across the truck, and spiral springs arranged between the upper and middle portions, and other spiral springs arranged between the middle and lower portions, substantially as specified. 5th. In a car truck, the combination of a side frame having two longitudinal bars, one above the other, and pedestal jaws consisting of pieces fitted and secured between the two longitudinal bars by means of bolts extending transversely through the said bars and lengthwise through the pedestal jaws, substantially as specified.. 6th. In a car truck, the combination, with a side frame and an oil box working within pedestal jaws comprised in said side frame, of a rocker supported upon the oil box, and a stirrup supported upon the rocker and engaged with said pedestal jaws, substantially as specified. 7th. In a car truck, the combination, with a side frame and an oil box working within pedestal jaws comprised in said side frame, of a rocker supported upon the oil box and a stirrup consisting of two upright bars and a cross-bar, the cross-bar resting upon the rocker, and the upright bars being engaged with the pedestal jaws, substantially as specified. 8th. In a car truck, the combination, with a side frame and an oil box working within pedestal jaws comprised in said side frame, of a rocker supported upon the oil box and a stirrup consisting of a cross-bar resting upon the rocker, two upright bars engaging with the pedestal jaws and provided with vertical slots receiving lugs with which the rocker is provided, substantially as specified.

No. 32,519. Folding Opera Chair.

(Fauteuil pliant d'opéra.)

Louis E. Granger, Chicago, Ill., U.S., 15th October, 1889; 5 years.

Claim.—1st. In a folding-chair, the combination of a seat, consisting of a centre part having wings hinged to each side and forming part of the seat, and a supporting pedestal having pivotal connections for said seat, substantially as described. 2nd. In a folding-chair, the combination, with a supporting box-pedestal having an open top, of a seat pivoted to the pedestal at or near its front end, and having wings or sides folding inwardly at right angles to the centre of the seat when the seat is turned up, substantially as set forth, 3rd. In a folding chair, the combination, with a supporting pedestal, of a chair-back hinged thereto and consisting of a centre part, and folding wings hinged to the centre part, substantially as described. 4th. In a folding-chair, the combination of the pedestal, a chair-back in three parts and hinged thereto, the curved bar connected at its upper end to said back, the seat formed of a centre piece and folding wings, the centre part of the seat having an extension which is slotted to embrace said bar, and provided with friction roller bearing against the upper and lower edges of said bar, to ease the movement of the seat with reference thereto, substantially as described. 5th. In a folding-chair, the combination, with the folding back, the folding seat and the pedestal, of the curved bar secured at one end to the back, the inner end of the seat riding thereon, and the stop located on the lower end of said bar, substantially as described. 6th. In a folding-chair, the combination, with the pedestal, of the adjustable feet secured to the back part thereof, substantially as described. 7th. In a folding-chair, the combination of the pedestal, the folding sides or wings of the seat structure, and the strips of rubber recessed in and projecting a little above the top edges of the pedestal at each side, substantially as described. 8th. In a folding-chair, the combination of the rear extension of the seat, the corresponding downward extension of the back part, the curved bar and the rubber cushion attached to the lower end of said back part, substantially as described.

No. 32,520. Snow Plate for Horse Shoes.

(Plaque à neige pour les fers à cheval.)

Arthur D. Hamlin, Portland, Me., U.S., 15th October, 1889; 5 years.

Claim.—1st. A snow ball plate for a horse's hoof, consisting of a flanged piece of metal of a size about equal to the space inside the shoe, pivoted to and combined with a flanged piece of metal having combined therewith a spring, substantially as described. 2nd. A snow ball plate consisting of the flanged plate A having slot A^1, and the flanged plate C having spring E and the latch c^1 the said plates pivoted together, as described. 3rd. In a snow ball device for a horse's hoof, the plate A flanged at B, and having slot a^1 combined with, and pivoted to, the flanged plate C, whereby said plate C has free motion over said plate A, the plate C having at one side the spring E, and at its lower end, the catch c^1 formed with a handle c^2, substantially as described. 4th. The plate A having flange B at one side, the catch a^3 at its lower edge opposite to the flange B, and the upturned lower edges a^2, combined with the plate C having the flange D, and the spring E, and the handled catch c^1, substantially as described. 5th. In a snow ball plate for a horse's hoof, a plate fully covering the hoof inside the shoe and held in place by spring pressure, and adapted to be placed in or removed from position without the use of tools, substantially as described. 6th. A snow ball plate for a horse's hoof consisting of two parts or members, namely: a plate entirely covering the hoof inside the shoe, and another plate movable thereon and having integral therewith a spring, whereby the device can be held in place on the hoof, substantially as described. 7th. A snow ball plate for a horse's hoof, in which the outside plate which covers the entire hoof has side flanges, whereby snow and other substances will be prevented from entering between the plates and the hoof, substantially as described. 8th. In combination with the snow ball plate, as described, the washer G held in place at the upper end of the plate outside of plate A, by the bolt F, substantially as described. 9th. The two metallic imperforate and flanged plates A and C pivoted together at their upper ends, the one plate having a guide slot in which a headed bolt fixed at one end to the plate A is placed, thereby the two plates are confined together near their lower ends, but the one may be freely moved upon the other. 10th. The combination of the flanged and imperforate plates A and C pivoted together, and the latter slotted at c^3, with the bolt H and the spring E secured upon the pivotal bolt F, substantially as described. 11th. The combination of the flanged plate A of size and shape to fit the space inside a horse shoe, with plate C slotted at c^3, rivet or bolt F, the headed bolt H, and the spring E, substantially as described. 12th. In combination with the plates A and C, constructed as described, and pivoted and secured together as set forth, with the felt I, as and for the purpose set forth.

