

## RECENTLY PATENTED INVENTIONS.

## Electrical Apparatus.

**INSULATOR.**—EMILIO ZERTUCHE, Puebla, Mexico. The insulator consists of a body having a Z-shaped passage, the end portions of which extend in opposite side surfaces; while the central or diagonal member extends through one of the end surfaces of the insulator. The wire is held securely in position by the grooves, without being bent. After having been placed in position in the insulator, the wire can be readily stretched.

**SIGNALING SYSTEM.**—LESTER C. SMITH, Torrington, Conn. The object of the invention is to provide a telephone signaling system for factories, shops, and the like, which is arranged to enable a person at one station to call up another at any other station. Each local station contains a receiver, a transmitter, a call-bell, and a shunt bridging the terminals of the call-bell. A series-line contains batteries and includes the call-bells. One of two parallel lines is connected with one end of the series-line; and the second is connected with the other end of the line. Switch-levers in the series-line are adapted to hold the receivers and to break the circuit in the series-line in order to separate the parallel lines with respect to the call-bells.

## Engineering Improvements.

**STEAM-HEATING APPARATUS.**—ALBERT P. BROOMELL, York, Penn. This invention provides a steam-heating system by which it is possible to regulate the amount of steam admitted to each radiator and to heat each radiator partially or entirely. All the radiators are open to the atmosphere, the steam being circulated without pressure. No air-valves are used. The production of steam in excess of the demand controls the damper of the boiler-furnace and automatically operates relief devices, whereby the water of condensation will be returned to the boiler, and whereby the shutting-off of steam from the radiators will automatically open a vent from the radiators to the atmosphere.

## Bicycle Appliances.

**DRIVING MECHANISM FOR BICYCLES OR OTHER VEHICLES.**—JOHN C. BUSCHER, Wilkesburg, Penn. The driving mechanism is chainless. The usual rotary movement of the pedals is preserved, although the parts operating upon the driven wheel are reciprocating levers actuating a driving-wheel. The driving-wheel is a toothed rim engaging a pinion on the driven wheel and receiving a peculiar motion. The invention is applicable to steam-vehicles. It often happens that a driving-shaft breaks at the crank-portion, a difficulty overcome by the inventor by the use of a straight shaft. In an ordinary reciprocating engine, two strokes of the piston produce one revolution of the driving-shaft; here they produce from three or more.

## Mechanical Devices.

**BORING IMPLEMENT.**—WILLIAM T. MAXWELL and GEORGE J. SPAHN, 943 W. Lombard Street, Baltimore, Md. The tool is designed for use in boring through joists or in corners or angles where the ordinary brace and bit cannot be employed. A rotatable bit-shaft and a rotatable and longitudinally-slidable brace-shaft are connected by two meshing miter-gears. One of the gears has teeth arranged in opposite directions; and the other has two sets of teeth inclined in the same direction, but at a lesser angle. The bearing for the brace-shaft is pivoted and adapted to swing, and can be clamped in either of the two angles to which it can be adjusted.

**STROKE-REGULATOR FOR WINDMILLS.**—ERNEST R. NICHOLS, Manhattan, Kans. The invention has for its object to regulate the action of a wind-wheel by varying the length of stroke according to the velocity of the wind. To effect this result, the inventor employs a lever whose stroke is lengthened or shortened automatically, as the force of the wind is greater or less. The lever is in the form of an isosceles triangle, one side of which is variable in length.

**REFINING-ENGINE.**—CHARLES E. TORRANCE, Northampton, Mass. The invention relates to paper-making machinery and provides a refining-engine arranged to permit a quick adjustment of the shell and revolving plug without disturbing the position of the plug and the driving-gear, so that the latter always remains in true alignment with the overhead countershaft-pulley. The plug and shell can be removed whenever necessary, without disturbing the driving-gear.

**CHANGE-RETARDING DEVICE FOR WEFT-REPLENISHING LOOMS.**—WILLIAM N. KIMBALL, Somersworth, N. H. In Northrop looms, as heretofore constructed, the filling fork fails to tip the moment the filling breaks, so that the bobbin-battery is actuated and a new bobbin immediately placed in position in the shuttle. A mispick is, hence, invariably made, since the harness is then not in proper position. With the inventor's improvement, the calling for a new bobbin is delayed to allow the harness to return to the position it had at the time of the breaking of the filling, so that when the new bobbin is called for, the harness is in the proper position. Consequently a mispick is prevented.

