Claim.—1st. In combination with the cylinder of a steam engine, a slide valve F formed with auxiliary inlet openings r, r for the steam, one being on either side of the usual exhaust cavity in said valve, there being longitudinal steam passages or side pipes p, within the substance of the valve, opening into, or communicating with said openings r, r, substantially as shown and described 2nd. A cylinder of a steam engine and a non sliding relief plate G for the valve, said relief plate being formed with transverse cavities δ_1 in its face next the valve, in combination with the valve F held between said relief plate and cylinder, and formed with auxiliary inlet steam openings r, r, and side pipes p, connecting said openings r, r, substantially as and for the purpose set forth. 3rd. A cylinder of a steam engine and a non-sliding relief plate G, for the valve, said relief plate being formed with transverse cavities δ_1 in its face next the valve, in combination with the valve F, held between said relief plate and cylinder, and formed with auxiliary exhaust openings o, o, substantially as shown. 4th In combination with the cylinder of a steam engine, the slide-valve F formed with auxiliary steam openings r, r, and o, o, and steam passages p joining said openings r, r a relief plate G formed with transverse cavities δ_1, δ_1, in its face next said valve, and wedges δ, δ, having their bearings upon seats upon the cylinder at either side of the valve, said relief plate being mounted upon said wedges, by means of which, when the latter are moved longitudinally, the relief plate will be forced in a direction away from the valve, or allowed to move toward the latter, substantially as described. 5th In combination with the cylinder of a steam-engine, the slide-valve F formed with auxiliary steam openings r, r and o, o, and steam passages p forming said openings r, r, a relief-plate G formed with transverse cavities δ_1, δ_1, in its face next said valve, and wedges δ, δ, having their bearings upon seats upon the cylinder at either side of the valve, said relief plate being mounted upon said wedges by means of which when the latter are moved longitudinally, the relief-plate will be forced in a direction away from the valve, or allowed to move toward the latter, suitable stops being provided to determine the extent of motion of said wedges, substantially as and for the purpose specified. 6th In combination with the cylinder of a steam engine, a valve F formed with auxiliary openings o, o, and the usual exhaust steam cavity l, and with the openings s, s, through the roof of said cavity l, and a relief plate G for the valve formed with transverse steam cavities δ_1, substantially as described. 7th. In combination with the cylinder of a steam engine, a relief-plate G within the steam chest, slide valve F held between said relief-plate and cylinder, and wedges δ, δ, to support said relief plate, one wedge being on either side of the valve, said wedges being rigidly joined by a cross-bar I, so that both wedges shall move together and alike, substantially as shown and described 8th. In combination with the cylinder of a steam engine, a valve F, relief-plate G and wedges δ, δ, for supporting said relief plate said wedges being fitted to seats or bearings upon the cylinder, so that one of the planes of their opposite bearing edges or surfaces shall coincide with the plane of the back of the valve or opposing face of the relief plate, substantially as described. 9th. In combination with the cylinder of a steam engine, valve and relief-plate therefor, wedges δ, δ, for supporting said relief plate, with mechanism outside the steam chest, substantially as shown, for moving said wedges longitudinally connected with the latter, so that a forward motion of said mechanism will force the relief plate away from the valve, and a backward motion of the same will allow the relief plate to press upon the valve, a stop being arranged for the backward motion of said mechanism, to hold the wedge at a point at which said relief plate shall press only moderately upon the valve, substantially as described. 10th. In combination with the cylinder of a steam engine, valve and relief plate therefor, wedges δ, δ, for supporting said relief plate, with mechanism outside the steam chest, substantially as shown, for moving said wedges longitudinally connected with the latter so that a forward motion of said mechanism will force the relief plate to press upon the valve, a stop being arranged for the backward motion of said mechanism to hold the wedges at a point at which said relief plate shall press only moderately upon the valve, said stop being made adjustable to new positions as the wear of the parts takes place, substantially as described. 11th. In combination with a slide valve of a steam engine, having the valve-rod rigidly attached thereto, an adjustable bracket or rest for said valve-rod, constructed and operating substantially as shown and described.

No. 22,728. Railroad Switch.

(Aiguille de Chemin de Fer.)

Elmo Gordon Hyde Park, Mass., U. S., 2nd November, 1885; 5 years.

Claim.—1st. Two pairs of connected switch rails, each pair connected with blocks and a guard rail, so as to permit of a lateral movement of the ends, the other ends being finished to fixed rails, substantially for the purpose and by the means described. 2nd. A pair of point rails, in combination with two pairs of switch rails, said point rails being connected together by a spring rod acting in a metal case fastened to the tie beneath, substantially for the purpose and by the means described 3rd. A pair of joint rails connected together by a spring rod, the ends of which lie against the point rails holding them at the proper distance apart, said rod having a slot at each end, in which a bracket attached to the point rail rests, substantially as and for the purpose described. 4th. The point rails B, B, the switch rails A, A and the guards r, r, in combination, substantially as and for the purpose above described. 5th. The guard rail r attached to movable rail, so as to prevent the wheel flanges from coming into dangerous contact with the ends of the point rails. 6th. The shoe i for holding the rail ends A¹, A, the block a and the guard rails r, r, substantially as and for the purpose above described.

No. 22,729. Walking-Wheel Cultivator.

(Cultivateur-Piocheur a Roues.)

John Goodenough, Indianapolis, Ind., U.S., 2nd November, 1885, 5 years.

