

**ENGINEERING INVENTIONS.**

A car coupling has been patented by Mr. Antoine Muller, of TerreHaute, Ind. It has a link adjuster by means of which the link may be held at different angles to enter higher or lower drawheads, and an elevating shaft extending to the sides of the car by which the coupling pin may be lifted.

A cut-off valve has been patented by Messrs. Roland Bentley, of Dresden, and Thomas Ford, of Longton, Stafford County, England. It consists of an equilibrium hollow cylindrical slide valve worked by an eccentric from the main shaft, with cylindrical valves inclosed therein and worked by an eccentric and governors, or otherwise, as an automatic variable cut-off or expansion valve for steam, air, and water engines.

**MISCELLANEOUS INVENTIONS.**

A bed pan has been patented by Kate M. Duffey, of Astoria, Oregon. The invention covers certain details of construction whereby such a device may be used with as much convenience as possible, and can be readily and thoroughly cleansed.

A trace supporter has been patented by Mr. Alfred Anderson, of Stromsburg, Neb. It is attached to the back pad skirt, and is adjustable thereon to hold the trace high or low, according to the size of the horse or the work to be done, the supporter having no direct connection to the back pad.

A perforator for printing presses has been patented by Messrs. Robert and George Kennedy, of New Westminster, British Columbia, Canada. It has an oscillating bar carrying a series of perforating teeth, and adapted to be supported in the form, in combination with devices for oscillating the bar.

A whiffletree hook has been patented by Mr. Jay C. Davis, of Marshfield, Wis. It consists of a loop having a slot dividing and leading into it, the slot being formed in a line diagonal to the direction of length of the loop, with a supporting plate adapted for connection with the whiffletree or bar.

A nail brush has been patented by Mr. George H. Course, of Baltimore, Md. The rear end of the handle of the brush is provided with a central nail-cleaning projection and guards on opposite sides to protect the nail cleaner from injury, the design giving a very efficient shape to the nail cleaner.

A floating oil distributor for vessels has been patented by Mr. John Ericson, of Sabine Pass, La. It consists of a boat of suitable size to be readily carried upon and secured against the weather side of a vessel in case of storm, to automatically, by the action of the waves, distribute oil upon the waters to calm them.

A barbed fence has been patented by Mr. Orlando Huffman, of Friend, Neb. The cables are formed of two strands, one above another, the barbs projecting in one direction only, downward from the cables, with other novel features, the fence being designed not to injure stock while affording an efficient obstacle to their passage.

A folding chair has been patented by Mr. Hiram F. Henry, of Gowanda, N. Y. It is designed to be light, strong, and inexpensive, folding perfectly flat, and so that a series can be arranged to form a folding settee, the invention covering various novel features, and being an improvement on a former patented invention of the same inventor.

A candlestick has been patented by Messrs. Robert H. Mehl and Robert Knott, of Brooklyn, N. Y. It is designed more particularly for lighting and ornamenting Christmas trees, etc., and consists of a wire bent to form a supporting arm, and near its upper end a loop with a reflector, and a pin wheel pivoted on an extension.

A miter box has been patented by Mr. Charles Lyman, of Clarinda, Iowa. It consists of two hinged boxes having their approaching ends beveled, and their upper faces with a longitudinal groove, with other novel features, being especially adapted for tinners' use in jointing eaves troughs or gutters at an angle.

A vest protector has been patented by Mr. Benjamin Ives, of Chicago, Ill. It consists of an apron having a perforated binding along its upper edge, in combination with S-shaped hooks received in the holes of the binding and adapted to engage the edges of the vest pockets, making a simple and efficient device for protecting garments.

An addition register for pencils has been patented by Mr. Henry C. Rose, of Leadville, Col. This invention relates to that class of addition registers which are mounted upon the end of a pencil, and provided with register wheels and an index hand to indicate the aggregate of several successive additions.

A trunk has been patented by Mr. William J. Large, of Brooklyn, N. Y. To the tray are pivoted the arms of a bent bail-shaped rod, the body in one piece and the two arms at right angles to the body, and adapted to be held in suitable bearings at the back of the trunk, so that in raising and lowering the tray both ends will move together.

A perfumery stand has been patented by Mr. James C. Austin, of Brooklyn, N. Y. It is adapted more especially for holding bottled perfumery for exhibiting it to customers, and is designed to prevent theft, while affording full view of it in an attractive manner, the invention covering various novel features in the construction of the stand.

A reach coupling for vehicles has been patented by Mr. Stephen M. Wier, of New Haven, Conn. Combined with the axle and reach are conical bearings secured to the axle, and conical sockets attached to the reach for receiving the bearings of the axle, thereby providing large adjustable wearing surfaces in which the king bolt is not subjected to wear.

