

por having laterally extending flange plates *f, f*, with racks *r, r*, in combination with adjustable floor sections *K, K*, having pawls *k, k*, substantially as shown and described. 3rd. In a convertible grain and general freight car, the combination, with adjustable sliding floor sections *K, K*, of windlasses for moving the same, inclined guides *L*, with slots *l* and trunnions *k, k*, and trunnions extending into spaces in the car walls, and the windlass chain being concealed or contained in said spaces, substantially as shown and described. 4th. In a car having adjustable inclined floor sections *K, K*, the combination with said sections, of inclined cleats *L* and cushions *l* forming tight joints to prevent leakage of grain, substantially as shown and described. 5th. In combination with the discharge spout *F* having tongues *s*, the sliding end plate *T* having flanges *t, t*, which engage with said tongues, and a latch for locking said plate on said spout, substantially as shown and described. 6th. The combination, with the spout *F*, of flap or hinged gate *V* and pin *V'*, said gate being wholly inside the spout, and said pin having one end extending through the wall of the spout, substantially as shown and described.

No. 28,644. Sugar Sap Evaporator.

(*Evaporateur d'eau saccharine.*)

Clark Hall and William H. Wright, East Farnham, Que., 7th March, 1888; 5 years.

Claim.—The combination of the heater *N*, the recesses or flues *E, E*, the arrangement of the partition and guides *C, C* and *F, F*, the syring down compartment *I, I*, the arrangement of the openings closed by slides or gates *O, O*, *M, M*, *H* and *H'*, with an evaporator, substantially as and for the purpose hereinafore set forth.

No. 28,645. Coffee Mill. (*Moulin à café.*)

Cyrus Tobias, Freeport, Ill., U.S., 9th March, 1888; 5 years.

Claim.—1st. The combination, in a coffee-mill, of the grinding-surfaces *O, K* and rotary force-feed deflectors *c, c, c*, arranged and operating substantially as described. 2nd. The combination, in a coffee-mill, of the grinding-surfaces *O, K* and the rotary shield *C*, provided with the deflectors *c, c, c*, substantially as described.

No. 28,646. Compound Steam Engine.

(*Machine à vapeur composée.*)

John Ericsson, New York, N.Y., U.S., 9th March, 1888; 5 years.

Claim.—1st. The combination, with the high-pressure cylinder of a compound steam engine, a steam-actuated piston fitted thereto, and a valve for the induction of the high pressure steam to the said cylinder at one end only, of a valve at the other end of the said cylinder closing inward, but opening outward by the pressure from within, substantially as herein described, whereby the said piston is made to work as an air pump piston to expel air and steam from said cylinder, on the side of the piston opposite to that on which the high-pressure steam acts, and thereby cause a vacuum on one side of the said piston while the high-pressure steam acts on the opposite side, as herein set forth. 2nd. The combination, with the small and large cylinders of a compound engine, arranged end to end and having communication only between one end of the small one and two reverse end of the large one, and two pistons, one for each cylinder, of an outwardly-opening valve at the other end of the small cylinder, whereby the piston of the small cylinder is made to expel any air, water or steam that may have collected therein, substantially as herein described. 3rd. The combination, in a compound steam engine, of a high-pressure steam cylinder receiving high-pressure steam at one end, and having at the other end a valve opening automatically by pressure within the said cylinder, a low-pressure cylinder, one end of which is always in communication with the condenser, and the other end of which has valve communications with the high-pressure cylinder and the condenser, substantially as herein described, whereby the high pressure piston during its entire stroke produced by the direct action of the steam upon it works against a vacuum, and at the same time the low-pressure piston is in equilibrium, as herein set forth. 4th. The combination, in a compound engine, with a small single-acting steam cylinder and a large double-acting steam cylinder, arranged horizontally end to end and receiving steam only at their adjacent ends, and a condenser below them, of the duct *a* forming communication from the bottom of the small cylinder through the end of the large one, the ducts *b, b*, forming communication between the condenser and both ends of the large cylinder, and the valves *c, c* in the ducts *a, a*, substantially as herein described.

No. 28,647. Finger and Cutter Bar for Harvesters or Mowers. (*Porte-pointe et porte-lame de faucheuse-moissonneuse.*)

Ed F Rheaume, Amherstburg, Ont., 9th March, 1888; 5 years.

Claim.—The herein described method of attaching cutters or fingers to cutter or finger bars, consisting in providing the cutter or finger bar with recesses into which the heels of the cutter or fingers are fitted, and providing the cutter or finger bar and the heels of the cutter or fingers with coinciding mortises adapted to receive a locking tenon detachably inserted therein, substantially as described.

No. 28,648. Apparatus for Capsuling Bottles, etc. (*Appareil à poser les capsules des bouteilles, etc.*)

Emil Tateur, London, Eng., 9th March, 1888; 5 years.

Claim.—In capsuling machines or appliances, the caoutchouc ring formed with or without radiating notches or grooves contained and held by projecting flange, or otherwise, in a hollow cylinder closed at one end, the bottles being capsuled by being pressed with the capsule through central aperture in caoutchouc ring, substantially as set forth.

No. 28,649. Freezing and Refrigerating Machine. (*Appareil congélateur et réfrigérant.*)

Henry A. Flouss, Newton, Isle of Wight, 14th March, 1888; 15 years.

