

plate D having flange Dr, spirals A and B, upper plate C having flange Cr, the whole substantially as described. 5th. The combination, in a graduated vehicle spring, of the lower plate D having flange Dr and projections e, f, spirals A and B and plate C having flange Cr and projections e and f, the whole substantially as described.

No. 22,115. Wire Netting Machine.

(Machine à faire du Treillis en Fil de Fer.)

Hiram S. Combs, Detroit, Mich., U.S., 20th July, 1885; 5 years.

Claim.—1st. In a wire netting machine, the combination, with one or more bobbins, each provided with a gear upon each end, of the arm H, substantially as described. 2nd. The combination, in a wire-netting machine, of two sets of slides E, E₁, E₂, E₃, and two sets of rack-bars D and Dr, I and I₁ adapted to mesh with divided gears upon the bobbins, substantially as and for the purpose described. 3rd. The combination, with a series of bobbins having divided gears, of the sets of slides provided with two sets of rack bars adapted to mesh with said gears, said slides connected by eveners, substantially as described. 4th. The combination, with a series of bobbins having divided gears, of two sets of slides provided with two sets of rack bars adapted to meet with said gears, said slides connected by eveners, and in connection therewith mechanism for suitably holding said slides as the rack-bars are reciprocated, substantially as described. 5th. The combination, with the sets of slides E, E₁, E₂, E₃, connected by eveners mounted upon a shaft H₂, of an additional evenner K mounted upon said shaft, and in connection therewith suitable locking arms J, J₁, substantially as described. 6th. The combination, with a series of bobbins having divided gears, of two sets of slides, two sets of rack-bars adapted to mesh with said gears, said slides connected by eveners mounted upon a shaft, an additional evenner K mounted upon said shaft, and a connection therewith, suitable locking arms, substantially as and for the purpose described. 7th. The combination, with a series of bobbins having divided gears upon each end, of two sets of slides E, E₁, E₂, E₃, said slides, each provided with a rack-bar adapted to mesh with said gears upon opposite sides, and means for suitably holding said slides in a given position while the wire is twisted, substantially as described. 8th. In a wire-netting machine provided with a series of bobbins, having divided gears on each end, the slides E and E₂ located at one end of said bobbins, the slides E₁ and E₃ at the opposite ends, said slides connected by eveners H and H₁, mounted upon shaft H₂, and one of the slides at the top and bottom of the bobbins provided with a slot e, the head-blocks adapted to slide in said slots, and the rack bars connected with said blocks, substantially as described. 9th. The combination, with a series of bobbins having divided gears, of two sets of slides forming the bearings of the divided gears, two sets of rack bars adapted to mesh with said gears, and in connection therewith the gears I and I₁ suitably mounted upon a shaft, and adapted to mesh with said rack bars, substantially as described. 10th. The combination, with two sets of slides E, E₁ and E₂, E₃, of the eveners H and H₁ mounted upon a shaft, said shaft provided with an evenner K, mechanism for holding said slides from being reciprocated, while the wire is twisted, and in connection therewith gears I and I₁, and rack bars with which said gears mesh, substantially as described. 11th. In a wire netting machine, provided with a series of bobbins having divided gears, the slides E and E₂ located at the upper end of said bobbins, the slides E₁ and E₃ located at the lower end of said bobbins, said slides forming the bearings of the bobbins and connected to eveners, and each provided with a rack-bar, one of said slides at the top and bottom provided with a slot e, and in connection therewith the rods C and Cr, provided with suitable cross-heads secured to the rack-bars D and Dr, the construction being such that said rack-bars may be caused to travel the length of the slot, and the slides to be then reciprocated, substantially as described. 12th. In a wire netting machine, the gear Q₁ mounted upon a suitable shaft, said shaft provided with two or more hubs, and the forks q₁, carrying spools R, having bearings in said hubs, said bearings provided with cranks q₂ suitably secured upon a wheel S, said wheel having its bearings at a distance from the shaft of crank q₂ corresponding to the length of said crank, all constructed and arranged substantially as and for the purpose described. 13th. In a wire-netting machine, consisting of the combination, with a frame and suitable driving-gear, of a series of bobbins provided with half-gears at the ends of the bobbins, two sets of slides forming the bearings of said gears, said slides provided with two sets of rack-bars, mechanism for reciprocating said rack-bars and slides, mechanism for holding the slides while the rack-bars are partially reciprocated, and in connection therewith suitable mechanism for twisting two or more strands, the construction being such that as the slides are reciprocated the half-gears will be interchanged and the warp and the woof of the selva be suitably netted together by the rotation of the bobbins, substantially as described. 14th. The combination, with a suitable frame, of a series of bobbins provided with half-gears at the ends of the bobbins, two sets of slides forming the bearings of said bobbins, said slides provided with rack-bars adapted to mesh with said divided gears at the top and bottom of the spindles, and in connection therewith suitable mechanism for reciprocating said slides and rack-bars, substantially as described.

No. 22,116. Counter Scale. (Balance de Comptoir.)

Jacob Ball, Waterloo, Ont., 20th July, 1885; 5 years.

Claim.—1st. The combination, with the weight beam B, of a scale, of the series of suspended weigh plates F, loosely connected together, whereby one or more will be lifted by the load tilting the scale beam, and the weight indicated on a dial by a pointer, as set forth. 2nd. The combination, with the scale beam B, having a series of weigh plates F loosely connected and hung thereto, of the weight R suspended therefrom, and means for raising the weight when not required, whereby the weight, when lowered, will increase the weighing capacity of the scale, as set forth.

No. 22,117. Machine for Drawing and Spinning Hemp, etc. (Machine à Etirer et Filer le Chanvre, etc.)

