

## RECENTLY PATENTED INVENTIONS.

## Bicycle-Appliances.

**ADJUSTABLE HANDLE-BAR.**—MORGAN H. VARNERVA, Little Falls, N. Y. The stem of the handle-bar at its upper portion is slotted at opposite sides. In the upper portion of the stem a horizontal part is mounted to turn, which is provided with an annular series of ratchet teeth aligned with the slots in opposite sides of the stem. Pawls are pivoted in the stem opposite each other and in a position to engage the teeth of the horizontal portion. The shanks of the pawls being raised, the handle-bar can be adjusted to the desired position, even when the bicycle is going at full speed.

**WATER-CYCLE.**—JOHN J. McCLIMONT, Union, Hudson County, N. J. The cycle is provided with a number of floats upon which the frame of the machine is carried. The cycle is driven by means of a pedal-crank mechanism which actuates propellers through the medium of bevel-gears and connecting rods. The device is guided by means of a hand operated steering-wheel connected by chains and sprockets with the front float.

**DRIVING-WHEEL FOR CYCLES.**—WILLIAM H. CHAPMAN, London, E., England. This invention seeks to provide a driving-wheel which can be removed without dismounting the driving-chain and gear-case. The wheel-hub is constructed in two portions, so coupled together that, by merely withdrawing the central spindle and unfastening the coupling, the wheel may be removed along with one of its bearings, the other bearing, together with the sprocket-wheel, driving-chain, and gear-case, being left *in situ* in the frame.

**BICYCLE-TIRE ARMOR.**—EMIL H. HAUPT, Manhattan, New York city. The steel armor extends across the tread and at the sides of the tire, and is formed with opposing ends. Clamps are adapted to support the end portions of the armor. A spring tension device connected with the clamps serves to draw the ends of the armor toward each other and to provide a means whereby the armor will yield lengthwise to such an extent as not to interfere in any appreciable degree with the elasticity of the tire.

## Mechanical Devices.

**GLASS-MOLDING MACHINE.**—HENRY BASTOW, Indiana, Pa. The machine comprises mechanism for holding the molten glass as the blow-plunger is dipped therein. Guide-plates are mounted adjacent to the mechanism, and between the guide-plates a carriage slides which is adapted to deliver the molten glass to the glass-holding mechanism. A block is independently slidable on the carriage and has a knife which severs a portion of the molten glass. The glass, after having been thus separated into masses sufficient to form jars or bottles, is pressed into an approximate form, and, after having attained this form, is molded or blown into the exact form.

**BRICK-PRESS.**—SYLVESTER TAYLOR, Center, Indian Territory. Mounted to turn in the frame of the press is a vertically-disposed shaft carrying a number of arms horizontally. Each arm has a mold in which a plunger reciprocates vertically. Feed-devices supply the molds as they turn with the shaft. A cover-plate is supported above the frame and is connected with an eccentric shaft by means of which the plate is caused to move to and from the molds. A vertically-movable bar is adapted to engage the plungers and push them up. The bar is located at a point beneath the cover-plate, to compress the brick. A fixed segment is located at one side of the bar, and is adapted to have the raised plunger movable over the upper face of the segment. Mechanism is mounted at the end of the segment opposite the vertically-movable bar, by which to raise the plungers further in order to dislodge the brick from the mold.

**AUTOMATIC KEG-SOAKING APPARATUS.**—CHARLES ZIES, Baltimore, Md. It is the object of this invention to provide an improvement in that class of troughs for soaking beer-kegs which are provided with automatic apparatus for causing the kegs to roll through the tank to a scrubbing-machine. The inventor has devised improved means for submerging the kegs in the water contained in the tank, and for causing the kegs to roll and travel from one end of the tank to the other, where an improved elevating and delivery mechanism is arranged for automatic co-operation with the means for submerging. The inventor furthermore provides an improved guard for regulating the admission of kegs to the tank, which guard operates automatically in connection with the other mechanism referred to.

## Engineering-Improvements.

**AIR-COMPRESSOR.**—HENRY E. ANDERSON, Cheboygan, Mich. The air-compressor comprises a cylinder having guideways therein. Weights have a limited reciprocation in the guideways, and are connected with the piston of an air-compressing cylinder. As the weights reach the top of the mechanism, they have a tendency to slide toward the opposite end of the guideways. As the weights drop, they move the piston of the air-compressor, and thus compress a certain quantity of air. From the arrangement of weights it follows that a complete double stroke of the air-compressing piston is produced during each revolution of the device.

