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INVENTIONS PATENTED.

NOTE—Patents are granted for 15 years. The term of years for which the fee has been paid, is given after the date of the patent.

No. 31,470. Tree and Plant Setting Machine.
(*Machine à planter les arbres et arbrisseaux*)

Thomas A. Stratton, Lincoln, Neb., U.S., 1st June, 1889; 5 years.
Claim.—1st. The combination, with the main frame A, of the vertically adjustable beam D₂ and frame D₆, walking wheel F having levers G and provided with clamps G₃, and archway E having clamps I to hold and release the trees, substantially as set forth. 2nd. The combination, with the main frame A, of the vertically adjustable beam D₂, and frame D₆ having the rotary cutter C, flow D, sub-soil flow D₃, land sides D₄ and covers J for opening and closing the soil, substantially as set forth. 3rd. The combination, with the main frame A, of the lever N, crank shaft M, links M₃, M₆ and rod M₇ for adjusting the beam D₂ and frame D₆, substantially as set forth.

No. 31,471. Grooving or Routing Machine.
(*Machine à rainure et languette.*)

James A. Harvey, Toronto, Ont., 1st June, 1889; 5 years.
Claim.—A cutter on the end of the vertically-adjustable spindle A, carried in suitable bearings on the jointed arm C, and actuated by the adjustable pivoted spring plate E, in combination with the pivoted guide plate I, arranged substantially as and for the purpose specified.

No. 31,472. Metal Wheel. (*Roue métallique.*)

Henry R. Bothwell, Toronto, Ont., 1st June, 1889; 5 years.
Claim.—An axle-box A, having a flange or axle B near each end, in combination with a concave cap D fitted over the axle A, and a collar B having a series of holes a separated by the curved seats b, substantially as and for the purpose specified.

No. 31,473. Elastic Draft for Vehicles.
(*Volée à ressort d'arrière de voiture.*)

Albert B. Webster, Manchester, N.H., U.S., 1st June, 1889; 5 years.
Claim.—In a tug holder, the combination, with an elongation spring a₃, having one end fastened to a stationary part of the vehicle, of a draw-bar b₁ extended through a bearing b₂ and connected to the said spring, whereby the said spring is elongated when the draw-bar is drawn upon, substantially as described.

No. 31,474. Truss. (*Bandage herniaire.*)

George W. Bell, St. Joseph, Mo., U.S., 1st June, 1889; 5 years.
Claim.—1st. In a truss, the combination of the band A, a plate E and the spring G, the set screw, the adjustable arm L pivoted on the set screw, and the pad attached to the arm L, all constructed and arranged substantially as specified. 2nd. In a truss, the combination, with the band A having the plate E, of the spring G having a series of perforations K, the adjustable arm L, the set screw I, the pin O on the arm L to engage the perforations K, and the pad attached to the arm L, substantially as specified. 3rd. In a truss, the band A having the spindle C, the socket D, the clamping device to hold the socket at any desired position, the arm L pivoted to the socket D and capable of angular adjustment independent of the socket, the collar V disposed on the arm L and provided with a set-screw, whereby the collar is capable of axial and longitudinal adjustment on the arm L, and the pad swivelled to the spindle U, connected to the collar V, so that the pad may be rotated or turned, as set forth. 4th. The herein described pad, comprising the body having an angular shoulder on its rear side, the flat coiled spring having its coils nested together, one within the other, in the same plane, the outer coils bearing on the pad within the shoulder, the plate secured to the body and projecting over the outer coils to confine them in place, and the spindle

U passed through the centre of the spring and swivelled, as set forth. 5th. In a truss, the combination, with the band having a spindle C on one end of the socket D mounted on the spindle, and having set screws to impinge at their ends against the spindle, the said socket having a plate E at its free end provided with a central tapped aperture F, the spring G mounted on the socket adjacent to the said plate, and having an aperture H therein aligning with the aperture F, the set-screw mounted in the aligned apertures, the movable arm L mounted on the said screw, and the pad attached to the arm L, substantially as and for the purpose specified. 6th. In a truss, the combination, with the band having a rigid spindle C on one end, and the socket D adjustably mounted on the spindle, and having a plate E provided with the central aperture F, of the spring G secured to the socket D adjacent to said plate, and having a central aperture H, aligned with the aperture F, and the semi-circular series of perforations K, arranged around the central aperture, the set screw I engaging the aligned apertures, the arm L mounted on the set-screw facing the spring and the plate, and having a pin O on its outer side engaging in one of the perforations K, and the pad attached to the said arm, substantially as and for the purpose specified.

No. 31,475. Finger Shield and Fountain Attachment. (*Garde-doigtet fontaine.*)

James Patmor, Pittsburg, Kan., U.S., 1st June, 1889; 5 years.
Claim.—1st. A combined fountain attachment and finger shield, comprising the coil of wire, and the shield adapted to slide upon a pen and close the base of the coil upon a pen and close the base of the coil, substantially as described. 2nd. A combined fountain attachment and finger shield, comprising the coil of wire, and the shield secured to the coil and closing the base thereof, and provided with a semi-circular slot to receive the pen, substantially as described. 3rd. A combined fountain attachment and finger-shield, comprising the wire coil and the shield having a semi-circular pen-slot, and provided with a projection fitting within the base of said coil, and affording means whereby the coil is secured to the shield, substantially as described.

No. 31,476. Musical Instrument.
(*Instrument de musique*)

Edwin R. Norcross and Mary M. Albright, Fayetteville, Ark., U.S., 1st June 1889; 5 years.
Claim.—1st. The combination, with the keys, of the bell-crank levers, the sliding head-blocks having elongated slots formed therein to one side of the centres thereof, the pickers connected with the head blocks and secured to slides below the same rods connecting the respective levers and keys and the wires, substantially as described. 2nd. The combination, with the casing, the wires and keys, of the bell-crank levers mounted near the upper end of the casing, rods connecting the same with the keys, the head-blocks F connected with the levers, the slides G on which the head-blocks are mounted, the guide strips e₂, the pickers H mounted loosely on the slides and having an eccentric connection with the head-blocks, and springs for forcing the slides back, substantially as described. 3rd. The combination, with the casing, the pedals and keys, of rods attached to the keys, bell-crank levers connected with the rods, slides connected to the levers, pickers on the slides, head-blocks for rotating the pickers, a series of oscillating shafts connected with the pedals, a series of rocking levers located above and connected with the shafts, levers having connections with said rocking levers, frets on said levers, and springs for forcing the frets and pickers out, substantially as described. 4th. The combination, with the casing and wires, of the keys, the rods d, the arms D, the rods d', the levers B, the head block F connected therewith, the slides G, the guides e₂, the pickers H mounted on the slides and concentrically connected with the head-blocks, said pickers being constructed with a rounded inner end and a finger A, and springs for drawing the slides back, substantially as described. 5th. The combination, with the keys and wires, of pickers operated by the keys consisting of a circular disk, having a finger extending out therefrom, and having a central and an eccentric opening therein, a slide for moving the picker forward and back, and a head-block for oscillating the same, substantially as described. 6th. The combination, with the casing of a musical instrument, of a series of pedals, a series of oscillating shafts connected with the