pair of feed rolls operating with a yielding pressure, substantially as set forth. 26th. In combination with a set of compressing rolls, a set of feed rolls arranged to supply one blank for each act of compression. 27th. In combination with a set of compressing rolls, cutting devices arranged to sever one blank for each act of compression. 28th. The compressing rolls, each having die-grooves, in combination with cutting, feeding, bevelling, heading and trimming devices, substantially as set forth. 29th. A set of compressing rolls having their first pair provided with die-grooves which are provided with inclined faces extending from the point where compression ends to the small end of the groove, for the purpose set forth.

## No. 18,992. Dust Arrester. (*Garde-Poussière.*)

Absalom Backus, Jr., Detroit, Mich., U. S., 1st April, 1884; 5 years.

*Claim.*—1st. A dust-arrester, consisting of a series of cellular sections or burlaps, located beneath an open covering, within the influence of the exterior air, a closed space between said burlaps in which the discharge spouts lead from one or more rooms, substantially as and for the purposes described. 2nd. The combination, with a tower projecting through a building to the exterior thereof, and terminating at its top in a series of inverted V-shaped cellular sections of burlaps, an open cover for the same, which will permit the burlaps to be acted upon by the exterior air fans, located in one or more apartments of the said building, with discharge spouts leading into the said tower, and a chute for conducting the dust or shavings, etc., to a furnace room or other receptacle, substantially as and for the purposes described.

## No. 18,993. Two-Wheeled Carriage.

(*Voiture à Deux Roues.*)

George E. Spare, New Haven, Ct., U.S., 1st April, 1884; 5 years.

*Claim.*—The herein-described two-wheeled carriage, consisting of the axle carrying the two wheels, the half elliptical springs C attached to the axle and extending to the front and rear, the body hung by its front and rear end to said springs, the shafts attached to the axle by a bar extending to the front and rear of the axle, one end of said bar hinged to the shaft, the other secured by a vertical bolt *f* and two adjusting nuts *h*, *i*, substantially as described.

## No. 18,994. Cant-Hook Lever. (*Levier de Renard.*)

Thomas Talbot, Mattawa, Ont., 1st April, 1884; 5 years.

*Claim.*—1st. In a cant-hook lever, the base *a* of the knuckle B extending from the pick or lever end of the lever to that part of it where the power is applied, so as to strengthen those parts exposed to strain, substantially as described. 2nd. The base *a* of the knuckle B extended past the pick end of the wooden body A and turned outward forming the horn *e*, substantially as described. 3rd. In a cant-hook lever, the bolt *c* having the nut *d*, in combination with the base *a*, substantially as shown and described and for the purpose set forth.

## No. 18,995. Hanging Circular Saws.

(*Suspension des Scies Circulaires.*)

Wallace D. Sherman, East Springfield, Pa., U. S., 1st April, 1884; 5 years.

*Claim.*—1st. In means for holding and fastening the loose or clamping collar on the arbor of a circular saw, the loose collar C fitted with a key *f*, in combination with the arbor A having a key-way *e* and fast collar B, the saw-driving pins *d*, *d* arranged to engage with the loose collar, and the nut E, substantially as and for the purposes specified. 2nd. The combination, with the loose collar C, of the key *f* of dovetail construction, where it fits or enters within said collar, the saw arbor A having a key-way *e* along its outer end portion, the saw-driving pins *d*, *d* and the fast collar B on, or formiug part of, the arbor, essentially as shown and described.

## No. 18,996. Tent Peg. (*Piquet de Tente.*)

Edward C. Dawson, New Glasgow, N.S., 1st April, 1884; 5 years.

*Claim.* The tent peg with head A and reduced part at neck, and cord catch groove B and hole C, the whole substantially as and for the purposes set forth.

## No. 18,997. Device for Cleaning Street Sewers. (*Appareil pour Nettoyer les Egouts.*)

Thomas Dark, Buffalo, N.Y., U.S., 1st April, 1884; 5 years.

*Claim.*—1st. The series of oval-shaped man-holes A, A, built vertically in the streets and widening from the top to the bottom, and leading into the street sewer S, and with a catch basin B beneath each man-hole, and a metal removable grating or cover at the top or street level, substantially as and for the purpose specified. 2nd. In combination with two or more man-holes A, A, and the set-off *d d*, the cleaning devices consisting of the two geared windlasses, or winches D, D, the chain E connected therewith, the leg C with cross-beam and sheavek therein, the plough *g*, scraper *f* and toothed scraper *h*, the two latter set back to back and united by a rule-joint and to a connectiog rod *e* by rule joints (or equivalent joints), and by shackles and loops to chain E hooked at both ends of the scraping devices, and by the two winches drawn through a sewer both ways, substantially as and for the purpose specified. 3rd. The cup-shaped plough *g* having the inwardly curved teeth with open spaces between attached to the converting rod *e*, as described, followed by the cup-shaped scraper *f*, and the scraper *h* having its flanged edge formed into teeth acting as plough and scraper, so that the whole can be worked both ways in a sewer by the action of the winches, substantially as specified. 4th. The pointed rod or piercer I with other lengths screwed thereto and the last I1 provided with a ring or loop to hook to the winch chain, substantially as and for the purpose specified. 5th. In combination with the man-holes A of a sewer, the set-off *d d* or ledge therein to rest the cross-beam *p*, of leg C therein, or a workman to stand on, substantially as specified.