**TRACTION-ENGINE.**—GEORGE CASHMORE, Oakland, Cal. To provide an improved traction-engine, arranged to be driven by a gasoline or oil engine, and to be readily movable from place to place, is the purpose of this invention. The novel features of the invention are found in an ingenious reversing device, comprising a driven shaft on which clutch gear-wheels are loosely mounted, a double clutch mounted to turn with and to slide on the shaft to engage either of the clutch gear-wheels, and intermediate gear-wheels adapted to move simultaneously in or out of mesh with the clutch gear-wheels. A shifting-lever is provided for the clutch and is connected with the intermediate gear-wheel to shift the latter on moving the clutch.

## Railway-Contrivances.

**CAR-STEP.**—STEPHAN OLLIGER, Burkettsville, Ohio. This invention seeks to furnish a simple means whereby, when occasion requires, the number of steps of a car-

platform may be increased, and the additional step or steps be held as firmly in place as the regular steps. The lowermost of the car-steps is pivoted; and by this pivoted step an extension-step is carried. The pivoted and extension steps can be operated by means of a shaft mounted upon the car-platform and is crank-connected with a flexible pitman joined to the pivoted step by a link. Mechanism is connected with the pitman for springing the pivoted step past the center of its pivot, in order to form a continuation of the regular steps.

**COMBINED AIR-OPERATED CAR-COUPLING AND TRAIN-PIPE-COUPLING MECHANISM.**—JOHN S. BUBB, Kittanning, Pa. The present invention provides a quick-action pneumatic mechanism for automatically setting the coupling-pin to its coupling position. The mechanism is adapted to be set in operation to move the pin to its uncoupling position by hand-manipulated release devices operated either from the sides, top, or other portion of the car. The invention embodies a novel arrangement of coupling means for joining the train air-pipes, which means coact with and form part of the air-operated coupling-pin adjusting mechanism. There is also comprehended in the invention a construction of air-operated means for setting the coupling-pin to its uncoupling position, hose-coupling devices coacting therewith, and an air-brake mechanism combined with such devices and forming an interdependent part of the complete structure of the improvement, but capable of being operated independently of the air-operated coupling-pin and hose air-coupling devices.

## Miscellaneous Inventions.

**CANE-SLING.**—DANIEL H. WALSH, Plaquemine, La. This cane-sling consists of a novel arrangement of chains and hooks, the chains being passed around the cane and the hooks engaging the chains. The sling is to be used in transferring sugar-cane, sorghum, and the like from carts to railroad cars, and is primarily designed to keep the package intact, so as to facilitate handling.

**SURGICAL SPLINT.**—ROBERT W. BARTON, Marion, Kans. Primarily this invention is designed to provide a simple form of splint for use in the treatment of compound and comminuted fractures, and is so constructed that extensibility can be effected without the use of weights, and without rearranging the bandage. The splint comprises two sections or base portions of pliable material secured in proper position on the limb, and a bridge-portion connecting the two pliable sections so as to maintain them in an immovable position after adjustment. The surface of the injured portion can hence be left free for treatment without affecting the setting of the splint.

**BINDER-FRAME.**—HARVEY P. JONES, Chicago, Ill. The binder is provided with a main frame, with top and bottom clamping-plates fitted to slide toward and from each other in the main frame, and with a right and left hand screw mounted to turn in the main frame, and engaging nuts on the clamping-plates. The device forms a detachable leaf-binder for books of any kind and so binds the leaves that they are separately movable and interchangeable, the operator being enabled readily to open the clamping plates by turning the screw for the insertion and removal of a leaf.

**WINDMILL.**—HANS H. BERGSLAND, Red Wing, Minn. The mill is provided with blades or wings which turn in a horizontal plane and which are carried on a vertically extending tower-shaft, and is furthermore provided with a centrifugal governor which serves automatically to regulate the speed. The novelty of the invention resides in the manner of mounting the blades in their casing so that they may be automatically feathered by the governor, according to the velocity of revolution of the main shaft, and according to the previous adjustment of the governor, by which adjustment a maximum speed may be set and maintained. Another novel feature is found in the hand-operated means located at the foot of the tower and connected with the governor to start and stop the mill.

**GRAPHOPHONE.**—INOCENIO ANDION, New York city. This improvement in graphophones seeks to increase the volume of the sound in a reproducer or in a recorder, to secure a more perfect recording action by concentrating the sounds and preventing the scattering or loss thereof. This object is attained by making the recorder or reproducer in the form of an exterior shell, and providing it with a diaphragm-holder smaller than the shell and spaced therefrom peripherally so as to form an annular chamber between the shell and the holder. In the holder two spaced diaphragms are located. The holder is apertured peripherally between the diaphragms so that the chamber communicates with that between the shell and diaphragm holder.

