roof-boards, the painted canvas sunk and fitted into the rabbets, the paper or canvas strip and the surface boards *a*, as and for the purpose set forth.

No. 28,571. Spring Vehicle. (*Voiture à ressorts.*)

Lauren M. Fitch and Moses M. Davis, Rome, N.Y., U.S., 1st March, 1888; 5 years.

Claim.—1st. In combination with the axle and cross-springs at opposite sides thereof, the spring supporting arm *a* placed astride the top of the axle and projecting horizontally and at right angles from opposite sides thereof, and formed with shackle-eyes at the free ends, and with shanks *b*, *b*, riding upon the top of the axle, all formed in one piece, substantially as described and shown. 2nd. In combination with the forward axle, reach and cross-springs at opposite sides of said axle, the plate B mounted on top of said springs and having grooves fitted to the springs, the fifth-wheel C secured to the top of said plate, with the centre of the fifth-wheel in a vertical line passing between the rear side of the axle and adjacent cross-spring, the block *f* clipped unto the rear side of the axle and having an eye in the vertical line passing through the centre of the fifth-wheel, and the straps *e*, *e*, secured to the end of the reach and pivoted on the block *f*, all combined substantially in the manner specified and shown.

No. 28,572. Window. (*Fenêtre.*)

William Fountain, Chicago, Ill., (assignee of Henry Tintrop, San Francisco, Cal.), U.S., 1st March, 1888, 5 years.

Claim.—1st In a window, the combination, with a sliding sash having plates provided with openings secured to its upper and lower inner edges, and located adjacent to one end of the sash, of an inner sash, spring plates H secured thereto at one end, and free at their other end, pivot-pins formed integral with said plates and adapted to enter the pivot-openings, and a sliding catch located on the side of the pivoted sash and adapted to engage one of the sides of the sliding sash, substantially as set forth.

No. 28,573. Gravity Lock. (*Serrure bénarde.*)

The Peterborough Lock Manufacturing Company, (assignee of Charles S. Osgoode), Peterborough, Ont., 1st March, 1888; 5 years.

Claim.—1st The combination, with a latch bolt, of a pivoted lever having its short arm in contact with the latch-bolt, and its long arm arranged to support a vertically-adjustable weight, substantially as and for the purpose specified. 2nd. The combination, with a latch-bolt, of a pivoted lever having its short arm in contact with the latch-bolt, its long arm arranged to support a vertically-adjustable weight and its heel in contact with the tumbler of the lock, substantially as and for the purpose specified. 3rd. The combination, with a latch-bolt, of a pivoted lever having its short arm in contact with the latch-bolt, and its long arm arranged to support a vertically-adjustable weight, and a pivoted stop arranged to lock the weight, substantially as and for the purpose specified. 4th. A pivoted lever arranged to support a vertically-adjustable weight and formed so as to be in contact with the top side of the tumbler of the lock, in combination with the lock-bolt formed so that its end may be adjusted against a shoulder formed on the head of the latch-bolt, substantially as and for the purpose specified. 5th. A latch-bolt A, pivotally connected to the pivoted hanger B, which is actuated by the tongue *a*, formed on the spindle-bearing C, a projecting lip *d* formed on the bolt A, and extending close to the short arm *b* of the lever D, in combination with the vertically-adjustable weight E, arranged to rest upon, and be supported by, the long arm of the lever D, substantially as specified. 6th. A pivoted lever D arranged to support the vertically adjustable weight E, and having a lip *h* extending over the tumbler H, in combination with the said tumbler and with the lock-bolt G, arranged so that its end may be thrown against the shoulder *e*, formed on the head of the latch-bolt A, substantially as and for the purpose specified. 7th. A keeper I having a bevelled projection *f* in combination with a square-ended latch-bolt, substantially as and for the purpose specified.

No. 28,574. Shuttle Motion.

(*Mouvement de navette.*)

Samuel Greening, Hamilton (assignee of John Maw, Dundas), Ont., 1st March, 1888, 5 years.

Claim.—1st In a positive shuttle motion, the combination, with the shuttle frame, of a duplex locking lever pivoted to said frame and adapted to come in contact with the carrier arms, thereby effecting the first part of the movement of the locking lever, and a reversing spring attached to the shuttle frame and completing the movement of the locking lever, substantially as set forth. 2nd. The combination, with the carrying arms C, C_1, provided with locking recesses *f*, f_1 and heads F, F_1, of a shuttle provided with a duplex locking lever D, having a tail-piece *g*, and projection I, and a reversing spring H bearing against the projection I, substantially as set forth. 3rd. The combination, with the shuttle-frame, provided with a hollow post J, of a bobbin mounted on said post, and a tension spring L provided with a pin *l*, which enters the bore of the hollow post and is locked within the same, substantially as set forth. 4th. The combination, with the shuttle frame, provided with a hollow post J, having a locking groove n, n_1, n_2, of a bobbin mounted on said post, a tension spring L, and a pin secured to said spring and provided with a projection *m*, whereby the pin is locked in the groove of the post, substantially as set forth.

No. 28,575. Embroidering Frame.

(*Métier à broder*)

Richard Voigtlander, Gohlis Leipzig (assignee of Julius Morgner, Leipzig), Germany, 1st March, 1888, 5 years.

