

RECENTLY PATENTED INVENTIONS.

Bicycle-Appliances.

HANDLE-BAR.—JOHN RYAN and CHARLES OTIS, Manhattan, New York city. The invention provides a means for adjusting the handle-bar without affecting the position of the front wheel, until one of the handle-bars strikes or is over the upper main tube, and the other handle extends forwardly over the wheel, thereby enabling bicycles to be packed closely side by side, and to be trundled along without taking up much room.

DRIVING CHAIN COVER.—HORACE W. DOVER, Northampton, England. The inventor's object has been to provide a neat chain-cover for the driving-gear of bicycles, motor-cycles, and the like, which cover will prevent the skirt or trousers of the rider from becoming entangled with the chain. The cover has a sheet-metal frame, formed of superposed metal strips of transversely-curved section, riveted together and clamping between them the intervening flanges of a panel inclosing one side of the frame. The detachable end-cap has a rigid U-shaped rim-frame whose ends are designed to slide between the members of the cover-frame, thereby removably locking the frame of the chain-cover on its supporting bracket.

Electrical Apparatus.

GROUND-PLUG FOR ELECTRICAL SWITCH-BOARDS.—WALLACE I. STOCKDON, Orange, Va. When properly applied to a switchboard to ground the main circuit, this plug will operate an audible signal independently of the main electrical circuit and will continue to sound as long as the plug is in place, so that the operator will be notified when through with a line and will be certain to remove the plug and thus avoid the grounding of a wire except when desired.

CENTRIFUGAL PUMP.—SAMUEL MATTHEW, Brooklyn, New York city. The piston of the pump with its inwardly-projecting hub, is mounted to revolve in the cylinder. The piston has a series of pockets, each provided with a curved bottom and an outlet-opening, the outlet-openings being in the rear wall of the piston, near the periphery. In the front wall of the piston is an inlet opening registering with the inlet-opening of the cylinder and communicating with all the pockets. The division walls of the pockets are reduced on curved lines extending from the front wall to the hub of the piston. The pump cannot be clogged by stones which have passed the piston.

MARINE BOILER.—HARRY LAWSON, Jersey City, N. J. The boiler comprises a shell, within which is a return-flue. Spaced mud-drums extend longitudinally below the shell, and between the mud-drums is a grate. Water-return circulating pipes connect the ends of the mud-drums with the shell. Sets of tubes extend from the mud-drums to the shell between the end circulating-pipes, the pipes and tubes forming a fire-box with the grate. A combustion-chamber at one end of the fire-box extends over the corresponding end of the return-flue. Means are provided for holding the return-flue in position within the shell. Worn-out tubes can be readily removed without disturbing the general construction of the shell or drums.

ENGINE.—PAUL O. E. BOUDREAU, Theriot, La. The engine is an improvement in steam and air motors. It comprises essentially a shaft having a wheel furnished with sets of alternating teeth. Cylinders are provided, arranged in pairs, one pair corresponding with each wheel. Pistons moving in the cylinders, have stems or rods engaging the teeth of the wheel. Valves control the passage of the motive agent.

Mechanical Devices.

WASHING-MACHINE.—SAMUEL PATTERSON, Wilkes-Barre, Penn. This clothes-washing machine comprises a body in which a presser, a rubber, and a rod are vertically and horizontally movable. A swinging connection is provided for the rod, presser, and rubber. A pin extends from the reciprocating rod into a slot in an actuating-bar; and a crank has its wrist-pin engaging a slot in the bar. A gearing operates the crank. The presser and rubber can be removed whenever desired. By turning the crank the actuating-bar is reciprocated, thereby operating the presser and rubber.

BASKET-MACHINE.—WILLIAM JACKSON, Traverse City, Mich. The invention relates to a basket-form for basket-making machines, which form is held and turned so as to present all sides to the work. A stub shaft is mounted fast on the frame, and on the stub-shaft a sleeve is mounted to turn, having a square portion on which the sleeve slides and with which it turns. A brake-strap is provided for the sleeve. Two rollers are attached to the frame and engage the basket-form at opposite sides of the axis of the sleeve. The basket-form is placed beneath the staple-driving mechanism, so that work can be placed on the form. The form is turned around in time with the movements of the driving mechanism, so that the several parts of the basket can be fastened together.