John Good, Brooklyn, N.Y., U.S., 20th July, 1885; 5 years.

Claim. 1st. The combination, with a spindle and flyer, and means for driving them, of a nipper through which a sliver may be passed, and which is attached to and adapted to rotate with the spindle and flyer, substantially as and for the purpose herein described. 2nd. The combination, with a non-rotating nipper through which the sliver is to be passed or drawn, of a spindle and flyer, means for driving them, and a second nipper attached to and adapted to rotate with the spindle and flyer, substantially as and for the purpose herein described. 3rd. The combination, with a non-rotary nipper through which the sliver is to be passed or drawn, and a stationary support on which the nipper is secured, of a spindle and flyer, means for driving them, and a second nipper attached to and adapted to rotate with the spindle and flyer, substantially as and for the purpose herein described. 4th. The combination, with a non-rotary nipper through which the sliver is to be passed or drawn, of a spindle and flyer, means for driving them, and a second nipper attached to and adapted to rotate with the spindle and flyer, and forming the extremity thereof, substantially as and for the purpose herein described. 5th. The combination, with a non-rotary nipper through which the sliver is to be passed or drawn, and which has its jaws at its rearmost extremity from which the sliver issues, of a spindle and flyer, and means for rotating them, and having its fixed and movable jaws at its forward end in close proximity to the jaws of the non-rotary nipper, substantially as and for the purpose herein described. 6th. The combination, with a non-rotary spindle and flyer, and means for driving them, and a second nipper having the jaws at the forward end, and having a pivotal connection with the flyer, whereby its forward end is made self-adjusting, substantially as and for the purpose herein described. 7th. The combination, with the nipper stock G^{*} having the transverse and longitudinal notches g^{*}, g¹ of the movable jaw g² entering the stock g^{*}, and the spring g¹¹, pivotally connected with the stock at one end and at the other end bearing on said movable jaw, substantially as herein described. 8th. The combination, with the nipper stock G^{*}, having the transverse and longitudinal notches g^{*}, g¹, of the movable jaw and its shank g², g³, the arm g⁴ pivotally connected at its ends with the stock and at the other end bearing on the movable jaw, substantially as herein described. 9th. The combination, with the trumpet-mouth a having the jaw-holder at its delivery aperture, of the fixed jaw u₂, secured in said holder, the movable jaw n₃ pivoted in the fixed jaw, the lever n₉ bearing on said movable jaw, a spring acting upon said lever, and a support for said spring, all substantially as herein described.

No. 22,118. Machine for Drawing and Spinning Hemp, etc. (Machine à Etirer et Filer le Chanvre, etc.)

John Good, Brooklyn, N.Y., U.S., 20th July, 1885; 5 years.

Claim.—1st. The combination, with two or more spindles and fliers, arranged one above another, and means for driving them, of a catenary series of upright bars, each having laterally projecting arms or brackets arranged one above another, and provided with gill-pins, for presenting two or more slivers to the spindles, and means for operating said series of bars, substantially as herein described. 2nd. The combination, with two vertical tiers of spindles and fliers, arranged side by side, a common driving shaft and mechanism operated by said shaft, for driving the spindles and fliers of both tiers, of two catenary series of upright bars, provided with laterally projecting brackets armed with gill-pins, and mechanism for operating said two series of bars, substantially as herein described. 3rd. The combination, with two or more spindles and fliers, arranged one above another, and means for driving said spindles and fliers, of a catenary series of upright bars armed with gill-pins, endless chains connecting said bars, and arranged to operate in horizontal planes, and upright shafts, and chains or sprocket-wheels, and means of operating the said wheels to give motion to said chains and bars, substantially as herein described. 4th. The combination, with two or more spindles and fliers, arranged one above another, and means for driving said spindles and fliers, of a series of upright bars armed with gill-pins, endless chains connecting said bars, and in which said bars are movable vertically, means for driving said chains and bars, and a track or way for the lower ends of said bars in their direct or forward movement, having at one end an incline for lifting said bars to raise their pins into the slivers, and at the other end a drop permitting said bars to fall in order to withdraw their pins from the slivers, substantially as herein described. 5th. The combination, with two or more spindles or fliers, arranged one above another, and means for driving them, of a series of upright bars armed with gill-pins, endless chains connecting said bars, and in which said bars are movable vertically, means for operating said chains, the direct and return tracks or ways h₃, h₄, the former provided with the upward incline h₃^{**} at one end and the drop h₃^{*} at the other end, substantially as herein described. 6th. The combination, with two or more spindles and fliers, arranged one above another, and means for driving them, of a series of upright bars armed with gill-pins, endless chains connecting said bars, and in which said bars are movable vertically, means for operating said chains, the track or way h₃, comprising the incline h₃^{**} at one end and the drop h₃^{*} at the other end, and the upper guide h₂ comprising the inclined cam-like portion h₂^{*}, substantially as herein described. 7th. The combination, with two or more spindles and fliers, arranged one above another, and means for driving them, of a series of upright bars armed with gill-pins, and provided at their lower ends with horizontally-extending toes or cam-like portions, endless chains arranged in horizontal planes and connecting said bars, means for operating said chains and bars, and a track or way receiving the toes or cam-like portions on the said bars, and serving to prevent the turning of the bars during their direct movement, substantially as herein described. 8th. The combination, with two or more spindles and fliers, arranged one above another, and means for driving them, of a series of upright bars armed with gill-pins, endless chains connecting said bars, and composed of links h₁^{*}, having male and female eyes fitted to each other and open at the sides to enable them to be slipped laterally on said bars, means for operating said chains, and tracks or ways supporting the lower ends