

by one or more horizontal diaphragms *a*; 3rd. In combination with the draw bar *A*, secured to the car by bolts *L* and key *M*, the guides or pins *K* secured to the back plate *A* working in the cross head.

No. 6349. Water Circulating Fire Bar and Bearer.

(*Barreau de grille faisant circuler l'eau et collect.*)

George Hayworth, Saint Michaels Hamlet, Eng. (Assignee of Robert J. Ellis), 21st July, 1876, for 5 years.

Claim.—1st. The novel combination of the fire bar *A*, tube *b* and connecting bearer *g*; 2nd. Casting the fire bar *A* in two pieces, being corresponding halves such as *a* and *a'*, having a groove or channel to receive a metal tube such as *b*; 3rd. The tubular water fire bar and connecting bearer constructed respectively and arranged in relation to each other.

No. 6350. Improvements on Faucets.

(*Perfectionnements aux robinets.*)

James Collins and William O Connor, Guelph, Ont., 21st July, 1876, for 5 years.

Claim.—The combination of the bore *B*, having the induction holes *H* and the screw stem *D*, having a disk valve *E* sliding in an enlargement at the rear end of said bore whereby the liquid is admitted to or shut off from the faucet.

No. 6351. Barn Door Fastening.

(*Arrête-porte de grange.*)

Perry A. Peer, Comstock, Mich., U. S., 21st July, 1876, for 5 years.

Claim.—A springless automatic fastening for barn doors, consisting of but two castings, one being a pivoted hook *A*, *D*, having in front the broad bevelled catch nose *B* and, at the rear, a curved arm *C*, while the other is a stand *E* having the stop *G*.

No. 6352. Manufacture of Paper Pulp.

(*Fabrication de la pulpe à papier.*)

Daniel Dull, Spring, Pa., U. S., 21st July, 1876, for 5 years.

Claim.—The process of producing pulp from wood and preventing its discoloration, which consists in boiling or steaming the wood in small pieces without pressure and then subjecting it to the ordinary grinding operation.

No. 6353. Nut Lock. (*Noix à bride.*)

Daniel Dull, Spring, Pa., U. S., 21st July, 1876, for 5 years.

Claim.—The spring *s*, in combination with the nuts by contact with a side of each nut so as to bind or lock them; 2nd. The spring *s* when constructed with the flange *z*.

No. 6354. Wine and Cider Presses.

(*Pressoirs à vin et à cidre.*)

Joe Nearing, Sherburne, N. Y., U. S., 21st July, 1876, for 5 years.

Claim.—1st. The reciprocating fruit tray *D*, having hinged covers *d*₂ and *d*₃ and arranged to pass between pressure rollers *c* and *c*₁ in such a manner as to force the said covers *d*₂ and *d*₃ gradually down upon the pomace in the tray and press the juices therefrom; 2nd. The reciprocating tray *D* and its operating screws *E* combined with their fixed nuts *d*; 3rd. The springs *F* arranged to open the covers *d*₂ *d*₃; 4th. The springs *F*, with their adjustable connections *F*; 5th. The adjustable pressure roller *G*, arranged to press with uniform force and at variable heights upon the moving covers *d*₂ *d*₃; 6th. The adjustable rollers *C*, the levers *G* and their weights *w*.

No. 6355. Garbage and Street Refuse Receptacles. (*Receptacles à tripuilles et ordures de rues.*)

Andrew Schmidt, Williamsburgh, N. Y., U. S., 21st July, 1876, for 5 years.

Claim.—The receiver *B*, with projections *bb* and lid *O*, in combination with the receptacle *A* with the handles *a* *a*.

No. 6356. Ship Ventilator and Fog Alarm.

(*Ventilateur et alarme de navire en cas de brume.*)

William F. Thiers, Milton C. Jeffers, Amelia P. Armstrong, New York, and Eugene F. Beecher, Brooklyn, N. Y., U. S., 21st July, 1876, for 5 years.