Claim.—1st. The frame-bars f, forked at each end and adapted to swing freely in jaws J, J¹, upon pivot-bolts, the jaws J formed integral with the coupling s, l_1, mounted on axle a, the lever-arm L also connected with such coupling, the curved spring s attached at its lower end to the head of lever L, and at its upper end to the side of the arch Y, all combined in the manner and for the purpose hereinbefore described 2nd The spring support s, bolted to the upright of the arch, substantially as and for the purpose specified. 3rd The forked carrier f c bolted to the upright of the arch, substantially as and for the purpose herein described 4th The frame rods f, forked at each end and adapted to enter the jaws J in front, formed on coupling s l_1, and the jaws J¹ in the rear formed integral with the standards and cross-piece c p, and to swing freely on pivot bolts b b_2 in such jaws, all combined substantially as and for the purpose described. 5th. The axle a divided in two parts at the top of the crank, the sleeve s l for uniting the parts, the cross bar c attached to the tongue in front of the arch formed by the parts of the axle, the parallel rods b_2, b_2, on each side the arch bolted to the opposite sides of the cross-bar c, at the upper end, and having eyes at their lower ends, which fit loosely over the axle, all combined substantially as and for the purpose described. 6th. The bars f forked at each end, pivoted in front to the jaws J of coupling s l_1 by bolts b_1, and at the rear to jaws j_1, of arms a_1, the ploughs P their connecting cross-piece c p and handles h, all combined substantially as described 7th The adjustable arch formed of uprights y connected to axles a, the sleeve s l, for uniting the parts of the arch and allowing their adjustment to different widths, the parallel rods b_2 b_2, on each side, such arch pivoted at the upper end to cross-bar c, in front of the arch, and mounted on axles on the outside of coupling s l_1 a frame composed of parallel bars carrying plough-shovels, all combined substantially as and for the purpose described 8th The frame-bars f having forked ends adapted to fit on the inside of jaws J, J¹, at front and rear, substantially as and for the purpose described 9th The coupling s l_1, having jaws J and lever L integral therewith, substantially as described. 10th. The parallel rods b_2, b_2 on each side, the arch y, their upper ends pivoted to the cross-bar c, as shown, their lower ends fitting loosely over the axle, in combination with the adjustable arch y, substantially as and for the purpose described.

No, 22,730. Car-Coupler. *(Accouplage de Chars.)*

James G. Gammon, Wayo City, Ill., U S., 2nd November, 1885; 5 years.

Claim.—1st. The combination, in a car-coupling, of a drawhead, a spring-seated sliding latch B located therein, and having a lower recess d, and a link guide consisting of parallel vertical members, playing through said drawhead and connected together with a horizontal portion $f1_1$, which rests transversely in the link recess, and devices connected to said vertical members to operate the same, substantially as set forth. 2nd. In combination with the drawhead A, a sliding latch B and coupling pin the link guide F attached to the pivot arms G, flexible connections K, K¹, secured to the coupling pin and to a drawn I attached to a shaft, the parts being constructed and organized substantially as and for the purpose hereinbefore set forth.

No. 22,731. Mechanism for the Manufacture of Boots and Shoes. *(Machine pour la fabrication des Chaussures.)*

Guillaume Bresse, Quebec, Que., 3rd November, 1885; 5 years.

Claim.—1st. The combination of the adjustable spring E_2, plunger K_2 having resisting-arm M_2 hinged thereto, mould F_1 having surface L_1 and knife-edge C_2, plunger K_1 having holes S_1, and rods A_2 with operating mechanism, the whole substantially as described for the purposes set forth. 2nd. The combination of the rigidly retained cylinder D_2, screw G_2, followers F_2 and H_2, spring E_2, cylinder I_2, plunger K_2 having a screwed neck U_5 placed therein, hinge N_7, resisting arm M_2 and bar A_1, the whole constructed and arranged substantially as described for the purposes set forth.

No. 22,732. Pump. *(Pompe.)*

John J. Bircher, Philadelphia, Pa., U.S., 3rd November, 1885; 5 years.

Claim.—1st. The plate d provided with a boss having a socket h, in combination with the sucker-valves g, g cut away at their central portions to fit around said boss, and provided on opposite sides with eyes through which passes the hinge-pin f secured within the socket h, substantially as set forth 2nd. The plate d provided with a boss having a socket h, in combination with the sucker-valves g, g cut away at their central portions to fit around said boss, and provided on opposite sides with eyes through which passes the pin f, said pin being secured within the sockets by the same nuts that secure the sucker-rods to said plate, substantially as set forth. 3rd The combination, with the socket A and simultaneously reversely-operating sucker-rods C, C¹, of the guide plates m, m, the stays n, n and the pulley o, substantially as specified. 4th The combination of the stock A, guide plates m, m, stays n, n, and pulley o, with the sucker-rods C, C¹ rod k, k connected to the sucker-rods at their upper ends, and crank D formed with bends above and below the axle portion a to form wrists to which the lower ends of said rods k, k are connected simultaneously and in opposite directions, substantially as set forth.

No. 22,733. Means for Procuring Water from the Earth. *(Moyens de tirer l'Eau du Sol.)*

William D. Andrews, Brookhaven, N.Y., U.S., 3rd November, 1885; 5 years.

Claim.—1st. The combination, with an air-tight reservoir sunk in the earth of tube or drive-wells having an air-tight connection with the upper portion of said reservoir and delivering their water thereinto, and a pump for delivering water from said reservoir, substantially as herein described. 2nd. The combination, with an air-tight reservoir sunk in the earth, of tube or drive-wells having an air-