**FLUE-STOPPER.**—WILLIAM D. POWLEY, Lexington, Ill. The present invention provides a device for closing the flues in chimneys and walls when the stove-pipes have been removed, so that the flues will not present an unsightly appearance. The device embodies a cap to which two clamping-arms are pivotally connected, such arms being actuated by a sliding cross head, all of the parts having a peculiar construction by which the stopper is made more effective in operation than most devices of its class.

**CAP.**—CHARLES J. HOLZENTHALER, Brooklyn, New York city. The cap provided by this inventor is designed to retain its original shape long after other caps would have become shapeless. To this end, a metallic stiffener has been employed consisting of a continuous sheet-metal rim for the side of the crown, the rim being formed at its upper edge with an intumed annular and integral flange serving as a support for the top of the crown.

**BELT-FASTENER.**—RUSSELL FRASER, Brooklyn, New York city. This belt-fastener consists of a continuous lacing woven back and forth to join the ends of the belt. The lacing has its parts secured together at a number of points intermediate its ends, whereby it is formed into independent loops, thus preventing the withdrawal of the entire lacing upon the breaking of one or more of the loops. A number of strands may break without affecting the strength of the lacing to any appreciable extent.

**UMBRELLA-TOP PROTECTOR.**—WILLIAM O. FORTSYTH, Trinidad, Col. The covers of umbrellas and parasols are subjected to considerable wear at the upper end of the ribs. It is the purpose of this invention to

provide a device for the protection of these portions. This device consists of a cup-shaped body of rubber, provided with external ribs. The body fits upon the tip of the stick and extends down over the cover below the pivots of the ribs and is provided with staples for securing it to the ribs.

**CLIMBER.**—CHARLES H. COLE, Brooklyn, New York city. The present invention provides a climber for the use of riggers and linemen. The climber comprises a shank having an opening in its lower portion, a boxing, and a spur having a plate extended through the opening and secured in the boxing. The spur may be easily removed for the purpose of sharpening or repairing it.

## Designs.

**FOOT-BRAKE DOG.**—EUGENE B. GRAY, Manhattan, New York city. The leading feature of this design resides in a guard located on the dog-arm, and extending beyond the arm. The foot-brake dog, as a result, is more easily operated than most devices of a similar character.

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

## NEW BOOKS, ETC.

**CUBA: ITS RESOURCES AND OPPORTUNITIES.** By Pulaski F. Hyatt, United States Consul, and John T. Hyatt, United States Vice Consul, Santiago de Cuba. New York: J. S. Ogilvie Company. 1898. Pp. 211. Price \$1.50, paper 50 cents.

The book gives valuable information for American investors, manufacturers, exporters, importers, lumber and mine operators, wholesale and retail merchants, employment seekers, prospective planters, professional men, sportsmen, travelers, railroad men, and others. The book gives exactly the kind of information that people are now beginning to ask regarding the great islands at our gates. The book being written by the United States Consul and Vice Consul of Santiago de Cuba is, of course, authoritative. The book is cheaply made, but the illustrations give some idea of the kind of stores which may be found in Cuba. The tables deal with the commerce of Cuba, and are excellent. Part of the book is given up to a business directory of Havana, Santiago, Matanzas, and other cities. We hardly expected to find a business directory of these cities in such concise form so soon.

**MARINE BOILERS. Their Construction and Working, Dealing More Specially with Tubulous Boilers.** By L. E. Bertin. London: John Murray. 1898. 8vo. Pp. 437. Price \$7.20.

The author is the chief constructor of the French navy. It is translated and edited by Leslie S. Robertson, the well known mechanical engineer, and there is also a short preface by Sir William H. White, director of naval construction to the British Admiralty. The author has long been known as an authority on marine boilers. It is not limited to boilers on war vessels, as might be supposed. The work is profusely illustrated with clear diagrams, which are reproduced on a large scale. It should be noted that the present volume treats of the very latest practice in marine boiler construction, and on this account should not be confused with the books which have already been long on the market. While the French practice differs in many respects from English and American practice, at the same time, the author has shown such an intimate familiarity with the work of other countries that his book is not at all injured thereby. It is a most admirable book, which we can heartily recommend.

**DAS DEUTSCHE PATENTGESETZ UND DIE WISSENSCHAFTLICHEN HUELFSMITTEL DES INGENIEURS.** By Prof. A. Riedler. Berlin: Julius Springer. 1898.

