

and within the corner-straps, whereby a metallic bearing to the four sides of the end rails at the intersection with the side rails is afforded, substantially as described. 9th. The netting, provided with larger meshes or loops at the end and sides, whereby the netting is more easily attached to the frame, and the knots joining the meshes are brought inside of but not against the frame, substantially as described. 10th. The end rail having an upper surface tapering from the centre to the ends, and provided with a groove on the outer side thereof, and holders inserted in said groove, in combination with the remaining rails, whereby when the netting is applied thereto it is raised higher at the centre than at the sides to aid in preventing sagging, substantially as described. 11th. A structure suitable for bed-bottoms and other articles, consisting of a netting having its meshes drawn in an elongated form and rigidly held as formed, in combination with a knock-down frame, the said netting being drawn taut on said frame and having a uniform longitudinal tension, a less but uniform lateral tension, a uniform diagonal tension and a uniform elasticity whereby the frame and netting are readily disconnected or put together, substantially as described. 12th. A knock-down frame composed of two side and two end pieces, the said end pieces resting on said side pieces and the corner straps for securing them together, substantially as described. 13th. The end rail, having an upper surface tapering from the centre to the ends and provided with the groove on the side, in combination with the remaining rails and the corner straps connecting the rails, substantially as and for the purpose described. 14th. A frame, composed of the side and end rails, each provided with a groove on the side thereof, the end rails being above and supported by the side rails and holders placed within said grooves, whereby the netting may be suspended above the side rails, except where it is attached thereto, substantially as described. 15th. As a new article of manufacture, a netted structure, in combination with the side rails, the end rails, each of said rails provided with the groove, the hand-tight corners for connecting the said end and side rails, and the netting holders placed within the said groove, substantially as described.

No. 24,002. Metallic Box. (*Boîte Métallique.*)

George A. Williamson, Providence Works, Eng., 7th May, 1886; 5 years.

Claim.—1st. Contracting the top edge of the body of the box or case, and covering the open top by soldering to the said contracted top edge, a disc of thin or tinner tin plate, sheet-lead, strong tin foil, or other metal or alloy, which can easily be cut with a knife, and covering the said disc or top with a loose or removable close-fitting cover, which cover, after the tinner tin-plate top has been cut away for opening the box or case, is used for reclosing the said box or case, the box or case being filled from the bottom, substantially as hereinbefore described and illustrated in the accompanying drawings. 2nd. Contracting the top edge of the body of the box or case, and partly covering the open top with a ring of thin or tinner tin plate, sheet lead, strong tin foil, or other metal or alloy, which can easily be cut with a knife, the opening in the said top ring being closed after filling the box or case by soldering a disc to the edge of the said opening, and covering the closed top of the box or case with a loose or removable close-fitting cover, for the purpose and substantially as hereinbefore described and illustrated in the accompanying drawings.

No. 24,003. Driving Apparatus.

(*Appareil pour Conduire un Cheval.*)

Charles Lowther, New York, N.Y., U.S., 7th May, 1886; 5 years.

Claim.—1st. The combination, with a rein, of a hand protector open at the rear and closed at the forward end, and provided with a stirrup formed holding device arranged in the interior of the same for holding the reins, substantially as shown and described. 2nd. The combination of reins, with two hand-protectors, substantially as described, provided with a plate *p* and stud *h*, or equivalent devices for engaging the hand protectors together and disengaging them at will, substantially as and for the purpose set forth.

No. 24,004. Reaper Knife Sharpener.

(*Rémouleur de Couteau de Faucheur.*)

John Ross, Blythe, Ont., 7th May, 1886; 5 years.

Claim.—1st. The frame *A* of a reaper and mower knife sharpener, in combination with the sloping bars *A1*, *A2*, which cross each other and are bolted or otherwise secured together at such a point that the space between the lower ends of the sloping bars on the ground will form a larger and wider base than their upper ends, or the side bars *A*, to which the upper ends are secured, to completely prevent any possibility of the machine upsetting, substantially as described. 2nd. The frame *A*, in combination with the sloping bars *A1*, *A2*, which cross each other and are bolted or otherwise secured together, upright *A3*, and seat *F*, substantially as shown and described and for the purpose specified. 3rd. The lever clamp *I*, substantially as shown and described, and for the purpose specified. 4th. The lever clamp *I*, in combination with the knife holder *H*, standard *G1* or other suitable support projecting up from the knife holder *H*, knives *J* and screw *K*, substantially as shown and described, and for the purpose specified. 5th. A toothed wheel *D1*, substantially as shown and described and for the purpose specified. 6th. A toothed wheel *D1*, in combination with a connecting bar *L*, stud pin *C1*, or its equivalent, standard frame *G*, knife holder *H*, knives *J*, and stone *E*, substantially as shown and described and for the purpose specified. 7th. A connecting bar *L* formed with a slot *M*, substantially as shown and described, and for the purpose set forth. 8th. The connecting bar *L*, formed with a tension or spring for readily permitting of the adjustment of, and retaining the stud pin *C1* in the sockets in the toothed wheel *D1*, substantially as shown and described. 9th. A standard frame *G* formed with holes *e1*, substantially as shown and described and for the purpose specified. 10th. The knife holder *H* formed with holes *e1*, pivotally and adjustably secured to the standard frame *G* by a bolt *o5*, or its equivalent, in combination with grindstone *E* for adjusting the knife holder *H*, together with the knives *J*

