below said receptacle to carry the band to the band securing mechanism. 15th. A separator whose centre of motion is above the receptacle and which separates the gravel and pauses along the path of the band carrying arm, while the band is carried by an arm and secured by the band securing mechanism, both independent of said separator. 16th. The vibrating arm X constructed with the longitudinal slot *e* in one end, said slot being curved with a radius equal to the radius of motion of its driving crank pin *d*. 17th. The vibrating arm B_1 provided with a slot N curved about the axis of motion of said arm, combined with a rack bar C_1 in engagement with said slot and receiving therefrom an intermittent reciprocation. 18th. The vibrating arm B_1 provided with a slot *h* curved about the axis of motion of said arm, an offsett *k* at the upper end of said slot, combined with a reciprocating rack bar C_1 provided with a pin *i* and in engagement with said slot, whereby said rack bar is raised quickly by engagement with said offset *k* and pushed out of the same by engagement with the stop arm to permit said bar to drop to its first position again. 19th. The elastic compressors *g* and the discharger Y_1 combined with the shaft T to which is imparted a slow rotation in one direction to operate the compressors, a pause while the band is being secured and a quick return rotation to operate the discharger. 20th. The discharger mounted upon the rock shaft n_2 whereby the inflowing grain is received and the bundle seized, combined with an arm T_1 mounted upon the end of said rock shaft, and a shouldered head p_2 adjustably mounted upon said shaft, to permit a certain range of motion thereof without affecting said arm, and a rod g_2, whereby the rotation of said rock shaft, through a certain arc, will cause the detent *i* to be tripped and the binding mechanism set in motion. 21st. In a cord knotter for an automatic binder, the rotating and reciprocating neck S_1 mounted upon the end of the card W_1, by means of the axial wire *t* and hook o_1, and provided with the stud V_1 combined with the retaining sleeve T_1 provided with the slot *v* and the gripper hook N_1, and the stationary enclosing case V provided with the slot *w*. 22nd. In a cord knotter for an automatic binder, the core w_1 bearing the looper hook o_1 and provided with the pin a_1 which projects in line with the gripper hook N_1, whereby both of said hooks may be actuated by a single pusher rod M_1. 23rd. The rotating barrel E_1 combined with the cylinder S_1 which has a rotation with said barrel during a part of the rotation of the same, and a reciprocation and pause during the remainder of the rotation of said barrel, and the holder O_1 which rotates with said cylinder but reciprocates independently thereof. 24th. The cylinder S_1 constructed with a neck and lip or flange g_2 and provided with the stud V_1 combined with the barrel E_1, which carries a clamp holder N_1 and is provided with a slot *v* and a groove *w*, whereby the cylinder S_1 has imparted to it a rotation followed by a rectilinear movement and the holder C_{11} which rotates with said cylinder but reciprocates independently. 25th. The cylinder S_1 constructed with the neck *z* and the lip or flange *s* and longitudinally slotted, combined with the holder O provided with the shoulder fitted to said slot, whereby when said cylinder retreats within the barrel E_1 and confines the cord on one side beneath the lip *s* the cord on the other side will be pushed off said neck by said shoulder. 26th. The holder constructed with the cleaning shoulders to clean lint, etc., from the holder seat. 27th. The holder O_1 combined with the recessed holder seat in the end of the neck. 28th. In a device for knotting the cord of an automatic binder constructed as a single structure and composed of an outer enclosing case V_1, provided with the slot *w* and adapted to be held in a proper seat in the frame of the machine, an inner rotary sleeve T_1 provided with the slot *v* and bearing the hook N_1, and a central neck S_1 provided with a stud V_1 which engages with slots *v* and *w* at their intersection, and is thereby intermittently and alternately rotated and left at rest, and the core W_1 bearing at its end the hook o_1 and provided with the pin a_1 to engage the end of the hook N_1, whereby both of said hooks may be simultaneously projected forward, the whole being bodily removable from the machine. 29th. The holder and cutter P_1 Q_1 and knotter of a binder combined with a slitted cord guide *f* located between and in position to receive the cord and hold it in position for proper engagement with the holder and cutter. 30th. In an automatic binder and combined with the operating mechanism thereof, a band carrier having an eye near the point, through which the band material is carried to pass and a transverse slot opposite said eye and penetrating to the same, through which the band may be introduced sidewise. 31st. The holder and cutter P_1 Q_1 and the knotter of an automatic grain binder combined with a slitted cord guide f_1 located between, and in position to receive the cord and hold it in position for proper engagement with the holder and cutter.

No. 11,715. Improvements on Cross-Cut Saw Handles. (*Perfectionnements aux bras des scies de travers.*)

Jerome C. Dietrich, Galt, Ont., 6th September. 1880; for 5 years.

Claim.—1st. In combination with a saw handle D, a tang or handle G, attachable thereto and adjustable from an alignment with the saw A to an angular position for use. 2nd. A bent tang or handle G having an eye J with diametrical notches I constructed for application and use. 3rd. A bent tang or handle G having an eye or ring J and wood portion H. 4th. The combination of the handle D, ferrule E, screw rod B and tang G when the upper edge of the saw enters into notches or grooves, of the washer or eye J of the tang G for securing it fixedly adjustable. 5th. A saw handle D fixed in alignment with its thickness, having a projection or tang G as a secondary or additional handle. 6th. A handle or tang G adjustable in alignment with the saw A and sideways at an angle of 45° thereto, in combination with a non-adjustable handle D in alignment with the thickness of the saw.

No. 11,716. Improvements on Skylights.

(*Perfectionnements aux lucarnes.*)

Frank M. Campbell and Anthony C. Dunboy, St. Louis, Mo., U.S., 6th September, 1880; for 5 years.

