

RECENTLY PATENTED INVENTIONS. Of General Interest.

COMBINATION-TOOL FOR WATCH-REPAIRING.—M. W. SAYYIDAH, Deepriver, Iowa. In this instance the invention has for its aim the provision of novel details of construction for a tool which affords convenient and reliable means for the setting of roller-jewels in correct positions, and hold cannon-pinions and the hands, large and small, of watches when these are to be cleaned or repaired.

BUCKLE.—J. C. ROSENKRANZ, New York, N. Y. One purpose in this case is to provide a buckle especially adapted for use as a suspender-buckle for the back straps of vests or trousers or similar purposes and to so pivot the tongue of the buckle upon the frame that a pivot-pin will not be required and further, to effect the pivotal connection between the tongue and frame by loosely clamping one end of the tongue in a depression in the frame, thus rendering the buckle more simple and economic in construction than that shown and described in a former Letters Patent granted to Mr. Rosenkranz.

VENTILATOR.—F. J. PROCHASKA, Park River, N. D. The object in this invention is to provide an improvement whereby the top of the ventilator may be raised to any desired distance from the body, so as to increase the efficiency of the ventilator, and, further, to so construct the ventilator that no matter how high it may be placed the said top may be raised and lowered as far as desirable within the limit of its movement by any person within the room or apartment over which the ventilator may be placed.

KNIFE.—G. C. PALMER, Rochester, N. H. This invention relates to improvements in pocket-knives, the object being to provide a knife of novel construction in which the blades when not in use are wholly concealed within the handle, the handle consisting of two sections having hinged connection and movable one section relative to the other.

DRAFT-EQUALIZER.—E. J. MILLER, New Rockford, N. D. The improvement relates to means for equalizing the pulling strain on two or more pairs of draft-animals, and has for its object to provide details of construction for draft-equalizer, which are simple, practical, and inexpensive, the improvement being equally well adapted for use as a four-horse, five-horse, six-horse, or eight-horse draft-equalizer and in either application effectively distributing the draft strain upon all the animals employed to pull a load.

APPARATUS FOR DESTROYING INSECTS.—A. L. JONES, Llano, Texas. This invention comprises a wheeled frame carrying a novel form of burner which is adapted to pass over the field between the rows of cotton and to burn and destroy all animal and vegetable life between the cotton-rows. Side shields are provided to protect the cotton itself, and a novel blowing apparatus is arranged to act on the cotton and blow the insects from the same under the machine, where they are immediately destroyed. It is intended especially for destroying boll-weevils.

HORSESHOE.—J. E. HOFFMAN, New York, N. Y. In this case the invention relates to improvements in horseshoes designed particularly to prevent a horse from slipping on ice-covered or slippery pavements, an object being to provide a shoe of this character of simple and inexpensive construction and so arranged that a rubber heel-pad may be used in connection with it.

VAGINAL SYRINGE.—H. T. FOOTE, New Rochelle, N. Y. The invention relates to syringes made of rubber and consisting of a bulb and a spout extending integrally from the bulb. The object is the provision of a syringe arranged to insure a complete closing of the vaginal entrance to allow distention of the vagina with a copious flow of water and without exterior escape of the water, thereby preventing soiling of the user's extremities or the clothing and allowing the use of the syringe in a standing position.

BOOT OR SHOE.—W. CRONER, New York, N. Y. The improvement refers to the construction of the sole portions of boots and shoes; and the purpose of the invention is to provide an elastic medium concealed within the sole which will tend to keep the sole normally flat throughout its length and which will add to the elasticity of the tread, particularly in what is known as "flat-last" shoes.

BOTTLE-PACKING DEVICE.—J. T. CRAW, Jersey City, N. J. The purpose of the invention is to provide a sheet, board, or partition in which bottles can be conveniently and quickly placed in alternately-reversed order, portions of bottles extending above and below the sheet, so that they will be arranged in rows, the bottom of one bottle being adjacent to and practically flush with the stoppered mouth of the next, and to so construct the sheet that bottles are readily seated and removed, and so that they be held in place in the sheet, it being possible to remove a loaded sheet from a case, without danger of any bottle carried thereby leaving its position.

MAIL-DELIVERY BOX.—J. A. BARCLAY, Ballena, Cal. The object in this instance is to provide a box having details of construction that adapt it for the safe holding of mail-matter placed therein, that will sound an alarm when the box is opened to deposit mail or notify the owner if an attempt is made to surreptitiously remove the contents, a further

object being to provide means for supporting and displaying mail-matter that is to be collected by the authorized collector.

Heating and Lighting.

HEATING-DRUM.—M. E. LOEHF, Claypool, Ind. This invention relates to a drum adapted to be interposed between two stove-pipe sections or, if desired, attached directly to the outlet-flue of a stove, so that the burning gases in passing through the drum will heat the air-compartments thereof and the air circulating through these compartments will in turn be heated thereby.

BURNER.—J. HEINRICHS, New York, N. Y. In this patent the invention relates to a burner for volatile combustible liquids, notably for alcohol. The object is to increase the heat of the burner with a given amount of fuel and to provide a burner which will operate from generated gas with perfect safety and which may be regulated easily and effectively.