**RULING-MACHINE.**—GEORGE W. KAUSER, Manhattan, New York city. This machine is designed to rule upon plain paper either at regular distances apart or at uniformly increasing or decreasing distances. The device works on the principle of the parallel ruler and is especially adapted for ruling the lines of music scores or plays. The device is compact, as well as simple in construction.

## Railway Appliances.

**SPIKE.**—JAMES HENNINGAN, Inkerman, Penn. According to this improvement, the spike is so constructed that it will be prevented from being pressed back from a moving rail. And the invention consists in so pointing the spike that it will start easily in a tie and cut better than the ordinary spike. The point is so shaped that, as the spike is driven, it will tend to force the head of the spike in the direction of the flange of the rail.

**COMBINATION BOX AND STOCK CAR.**—CHARLES H. RUSSELL, Corsicana, Tex. The car has sides with fixed spaced slats, and a slat-frame movable up and down on

the side at the slats to close the space between the fixed slats. Posts are attached to the frame and have vertical and transverse motion in guides. The car can by these means be readily transformed to carry either box-freight or live-stock.

## Miscellaneous Inventions.

**PICTURE-CABINET.**—LAFAYETTE J. SANBORN, Davenport, Wash. The inventor has devised a dust-proof cabinet for photographs and other pictures, which consists of an outer casing containing a picture-carrying frame. By operating a pair of angle-levers through the medium of a push-rod, the pictures are successively thrust upwardly so that they can be readily removed. The remaining pictures are pressed forward into position to be acted upon by the angle-levers, by a spring carried in one of the side-walls of the frame.

**THILL-COUPLING.**—RICHARD ECCLES, Auburn, N. Y. The coupling has a thill-iron with a slotted eye, rearwardly from which a projection extends. An axle-clip carries a pivot-pin for the eye; and a link engages the projection. A hand-lever is connected with the link, and is fulcrumed on a spring forming part of the tie-bar of the axle-clip. The device is arranged to prevent rattling, to permit removing the shafts, and to assist in supporting them when in use, and to relieve the animal of the undue strain of the weight of the shafts.

**TAPE-MEASURE.**—JOHN G. EDDY, Brooklyn, New York city. The measure has the bearings of the guide-rollers mounted in the rim of a tape-line case, and is constructed so that the bearings are integral with and on the general surface plane of the rim. Hence, they can be formed during the process of making the rim, thus reducing the cost of manufacture. The bearings are formed so that there are no projections at the sides of the case, in order to avoid injury to the hand or pocket.

**FIRE-ESCAPE.**—WILLIAM A. SHAW, Orange, N. J. This apparatus has a supporting-arm for pivotal attachment to a frame. Brackets are mounted on the arm and adapted to be held in a horizontal position, whereby to support the brackets outside of the frame, or for their withdrawal. Pulleys mounted on the brackets have a supporting cable passed over them. The escape is readily placed upon any building and folded up out of way when not in use. A person can descend without assistance through its use, and can be guided in his descent by one below or one stationed near the opening at which its support is located.

**OVERHEAD-TRACK SUPPORT.**—JAMES W. BARNES, Kansas City, Mo. This mechanism furnishes means for removably supporting an overhead-track from the roof of a shed or other building. With the supporting structure is connected a track, which can be raised and lowered by a vertically adjustable suspension device. Side-braces are supported from the device and are fitted to contact at their free outer ends with the supporting structure. The invention is particularly adapted to supporting the trackways of brick-conveyers in kilns, for which conveyers a patent is about to be granted to the inventor.

**DUMPING-CART.**—JOSEPH F. BLAISDELL, Brooklyn, New York city. The wagon-body is mounted to rock on a support which carries a bracket. A toothed segment is pivoted to the wagon-body and is guided on the bracket; and a second segment is mounted on the bracket and meshed with the first segment. An hydraulic cylinder is held by and located beneath the wagon-bed. A plunger, working in the cylinder, extends upwardly above the bed, and enables the cart to be easily and conveniently elevated and tilted to dump the box of its contents in any desired place.

