

RECENTLY PATENTED INVENTIONS.

Bicycle Appliances.

BICYCLE-HOLDER.—CHARLES B. DURFEE and FRANK M. WILLIAMS, Belleville, N. Y. The purpose of this invention is to provide a bicycle-holder which shall be simple, inexpensive, and compact.

BICYCLE-STAND.—JOHN F. BENGERT, Brooklyn, N. Y. To provide a stand which can be permanently carried on the bicycle frame without interfering with the action of the wheels, which can be used either on a road or on the floor of a building and which enables the bicycle to be raised from the ground if necessary, this inventor has devised a support consisting of a bracket attachment for the bicycle frame, a sleeve or socket held to rock upon the bracket attachment and a standard having end movement in the sleeve or socket and provided with a foot.

Electrical Inventions.

ELECTRIC-RAILWAY.—WILLIAM W. DOTT, New York city, JAMES A. MCKNIGHT, Mount Vernon, N. Y., and CHARLES GRANTEN, New York city. The object of this invention is to propel cars and trains while maintaining a steady current for running the cars properly without danger of deadly overhead or rail currents. In addition to a feed wire, there are also employed a sectional working conductor and a series of circuit-controllers, one for each section of the working conductor. Each of these circuit-controllers comprises a switch made with a conducting and a non-conducting section, an electric actuating-device electrically connected to the working conductor section belonging to that controller and two circuit-closers controlled by the switch, so arranged that only one of them can engage the non-conducting portion of the switch at a time.

ELECTRIC CUT-OUT.—HARRY A. LEWIS, Norristown, Pa. This invention provides an electric cut-out designed for use in a line-wire to relieve a building from danger of a strong or excessively charged current produced by lightning or other causes. The apparatus breaking the current automatically and diverting the current from the building. The cut-out is provided with a circuit-breaker interposed in the line wire, and with a thermostat comprising a tube fixed at one end, a wire-coil in the tube, a rod held to press the coil against the tube to heat the latter, and intermediate mechanism for connecting the tube with the circuit-breaker.

FUSE-HOLDER, CIRCUIT-BREAKER, AND LIGHTNING-ARRESTER.—HARRY A. LEWIS, Norristown, Pa. To provide an improved fuse-holder, circuit breaker, and lightning-arrester arranged to protect instruments and buildings from the effects of high-voltage currents, produced by lightning, this inventor has devised means whereby the current is either passed into the earth or let out by a return wire. The device comprises a stationary contact adapted for connection with an electric circuit, a movable arm likewise adapted for connection with the circuit, a stationary insulating-block normally engaged by the movable contact and separating it from the stationary contact, and means adapted to be released by a high-tension discharge for holding the movable contact normally stationary.

INSULATOR.—CHARLES L. WINGARD, Walla Walla, Wash. This insulator is constructed with two duplicate sections matching to form a tubular body. Each section has its edges provided with interlocking shoulders, and has a head provided with a notch leading to the bore thereof, through which notch the conductor may be passed. The insulator may be applied after the wiring is done, or it may be first put in place and the wire then run through it, as may be most convenient.

Mechanical Devices.

STENCIL-MAKING MACHINE.—JULIUS STERNFELD, New York city. The purpose of this invention is to provide a machine for puncturing paper accurately, so as to form stencils such as those used for marking the outlines of monograms. The machine is arranged to permit the operator to form any desired number of stencils at the same time, and comprises a depending bearing mounted to turn a counterbalanced arm pivoted in the bearing, and a casing provided with a rod projecting from its upper face and with a tube projecting from its lower face. In the casing a cone-pulley is mounted, on the shaft of which an eccentric is secured, to which a needle-carrying rod is connected projecting out through the tube.

ELEVATOR FOR GRANULAR MATERIAL.—APOSTOLOS MARANGOS, Marseilles, France. To provide an elevator of the type used on floats or pontoons for loading or unloading ships, this inventor has devised a construction which is not affected by the pitching of the float on which it is placed. To a mast, a boom is movably connected. A hanger is suspended from the boom to swing about a horizontal axis. In the hanger

below this axis and extending crosswise thereof, a horizontal shaft is journaled. On the horizontal shaft an elevator is freely suspended, comprising a vertical screw-shaft and a casing surrounding the shaft engaging gear-wheels located on the horizontal shaft and vertical shaft. A pulley is mounted on the horizontal shaft and is connected to rotate with the gear-wheel thereon. Pulleys are also mounted to rotate about the suspension-axis of the hanger. A driving connection passes over the pulleys.

ROTARY ENGINE.—SAMUEL T. WILSON, Charleston, W. Va. This rotary engine comprises a cylinder-casing, two separable rings attached to the heads and forming an annular cylinder open at one end, an abutment projecting from the casing-head and a cylindrical piston rotating concentrically with the cylinder and having a flange at its end of greater diameter than the body and projecting longitudinally into the annular cylinder. This flange has a slot extending across its face. A piston-head fits the slot and cylinder. Extending longitudinally to the piston and through the flange is a stem attached to the head. A cam-ring surrounds the piston, and lugs attached to the stem engage the cam-ring to reciprocate the piston head when it passes the abutment.

Railway Appliances.

PNEUMATIC RAILWAY-SIGNAL.—LEWIS S. BROWN, Columbus, O. This invention is an improvement in pneumatic railway-signaling apparatus, comprising an air-pumping apparatus operated by the passage of the car-wheels and a distant air-motor operated by the air thus pumped and sounding a bell. From the air-compressing or pumping device actuated by the passing of the train, leads an air-supply pipe. A reaction wheel composed of hollow arms, having tangential openings at their outer ends and having a hollow axis connected with the air-supply pipe, is also provided. With this wheel a disk revolves, having side projecting lugs or arms. A bell surrounds the disk, and a spring-controlled striker is partly interposed in the paths of the lugs mentioned and is engaged thereby to sound the bell.

