

RECENTLY PATENTED INVENTIONS.

Bicycle-Appliances.

VELOCIPED-PEDAL.—EUGENE GERMAINE, Paris, France. The main object of this invention is to provide improved means for attaching the pedal to the axle, so that connection and disconnection can be quickly and readily effected.

BICYCLE-LAMP BRACKET.—CHARLES E. WHITMARSH, Brooklyn, New York city. With ordinary fixed lamp-brackets, it often occurs that when the bicycle is in a leaning position, the lamp will smoke or the oil will run out.

Electrical Apparatus.

ELECTRIC CURRENT CONTROLLER.—JAMES B. BREEDING, San Antonio, Tex. This inventor has provided a device by means of which an incandescent electric lamp may be caused to burn with varying brilliancy, and by means of which the use of fine wires is avoided, thus preventing the controller's being burnt out.

Mechanical Devices.

ROAD-GRADING AND DITCHING MACHINE.—JAMES W. CORNETT, Gageston, Tex. The machine comprises a plow provided with a moldboard having its outer end formed with an upwardly-turned flange, and having an inclined chute upon which the moldboard delivers.

WINDMILL.—LOUIS K. HONG, Parkland, Wash. The windmill is constructed of iron and steel, and is, therefore, light, yet strong and rigid. A governor is provided which causes the wheel to maintain a uniform speed of rotation.

PHOTOGRAPHIC PROJECTING MACHINE.—WILLIAM V. MILLER, Bayonne, and GEORGE P. RICE, Rutherford, N. J. In chronophotographic apparatus, as hitherto constructed, no little difficulty has been encountered in overcoming the vibration of the film, due largely to the placing of the film-feeding wheels above and below the slide-opening.

TYPE-WRITING MACHINE.—CORAL N. WESTWOOD, Nanaimo, British Columbia, Canada. It is the purpose of this invention to provide improved means for column, line, and back spacing in type-writing machines. The invention is embodied in mechanism attached to the right-hand side of the machine, and so connected with the rotary platen and its reciprocating carriage as to adjust one or both as required for effecting column, line, or back spacing.

Railway-Appliances.

TRAIN-DISPATCHER'S INDICATOR.—ROBERT F. ADAMS, Horse Creek, Ala. This inventor has provided an indicator for the use of train-dispatchers, which is a miniature representation of a railroad with its stations and trains, and reproduces objectively the positions and movements of the various trains at different points along the road.

FOLDING CAR-STEP.—NELSON GRAY, Louisville, Ky. The improvement devised by this inventor provides a folding car-step which can be inverted, and which is provided on its under side with a platform-section, constituting an extension of a car-platform when the steps are inverted and out of position.

Miscellaneous Inventions.

LETTER-FILE.—SAMUEL M. BRYDGES, Nelson, Canada. This letter-file is made so that it can be opened

after the manner of a book. The back of the file is a trough, the sides and one end thereof being rigid. A hinged member serves to close the other end of the back and is mounted to swing on the back. Side portions are connected with the back to swing thereon; and a transverse pin is secured in the back.

SAFETY ATTACHMENT FOR ELEVATORS.—GEORGE FOX, 2d, Manhattan, New York city. In the construction of an elevator according to this invention, channel-beams are provided, adapted to form at the outer faces of the sides guideways for the cage to travel in, and to form at the inner faces of the sides contact-surfaces. Cams are carried by the cage and are arranged to move normally free between the sides of the channel-beams and to impinge thereon in order to stop the cage in case of an accident.

ACETYLENE-GAS GENERATOR.—JAMES H. DYSART, Alexandria, and PAUL M. DYSART, Pittsburgh, Pa. This acetylene apparatus consists of a generator and two gasometers connected by pipes. The generator is provided with a floating carbide-chamber, which, by means of a lever, automatically controls the flow of water.

CLOTHES-LINE SUPPORT.—THOMAS VARCOE, Lead City, S. D. The support has a head which comprises a pillar or body portion carrying a fixed jaw co-acting with a movable jaw having a slotted shank. A pin is carried on the pillar or body-portion and enters the slot of the shank.

TRUNK.—HARRISON M. TURNER, Birmingham, Ala. To provide a means whereby a series of drawers may be arranged within a trunk, so that they may be lifted easily and compactly to the top, and held so as to be conveniently accessible, is the purpose of the present invention.

PHOTOGRAPHIC-PLATE HOLDER.—HENRY H. ALTSCHWAGER and LOUIS E. JOY, Minneapolis, Minn. This improvement relates to a peculiarly constructed plate holder, the back of which is hinged like a door and supports on its interior side a movable sensitive plate frame, operated by a pinion whose shaft extends through the door at the back and ends in a knurled knob, whereby the sensitive-plate-holding frame may be rotated in the holder and moved vertically and horizontally.

HAND PUMP FOR EXTRACTING KEROSENE OR OTHER LIQUIDS FROM TINS.—WILLIAM JOHN RAWLING, Adelaide, Australia. This is a simple tube pump intended for use in commercial oil-cans in which oil is exported. It has on the upper end soldered to the tube at right angles a spike which is used for first puncturing a hole in the top of the can.

Designs.

SEWING-MACHINE HEAD.—SPENCER A. STONE, Chillicothe, Mo. The machine-head consists of a human leg and foot, the thigh being flexed at a right angle to the lower leg.

