

the base frame, whereby they are caused to sustain the steam drum. 6th. The combination, with a steam boiler or furnace having a side opening, of an upright external magazine constructed and applied as described, whereby its attachment and removal are permitted at will, thus converting the apparatus into a magazine or non-magazine furnace as required. 7th. In combination with a boiler or furnace having an opening in its side, an external upright detachable magazine provided with lips or flanges to interlock with the door frame or opening, whereby the attachment and removal of the magazine at will are permitted.

No. 13,536. Improvements on Feather Renovators. (*Perfectionnements aux appareils à rafraîchir la plume.*)

Nathan P. Chaney, Potsdam, N. Y., U. S., 12th October, 1881: (Extension of Patent No. 6,683.)

No. 13,537. Improvements on Grate Bars. (*Perfectionnements aux barres des grilles.*)

William U. Fairbairn, Boston, Mass., U. S., 13th October, 1881: for 5 years.

Claim.—1st. A furnace composed of hollow grate bars, the cavities whereof communicate with the ash pit, of their full size at their ends, and with the spaces between the grate bars, at their rear ends, by perforations through the walls of said cavities. 2nd. A grate bar having a fire supporting surface, a web and an air passage on the web extending from the front end of the bar, and opening at or near the back end thereof, whereby air may be conducted from the front end of the bar to one or more openings at or near its back ends. 3rd. A hollow grate bar, perforated at the rear end, upon its sides, for the delivery of air among the products of combustion, and at the other end for the receipt of air. 4th. A hollow grate bar, the cavity whereof communicates with the ash pit only at its ends. 5th. A removable grate bar, having end projections adapted to rest upon the grate bar supports, and a web containing a passage open at or near the front end of the bar, and at or near the rear end thereof. 6th. A hollow grate bar having the exit or exits from its cavity protected by a hood or hoods. 7th. A grate bar having a passage in its web through which air may be drawn, and means for checking or retarding the flow of air in said passage.

No. 13,538. Improvements on Machines for Hulling Buck Wheat. (*Perfectionnements aux machines à éplucher le sarrasin.*)

Giles S. Cranston, Silver Creek, N. Y., U. S., 13th October, 1881: for 5 years.

Claim.—1st. The combination, with the hulling mechanism, of a sieve or sieves adapted to separate the hulled material into three products, viz.: flour and large fragments of meats which pass separately through the screen and hulls or shucks which pass over the tail of the screen, and a suction air trunk into which only the large fragments of meats are delivered from the screen, and in which these meats fall through an ascending air current, whereby the light impurities, such as fragments of skins and hulls, are separated from the heavier fragments of meats. 2nd. The combination, with a pair of preliminary hulling rollers adapted to hull the large kernels, and a pair of subsequent hulling rollers adapted to hull the remaining unhulled kernels, of a sieve arranged below the preliminary rollers and adapted to effect a separation of the hulled material from the unhulled kernels, and having its tail arranged above the subsequent hulling rollers, so as to deliver the unhulled kernels between the same. 3rd. The combination of a pair of preliminary hulling rollers adapted to hull the large kernels, a sieve whereby the unhulled kernels are separated from the hulled material, a pair of secondary hulling rollers adapted to hull the unhulled kernels of the first hulling operation, and a sieve whereby the hulls are finally separated from the meats and flour. 4th. The combination of a pair of preliminary hulling rollers adapted to hull the large kernels, a sieve whereby the unhulled kernels are separated from the hulled material, a pair of subsequent hulling rollers adapted to hull the remaining unhulled kernels, a sieve whereby the shucks, meats and flour are separated from each other, and an air trunk in which the meats are subjected to an ascending air current and deprived of the light impurities. 5th. The combination, with the preliminary hulling rollers B B' and the subsequent hulling rollers D D', of the preliminary sieve I interposed between the preliminary and subsequent hulling rollers, and the principal sieve H arranged below the sieve I and receiving all of the hulled material from the sieve I and the rollers D D'. 6th. The combination, with the preliminary hulling rollers B B' and the subsequent hulling rollers D D', of the shaking shoe F and the preliminary sieve I supported thereon, the shoe F being provided with two perforated plates h h' whereby the shucks, meats and flour are separated each from the other. 7th. The combination, with the feed hopper, of the adjustable front board P provided with spring G bearing against g, and screw bolt n. 8th. The combination, with the feed hopper, of the adjustable front board P and the hinged rear board S resting against the cam wheel T. 9th. The combination, with the feed hopper, of the hinged rear board S resting against the cam wheel T and the stationary board U, whereby the board S is relieved from the weight of the grain. 10th. The combination, with the feed hopper, of the adjustable front board P, hinged rear board S resting against the cam wheel T, and the stationary board U.

No. 13,539. Machine for Closing the Mouth of Bags. (*Machin pour fermer la gueule des sacs.*)

Orville R. Van Vechten, Brooklyn, N. Y., U. S., 13th October, 1881: for 5 years.

Claim.—1st. A bag mouth closing apparatus consisting of the combination, with a clamping frame adapted to receive and hold the plies of the mouth end of a filled bag, and to sustain and guide a sewing machine, of a sewing machine adapted to travel on said frame along the bag mouth and unite the same by sewing. 2nd. The combination with a bag holding clamping frame of the rack bar it supports, the travelling sewing machine and its driving pinion or equivalent gearing ad-

apted to be set into operation to actuate the sewing mechanism by the travelling movement of the sewing machine with respect to said clamping frame. 3rd. The combination with a work holding device acting to sustain the work stationary, and a sewing machine constructed to travel bodily with respect to the work holding device of the sewing needle 40 and mechanisms producing its walking movements. 4th. The combination, with a work holding device acting to sustain the work stationary, and a sewing machine constructed to travel bodily with respect to the work holding device, of the sewing needle 40 mechanisms producing the walking movements, and a work plate having an elongated needle slot. 5th. The combination, with the bag holding clamping frame and a sewing machine guided thereby over the work to be sewed, of a mechanism automatically acting to suspend the sewing operation and to arrest the needle free from the work. 6th. The combination, with the bag holding clamping frame and a sewing machine guided thereby over the work to be sewed, of a mechanism to suspend the sewing operation with the needle raised and a mechanism to sever the sewing thread, at the termination of the foremost travel of the machine.