**FAN ATTACHMENT FOR UMBRELLAS OR PARASOLS.**—OTTO BESELER, Calaveras, Tex. A sleeve or tube is carried by the runner; and on the runner a rotary fan is mounted which is driven by gearing leading to the umbrella-handle. Only a single finger is used to actuate the device.

**FARM-GATE.**—ADAM B. LONG, Amish, Iowa. The object of the invention is to provide a simple and cheaply-manufactured gate, which can be opened and closed from a wagon. The gate is provided with an arm extending laterally and rearwardly from its hinged end, beyond its pivot post. A pull-rope is attached to the rear end of the arm. And a catch upon the pivot-post is adapted to engage the arm to hold the gate when opened.

**ADJUSTABLE POLE-SOCKET.**—FRANK PERRY, assignor to the J. Kroder and H. Reubel Company, 268 Canal Street, Manhattan, New York city. This adjustable pole-socket consists of an attaching member screwed to the window-casing and a pole member, the two members being held together by tongues working in slots. The two members can be readily locked and unlocked. As each is formed of a single piece of metal struck up by suitable tools, it is evident that the socket can be very cheaply constructed.

**CURTAIN-POLE RING.**—FRANK PERRY, assignor to the J. Kroder and H. Reubel Company, 268 Canal Street, Manhattan, New York city. This invention provides a very simple, strong, curtain-pole ring which has an eye completely covering and uniting the split ends of the ring without brazing. The eye cannot become detached from the ring; nor is the ring liable to open up, as so frequently happens with the ordinary rings.

**COMPOSITION OF MATTER FOR FURNACE-LININGS AND OTHER PURPOSES.**—RUDOLF KECK, Denver, Colo. In the production of firing bricks, burnt magnesians minerals are used which are mixed with a small percentage of binder, such as tar, clay, or ferruginous loam, etc., and burned at a very high heat. It is, however, impossible to produce a thorough mixture, for which reason the bricks, if not immediately used, disintegrate. To overcome the difficulty, the inventor employs a flux or binder which can be used in large proportions without disintegration. For this purpose he finds the shale constantly occurring in the Jura-Trias along the eastern foot-hills of the Rocky Mountains admirably adapted. The bricks made by this method can be used for filtering purposes and lining inside-walls of buildings, since they are bad conductors of heat and require no laths in calcimining.

**BISCUIT-ROLLER.**—CAROLINE P. MORRISON, Chattanooga, Tenn. This is a simple and effective machine in which dough is thoroughly ground and beaten by caus-

ing it to be forced by a roller against a convex breast-plate and broken, thus producing the consistency and texture in the dough requisite in the making of beaten biscuit. Dough treated by this machine becomes flaky and requires no baking-powder, soda, or the fermenting materials usually employed.

**HYPODERMIC SYRINGE.**—ALBERT S. J. STOVALL, Elberton, Ga. The invention provides a new and improved hypodermic syringe, which is simply and durably constructed, is not liable to get out of order, is readily manipulated, and is so graduated as to insure the administering of an accurate predetermined dose. The syringe is composed of few parts, which can be quickly separated to permit its thorough sterilization to render and keep it perfectly aseptic.

**WHEEL.**—WILLIAM F. MOSS, Fitzpatrick, Ala. This wheel can be used for various purposes, but more particularly for power-transmitting pulleys. To a certain extent it is resilient or compressible. It is also designed for use as a friction or belt-pulley in communicating power to various machines where a rigid pulley does not work satisfactorily, i. e., in places where the variation in the amount of power needed is liable to fluctuate between wide limits. The spokes are not rigidly secured to the rim, but are connected therewith by yielding springs, so that the belt cannot be thrown off.

**BOWLING-ALLEY.**—HENRY J. HECKENBACH, Belvidere, Ill. The bowling-alley comprises a table, a bed-plate upon which the pins are set up, and a ball-runway having an upper section provided with a lateral deviation and inclined downwardly from the pin-receiving end of the bed plate toward the other end, and a lower section inclined in the opposite direction with a discharge end facing the pins. A chute connects the upper and the lower sections of the run-way. It is a portable or parlor alley, and provides a game apparatus simple and durable wherein the number of pins knocked down is almost entirely a matter of chance.