This is a reproduction, in pamphlet form, of an article published originally in the Zeitschrift des Vereins deutscher Ingenieure. The subject treated in the pamphlet will be interesting to patent lawyers, on account of the clear and able exposition of what may be termed "scientific" inventions, that is, inventions based upon the logical train of reasoning of a well educated mind, rather than upon the utilization of more or less accidental discoveries. Apart from the abstract question treated, the subject is of special interest on account of the example referred to very fully, namely, Schlick's German patent for his system of balancing multiple crank engines, which system is now well known in naval engineering. The patent was declared void by the German patent office, but upon appeal was upheld by the Supreme Court of the German empire. Prof. Riedler was one of the experts appearing in Schlick's behalf, and is therefore particularly fitted to give a history of this important patent case.

**THE SANITARY CONDITION OF CITY AND COUNTRY DWELLING HOUSES.** By George E. Waring, Jr. New York: D. Van Nostrand Company. 1898. 16mo. Pp. 130. Price 50 cents.

\*The tragic death of the great sanitary engineer would alone make the second revised edition of this booklet worthy of notice. We know of no book which gives information of so much value in such a small compass. The information is of the greatest scientific value, and is pitifully conveyed in clear language which those who are interested in the subject will have no difficulty in understanding. It is a most valuable little book, and we congratulate the publishers upon the publication of what is probably the last work of Mr. Waring.

**THE ROMANO-BRITISH CITY OF SILCHESTER.** By Frederick Davis, F.S.A. London: William Andrews & Company. 1898. 8vo. Pp. 62.

The city of Silchester will always be interesting to the archaeologist, and the present study of Mr. Davis is an admirable resumé of the excavations which have been made and the results which may be produced from them. It is reprinted from "Bygone Hampshire."

## Business and Personal.

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Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway New York. Free on application.

## Notes &amp; 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.  
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.

(7614) A. B. asks: What is a standard candle power and an easy way in which I can measure the candle power of a kerosene lamp? A. A unit of light, one candle, is the light given out by a sperm candle weighing six to the pound and burning 120 grains per hour. A wax candle may be weighed, burned 5 or 10 minutes, and again weighed. This will test the candle. If it consumes nearly the proper quantity, it may be used as a standard candle. Drugist grain weights will answer for weighing the candle. Fasten a sheet of white paper so that the candle will illuminate it. Place the candle one foot from the paper, and a lead pencil 3 to 4 inches from the paper so that its shadow cast by the candle will fall on the paper. Now place the lamp to be measured so that the shadow of the pencil which the lamp will produce may fall by the side of the shadow cast by the candle. Move the lamp to and fro till the two shadows are of equal intensity. Measure the distance of the lamp from the sheet of paper, in feet and fractions of a foot. The square of this number is the candle power of the lamp.

(7615) F. S. G. asks: 1. Which is better for the secondary of a 2 inch spark induction coil, double cotton covered wire or single silk covered wire, both in regard to insulating qualities and space it will require? A. For the secondary of an induction coil use single silk-covered wire rather than double cotton-covered wire. Neither covering has any insulating qualities. No porous covering can insulate a wire any more than the air in the pores insulates it. The object of the covering is to prevent contact. Insulation is had by shellac after a layer is wound on. 2. Can you tell me any way to straighten the No. 18 B. & S. iron wires, 1 1/2 inches long, used to make the core of the above coil? I find that to straighten them by hammering is a very tedious task. A. To straighten a wire, fasten one end in a vise, or around a stiff nail, driven in any convenient place. Fasten the other end to a bar of wood or iron and pull till the wire is taut and straight as a line. Wire as heavy as 14 or 12 can be straightened by one man's strength. More power can be put upon larger wires, using a vise and a screw or lever. Any length can be straightened at one time. Cut it up after it is straightened.

(7616) W. A. G. C. asks: Can ice be made colder than 32 degrees? A. Water cannot under ordinary conditions be cooled below 32°. It turns into ice at this temperature. But a block of ice behaves in all respects like a block of any other solid, a piece of stone or iron for example, and may be cooled to any temperature whatever below its melting point. Out of doors on a winter's night with the thermometer indicating zero, the ice and snow will be at a temperature far below 32°. In an ice machine the ice in the cans after the freezing is completed may be cooled below 32° by the brine, and will then cool a refrigerator more than ice which is at 32°.

(7617) C. I. W. asks: 1. What number of wire should I use on local magnets for short circuit work (such as electric bells and telegraph sounders)? A. No. 28 or 30 wire may be used for sounders. On a short circuit less battery is required. The sounder is usually wound for a local circuit, and the relay with many turns for the line. 2. I wish to build an eight light 16 candle power dynamo with round armature? What SuPPL-