secured thereon backwards or forwards horizontally to stone *E* of different diameters, substantially as described. 11th. The knife holder *H* pivoted on a pivot-bolt *o5*, or its equivalent, secured in a standard frame *G*, formed with holes *e1*, in combination with the grindstone *E* for the purpose of adjusting the knife holder *H* together with the knives *J*, secured thereon upwards or downwards vertically to stone *E* as they decrease in size, substantially as described. 12th. A standard frame *G* formed with holes *e1* in combination with a knife holder *H*, formed with holes *e1*, and bolts *o* and *o7* or their equivalent for adjusting the knife holder *H* as well as the knives *J* secured therein horizontally and vertically, to adapt them to lie on the stone *E* in proper proportion as it decreased in diameter, substantially as shown and described. 13th. A flexible band *O*, substantially as shown and described, and for the purpose specified. 14th. A flexible band *O*, in combination with the knife holder *H*, crank arm *P*, crank shaft *R*, and foot crank *R1*, substantially as shown and described, and for the purpose specified. 15th. The cranks *S*, *S1* one situated on each side of the grindstone *E*, and each formed with a knob or handle *S1*, shaft or axle *C*, and grindstone *L*, in combination with the toothed wheel *D1*, connecting bar *L*, standard frame *G* and knife holder *H*, substantially as shown and described, and for the purpose specified. 16th. A standard water guard *T*, substantially as shown and described, and for the purpose specified. 17th. The pulley *W*, in combination with a pivotal rod *V*, flexible band *X*, and knife holder *Z*, substantially as shown and described, and for the purpose specified. 18th. A bracket *U* formed with a slot *U1*, thumb nut and bolt *u2*, and standard *T*, in combination with a rod *u*, pulley *W*, flexible band *X*, and knife holder *Z*, substantially as shown and described, and for the purpose set forth. 19th. A knife holder *Z*, formed with a socket *Z1*, and flange *Z2*, substantially as shown and described, and for the purpose specified. 20th. A flexible band *X*, and knife holder *Z* connecting the outer end of the knives *J* to a rod *V* by a pulley or other suitable connection, in combination with a flexible band *o* connecting the knife holder *H* with a crank arm *P* forming part of or rigidly secured to the crank shaft *R*, formed with a foot *R1*, for the purpose of steadying said knives while being sharpened, substantially as shown and described.

No. 24,005. Grooving and Seam Setting-down Machine. (*Machine pour Relever les Gravures et Rabattre les Coutures.*)

Phillip Birch, Erie, Penn., U.S., 7th May, 1886; 5 years.

Claim.—1st. The combination in a grooving and seam-setting-down machine, of a stake or mandrel mounted in the frame of the machine, and provided with one or more longitudinal grooves therein, one of the edges of which grooves is movable with a hammer mounted in the frame of the machine, adapted to strike downward upon said stake or mandrel, substantially as and for the purpose set forth. 2nd. In a grooving and seam-setting-down machine, a stake or mandrel having one or more longitudinal grooves therein, one of the edges of which grooves is movable, substantially as and for the purpose set forth. 3rd. The combination, in a grooving and seam-setting-down machine, of standards connected together at one end thereof by a cross-frame, a pivoted hammer provided with retracting springs, and treadle mechanism for operating the same mounted in said frame, with a sleeve on one of said frames adapted to receive and support the stake or mandrel upon which said hammer strikes, substantially as and for the purpose set forth. 4th. The combination, in a grooving and seam-setting-down machine, of a removable stake or mandrel having longitudinal grooves therein, with a tubular sleeve or bearing on the frame of said machine, adapted to support said removable stake or mandrel under the face of the hammer of said machine, substantially as and for the purpose set forth. 5th. In a grooving and seam-setting-down machine, the combination, with a pivoted hammer mounted in the frame of said machine, and a removable stake or mandrel, one end of which is mounted in a sleeve or bearing on said frame, of a movable leg adapted to be moved under the free end of the stake or mandrel and removed therefrom by the action of said pivoted hammer, substantially as and for the purpose set forth. 6th. The combination, in a grooving and seam-setting-down machine, of a pivoted hammer mounted in the frame of said machine, having a rivet punch in the face thereof, with a removable stake or mandrel mounted in a sleeve or bearing on said frame, and having thereon one or more longitudinal grooves, one of the sides of which is movable, and having openings in the face of the groove for the entry of the punch in the face of the hammer, substantially as and for the purpose set forth. 7th. The combination, in a stake, for grooving and seam-setting-down machines, of longitudinal grooves *n* having the fixed edge *n1*, with the movable edge or guide *o* resting on the spring *o*, and adapted to be forced downward during the setting of the seam, substantially as set forth. 8th. The combination, in a grooving and seam-setting-down machine, of the upright frames *A*, *A1*, and cross-frame *F*, the hammer *D* provided the retracting spring *H* mounted in the top of the frame *A*, and the treadle *J* mounted in the lower part of the frame *A*, and connected with the hammer *D*, by connecting rods *K*, with a tubular bearing or sleeve *G*, on the top of the frame *A1*, and the removable stake or mandrel *L* supported thereby, all substantially as and for the purpose set forth.

No. 24,006. Wheel Hub. (*Moyeu de Roue.*)

Charles E. Borop, of Bureau Co., Ill., and Louis H. Borop, of Green Co., Iowa, (assignees of Stephen H. French and William J. Maltby, Baird, Texas.) U.S., 7th May, 1886; 5 years.

Claim.—1st. The combination, with an axle, and a hood or guard fixed thereon, of a hub reduced at one end, and provided with a flange at the outer end of said reduction, and a collar or nut having a flange projecting over the free end of said hood or guard, said hood or guard fitting over said reduction of hub, substantially as and for the purposes set forth. 2nd. The combination of the hub body *D*, provided with the shoulder *G* near its outer end, and a screw-thread along the inner portion, the splino *J* near said shoulder, the slotted collar *H* fitted to said shoulder and splino, the removable ring *K* smaller than the collar, and having radial mortises in one side, and shoulders *L* in alignment with said mortises, upon which shoulders rest on shoulders