**FLY-NET.**—PHILIP S. MINTON, Manhattan, New York city. This fly-net for horses is so constructed that it may be adapted to large or small animals, and attached to various portions of a harness without discommodating the animal or interfering with its movements. The net extends to the collar or the hames, a breast-strap being used for holding the forward portion of the net in position.

**INDEX.**—HENRY AUGUST HAUSINGER, Galveston, Tex. This index is made in two sections having a series of parallel rows with a reference-mark for each row, the reference-marks of one section being the same as some of those of the other section, but with the addition of a letter thereto at the end. A series of columns cross all the rows of both sections and contain letters in alphabetical succession and numbers corresponding with the paging of a ledger or other book. The invention relates to indices, especially to those adapted for use with ledgers and business books. It is simple and compact, allowing the available space to be utilized as perfectly as possible.

**IRONING-BOARD.**—ABRAHAM LEWIS, Chicago, Ill., and JACOB A. LEWIS, Manhattan, New York city. This invention provides means whereby the ironing-board may be quickly and conveniently applied to any support and adjusted as desired. Legs are employed which, when in a closed position, can be fitted snugly to the board, and when in supporting position, adjusted at any needed point between the outer end of the board and its central portion. The legs can be so attached to the board that they can be readily carried to either end of the board, so that skirts and like garments can be quickly adjusted and handled. Furthermore, the legs can be locked in a folded position, holding the board in a horizontal plane when the legs are on an uneven surface.

**CURTAIN-FIXTURE.**—HERBERT E. KEELER, Manhattan, New York city. In this device the curtain is held against the pull of the spring in the shade-roller by the frictional contact of a flexible guide with the head of the tube in the lower edge of the curtain. As this guide has a uniform tension its whole length, the contact of the guide with the heads is uniform to the free end. Thus the curtain can be readily raised or lowered by taking hold of the tube and moving the shade up or down. The fixture is intended for use in railroad, passenger, and street cars and other vehicles or places.

**FIRE-ESCAPE.**—FRANCIS J. HUGH, Manhattan, New York city. By means of this apparatus persons can descend safely from a building at an even rate of speed. The pressure with which friction-blocks are forced in contact with a belt varies according to the weight of those descending on the cable, making the device adapted for use by all. The fire-escape has a governor comprising a fixed brake-band, friction-blocks for engagement with the brake-band, actuating blocks and a revolvable star-wheel engaging the actuating-blocks, to force them outward against the friction-blocks and move the latter in frictional contact with the brake-band, each of the actuating-blocks simultaneously engaging the ends of the two adjacent friction-blocks.

**SURGICAL APPLIANCE.**—DR. ROBERT W. BARTON, Marion, Ark. The inventor has produced a surgical splint which, without the use of weights, properly holds a fractured limb extended. A suitable opening is provided for the drainage and dressing of wounds. The appliance cannot be tampered with by the patient; for the operating-rod can be turned only by the surgeon or the nurse after it has been locked. The device consists of juxtaposed and separated pads arranged for attachment to limbs by bandages. Brackets are secured to the pads and are operated by rods. Locking-screws hold the rod in place.

**SPIRIT-LEVEL.**—LOUIS DESMARAIS, Manhattan, New York city. A tube, arranged to fit in the opening through the body portion of this instrument, is formed with a central sight opening and interrupted openings in its side walls, which completely surround the sight opening. A bulb-tube is inserted in the openings in the side walls; and cement fills up the side wall openings. The bulb-tube is placed lengthwise of the body portion when used as a spirit-level, and transversely when used as a plumb-rule.

**SAUCE-BOTTLE.**—JOHN M. CHAPMAN, Morristown, N. J. This bottle holds a sauce or other liquid condiment, so that the stopper will permit the contents, which usually tend to lodge at its mouth, to drain or otherwise

find their way to the body while the cover or stopper is in place, thus avoiding the unclean and unsightly accumulation of material often seen at the neck and aperture. In the cover a chamber is provided to receive the handle of a spoon, when the cover is on the bottle.