Claim.—1st. The combination of a plate *m*, capable of being fixed in relation to the sewing machine, an intermediate plate *d* connected to said plate *m* by parallel and equal rods *b*, a plate *s* for supporting the cloth frame, connected to said plate *d* by parallel and equal rods *c*, one of said rods being extended beyond its connection with the intermediate plate *d*, a stylus arm *g* pivoted to said extension, and arm *f* equal in length to said extension, parallel thereto, and connected substantially as set forth and illustrated. 2nd. The combination of a plate *m*, capable of being fixed in relation to the sewing machine, an intermediate plate *d* connected to said plate *m* by parallel and equal rods, the points of connection being extensible from one another on said rods, a plate *s* for supporting the cloth-frame connected to said plate *d* by parallel and equal rods *c*, the points of connection being extensible from one another on said rods, one of said rods being extended beyond its connection with the intermediate plate *d*, a stylus arm *g* pivoted to said extension, and arm *f* parallel to said extension, and connected to arm *g* with a movable connection, substantially as and for the purpose set forth. 3rd. The combination, with a plate, of a cloth stretching frame having an ear *n* adapted to be fixed upon said plate against rotary displacement, a slot *i* in said ear, a hole *k* tapped in said plate, together with a screw *x* adapted to engage into said hole *k*, substantially as and for the purpose set forth. 4th. The combination, with a plate, of a cloth-stretching frame having an ear *n* adapted to be fixed upon said plate, a laterally open slot *v* and a hole r_1 in said ear, a hole *k* tapped in said plate, and a pin *r* on said plate, together with a set-screw *x*, substantially as and for the purpose set forth.

No. 28,576. Loom Temple. (*Temple de métier.*)

William H. Taylor, Hampton, Ont., 1st March, 1888, 5 years.

Claim.—1st The combination, with the T-shaped frame, composed of bars A and B, of the tilting bar D and spring E, provided with teeth *e*, and inclined plane L, as set forth. 2nd. A loom temple consisting of a bar A, having longitudinal slots *a*, *a*, bar B secured at one end transversely to the middle of bar A, and provided with slots C, C, near the opposite end, tilting bar D pivoted to bar B and provided with an adjustable striker plate K at one end, and spring E at the other end, said spring provided with teeth *e*, and inclined plane L, and means for the attachment of a cord G and a weight, for the purpose set forth.

No. 28,577. Sock. (*Chaussette.*)

H. Hubert Humphrey, Detroit, Mich., U.S., 1st March, 1888; 5 years.

Claim.—1st. As an article of manufacture, a sock consisting of a plain knit fabric, provided with loops sewed into the interior face of the fabric, said loops constituting a plushed or fleeced lining to said sock, substantially as described 2nd. As an article of manufacture, a plain knit fabric provided with loops sewed into said fabric to constitute a fleece lining, substantially as described. 3rd. As an article of manufacture, a ribbed sock, said sock provided with a plush or tufted inside finish, said plush or tufted work consisting of loops sewed into the inner surface of the sock, substantially as described. 4th. As an article of manufacture, a sock, consisting of a knit fabric knit plain upon a separate machine, said fabric provided with loops sewed into the interior face of the fabric by an additional separate machine constructed for that purpose, said loops consisting of a separate continuous thread of yarn sewed into said fabric spirally about the interior thereof, substantially as described. 5th. As an article of manufacture, a sock, consisting of a knitted fabric, provided with loops or tufts stitched into the interior face of said fabric to constitute a fleece or plush lining, said sock knit to desired size, without fulling, to leave the article soft and elastic, substantially as described.

No. 28,578. Leather or Sweat Band of Hats, etc. (*Cuir pour chapeaux, etc.*)

Fred. Hewitt, Hyde, and Edwin Bent, Bredbury, Eng., 1st March, 1888; 15 years.

Claim.—1st. The combination, with a hat or other head covering, of the coned or tapered sweat-band *a*, the outer edge of which is stitched or otherwise attached to the edge of the interior of the said hat or head covering, whereby a free space is left all round between the said sweat-band and the inside of the said hat or head covering, except at the point of attachment, substantially as herein set forth for the purposes specified. 2nd. The combination, with a hat or other head covering, of the coned or tapered sweat-band *a* and the elastic gusset *c*, substantially as and for the purposes herein set forth. 3rd. The combination, with a hat or other head covering, of the coned or tapered sweat-band *a*, the perforations a_1 and the elastic gusset *c*, substantially as and for the purposes herein set forth. 4th. The combination, with a hat or other head covering, of the coned or tapered sweat-band *a* and the perforations a_1, substantially as and for the purposes herein set forth.

No. 28,579. Furnace Grate. (*Grille de fourneau.*)

William H. Heeson, Baltimore, Md., U.S., 1st March, 1888, 5 years.

Claim.—1st. A grate-bar, formed with a doubled central web composed of the two single webs forming the longitudinal vertical air space between them, having the lateral series of wings or ribs on their outsides, as shown and described. 2nd. The herein described grate-bar, formed with the double central web forming the longitudinal vertical air space in its centre, and having the series of alternating ribs on each side, having their outer ends connected by the longitudinal ribs, substantially as set forth and shown. 3rd The herein described grate-bar, formed with the end trunnions and the double central web forming the longitudinal vertical air space in its centre, and having the series of alternating ribs on each side, having their outer ends connected by the longitudinal ribs, substantially as set forth. 4th. The combination, with the furnace formed with the ends bearings, and having the central partition formed with the semi-circular bearings and the intermediate spaces of the grate-bar formed each with the end trunnion, the double central web forming the longitudinal vertical air space, having the series of alternating ribs on each side, and having the central trunnion formed at the bottom