

elevated angular stage thereupon having depressions, or cavities therein, inclined grooves or ways leading from the base to the top of said stage at the angles thereof, and a series of movable bodies within said inclosure, substantially as specified. 2nd. The combination, in a game-board or puzzle adapted to be held in the hand, of a rectangular base having a surrounding wall, a central elevated stage or similar form having its angles disposed alternately with reference to the angles of the base, inclined ways leading from the base to the top of the stage, the surface of said stage having depressions or cavities at or in front of the termination of said ways, and movable bodies within said inclosure adapted to pass in said ways and rest in said cavities, substantially as described. 3rd. The combination, in a game-board or puzzle adapted to be held in the hand, of a base having a surrounding wall, a central elevated rectangular stage thereupon, inclined grooves leading from the base to the top of said stage at the angles thereof, the said stage having cavities or depressions in its upper surface at the termination of three of the said grooves, and the remaining groove leading to a point between two of said cavities, and balls corresponding in number with said grooves, substantially as specified, whereby, when three of the balls are disposed in their respective cavities, the remaining ball is directed by its groove so as to rest upon the other three. 4th. The combination, in a game-board or puzzle adapted to be held in the hand and manipulated thereby, of a base having a surrounding wall and a set of four movable bodies therein, a central elevated stage of rectangular form thereupon, having two cavities or depressions therein at equal distances from the center of the stage in the line of one of the diagonals thereof, a third cavity in the line of the other diagonal, but at a greater distance from the center, and inclined grooves or ways leading from the edges of each of the cavities to the base at their respective angles of the stage, and from the center of the stage to the remaining angle, substantially as specified, whereby ways from base to stage are formed of varying degrees of inclination.

No. 37,877. Pendulum Bar Treadle.

(*Marche à pendule.*)

Edward Alexander Cochran, Oak Park, Illinois, and William M. Hazard and Eliza J. Beach, both of Pasadena, California, all in U. S. A., 2nd December, 1891; 5 years.

Claim.—1st. In a treadle mechanism for operating machinery, the combination with a driving wheel, a cross head pivoted thereto and a pendulum treadle bar, of two anti-friction wheels journaled in one end of the said cross head so as to engage with one side of the treadle bar when the same is vibrated and one friction wheel journaled in the other end of the cross head to engage the other side of the treadle bar, the said arrangement of two wheels on one side and one on the other side of the treadle bar being for the purpose of securing a rigidity in the cross head and obviating any quivering or shaking of the same. 2nd. The combination of a driving wheel, a pendulum bar having a flanged rib, a cross head pivoted to the driving wheel two anti-friction wheels journaled in one end of the cross head and engaging one side of the pendulum bar rib and one anti-friction wheel or roller journaled in the other end of the cross head and engaging the other side of the rib, one of said rollers being provided with journals having an adjustable eccentric screw for taking up the wear. 3rd. In a treadle mechanism for operating machinery the combination of the driving wheel, a pivoted pendulum bar which carries the treadle, said bar having a rib B, with flanges b, b', the cross head E, pivoted to the driving wheel, the wheels C, and C', journaled in one end of the cross head and acting against one side of the rib B, and the wheel D, journaled in the other end of the cross head and acting against the other side of said wheel.

No. 37,878. Coupling for Electric Cars.

(*Attelage de chars électriques.*)

Louis Pfingst, Boston, Massachusetts, U. S. A., 2nd December, 1891; 5 years.

Claim.—1st. In a car coupler a spring cushioned draw bar, a supplemental draw bar pivoted to swing laterally thereon, a link comprising a rectangular box chambered to receive an end of said supplemental bar, and a pin for securing it thereto, substantially as described. 2nd. In a car coupler a spring box secured to the car body, a main draw bar fitted to slide in said box, a spring for cushioning said bar, a supplemental draw bar pivoted to said main bar, and a link comprising a box chambered to receive an end of said supplemental bar adapted to be secured therein by a coupling pin, substantially as described. 3rd. In a car coupling a link comprising a bar chambered longitudinally at each end to receive a draw bar and provided with openings for coupling pins, substantially as described. 4th. In a car coupling the link P, provided with chambers 17, for receiving a draw bar and openings extending across said chambers for the coupling pins, substantially as set forth. 5th. In a car coupling the combination of a box secured to the car body, a spring cushioned main draw bar sliding longitudinally therein, a supplemental draw bar detachably pivoted to the head of said main bar, a hanger on the car provided with a horizontal bottom for supporting said supplemental bar, and a link chambered to receive the outer end of said bar and provided with openings for a coupling pin whereby it may be secured therein, substantially as described. 6th. In a car coupling the combination of a spring cushioned draw bar sliding longitudinally on the car body, with a supplemental draw bar pivoted thereto and supported by a hanger on the car, a link comprising a box or bar chambered to receive an end of said supplemental bar and coupling pins for detachably securing said bar therein, the pin openings being arranged to prevent longitudinal play of the link and bar, substantially as described. 7th. In a car coupling the spring cushioned bar H, provided with the head E, in combination with the bar K, secured thereto by the pin 15, the hanger C, the link P, chambered at 17, and the pins 18, arranged to operate, substantially as described.