COMBINATION METAL-WORKING MACHINE.—SAMUEL J. HUNGERFORD, Farnham, Quebec, Canada. The inventor combines a motor, a lathe, and a drill, with the object of economizing space and rendering the machine portable. The combined machine is cheap in its construction and is ready for instant service in any place where steam or other source of power is available. It occupies less floor-space than three separate machines, and requires less than the usual amount of shafting and belting. The machine is especially designed for use in railway-roundhouses, factories, mills, ships, and the like.

Railway-Contrivances.

SWITCH-LOCK.—LUTHER N. WYATT, Lexington, Ky. The purpose of the invention is to provide a device for throwing and simultaneously locking switches, the arrangement being such that the switches cannot be disturbed except through the medium of the regularly-provided lever. A stationary casing is used, formed with spaced shoulders, and recesses adjacent to the shoulders. A switch-bar extension slides through the casing, and a latch is pivoted between its ends on the extension and is slidable with the latter through the casing. This latch is formed with heads adapted to enter the recesses in the casing and is of such length that one head will engage

with a shoulder when the other head engages an opposite recess. The latch can be rocked, and the extension slid in the casing.

CAR-COUPLING.—FRANK J. PENNINGER, 290 Tivernois Avenue, Detroit, Mich. The invention provides an uncoupling device operated on the hinge principle and adapted for uncoupling all forms of Master Car-Builder's couplers, which ordinarily require a special uncoupling device. The inventor employs a special spring construction which so operates upon the uncoupling-shaft as to hold the crank-lever in the desired position, either coupled or uncoupled, as well as a spring connection between the crank-arm and the coupling device, which will yield in the direction of the coupler when the pulling strain is very excessive or when such strain would tend to break an unyielding connection.

SIGN FOR STREET-CARS.—LOUIS HASSELBUSCH, Philadelphia, Penn. The invention provides revolvable or changeable signs to be placed on the roofs of street-cars to indicate the destination or direction of the car. The hood employed can be readily removed to change the signs, and the signs can be shifted from the platform or interior of the vehicle and locked in place. At night the signs are illuminated by the light radiating from the clear story or interior of the car, thus dispensing with an especial lamp.

Miscellaneous Inventions.

WICK.—HENTIE SARAFIAN and Commodore D. RUNDELL, 621 Broadway, Manhattan, New York city. To each of these inventors a patent has been granted for a wick which will be incombustible, which will not char or clog, and which will require no trimming or adjustment. The wick has its body portion made of woven cotton cloth, while the end which carries the flame is surmounted with a refractory or incombustible material, which does not burn away or require trimming.

CRANBERRY-GATHERER.—WILLIAM B. WATERS, Manomet, Mass. The device consists of a pronged scoop provided with a screen and a handle. The prongs raise the vines or bushes sufficiently to prevent scooping up a great amount of dirt, as the berries are stripped by the prongs from the branches. When a quantity of berries has accumulated, the leaves, stems, and other refuse are picked out; and when this is done, loose dirt is sifted out by means of the screen.

GATE.—MARION B. SMITH, Plain City, Ohio. The construction of the gate is such that there is no strain upon the posts when the gate is closed. Before it can be opened the gate must be raised, thus enabling it to clear obstructions. It can be dropped whenever desired, so that when it is partially opened it can be held in position by causing its front end to engage with the ground.

MITER-BOX.—MARCUS A. K. SHOTWELL, El Paso, Tex. The miter-box comprises a base-block, on the upper side of which a metal plate is located, and in the base below the plate, a turn-table is mounted to rotate on ball-bearings. A saw-guide is carried by the table, and a detent or dog engages the table. Angular adjustment can be effected while the saw is in the guide-cylinders; for, by moving the dog out of engagement with the turn-table, the turn-table can be rotated by the force exerted laterally on the saw. Thus the box can be adjusted to guide the saw at any desired angle.

