

itudinal slot *a*, having a bevelled inner end wall *at*, of the lever *B*, provided with a slot *b*, provided with a bevelled inner end wall *bt*, the head *Bt* pivoted in said slot *b*, and the toothed plate *c*, secured to said head and adapted to operate substantially as herein set forth.

### No. 28,426. Fanning Mill. (*Tarare-cribleur.*)

William H. Shapley, Brantford, Ont., 1st February, 1888; 5 years.

*Claim.*—In a fanning-mill screen agitator, the combination of open slot *H* with pin *K*, screw *L* and nut *M*, substantially as and for the purposes set forth.

### No. 28,427. Thill Coupling. (*Armon de limonière.*)

Henry Knupp and John Knupp, Warren, Penn., U.S., 1st February, 1888; 5 years.

*Claim.*—1st. The combination, with a pivoted thill-iron and an elastic or compressible anti-rattler *F*, placed next the thill-iron eye, substantially as specified, of a clamp comprising opposite plates *H*, *I*, hinged together at *j* and bearing on the part *F*, a screw *J* passed through the parts *H*, *I*, and a nut *K* on said screw, substantially as described for the purposes set forth. 2nd. The combination, with a pivoted thill-iron and an anti-rattler *F*, placed next the thill-iron eye, substantially as specified, of a clamp comprising opposite connected plates *H*, *I*, a screw *J* passed therethrough, and a nut *K* on the screw, and the opposing faces of the parts *H*, *K*, being serrated at *k*, substantially as described for the purposes set forth. 3rd. The combination, with a pivoted thill-iron and an anti-rattler *F*, placed next the thill-iron eye, substantially as specified, of a clamp comprising opposite plates clamping the anti-rattler, and one of said clamp-plates provided with a lug *M* overlying the head *e* of the thill-iron pivot *E*, substantially as described for the purposes set forth. 4th. The combination, with a pivoted thill-iron and an anti-rattler *F*, placed next the thill-iron eye, substantially as specified, of a clamp comprising opposite plates connected at one end and clamping the anti-rattler, and a screw and nut at the opposite ends of the clamp-plates, and said clamp-screw passed alongside the nut *e* of the thill-pivot *D*, substantially as described for the purpose set forth.

### No. 28,428. Endless Chain Elevator for Unloading Vessels. (*Monte-charge à chaîne sans fin pour décharger les vaisseaux.*)

Clark Chase, Fall River, Mass., U.S., 1st February, 1888; 15 years.

*Claim.*—1st. The combination, substantially as hereinbefore described, of an endless chain, a series of elevator buckets thereon, a driving shaft, an endless sprocket-chain driven by said driving shaft over a tightening wheel, and provided with lugs for engaging with said bucket chain. 2nd. The combination, substantially as hereinbefore described, of an endless bucket chain, a series of elevator buckets thereon, a driving shaft, an endless sprocket chain driven by said shaft and provided with lugs for engaging with said bucket chain, and a guide plate at the rear of the working portion of said driven chain for maintaining the lugs thereon in driving contact with the bucket chain. 3rd. The combination, substantially as hereinbefore described, of the elevated outrigger beams above the face of a wharf, a driving shaft mounted on said beams, one or more sprocket wheels on said shaft, one or more endless driving chains supported on, and driven by, said sprocket wheels, and an endless bucket chain inclosing said driving chain at front and rear, and mounted in a frame swivelled upon said driving shaft and vertically adjustable independently thereof. 4th. In an elevator, the combination, substantially as described, of an endless bucket-chain embodying separate sprocket chains, coupled together at alternate links by a series of lateral bars, a series of buckets attached at their backs to a portion of said bars, and all of them serving as lifting lugs for engagement by the operating mechanism. 5th. In an elevator, the combination, substantially as hereinbefore described, of a complex endless bucket chain embodying a series of lateral bars, a series of buckets attached to a portion of said bars, and an endless driving chain provided with two series of lugs, for progressively engaging in pairs with said lateral bars in operating the elevator. 6th. In an elevator, the combination, substantially as hereinbefore described, of a complex bucket chain embodying separate chains and lateral bars, and an interior complex driving chain embodying separate chains, each provided with a series of lugs for engaging with the bars on the bucket chain, and a series of lateral bars for maintaining said lugs in positions for properly engaging with the bars in the bucket chain. 7th. In a bucket chain frame, the combination, substantially as hereinbefore described, of the four side plates, each pair separated at their inner edges to afford a longitudinal slot at each side of the frame, a pair of longitudinal angle irons adjacent to said slots, and one or more sprocket wheel shafts provided with boxes wider than said slot and between said angle-irons, and locking devices by which said boxes are confined longitudinally on said shaft. 8th. The combination, in the slotted bucket chain frame, of the angle irons in pairs parallel with the sides of each slot, the sprocket wheel shafts and their boxes clamped against longitudinal movement and laterally embracing each pair of said angle-irons. 9th. The combination, substantially as hereinbefore described, of a complex bucket chain composed of two separate chains, and a series of lateral bars connecting said chains and projecting laterally beyond both of them, a series of buckets mounted on said bars, and an elevator frame in which said bucket chain is mounted, and longitudinal guides on the inner sides of said frame for receiving the projecting ends of said bars.

### No. 28,429. Mowing Machine. (*Faucheuse.*)

William E. Craig, Sarnia, Ont., 1st February, 1888; 5 years.