No. 37,879. Wood Working Machine.

(*Machine à travailler le bois.*)

William Edwards Taft, Dunmore, Pennsylvania, U. S. A., 2nd December, 1891; 5 years.

Claim.—1st. In combination with the cutters and frame work, frames H, having openings, the heads G, located within said openings and adapted to revolve, said heads having notched flanges g, and the latches N, carried by the frames and engaging said notches, substantially as described. 2nd. In combination with the frame work and cutters, the frames H, having the heads G, journaled therein, a latch N, on each end of the machine for engaging the heads G, and means for operating both latches simultaneously, consisting of the shaft O, and the lever W, substantially as described. 3rd. In combination, the frame, the cutters, the yokes I, supported on the frame and having vertical ways a, the movable frames H, guided in said ways, the heads carried thereby, and the adjusting screws K, above the frames and passing through the upper portions of the yokes, substantially as described. 4th. In combination, the heads, the frames H, for supporting the same, the yokes I, for the frames carrying means for vertically adjusting the frames, the plates J, with means for adjustably holding the yokes whereby they may be adjusted longitudinally of the machine, the main frame having lateral ways for the plates J, and means for adjusting said plates laterally of the machine on the said ways, substantially as described. 5th. In a wood working machine, the combination of the supporting frame, the cutters, the frame H, having an opening, and the ring head G, having clamping means and sealed to revolve within the opening of the frame H, said head having an annular flange projecting outside beyond the frame H, said flange being formed into a driving wheel for the head, substantially as described.

No. 37,880. Electric Meter. (*Electromètre.*)

Elihu Thomson, Lynn, Massachusetts, U. S. A., 2nd December, 1891; 5 years.

Claim.—1st. An electric meter having stationary coils in a main circuit, moving coils in a shunt circuit around the work, the moving coils forming an armature for the stationary coils and having no iron in its magnetic field combined with a retarding device consisting of a solid copper conductor moving in a permanent and constant magnetic field, and connected positively to the aforesaid armature, so as to cause the movement of the same to be proportional to the electric work that is to be measured. 2nd. An electric meter having stationary coils in a main circuit, movable coils in a shunt circuit around the work, and a supplemental resistance in said armature circuit, combined with a retarding device consisting of a closed conductor moving in a permanent and constant magnetic field, which is independent of and uninfluenced by the currents flowing in the aforesaid coils. 3rd. An electric meter having stationary coils in a main circuit, movable coils in the secondary circuit of a transformer, or in circuit with an independent source of electricity, so as to have a practically constant current flowing through it, in combination with a retarding device consisting of a closed conductor moving in a constant magnetic field. 4th. In an electric meter, the combination with a pivoted oscillating structure, of an electric coil or coils for oscillating the same, a circuit controller or commutator, and a magnetic damper or retarding device. 5th. The combination in an electric meter of an oscillating pivoted structure, fixed coils in a circuit in which current varies with the work, two coils carried by said structure in inductive relation to the first and in a separate circuit, and a circuit changer for throwing said coils alternately into circuit as the structure oscillates. 6th. The combination in an electric meter of a pivoted oscillating structure, with means for counting the oscillations, electro-dynamic coils, fixed and movable, one in the main circuit with the work, and the other in a derived circuit around the work, and a copper plate and magnet, one carried by the structure for retarding its oscillations under the dynamic effects of the coils. 7th. In an electric meter having a retarding device consisting of a closed conductor moving in a magnetic field, combined with devices responding to changes in temperature to automatically correct for variations in the strength of the said retarding device. 8th. In an electric meter having movable coils connected in shunt around the work, a commutator for supplying current to said coils, the brushes and segments of said commutator being made of pure silver for the purpose set forth. 9th. An electric meter consisting of a set of moving coils not having an iron core, a commutator or switching device for placing said coils successively in circuit, a connection from said commutator or switch across the main wires of constant potential, or to a battery or transformer and stationary coils without iron cores surrounding the moving set of coils and connected in the main circuit to the lights or other resistances the moving coils being positively geared to a disk or closed circuit conductor moving in a magnetic field of constant value, and a register or dial system operated by the moving coils to register their movements of oscillation. 10th. In an electric meter a moving device constructed without iron and having stationary coils traversed by the current to be measured acting on the moving coils placed in derived circuit to the consumption circuit and fed by a constant current, said moving coils being without iron, a commutator or switch device having a silver surface connected to the moving coils as described, and a retarding device consisting of a closed conductor rotated or moved in a constant magnetic field or a field uninfluenced by the first or moving set of the system or set of coils and with means for adjustment either of said latter field or of the current fed to the moving coils, and a register to count the movements of the moving parts.

No. 37,881. Furnace for Roasting, Calcining and Oxidizing Metals and their Compounds. (*Fourneau pour le grillage, calcination et oxydation des métaux et leurs composés.*)

Herman Frasch, Cleveland, Ohio, U. S. A., 2nd December, 1891; 5 years.

Claim.—1st. A furnace for calcining, roasting, oxidizing or otherwise treating metals or mineral substances, consisting of a vertical