## No. 18,998. Submarine Boat.

(*Bateau Sousmarin.*)

Monroe Jopling (Executor of the will of Jesse Jopling), Longwood, Mo., U.S., 1st April, 1884; 5 years.

*Claim.*—1st. In combination with the vertically-moving cylinder or cap G, the flexible trunk or jacket F, secured thereto and to the body of the boat, substantially as and for the purpose specified. 2nd. In combination with the hull or body of a submarine boat, a vertically moving yoke extending through an opening in the top of the boat, a cap carried at the top of said yoke, a screw arranged as shown, to elevate and depress the yoke, and a flexible trunk connected at opposite ends with the cap and with the body of the boat, substantially as shown and described. 3nd. In combination with the boat having the vertically-moving cylinder G and trunk F, the guard or fender *j*, surrounding said cylinder and trunk, as and for the purpose set forth. 4th. In a submarine vessel, a tank or vessel *v*, provided with flexible tubes and mouth-pieces *w*, and charged with lime-water, or equivalent chemical solution, as and for the purpose set forth. 5th. In combination with the boat A, having the curved rod or bar D extending from the keel upward on the outside of the boat, as shown, a chain applied to said rod, substantially as and for the purpose specified.

## No. 18,999. Stable. (*Etable.*)

George A. Knight, Salem, Pa., U.S., 1st April, 1884; 5 years.

*Claim.*—1st. The combination, with the perforated uprights and the rails forming the rack partitions betweeh the stalls, of the stop-bar and its fastenings, substantially as specified. 2nd. The combination, in a barn or stable, of the partition walls C, perforated uprights H, arranged as described, the rods or bolts K, the adjustable guard-bar M and mangers L, all constructed and adapted to operate substantially as specified.

## No. 19,000. Device for Converting Motion.

(*Appareil pour Convertir le Mouvement.*)

Amos M. Babcock, Nora Springs, Iowa, U.S., 1st April, 1884; 5 years.

*Claim.*—1st. In a device for converting motion, the rack bar connecting with the operating machinery, in combination with shafts carrying revolving sleeves adapted to rotate independently of the shafts, gear wheels on the ends of the shafts engaging with each other, and means, substantially as described, for permitting the revolution of one sleeve, while the other sleeve is held from turning independently, as and for the purpose set forth. 2nd. In a device for converting motion, the rack-bar connecting with the operating machinery, in combination with a pair of shafts, gear wheels on the ends of the shafts engaging with each other, sleeves on the shafts rotating independently of the same, pawls adapted to engage with teeth on the ends of the sleeves, said pawls acting to alternately hold the sleeves from turning, as set forth. 3rd. The shafts A, B carrying gear wheels at one end engaging with each other, and sleeves D, D1 on said shafts, provided with gear wheels *d*, *d*1, in combination with a rack bar engaging with the gear wheels, and pawls F, F1 adapted to engage with ratchet teeth on the ends of the sleeves, as set forth.

## No. 19,001. Felly Plate for Wheels.

(*Plaque pour Jantes de Roues.*)

Patrick W. McGuire, Lacon, Ill., U.S., 1st April, 1884; 5 years.

*Claim.*—1st. The fellies A, A, provided with mortises or recesses in the exterior periphery of their meeting ends, in combination with the securing and bracing plate B, of a length and width equal to the mortises, and provided with bolt-holes at, or near each end, and adapted to be secured in place, substantially as and for the purposes set forth. 2nd. In combination with the fellies A, A, recessed as described, and the contained bracing and securing plate B, fitting snugly therein, the felly-plate D provided with projection teats E, all arranged to be connected in proper relation with one another by securing bolts, substantially as and for the purpose set forth.

## No. 19,002. Hay Knife. (*Couteau à Foin.*)

John McMillen, East Brantford, Ont., 1st April, 1884; 5 years.

*Claim.*—1st. In a hay, straw, or manure knife, the blade A constructed in the form and angle, as shown, and having the shank C attached about the centre of it, and bent at right angles as at *x*, *x*, and terminating in a handle B affixed to the same, substantially as and for the purpose specified. 2nd. In a hay, straw, or manure knife, the combination of the blade A, the shank C and handle B, substantially as and for the purpose specified.

## No. 19,003. Halter. (*Licou.*)

John C. Lighthouse, Rochester, N.Y., U.S., 1st April, 1884; 5 years.

*Claim.*—1st. In a halter, the clamp D made in two parts, constructed with the two sockets *g*, *h* standing at right angles to each other, for receiving the rope, and provided at the bottom with a loop *k*, to receive the strap of the removable bit, as herein shown and described. 2nd. In a halter, the combination of the clamps D, D, attached to the nose piece, provided with sockets *g*, *h*, to receive the rope, and with loops *k*, *k*, to receive a bit, and the bit E provided with buckle-straps *m*, *m*, to buckle into the loops of the clamp, as herein shown and described. 3rd. In a halter, the combination, with the rope body provided with a throat lash *b*, which forms a continuation of the rope, of the billet G attached to the throat lash extending downward and provided with a ring *p* at its lower end, through which the stall ends of the rope pass to form a noose, as herein shown and described. 4th. In a halter, the combination, with the billet G, provided with the ring *p*, through which the stall ends of the rope pass, of a ring H outside the ring of the billet, to which said stall ends and also a hitching strap are attached, as herein shown and described.