FIREPROOF PLASTER-BOARD.—PATRICK RYAN, Manhattan, New York city. This invention relates to fireproof covering for the sides and ceilings of rooms. The covering is in the form of a rectangularly-edged board formed of alternate layers of fireproof-paper; and a suitable plaster coated thereon, when applied by nailing the boards in place, affords a smooth, continuous covering for the joists and studding of a room, is non-combustible, and impervious to air, dust, or vermin.

LETTERING DEVICE.—LUCIAN RUST, Cleveland, Ohio. The object of the invention is to produce a simple and cheaply-manufactured device which can be used for accurately laying out letters upon drawings. The device consists of two similar parts, a scale member, and a ruler member. The scale member has one or more scales laid out on its face, each scale being designed for producing a certain character or letter.

KILN FURNACE, OR OVEN FOR CERAMICS.—ERNST K. B. ROHARDT and FRIEDRICH A. TRIPPE, Uetersen, Moorrege, Germany. In this oven the hot fire-gases give up their greatest heat to the bottom of a chamber over which the heavy, cold air is collected. They then pass to the back of the chamber along the sides, front, and top of the chamber in order to escape through an uptake, after having given up their available heat. The burning of the articles in the chamber will thus be very clean; and the air may be regulated so as to allow for the greater or less amount of moisture contained in the goods to be burned.

FENCE-WIRE STRINGER.—JOHN NOBLE, Edwards, N. Y. This invention provides a device, by means of which fence-wire can be strung or fed from a reel as needed, upon any character of ground, the services of only a single operator being required. The device is so constructed that it can be operated wherever a man can find passage, and that it can be employed for reeling or rewinding wire of any kind.

TRAP.—CHRIS W. NELSON, Neenah, Wis. The trap is especially designed for kitchen-sinks, lavatories, and plumbing fixtures and is arranged to prevent dry siphoning and to permit the trap to be cleaned. Dry siphoning is obviated by the use of a partition in the trap-chamber, which partition is perforated above its lower end. The trap can be cleaned by removing the screw-plugs from the heads.

Designs.

PILLOW-TOP.—RAFFAELLO ASTARITA, Manhattan, New York city. The designer has conceived a very tasteful and artistic pillow-top, in which violets and ribbons have been effectively combined.

OFFICE-CASTER.—HOSMER H. HENDER, Wilber, Neb. The caster is provided with receptacles for pins, pens, postage stamps, and articles generally used in offices and counting-houses.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

Business and Personal.

Marine Iron Works. Chicago. Catalogue free.

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Machine Work of every description. Jobbing and repairing. The Garvin Machine Co., 141 Varick St., N. Y.

Ferracute Machine Co., Bridgeton, N. J., U. S. A. Full line of Presses, Dies, and other Sheet Metal Machinery.

The celebrated "Hornby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

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.

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Notes & Queries

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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.

(7891) J. T. M. asks for full directions for making a jump spark coil for four cells of Fuller batteries. A. The materials for your coil will be 4 pounds No. 14 A. W. G. cotton covered copper magnet wire, and perhaps a pound of No. 14 soft iron wire. Two binding posts. Two ends for the coil of hard wood of some sort with an inch hole through their centers. Some brown paper which may well be paraffined for insulation, in strips about ten and a half inches wide. For a coil ten inches long, cut the iron wire into pieces twelve inches long, heat them red hot and allow to cool slowly. Straighten the pieces carefully, and make a bundle which will fill the holes in the head tight. The two hardwood heads driven upon the ends of the bundle of wire form the ends of the coil. Leave a clear space of ten inches for winding the wire between the heads. Make a hole in the head with an awl of the size of the wire, and bring the end of the wire out through this hole before beginning to wind the coil. Cover the core with a layer of paraffined paper. Wind one layer of magnet wire upon the core, tightly and evenly. Cover this layer with the paper and proceed in the same way with each succeeding layer. The end of the wire after the spool is filled is to be passed through a hole in the head, the coil thus finished may be secured upon a board as a base, and the binding posts fastened to the base. With these the ends of the wire are to be connected. The coil is then ready for use.