No. 13,540. Improvements in Rock Drills. (*Perfectionnements aux foris à rochers.*)

Sylvannus Hussey, Gowanda, and George B. L. Wilson, Buffalo, N. Y., U. S., 13th October, 1881: for 5 years.

Claim.—1st. The frame for the working parts, composed of the main frame A having the segmental ways or guide *a* formed therein, the swinging frame B provided with arms *b* and cross bar *b*², the latter swinging in the ways *a*². 2nd. In connection with the operating shaft *d* and devices for turning it, the cat-head consisting of the two disks *d*¹ *d*² with two or more loose friction rollers *e*, and wheels *e*¹ *e*² working therein, in combination with the levers *f* *f*¹, and shaft *h*. 3rd. The combination, with the drill bar, of a casing H enclosing the gripping mechanism, a frame I which carries the gripping mechanism and which has a limited vertical movement in the casing H, a spring J which tends to hold the frame I in its highest position, and mechanism whereby the gripping mechanism is released before the upward stroke of the drill bar begins, whereby the frame I is raised in the casing and the gripping mechanism caused to seize the drill bar at a higher point at every upward stroke of the drill bar. 4th. The combination with the drill bar, of the movable sleeve L, casing H provided with shoulder J, frame I carrying the eccentrics *h*, and a spring I interposed between the sleeve L and the frame I. 5th. The combination, with the drill bar of the movable sleeve L, casing H having a shoulder J, frame I carrying the eccentrics *h*, provided with arms *h*¹ *h*², a spring I interposed between the sleeve L and frame I, and the head N having a recess *n*. 6th. The combination, with the drill bar, of the clamping devices *h* *h*¹ and a sleeve L having its upper end constructed to close the clamping devices, and having its lower end provided with an extensible portion M. 7th. The combination, with the drill bar, of the sleeve L provided at its lower end with a screw thread *m*, a screw sleeve M applied thereto, and a jam nut *m*¹. 8th. The combination, with the base A and main frame B mounted thereon, of the drill frame C hung in the frame B and adapted to swing in a vertical plane, and an adjustable foot or rest Q secured to the lower part of the swinging frame C, whereby the latter is supported on the ground when adjusted at various angles. 9th. The combination, with the swinging drill frame C, of an adjustable foot or rest composed of a stationary sleeve R, a tube S made adjustable in the sleeve R and provided with a threaded portion V, and a rod or bar T having a screw thread *u* engaging with the threaded portion V of the tube S. 10th. The combination, with the side levers *f* *f*¹ and the shaft *d*, of the rods or links *g* and wrist pins *g*¹ secured to the head N. 11th. The devices for rotating the drill bar, consisting of the ratchet toothed ring section J¹, the surrounding spring, ratchet ring J², pin *g* and slotted standing guide *z* secured to the base K and in combination with lever *t* and sleeve L.

No. 13,541. Improvements on Ships' Berths or Live Stock Pens. (*Perfectionnements aux lits de bord ou stalles à bestiaux.*)

Samner Shaw, Boston, Mass., U. S., 13th October, 1881: for 5 years.

Claim.—1st. A ship's berth or live stock pen *a* on board of ship suspended from the frame *b*, or part of ship, by means of the inclined chains, ropes or rods *c* *c* *c* *c*. 2nd. In ship's berth or live stock pen, the chains, ropes or rods *c* *c* *c* *c* attached in their lower and upper ends respectively, to independent points of the berth and upper support, the pulleys *c* *c* *c* *c* and rope or chain *d* supported at the ends and passing by said pulleys. 3rd. In combination with a ship's berth or live stock pen, the supporting chain, ropes or rods *c* *c* *c* *c* the pulleys *c* *c* *c* *c* and rope or chain *d* supported at the ends and passing by said pulleys.

No. 13,542. Improvements in Continuous Underground Pipes. (*Perfectionnements aux tuyaux souterrains continus.*)

Calvin Detrick, Philadelphia, Penn., U. S., 13th October, 1881: for 5 years.

Claim.—1st. The method of forming continuous seamless pipe, which consists, first, in excavating the required depth, shape and extent, and in the required direction, a trench or channel in the ground in which it is desired that a pipe should be laid; second, in progressively laying, constructing or otherwise forming within said trench a walled layer or trough of artificial stone or kindred hard material; third, in progressively placing in proper position and relation, in said trough, one or a series of hollow formers of paper, sheet metal or other suitable fabric; fourth, in surrounding said hollow former or formers placed within the trough, with a continuous mass of plastic fluid, semi-fluid, or kindred material, adapted to solidify about the formers and to retain them rigidly and in an insulated condition in position; fifth, in super-imposing upon said mass of plastic material enveloping the formers, or covering of artificial stone, or any hard material adapted to complete the enclosure and afford protection to the hardened plastic mass enveloping the formers. 2nd. A continuous seamless pipe formed of a walled layer or trough of artificial stone or kindred material, in which trough is contained a continuous mass, layer, stratum, or bed of hardened plastic fluid, semi-fluid, or kindred material, in