WICK-TRIMMER.—SUMNER A. HOVEY, Stoneham, Mass. The trimmer consists of a body which is adapted to fit over the wick-holder of a student's lamp, and which is provided with circularly-disposed knives. By rotating the body-portion, the knives will trim the wick uniformly.

MEMBER FOR MATCH LIGHTERS.—WILLIAM M. LARSEN, Decorah, Iowa. The leading feature of the design consists of a member having a roughened surface, lugs, and a beveled flange. Over the lugs and over the flange another member is adapted to fit; and between the two members the matches are held.

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.

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The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

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Notes & Queries

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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.

(7652) J. F. W. C. asks: Who was the inventor of, or the first that made malleable iron? A. The process of converting cast iron into malleable iron was known in 1722 and described by Reaumur. Patents were issued for the process to Lucas, in England, in 1804, and again to Brown and Lennox, about 1850. Malleable iron was made at Elizabethtown, N. J., in 1835.

(7653) F. L. M. writes: Three men want to carry a log 18 feet long, of equal weight throughout, one man at the end, the other two to use a cross stick. How far from end should this stick be placed so that all would carry an equal weight? A. The stick should be placed 4 1/2 feet from the end of the log in order that the two men holding it should carry each 1/3 of the weight of the log, and the man at the other end should carry the same weight, 1/3 of the log.

(7654) L. C. L. writes: 1. I intend making a small magneto-electric machine. Can I wind the armature with double-covered wire? If so, what size is best? A. For your small magneto use any size from No. 24 to 30 single cotton-covered wire as may be convenient. 2. How long will a concentrated solution of metal-quinol developer keep its strength if kept in a well corked bottle? A. We cannot tell you how long a solution of metal-quinol developer will keep in a well corked bottle. To find out you have only to put some in a bottle, put the cork in firmly and await the result. 3. Do negatives on celluloid films require varnishing? If so, what is the best composition? A. Gelatine negatives do not require varnishing, though they may be varnished with any good negative varnish. 4. What proportion of zinc and lead will make an alloy hard enough to use for the cylinder casting of a small steam engine? A. No alloy of zinc and lead is very hard.

(7655) D. A. McD. writes: I have some small pieces of marble 1/4 inch thick around my fireplace; they were cemented to the brick to make nice finish. They have come loose and need cementing again. Can you tell me what kind of cement to use that will hold the pieces in place and the fire will not cause to come loose. A. Soak plaster of Paris in a saturated solution of alum in water; bake in an oven; reduce it to a powder; mix with water and apply; it sets very firmly.

(7656) L. J. M. asks for a receipt to make hard putty such as carriage painters and jewelers use. A. Try the following: Boil 4 pounds of brown amber and 7 pounds of linseed oil for two hours; stir in two ounces of beeswax; take from the fire and mix in 5 1/2 pounds of chalk and 11 pounds of white lead; the mixing must be done very thoroughly.

(7657) J. M. F. writes: Among those who live by the sea the belief is very prevalent that the tide influences the wind, and that a wind is more likely to rise or fall or change on high or low tide than at other times of the day. Is this a fact? And if so, what is its physical cause? A. The belief is no doubt well founded, for the displacement of the air over the sea near the shore by the rising tide naturally tends to move it toward the shore and over the land, while the falling tide draws the air from the land to fill the displacement made over the sea. The effect is very small with ordinary tides, but should be very perceptibly felt on the shores of the Bay of Fundy, where the tidal range is from 30 to 60 feet.

NEW BOOKS, ETC.

LIQUID AIR AND THE LIQUEFACTION OF GASES. Theory, History, Biography, Practical Applications, Manufacture. By T. O'Connor Sloane, Ph.D. New York: Munn & Company. 1899. Pp. 365. 12mo. Illustrated. Price \$2.50.

No subject, save perhaps wireless telegraphy, is attracting as much attention at the present time as liquid air. Heretofore the literature upon the subject has been entirely in the form of articles in the scientific and technical journals and papers in the proceedings of learned societies. It has been reserved for Dr. T. O'Connor Sloane, the well known writer on physics, to bring together the theory and the facts concerning the liquefaction of gases in the form of a book, and he has performed his task with great ability, and the volume has been entitled "Liquid Air and the Liquefaction of Gases." It deals with the theory, history, biography, applications and manufacture of liquid gases. First the subject of physics is taken up, and this is followed by chapters on Faraday, Pictet, Cailletet, Von Wroblewski, Olszewski, Dewar and Tripler. In these chapters the author has successfully blended biographical notes with a succinct account of the physics and chemistry of the subject. Then follow descriptions of various forms of apparatus for making liquid air, experiments tried with liquid air, and some applications of low temperature. The entire history of the liquefaction of gases from the earliest times to the present is adequately treated, and this is supplemented by an illustrated description of experiments that have excited the wonder of audiences wherever liquid air has been experimented with. The book is handsomely illustrated, including portraits of pioneer investigators, and further details concerning it will be found in another column. The publishers of the SCIENTIFIC AMERICAN feel, in offering this book to the public, that it is issued at a most opportune time.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

APRIL 25, 1899.

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing various inventions and their patent numbers, including items like Abdominal bandage, Acid, manufacturing para-guaiaacol sulfonic, E. Barell, Adjustable bracket, J. C. Carpenter, Advertising apparatus, S. H. Ayer, etc.

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