(7892) C. D. C. asks: 1. Is it not true that scientists contend that lightning has a small amperage and an immense voltage? A. Yes. 2. What caused them to arrive at such conclusions? A. Measurements of the voltage required to force a spark across air gaps prove the high voltage of a spark. The small amount of energy in such a discharge proves its low amperage. 3. Are any instruments made for such investigations? A. Yes, electrometers. 4. Why is it not advisable to turn down high bars or smooth rough places in a commutator with emery? A. To avoid the possibility of imbedding particles of copper in the insulation between the bars and thus forming a short circuit. 5. Is there any method of calculating the number of lines of force in a magnet or solenoid? A. See Thompson's "Elementary Lessons in Electricity and Magnetism," price \$1.40 by mail.

(7893) M. G. de M. writes: 1. I have received from Euro e a Wimshurst electro static machine. The plates are of ebonite but they arrived warped and they touched themselves in the rotation. The machine does not produce any electricity probably due to this and the great dampness of the climate. Is there any manner of making the plates again even by softening the ebonite. A. The plates of ebonite can be flattened by softening them by heat and pressing them flat between two plane surfaces while cooling. To secure dryness, it will be necessary to inclose the moving parts of the machine in a case and to keep calcium chloride in the case to absorb the moisture. 2. Can you also tell me the theory of this machine that I suppose is like the replisher of Lord Kelvin. A. The theory of the Wimshurst machine is given in Thompson's "Elementary Lessons in Electricity and Magnetism," price \$1.40 by mail.

(7894) J. H. L. says: I wish to make pads of my letter paper. How shall I make the gum for top and side so that it will not tear the paper when a sheet is removed and also not be perceptible on the edge of sheet, which must be used on typewriter. A. For each 50 pounds of dry glue allow 9 pounds of glycerine. Soak the glue for 30 minutes and heat until it becomes liquefied. Then add the glycerine. If it proves to be too thick add water, colored with aniline if desired.

(7895) T. J. G. asks what you regard as a good, permanent, "dry deodorizer," furnishing as well a fragrance to the atmosphere of airtight and sound-proof telephone booths? A. Use charcoal. It can be baked to restore its original absorbent qualities. Be careful not to ignite it in baking. If a perfume is required, use any agreeable gum or resin, or a perfume powder.

NEW BOOKS ETC.

HAND RAILING SIMPLIFIED. Sectorian System by an Architect. Edited and revised by Fred T. Hodgson. 16mo. Pp. 52. Price \$1.

This volume describes a novel method of finding curves, twists, wreaths, ramps and cuts for hand railing over an elliptical stair. This method of finding the lines and angles for stair railings does away to a great extent with the mystifying lines so necessary to build a hand rail by any of the old systems. A brief study and a little practice will enable the workman to understand the whole system.

THE COMPOUND ENGINE. By F. R. Low. New York: Power Publishing Company. 1900. 12mo., pamphlet. Price 50 cents.

The editor of Power has done a wise thing in issuing this little monograph on compound engines. It is a subject which necessitates great clearness of expression and which must be illustrated by very clear diagrams. This result has been obtained admirably in the present book, which is illustrated with many diagrams. We commend it to all those who wish to get a thorough understanding of the compound engine.

THE CALCULATIONS OF ANALYTICAL CHEMISTRY. By Edmund H. Miller, Ph.D. New York: The Macmillan Company. 1900. 8vo. Pp. 183. Price \$1.50.

Chemical calculations are fascinating, and there is little real difficulty in working any problem if the rules are well understood. The volume before us is an admirable text-book, in which new methods are described. There are many examples given, all of which can be solved by arithmetic or algebra. The book is rather more extensive than any we remember to have seen.

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