No. 32,521. Carriage Wrench. *(Clé de voiture.)*

Patrick Kyle, Merrickville, Ont., 15th October, 1889; 5 years.

Claim.—The combination, of the spring B, with the space D, of a carriage wrench A, substantially as hereinbefore shown and described, and as and for the purposes set forth.

No. 32,522. Electro-Deposition of Metals and apparatus used therein.

(Electro-déposition des métaux et appareil pour cet objet)

Alexander S. Elmore, Cockermouth, Eng., 15th October, 1889; 5 years.

Claim.—1st. In the process of manufacturing metal tubes, rings, pans, cylinders, and other metal wares, by electro-deposition, the treatment of the said article to a rolling, or rolling and burnishing, or hammering, or hammering and burnishing action, simultaneously with the process of electro-deposition, substantially as hereinbefore described. 2nd. In the manufacture of metal tubes, rings, pans, cylinders, and other metal wares, by electro-deposition, the use of cylindrical rollers constructed of glass or agate, for the purpose of rolling, or rolling and burnishing. 3rd. The use of a break, in combination with a roller, substantially as and for the purposes described and shown with reference to Fig. 2*a*. 4th. In the electro-deposition of metals, the use of a roller having a surface speed different to that of the metal acted upon, substantially as and for the purposes mentioned. 5th. In apparatus designed for subjecting metallic articles, during the process of formation by electric deposition, to a burnishing action, the use of burnishing tools having comparatively narrow rubbing surfaces. 6th. In apparatus for the manufacture of metal tubes, rings, pans, cylinders, and other metal wares, by electro-deposition, constructing the parts of the spindles of the cores or mandrels, which are exposed to the electrolyte, of wood or similar insulating substance, and constructing bearings which are exposed to the electrolyte of glass or similar insulating substance. 7th. In the manufacture of cast iron cores, moulds and mandrels to be used for the electro-deposition of tubes, rings, pans, cylinders, and other metal wares, coating the same with a deposit of tin or other suitable metal, and subsequently coating the tin or other metal with a covering of lead, substantially as described. 8th. In the manufacture of cast iron cores, moulds and mandrels to be used for the electro-deposition of tubes, rings, cylinders, and other metal wares, the process of malleableizing the surfaces of the said articles, and subsequently coating the same with lead, substantially as and for the purposes hereinbefore described.

No. 32,523. Construction of Boot and Shoe Heels. *(Fabrication des talons de chaussures.)*

George E. Salter, Montreal, Que., 15th October, 1889; 5 years.

Claim.—1st. A boot or shoe provided with a rotary or adjustable heel composed of a rigid and a rotary portion, and a rivet or spindle having its head embedded in the rigid portion and projecting from same into the rotary portion, and means in the rotary portion confining the same on the rivet, substantially as described. 2nd. A boot or shoe heel composed of an upper rigid and lower rotary portion, the rivet having its head embedded in the rigid portion, and its leg extending into the rotary portion, and a washer or nut embedded in the rotary portion and through which the leg extends, and on the outer side of which the end of the leg is upset, substantially as and for the purpose hereinbefore set forth.

No. 32,524. Production of White Lead or Carbonate of Lead. *(Production du blanc ou carbonate de plomb.)*

Ralph W. E. MacIvor, London, Eng., 15th October, 1889; 5 years.

Claim.—1st. The process for the manufacture of white lead, consisting in the treatment of non-oxide of lead with acetate of ammonia, whereby hydrate of lead is formed and the conversion of this into basic carbonate of lead by the subsequent injection of carbonic acid, substantially as herein described. 2nd. The process for the manufacture of white lead, consisting in submitting non-oxide of lead to agitation, with a solution of acetate of ammonia in a closed vessel, and afterwards, when the non-oxide has been converted into hydrate, passing streams of carbonic acid gas through the contents of the vessel.

No. 32,525. Road Cart. *(Désobligeante.)*

George W. Brabb and Loring M. Smith, Romeo, Mich., U.S., 15th October, 1889; 5 years.

Claim.—1st. In a road cart, the combination, with the shafts, and a semi-elliptic spring located beneath the axle and supporting the crate or body, of loops located on the ends of said spring, and one or more hooks located on the rear end of each shaft and adapted to engage said loops, the construction being such that the spring and consequently the crate or body may be adjusted to a higher or lower level as desired, substantially as described. 2nd. In a road cart, the combination, with the shafts, a semi-elliptic spring located beneath the axle, and uprights engaged to said spring and supporting the crate or body, of a loop engaged to the ends of said spring and embracing the axle, and a series of hooks located at the rear ends of the