**STRAINER.**—SYLVANUS ROBERTS, Chester, N. Y. The device is a strainer which receives dirt or other foreign matter contained in milk when poured into the strainer. The dirt is therefore prevented from entering the can with the milk. The strainer consists of a funnel-like body with sieve-covered openings in its lower part, a cup removably attached to the lower end of the body and provided with sieve-covered outlets, and a float-valve in the cup engaged in a valve-seat at the outlet of the body portion. The outlets of the cup are of less discharging capacity than the other outlets, so that the flow will be quicker through the cup outlets than through the body outlets, whereby the valve will be floated until the milk has been strained. The strainer can also be used for emulsions and similar liquids.

**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.

## NEW BOOKS, ETC.

**ELECTROMETALLURGIE UND GALVANO-TECHNIK.** Ein Hand- und Nachschlagebuch fuer die Gewinnung und Bearbeitung von Metallen auf elektrischem Wege. Von Dr. Franz Peters. In Four Volumes. 8vo. 282 illustrations. Vienna: A. Hartleben. 1900. Price, paper, \$4.

The four volumes which lie before us are essentially a digest of electro-metallurgical literature. They describe almost every process of obtaining and treating metals electrically which has been discussed in technical books and periodical literature. The first volume treats of antimony, tin, bismuth, beryllium, aluminium, magnesium; the second of copper; the third of the noble metals; and the fourth of zinc, lead, nickel, and cobalt. A most excellent index and an admirable bibliography are included in the fourth volume.

**ESSAI SUR LA CONSTITUTION DE LA TÊTE DE L'INSECTE.** Par Charles Janet. Président de la Société Zoologique de France. Paris: Georges Carré et C. Naud. 1899.

M. Janet's work in the morphology of insects deserves the consideration of every American naturalist. The originality of his methods, the evident care which he devotes to his subject, and the almost German exhaustiveness which apparently characterizes his writings should find favor for his study of the head of insects, with the few Americans who are at all interested in zoological morphology.

**THE STUDY OF ELEMENTARY ELECTRICITY AND MAGNETISM BY EXPERIMENT.** Containing 200 Experiments Performed with Simple Homemade Apparatus. By Thomas M. St. John. New York: Published by the author, 407 West 51st Street. 16mo. Pp. 220.

The book is designed as a textbook for amateurs and students, and the experiments which are illustrated and described are very simple, and the apparatus can be constructed by any one. There is considerable field for a book of the kind. It is fully illustrated by engravings and diagrams.

**ANNUAL REPORT OF THE COLUMBUS ARCHITECTURAL SOCIETY FOR 1899.** Edited by Homer C. Price, Secretary. Columbus, Ohio.

**THE NEW ELEMENTS OF HAND RAILING.** Second Revised Edition. By Robert Riddell, Ph.D. J. J. McVey, publisher. 1900. Quarto. Pp. 126, 41 plates. Price \$3.

Hand railing is a difficult subject to most carpenters and many professional stair-builders, but with the aid of the present volume, all the most difficult problems in hand railing can be solved with the greatest ease. The volume is a large one, thus allowing the plates to be on a considerable scale. The descriptive letter-press is very clear. With the aid of this book even the amateur carpenter can do the work satisfactorily. The descriptions are given in the language of the trade, and are not so technical as not to be understood by the novice.

**THE PHONOGRAPH AND HOW TO USE IT.** Being a Short History of its Invention and Development. Containing also Directions, Useful Hints and Plain Talks as to its Care and Use, etc. New York: National Phonograph Company. 1900. 12mo. Pp. 181. Price \$1.

The subject has deserved more substantial additions to its literature than it has ever received. The present volume details the history of the phonograph, giving minute directions for its use and preservation, the manufacture of records of all kinds, and a considerable amount of additional information which will prove valuable to those interested in the phonograph.

**A BRIEF HISTORY OF MATHEMATICS.** Translations of Dr. Karl Fink's Geschichte der Elementar-Mathematik. By Prof. W. W. Beman and Prof. D. E. Smith. Chicago: Open Court Publishing Company. 1900. 16mo. Pp. 330. Price \$1.50.

The translators consider no apology is necessary for an reasonable effort to encourage the study of the history of mathematics, and they have performed admirably a most difficult task, which could only be done by mathematicians of the standing of Messrs. Beman and Smith, whose other writings on mathematics are so well known. The biographical notes contain brief biographies of famous mathematicians. It is a most interesting feature of the book.