*Claim.*—The combination, with rock shaft *A*, hollow arm *B* and shaft *L*, provided with crank-wheel *K*, of the connecting bar *D* having jaws *D*, *D* and horn *D*, quadratum *G* hung from said horn, and pitman *I*, *J* pivoted to the pendulum, said jaws being pivoted to the shoe *E* of the outer-bar *F*, and the pitman to the knife *N* and crank-wheel *K*, respectively as set forth.

### No. 28,430. Spring Tooth Harrow. (*Herse à dents élastiques.*)

George Gillies and Henry Parker, Gananoquo, Ont., 1st February, 1888; 5 years.

*Claim.*—1st. The centre draft bar *12*, having an endwise adjustment, in combination with the harrow sections, having side drafts *15*, as set forth for the purpose described. 2nd. The harrow sections, having the outer longitudinal bars connected by a middle bar curved at the ends, as set forth. 3rd. The adjustable runners *6*, having a bent end journalled in a bearing *8*, clipped to the harrow bars and provided with a quadrant and spring bolt in the bearing engaging with holes in the quadrant, to lock the runner at an adjusted position, as set forth. 4th. The combination of the bars *1*, *2*, provided with locking indentations and projections *5*, tooth-holder *3*, having an indentation *d*, and the clip and tie bar to fasten the tooth in the tooth-holder and clamp the bars together, as set forth.

### No. 28,431. Journal Bearing. (*Coussinet de tourillon.*)

Mahlon Randolph, New York, N. Y., U.S., 1st February, 1888; 5 years.

*Claim.*—1st. In an anti-friction journal bearing, a metallic shell or housing, provided with re-entering retaining lugs of a shorter length than the shell or housing, and adapted to hold the anti-friction bushing in the shell in such a manner as to interpose a cushion of the bushing material between the sides and ends of the said retaining lugs, and the metallic portions of the journal and its retaining flanges, substantially as described. 2nd. An anti-friction journal bearing, formed of a bushing or wearing part made of a self-lubricating compound of plumbago, a strengthening fibre and a strong cementing size pressed into a suitable metallic shell, for holding the bushing in place and form, and held in the said shell by suitable retaining lugs, the sides and ends of which are covered by the said bushing material. 3rd. The combination of an anti-friction bushing for journal and similar bearings of machinery, and a metallic shell, provided with retaining lugs made to overlap circumferentially the end flanges or collars of the journal, and shortened at their ends, so as not to reach to the ends of the shell or housing, substantially as described.

### No. 28,432. Buckle Snap. (*Ressort de boucle.*)

William S. Johnstone, Hawkesbury, Ont., 2nd February, 1888; 5 years.

*Claim.*—1st. A buckle snap, consisting of converging sides *A*, *A*, terminating in a hook *B* at one end, and closed by a bar *J* at the other end, and connected by intermediate bars *C*, *F* and *I*, and bar *G*, having a tit *G*, and provided with a spring *E*, substantially as and for the purpose set forth. 2nd. A buckle snap, consisting of the sides *A*, *A*, converging laterally and longitudinally at one end, and terminating in a hook *B*, and provided with tits *D*, *D*, and connected by bar *C*, having a ridge *C*, and by bars *F* and *I*, and a bar *G* provided with a tit *G*, and a spring *E* held removably in position by the said tits and ridge, as set forth.

### No. 28,433. Letter Book. (*Livre de lettres.*)

Charles J. Beal, London, Ont., 2nd February, 1888; 5 years.

*Claim.*—As a new article of manufacture, a self-indexing letter-book, having letters on the leaves, as described and shown.

### No. 28,434. Vapour Burner. (*Bec à vapeur.*)

Warren M. Abbott, Philadelphia, Penn., U.S., 2nd February, 1888; 5 years.

*Claim.*—In a vapor burner, the combination of the cupped base, the jacket rising therefrom and provided with air inlets at its lower end, a water pipe provided with an enlarged water-chamber filled with asbestos, a removable perforated cap for this chamber, a rotor *A* receiving said water chamber and provided with a horizontal deflector, an oil-supply pipe leading into said rotor, and the perforated *T*-heads in the drip pan communicating with the said rotor, all constructed and adapted to operate substantially as described.

### No. 28,435. Necktie. (*Cravate.*)

Donald M. Smith, Toronto, Ont., 2nd February, 1888; 5 years.

*Claim.*—1st. As a new article of manufacture, a necktie having side wings or projections from the upper part of the tie body to represent a false neck band, substantially as shown and described. 2nd. In a necktie, the combination, with the body of the tie having the side wings, of the clasp *C* for embracing the collar button, substantially as specified. 3rd. In a necktie having side wings or projections to represent a false neck band, the stiffening plate *D* having a clasp for the collar button made in one therewith, for the purpose described. 4th. The blank *D*, having curved arms *c*, *c*, prongs *c*, *c* and slips *c*, *c*, substantially as and for the purpose described.

### No. 28,436. Land Roller. (*Rouleau d'agriculture.*)

James G. Mallery, Flint, Mich., U.S., 2nd February, 1888; 5 years.

*Claim.*—1st. In a land roller, the combination of two rollers, one carrying a laterally projecting draft-arm, and the other a forwardly projecting stub-tongue, said draft-arm and stub-tongue being pivotally secured together, substantially as and for the purpose described. 2nd. In a land roller, a roller consisting of a series of staves *e* provided with shoulders *d*, metallic spider *J* having slotted flanges *a* and bolts *e*, substantially as set forth. 3rd. In a land roller, the combination of the rollers *A*, *B*, constructed substantially as described, axes *C*, standards *D*, boxes *E*, draft-arm *F* and stub-tongue, the parts being constructed, arranged and operating substantially as and for the purpose described.