AUTOMATIC APPARATUS FOR PREVENTING COLLISIONS.—JOHANNES VERMEEREN, Hellerup, Denmark. This apparatus is designed to prevent collisions between trains, and consists of mechanism between the rails which is set in action by the train when drawn up at a station or stopping place. This mechanism actuates an appliance arranged at a distance from the stopping place in such a manner that the appliance works a brake apparatus on any train which may subsequently arrive at that point and thus stops it, independently of the engine driver and irrespective of any signal being at "danger" or at "safety." The appliance in question is placed at such a height from the track that it can engage with an arm extending from the side of the locomotive arriving at that point and thereby actuate the brakes. The appliance is brought into operative position by means of the mechanism at the stopping place, which is actuated by an entering train.

Miscellaneous Inventions.

ADJUSTABLE SPRING-BEARING.—NICOLAS DUVAL-PIHET, Paris, France. This invention provides a suspension device for the frames of light vehicles, such as bicycles, and has double springs or cushions between each member of the fork and the wheel-axle, one spring of each set being a compression spring and the other an expansion spring. Both springs are located in a single casing above the axle.

PAPER PLANT-BOX.—JOSEPH T. CRAW, Jersey City, N. J. The purpose of this invention is to provide a paper plant box in which seedlings may be grown and young plants reared. The paper-box is made from a blank comprising a series of panels of the shape of a parallelogram, one of the end panels being provided with a side flap. All of the panels are provided with rectangular flaps at their lower edges, each of the bottom flaps being provided with a diagonal slot to receive a flap when forming the box. Boxes of this square form have the advantage of economizing space, since they may be closely packed together on a growing table or in a cold frame, each box fitting directly against its neighbor.

CORNICE-LADDER.—JAMES W. ANDERSON, Philadelphia, Pa. To provide a ladder especially adapted to be hung from a cornice, which ladder shall be durable, light, and easily applied, this inventor has devised various new improvements. To the lower portion and at one side of the ladder, a horizontal platform is secured. Two fender-rails are located respectively at each side of the platform and are adjustable horizontally. The fender-rails extend laterally beyond the side of the ladder opposite the side having the platform. A guard-rail is secured to and extends transversely across the fender-rails, and has its ends projecting beyond the fender-rails and provided with transverse extensions.

BUILDING-TRUSS.—WILLIAM A. BORING, New York city. The purpose of this invention is to provide a truss for use in spaces which will not receive any other form of truss of equal bearing capacity in proportion to its weight, and which possesses great lateral strength to sustain a wind load bearing on a structure supported by the truss. The truss comprises two base-chords, an apex-chord, struts extended from the base-chords to the apex-chord and a center-beam extended longitudinally of the truss, at its base. From about the center of the struts to this beam, knees extend. From about the center of each strut to the base-chord, braces extend. The braces and knees serve to strengthen the struts in three directions.

Designs.

JAR.—JOHN SCHIES, Anderson, Ind. The leading feature of this design is the sectional configuration of the mouth of the jar, with an external outward flare in an upward direction and with an inner flared portion uniting with the rounded inner surface. The jar-body is formed with plane panels and slopes thence into union with the ornamented cylindrical neck.

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(7468) S. R. M. asks: Which of two glass balls, No. 1 and 2, exactly the same size, weight and material and conditions, would be the most likely to break were they brought together at different speeds, No. 1 at one-half the speed of No. 2, all conditions except speed to be the same? A. The two glass balls will be subject to an equal breaking force at moment of collision. This is in accordance with Newton's third law of motion. Action and reaction are equal. Or, as it is stated more fully in Kent's "Pocket Book," "If a force act to change the state of a body with respect to rest or motion, the body will offer a resistance equal and directly opposed to the force." The answer then is, Both will break if the force of the blow is sufficient to break either. Yet it is a common belief among sailors that in a collision the vessel which is going faster is injured less than the one that is moving slower. This notion does not seem to be supported by the result of the recent collision of the "Bourgogne" and the "Cromartyshire." The ball No. 2, moving twice as fast as No. 1, will have four times the energy of No. 1, and could strike four times as heavy a blow upon any barrier capable of receiving it. But ball No. 1 cannot receive the full energy of No. 2, any more than an egg can receive and use up the full energy of the blow of a sledge. After the sledge has demolished the egg, it will deal a heavy blow to the surface upon which the egg lies; so ball No. 2 can overcome the energy of No. 1, and its fragments will move on in the same direction as before the collision with three-fourths of its energy remaining in them. The other fourth having been used in stopping No. 1. No. 2 can only spend against No. 1 as much energy as No. 1 possesses, and No. 1 can use against No. 2 the same amount of energy. Now if this will break one of the balls, it will break both of them, since, by the conditions of the problem, they are equally strong. This was well understood as long ago as the time of Socrates, who is reported by Plato, as asking: "Is not the striker hit with the same blow as he who is struck?"

(7469) J. W. E. says: How far can one of our large battleships be seen with aid of glass? In other words, how many miles can a battleship be seen by looking through glasses? A. The distance at sea at which a vessel may be seen with a glass depends upon the height of the vessel's upper works, as well as the height of the observer above the sea. When the heights of both vessels are from 25 to 30 feet, their upper works may be seen at 13 miles. From a masthead 100 feet above the sea the upper works of vessels may be seen 20 miles in clear weather. The smoke of steamers shows their position from 25 to 30 miles distance.

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