Claim.—1st. The combination, in a freezing and refrigerating machine, of a vessel or compartment *A* containing liquid which is cooled or frozen by evaporation, a vessel or compartment *B* containing sulphuric acid or other vapour absorbent, and an air pump *C* and parts *F, G* and *G'* connecting the same, substantially as described. 2nd. In a freezing and refrigerating machine, the means for closing the jar or vessel containing sulphuric or other corrosive absorbent, comprising the lid *K* with its grooves containing the elastic ring *Z*, and the thin metallic tongue *z* on the lid drawn into liquid tight contact with the jar or vessel within the circumference of the elastic ring, substantially as described. 3rd. The combination, in a freezing and refrigerating machine, of the suction valve *L*, the rod *M* linked therewith, the spring clip *M'*, moving with the piston *n* and raising the valve *L*, and releasing it before the piston reaches the end of its stroke, and mechanism delivering oil or liquid into the cylinder, substantially as described. 4th. The combination, in a freezing or refrigerating machine, of a suction valve *L*, tubular rod *N*, linked attachment *M'*, hollow piston rod *N* and spring clip *N'*, substantially as described. 5th. The combination, in a freezing or refrigerating machine, of an air pump cylinder *C* and oil or liquid receiving cavities *T, T*, in the side thereof, passed over by the piston *n*, the whole forming an apparatus for admitting measured quantities of liquid into the cylinder, to ensure the complete expulsion of air therefrom on the return of the piston, substantially as described. 6th. The combination, in a freezing or refrigerating machine, of the piston rod *M*, the exit apertures at the top of the cylinder *C*, the cupped or flanged valve *Q* and the stop *R*, the whole forming a device by which the exit valve of the air pump is automatically opened and closed, whilst also a tight joint is maintained around the piston rod, substantially as described. 7th. The combination, in a freezing or refrigerating machine, of the air pump cylinder *C*, the gutter-like receptacle *c* around the suction valve *L*, the piston *n*, of a form to enter the gutter *c*, the piston valve *P* and mechanism delivering oil or liquid into the cylinder, the whole forming an apparatus whereby air is completely excluded from beneath the piston when at the lower end of its stroke, substantially as described.

No. 28,650. Woollen Boot. (*Botte de laine.*)

Wallace H. Dodge and Robert D. O. Smith, Mishawaka, Ind., U.S., 6th March, 1888; 5 years.

Claim.—1st. The herein described improvement in the mode of making woollen boots, which consists in forming the boot blanks of an exaggerated size and with the strands interwoven direct and diagonal, by braiding independent single twisted strands of yarn together, and subsequently shrinking or fulling and felting said blanks to the desired size, and finishing on the tree and last as usual with woollen boots, as described. 2nd. The herein described improvement in the mode of making woollen boots, which consists in braiding in dependent loosely twisted strands of yarn to form a series of continuous boot blanks of an exaggerated size over a succession of formers, separating such blanks, fulling or shrinking them to the required size and finishing them on tree and last, as described.

No. 28,651. Knit Woollen Boot.

(*Botte en tricot de laine.*)

Wallace H. Dodge and Robert D. O. Smith, Mishawaka, Ind., U.S., 9th March, 1888; 5 years.

Claim.—1st. The herein described mode of making wool boots, which consists, first, in producing a boot blank greatly exaggerated in size, containing a large amount of stock in a relatively loose condition, by knitting two or more ordinary loosely twisted yarns separately through wett thread needles, substantially as described, second, in compacting the stock so prepared into a stiff felt by fulling and shrinking said boot, and third, in finishing the same on tree and last. 2nd. A woollen boot formed wholly by knitting a portion of the yarn being separately knit with wett thread needles upon one surface or face, whereby the outer surface may be made of finer stock than the body, substantially as set forth.

No. 28,652. Oil Burner. (*Foyer à huile.*)

James A. Cowles, Chicago, Ill., U.S., 9th March, 1888; 5 years.

Claim.—1st. The combination of the retort central descending pipe leading from the retort, horizontal pipe at lower end of descending pipe, provided with apertures in each end thereof, one facing to the right and the other facing to the left, and air chambers at each end of horizontal pipe, each provided with a hole in the upper part thereof pointing towards the retort, and air hole near the end where they are attached to horizontal pipe, and the bracket supported by the central descending pipe provided with tubular holes, all constructed and arranged substantially as shown. 2nd. The combination of the retort, central descending pipe leading from the retort, horizontal pipe at lower end of descending pipe, provided with apertures in each end thereof, one facing to the right and the other facing to the left, and air chambers at each end of horizontal pipe, each provided with a hole in upper part thereof pointing toward the retort, and air holes near the ends where they are attached to horizontal pipe, the bracket supported by the central descending pipe provided with tubular holes, and a tank provided with a force pump and pipe, and regulating valve connecting the same with the retort, all constructed and arranged substantially as described.

No. 28,653. Automatic Catch for Inclined Railways. (*Enrayeur automatique pour chemin de fer inclinés.*)

Joseph Schuller, Allegheny, Penn., U.S., 9th March, 1888; 5 years.

Claim.—1st. In an automatic stop or safety-catch for inclined rail-