Claim.—1st. In the construction of skylights and window sash, the sheet metal bars A A_1, each of which consists of one piece of sheet metal having a straight web from top to bottom in cross section, intermediate flanged glass supporter or gutters D E and bottom projecting stiffening flanges or gutters F G. 2nd. In combination with the bars A and plates of glass, the caps or hoods L and clamps J. 3rd. In combination with the caps or hoods L, plates of glass and webs, the packing C_1 consisting of fibrous or floeculent material.

No. 11,717. Improvements on Water Cocks.

(*Perfectionnements aux robinets à eau.*)

Henry Hough, Peter J. Coyle, Benjamin Clement, Montreal, Que., and John Rourk, Kingston, Ont., 6th September, 1880; for 5 years.

Claim.—1st. The shell B B with inlet A, and four outlets D D and water chambers E. 2nd. The plug C C with six water ways D D, &c., and key G of any suitable shape. 3rd. The graduation 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 and 16, in combination with the table of indications and mark L, the said graduation being on the shell B B with mark L on the plug, or *vice versa*, the mark L on the shell and graduation on the plug C C. 4th. The whole, in combination, forming a five way water cock. 5th. A five way cock reversed *i.e.* the outlets used as inlets, and present inlet as an outlet for distributing water, or any other liquid coming from four different places, with same combination and table of indications.

No. 11,718. Manufacture of Soap. (*Fabrication du savon.*)

Stephen Strunz, Pittsburg, Pa., U. S., 6th September, 1880; (Extension of Patent No. 5,142.)

No. 11,719. Drive Chain. (*Chaine à trainer.*)

William D. Ewart, Chicago, Ill., U.S., 6th September, 1880; (Extension of Patent, No. 5,163.)

No. 11,720. Improvements on Journal Bearings. (*Perfectionnements aux coussinets des tourillons.*)

Hiram G. Farr and Henry C. Copeland, Bremdon, Vt., (Assignees of John Smalley and William W. Smalley, Boundbrook, N. Y.), U.S., 8th September, 1880; for 5 years.

Claim.—1st. A metal journal bearing an internal groove or grooves, the sides of which are planes or made up of plane surfaces inclined to the longitudinal axis of the said bearing, for the reception of lubricating material. 2nd. The combination with a metal journal bearing having an internal groove or grooves inclined to the longitudinal axis, of the said bearing of solid or plastic lubricating material, and held in the said groove or grooves. 3rd. The anti-friction composition for bearings composed of plumbago or graphite and shellac.

No. 11,721. Improvements on Earth Cars.

(*Perfectionnements aux chars à gravier.*)

James Andrews, Biddeford, Me., U. S., 8th September, 1880; for 5 years.

Claim.—A levelling attachment for earth cars, consisting of a wing pivoted to one end of the car and provided with a device for moving its loose end inward or outward. 2nd. The combination with the car A, of the wings H provided with a joint L, of the rack K, pinion E and guide bars J J.

No. 11,722. Improvements on Nail Cutting Machines. (*Perfectionnements aux machines à couper le clou.*)

William Wickersham, Boston, Mass., U. S., 8th September, 1880; for 5 years.

Claim.—1st. In the nail cutting machines, a feed screw for feeding the nail plate toward the cutters, having its threads, part of the way, round inclined, to feed the nail plate toward the cutters, and having said threads straight or without inclination, the other portion of the way, round, (to hold the nail plate in a fixed position while the nails are being cut) and a portion of the straight part of the thread cut away on the under surface, making said under surface have a higher position than the other portions of said straight part to admit of the nail plate rising up a little while the cutters are moving back under it, to prevent the rigid pressure which the lower edge of said nail plate would otherwise make on them, as they are moving back to their first position. 2nd. In nail cutting machines, the cutter C in combination with the cutter *b* and the feed screw *a*, co-operating to trim the edge of the nail plate. 3rd. The cutter stock in two parts, the part *e* into which the cutters are fitted, in combination with the larger part or receiver *d* into which the small part *e* is secured and by which it is operated.

No. 11,723. Improvements in Bottles and Stoppers. (*Perfectionnements dans les bouteilles et les bouchons.*)

Henry Barrett, Hampton, Eng., 8th September, 1880; for 5 years.

Claim. 1st. An internal floating or gravitating bottle stopper consisting of a hollow sphere of glass, earthenware, or like vitreous material, having inherently a greater specific gravity than water. 2nd. The use, for stopping bottles, of an internal stopper consisting of a circular or slightly elliptical disc, or its equivalent, of suitable material such as glass, porcelain, ivory or pearl, such stopper having a diameter greater or not less than the diameter of the opening of the neck. 3rd. The construction and employment, in combination with an annular grooved shoulder, (or an annular groove) for receiving the seating, and with vertical slots to allow of the introduction of the disc-shaped stopper. 4th. The improved internal bottle stopper forming a combined disc stopper and seating, consisting of a ring of vulcanized India rubber surrounding a disc of suitable hard material.

No. 11,724. Combined Refrigerator and Freezer. (*Garde-manger frigorifique.*)

Charles A. Clark and Andrew A. Lockerby, St. John, N. B., 8th September, 1880; for 5 years.

Claim. 1st. The air vents I I I I, the flanges L L and the ice box D. 2nd. The combination of the ice box D and the freezer C.

No. 11,725. Improvements on Swings and Rockers. (*Perfectionnements aux balançoires-berceuses.*)

Benjamin Baker, Montreal, Que., 8th September, 1880; for 5 years.

Claim.—1st. The combination of the rockers A, extensions G H, springs