Machines and Mechanical Devices.

MORTISING-MACHINE.—G. A. ENSIGN, Defiance, Ohio. Mr. Ensign's object is to provide a mortising-machine arranged to permit of setting the machine to accurately form the mortise to any desired depth, and cause the mortising-tool to operate automatically and feed at a slow speed into the work and return with a fast positive motion during about one-half of the return stroke, to finish the latter under acquired momentum, and to finally come automatically to a stop at the end of the return stroke to allow convenient shifting of the work by the operator for the next cut.

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 Wants.

READ THIS COLUMN CAREFULLY.—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. In every case it is necessary to give the number of the inquiry.

MUNN & CO.

- Marine Iron Works, Chicago. Catalogue free. Inquiry No. 5880.—For manufacturers of miniature steam tugs or lighters, also for makers of miniature search lights. AUTOS.—Duryea Power Co., Reading, Pa. Inquiry No. 5881.—For dealers in shells, etc. "C. S." Metal Polish, Indianapolis. Samples free. Inquiry No. 5882.—For makers of steam engines, boilers and fittings for motor cars up to 6 h. p.; also of running gears for cars suitable for steam engines. For bridgeerecting engines. J. S. Mundy, Newark, N. J. Inquiry No. 5883.—For manufacturers of windmills, pumps and tanks. Perforated Metals, Harrington & King Perforating Co., Chicago. Inquiry No. 5884.—For a 30-h. p. and an irrigating machine moved by the current of a river, also steam return traps for bringing the steam back to the boiler. If it is a paper tube we can supply it. Textile Tube Company, Fall River, Mass. Inquiry No. 5885.—For manufacturers of felt, also of springs and spring motors. Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt. Inquiry No. 5886.—For makers of cheap perforated lockets for putting up solid perfume. The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Machine Company Foot of East 138th Street, New York. Inquiry No. 5887.—For patterns of small gasoline engines, also drawings of small launches. Woven wire fence machine, makes 1,000 rods daily, easy. Part interest for sale. Price low. W. Z., 1000 Tribune Building, Chicago. Inquiry No. 5888.—Wanted, information concerning machinery and methods of pressing dry powder into cakes, wrapping same in paper wrappers and pasting same together. Patented inventions of brass, bronze, composition or aluminum construction placed on market. Write to American Brass Foundry Co., Hyde Park, Mass. Inquiry No. 5889.—Wanted, to communicate with users of industrial earth. Sheet metal, any kind, cut, formed any shape. Die making, wire forming, embossing, lettering, stamping, punching. Metal Stamping Co., Niagara Falls, N. Y. Inquiry No. 5890.—For makers of hanking machines for putting up fish lines. Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago. Inquiry No. 5891.—For machinery for making 2 x 4 x 8 inch concrete brick (sand and cement). English and European Market for American Manufacturers.—W. & R. Leggott, Limited, East Parade, Bradford, England, is in remarkably good position for handling any article connected with building trade, and will be glad to act as agent for American firms. Please communicate. Inquiry No. 5892.—For makers of windmills used for pumping water for irrigation purposes. MECHANIC, first-class workman, teetotaler, having thorough knowledge (both theoretical and shopwork) of manufacturing watchmakers' tools, instruments for dentists, physical and electrical apparatus, induction coils, Roentgen apparatus, etc., and most other branches of mechanical work, wants employment. Write to T. REUTER, 247 Avenue A (Muelier), N. Y. City. Inquiry No. 5893.—For makers of novelties for the mail order business. Inquiry No. 5894.—For makers of high power, light-weight engines, of about 1/4 to 2 h. p., not to exceed 75 pounds. Inquiry No. 5895.—For manufacturers of balloons. Inquiry No. 5896.—For an overshot water wheel, used for small power on farms, made of steel, axle rams, etc., bucket of sheet iron, etc.



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.

(9443) W. H. asks: 1. Please explain the principle of the string telephone and how it works. A. The diaphragm of the string telephone vibrates and transmits the vibrations of the air set up by the voice to the string. This in turn transmits the same vibrations to the diaphragm at the other end of the line and this in turn sets the air in vibration at the other end of the line. So the ear at the receiver hears that which is spoken into the transmitter at the remote end of the line. 2. If talking in a room causes the walls of the same to vibrate. A. The walls of a room certainly vibrate when a sound is made in the room. To see this, place your ear against the wall when a piano is being played on the other side of the wall. You will hear the tone of the instrument very much louder. 3. Is it the north or the south pole of the compass needle that points to the north? A. The north pole of a magnet is the pole which points north when the magnet is at rest under the action of the earth alone. 4. When a bar magnet has one of its poles stamped with "N" does it mean that it is a north pole or a north-seeking pole? A. The pole marked "N" and the north-seeking pole are the same poles. These are two different names for the same thing. There is no need of the name "north-seeking." It is of course true that the nature of the magnetism in the pole of the magnet is opposite to that of the pole of the earth toward which the magnet points; but this is not involved in the name of the pole of the magnet. The north pole of a magnet is the pole which points north, and the north-seeking pole is the same. Neither name expresses the nature of the magnetism of the earth at its north pole.

