Fah.

(2) C. J.—Compressing two volumes in one of air or any gas, starting at atmospheric pressure, gives a resultant pressure of about 15 lb. per square inch. Electricity cannot be utilized as a motive power except through the aid of mechanical appliances. It can only be generated for power purposes by chemical means (a battery) or by the expenditure of power which may be produced through the agency of steam, water, or wind through engines, water wheels, or wind mills.

(3) W. E. L. asks the process of tempering needles—what kind of oil is used, and what degree of heat is required? A. Use clear lard oil and cherry red heat for the needles. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 51, for the process of manufacture.