A gate has been patented by Mr. John W. Rutledge, of Shannondale, Ind. It is so constructed

that whether a person approach the gate from one side or the other, by drawing on the operating cord the gate will be opened away from him, and by drawing on the operating cord on the opposite side the gate will be closed and latched.

A mouth piece for pipes has been patented by Mr. Henry C. Rose, of Leadville, Col. It has an attachment formed as a tubular stem with a bulbous end, having an annular opening around the bulb, which allows the smoke to spread and issue in a diffused sheet at right angles to the stem, modifying the effect of the hot current of smoke.

A washing machine has been patented by Mr. Horatio J. Lockhart, of Fostoria, Ohio. This invention relates to washing machines in which the material to be washed is drawn between revolving rollers, one or more of them having a longitudinal reciprocating movement, and covers various novel features in a simple, durable, and easy running machine.

A brick truck has been patented by Mr. James C. Steele, of Statesville, N. C. The invention covers a novel construction and combination of parts in a hand truck especially adapted for transporting short brick hacks, either in the hack or on pallets, without rehandling or rehacking them, the truck being strong, light, and easily handled.

An apparatus for making drills has been patented by Mr. John H. Kane, of Huntington, West Va. It has a pair of grooved rolls, a roll-advancing mechanism, a gauge arranged in connection with the rolls, and a gauge-operating mechanism, being designed to make straight and spiral ground drills cheaply, and of uniform and standard size.

An apparatus for transferring pig iron from its bed has been patented by Mr. William H. Fredericks, of Johnstown, Pa. It consists of a combination of lifting jacks, an elevated track frame mounted upon movable sections of the jacks, and bearing rails upon which wheeled trucks run, with other novel features, for transferring pig iron to the breaker for reducing it to proper lengths.

**SCIENTIFIC AMERICAN BUILDING EDITION.**

APRIL NUMBER.—(No. 30.)

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Curtis Pressure Regulator and Steam Trap. See p. 77.

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

"The Improved Greene Engine." Flat slide valves, both steam and exhaust. Providence, R. I., Steam Engine Co., sole builders.

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**NEW BOOKS AND PUBLICATIONS.**

DEFENSE OF THE SEA COAST OF THE UNITED STATES. By Bvt. Brig.-Gen. Henry L. Abbot, U. S. Army. New York: D. Van Nostrand. 1888. Pp. 167.

In this book are contained a series of five lectures delivered by the eminent author before the U. S. Naval War College, in November, 1887. The subject is treated from all aspects, and a very clear idea of the present status of coast defense is presented. Many figures of artillery practice and results add to the value of the treatise. The author's personal views are of course strongly brought out. Thus, his devotion to submarine mines, and his opposition to the pneumatic dynamite gun, which he intimates should be called a mortar, are equally clear. He claims that the last named weapon would be of great injury when used by the defense, as it would interfere with the success of fixed mines, by countermining or exploding them, thus destroying its own defenses. But by the use of ordinary care in its manipulation, it would seem secure from this danger. It is also perfectly clear that the enemy might use the pneumatic gun with great success, as a countermining, so that its uses in war are rather emphasized by this very objection.

L'ELECTRICITE' : NOTIONS ET APPLICATIONS USUELLES. Par Aug. Michant. Paris: George Carré. 1888. Pp. viii, 410.

This book covers the whole science of electricity and all its applications. Much is necessarily treated in an abridged style, but the whole subject is very well presented. Upward of 300 illustrations, among which we recognize some reproductions from the columns of the SCIENTIFIC AMERICAN, add materially to the interest of the work, as they are generally well chosen and pertinent to the subject.

EASY EXPERIMENTS FOR SCHOOLS AND FAMILIES WITH HOME-MADE APPARATUS. By A. R. Horne, A.M., D.D. Chicago: A. Flanagan. 1886. Pp. 79. Price 35 cents.

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**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. 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.

(1) C. V. A. writes: 1. In our SCIENTIFIC AMERICAN of April 23, 1887, you describe the winding of the armature for an 8 light dynamo machine. Can two layers of wire be substituted for the four layers therein prescribed, making one layer of wire per section instead of two? Of course I would not expect such good results, but would find it much easier to construct it in this manner. A. You can make coils of one layer each, but the number of coils must remain the same. Better follow the instructions and use two layers in each coil. 2. Can ordinary paint be used for coating the top edges of a Leclanche battery cell to prevent the salts of sal ammoniac from forming? A. Paint is not of much value for this purpose. Better use paraffine, tallow, or wax.

(2) W. O. D. asks: 1. How long will bichromate plunge batteries last in constant use? A. Three or four hours. 2. Are they expensive to keep in order (recharging, etc.)? A. As compared with steam or gas for motive power, yes. 3. Would the same pattern serve to use on bells and other experimental purposes? A. It is not adapted to ringing bells, but is excellent for a great variety of experimental work. A. Would a motor on smaller scale work as well, using less battery and of course developing less power? A. Yes.