(9444) W. S. B. asks: Is it necessary in order to produce a current in a wire by induction, that the wire should be cut by magnetic lines of force? If so, how can the secondary wire of an induction coil or of a transformer be cut by lines of force when only a direct current is sent through the primary? A. It is necessary that a moving conductor should cut lines of magnetic force in order that an E. M. F. should be produced in that conductor. Then a current will flow through the moving conductor if the external circuit be closed. This is the basis for the production of electric currents by dynamos. It is necessary that the number of lines of force which are included in the turns of a closed conductor which is at rest should vary in order to produce an E. M. F. and current in that conductor. In this way currents are produced in induction coils which are a special form of transformers. A direct current is sent into the primary coil. While this current is rising to its full flow, the number of lines of force in the space in and around the induction coil is increasing, and a secondary current is produced in the secondary coil in the reverse direction to that of the inducing current in the primary coil. A secondary current is also produced in the turns of the primary coil in the reverse direction to that of the primary which cuts down the effect of the induction of the primary current. This is called self-induction. As soon as the primary current reaches its full value, if it is direct, the induction ceases and no further change takes place in the number of lines of force in the secondary. Hence the secondary current ceases. At this instant the vibrator, or other form of interrupter, breaks the primary circuit, and the lines of force in the space around the primary coil fall back to zero. This in the same manner as before produces an E. M. F. and current in the secondary and primary also, but in the same direction as the flow of the primary current. This action constantly repeated and combined with the action of the condenser gives a succession of sparks at the spark gap of the secondary coil. The condenser causes that the sparks shall take place only upon the break of the primary circuit and shall the rebe be all in the same direction as that of the primary current. In this way the common forms of induction coil give a pulsatory, interrupted, unidirectional current. For fuller explanation of this see "Thompson's Elementary Lessons," which we can send you for \$1.40.

NEW BOOKS, ETC. RADIO-ACTIVITY. By E. Rutherford, D.Sc., F.R.S., F.R.S.C. New York: The Macmillan Company, 1904. 8vo.; pp. 399. Price \$3.50.

Prof. Rutherford, who occupies the chair of physics at McGill University, Montreal, has been one of the most prominent experimenters in the field of which his new book treats. Since the discovery of radium, every day new experiments are being made to determine the radio-activity of various substances, and the probabilities are that its phenomena will yet cause a complete revision of our ideas concerning matter. Throughout his work Prof. Rutherford has followed the theory that the atoms of radio-active bodies are undergoing spontaneous disintegration. The interpretation of results obtained has been largely based on this theory, and the logical deductions made from its application to radio-active phenomena have also been considered. The work covers the whole subject in a comprehensive manner. Besides chapters on radio-active substances and emanations, as well as on the radio-activity of the atmosphere and of ordinary materials, the nature, properties, and measurement of the radiations and emanations are treated of in a most thorough manner. A chapter on the "Ionization Theory of Gases" will be found very helpful in the interpretation of the results of measurements in radio-activity by the electric method, while another short chapter describes the methods of measurement which give the most accurate results. The book will without doubt receive a cordial welcome from all physicists and experimenters throughout the world.

SEA GUIDE AND YACHTING MANUAL FOR 1904. By Paul Eva Stevenson. New York: Gardner & Cox, 1904. Price, 25 cents.

This little book contains a good deal of information of interest and value to yachtsmen and sailors in general. Among these topics may be especially mentioned the comprehensive tide tables on page 2 and explanation of the United States Buoyage System on page 145. There is in short a very fair collection of data relating to things encountered by the yachtsman cruising either at home or abroad.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending August 9, 1904 AND EACH BEARING THAT DATE [See note at end of list about copies of these patents.]

Table with 2 columns: Invention Name and Patent Number. Includes items like Accumulator, Air brake accelerators, Alloy metallic, Amalgamator, Amusement bath, Amusement device, Arc light systems, Arm, artificial, Automatic switch, Automobile, Awning fixture, Ax head, Axle box, Axle, vehicle, Badge, Bag fastener, Bale tie, Balls, Band fastener, Bath, Bearing for wheels, Bearings, self-lubricating carriage, Bed, folding sofa, Bed or couch, Bed, sofa, Bed, sofa, T. Hauser, Bedstead, Beer, ale, or porter drawing machine, Belt splice, Binder, Binder for ledgers, Binder, loose leaf, Binder, loose leaf, Binding apparatus, Boat leak detector, Body, Book stack, Book supporter, Bookbinding, Boring tool adjustable support, Bottle, Brake, Brake, J. E. Berry, Brazing, Brick, Bricks for building purposes, Bridle bit, Brush, fountain, Ruckle, Ruckle, L. Sanders, Ruckle, suspender, Building construction, Ruton, Cuff, P. Penton, Case, automatic dumping, Calculator device, Calculator, Camera, Camera multiplying attachment, Cameras, air check exposing device for, Can opener, Cans, machine for venting and restopping vents of.