Claim.—1st. A rudder having one or more air tubes with open lower ends extending downward into the water and connected at their upper ends to suction and discharge pipes; 2nd. A horizontal air valve, having an oblique diaphragm in combination with the suction pipe or the discharge pipe of a ship ventilator; 3rd. A horizontal air valve having a removable cover giving access to the valve seat and to either compartment of the valve chamber and secured by a yoke and a clamping screw, or their equivalent, in combination with the suction pipe or the discharge pipe of a ship ventilator; 4th. A deodorizing and disinfecting chamber in combination with the discharge pipe or the suction pipe of a ship ventilator; 5th. A series of deodorizing and disinfecting chambers in combination with the discharge pipe or the suction pipe of a ship ventilator for the successive application of heat and chemicals to destroy the germs of infections or contagious diseases.

No. 6357. Process for the Manufacture of Illuminating Gas.

(*Procédé pour la fabrication du gaz d'éclairage.*)

Henry Aitken, Falkirk, and William Young, Clippens, Scot., 21st July, 1876, for 5 years.

Claim.—1st. The general combination or arrangements of apparatus and the modes of using or applying the same for the treatment or distillation of

shale, coal, mineral oil, resin and other similar bituminous substances, for the production of illuminating gas in conjunction with the production or manufacture of hydrogen and carbonic oxide by the decomposition of water by heated carbon, and for the production of other gases having a low illuminating power from spent bark, saw dust, peat and similar substances, and for the carbureting of the said water gases or other poor gases by diffusing the vapours of hydrocarbons produced with the illuminating gases from said bituminous substances, and thereby making good illuminating gas therefrom; 2nd. The application for the manufacture of illuminating gas of the volatile hydrocarbons produced and ordinarily lost in the tars when coal, shale, hydrocarbon oils, resin and other similar bituminous substances, are destructively distilled for the production of illuminating gas by diffusing or suspending them in hydrogen carbonic oxide or other gas or gases having a low illuminating power through bringing the said gases into contact with the tars (condensed from crude bituminous gases) while in a heated state and spread over large surfaces, or by mingling the hydrogen carbonic oxide or other poor gas with the bituminous gases either in the bituminous retort as they are produced or afterwards, and subjecting the mingled gases to fractional condensation or cooling the condensed tars being kept in a heated state; 3rd. The use or application of the fixed carbon contained in the cokes resulting from the destructive distillation of bituminous substances, such as shale which contain a large percentage of mineral matter or ash, and which are in consequence unsuited for fuel, and also the use of the graphite or carbon deposited from bituminous substances in and on the surface of the retort and its contents for the decomposition of water, and the production therefrom of hydrogen and carbonic oxide and converting the same into good illuminating gas by diffusing through them the vapours of hydrocarbons derived from the destructive distillation of bituminous substances for illuminating gas.

No. 6358. Heat Extracting Apparatus.

(*Appareil à extraire la chaleur.*)

Hiram Purdy, Burlington, Iowa, U. S., 21st July, 1876, for 5 years.

Claim.—1st. The combination of the drum provided with conical air flues, which run from front to back and are flared from their receiving to their discharging end, and an air jacket enclosing the receiving and discharging ends of the said flues; 2nd. The combination of the broad flaring top flue *C*, having its bottom corrugated, the flaring flues *C* enlarged from their receiving to the discharging end and the drum *B*; 3rd. The double waisted fire box *A*, having walls *a* and openings *a'* in its outer walls, in combination with the conical flue *C* drum *B* and jacket with flaring side *E*₃ and inlet and outlet passages; 4th. In combination with the heating apparatus, the smoke pipe *I* having conical flues *i* and a reservoir *K*; 5th. The heater, having its drum provided with the conical flues *C* which run from front to back and are flared from their receiving to their discharging ends, and its jacket divided into the compartments *E*₁ and *E*₂; 6th. The combination of the fire box *A*, having compartments *A*₁ *A*₂ and the compartment *E*; 7th. The combination of the fire box *A*, the drum *B*, transverse conical flues *C* and the jacket *E*; 8th. The combination of the drum, provided with conical flues *C*, and the fire box having compartments *A*₁ and the jacket having compartment *E*₂.

No. 6359. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

Simon W. Wardwell, jr., George W. Shaw and Hugh Menown, Saint Louis Mo., U. S., 21st July, 1876, for 5 years.

Claim.—1st. The top *B* of the table or stand having recesses suitably formed to receive the dove tails *A*₁, when the *l* *g* frames are inclined, and to clamp the dovetails in the recesses when the frames are vertical; 2nd. The combination of the leg-frames *A*, brace-frame *C* and the rods *D*; 3rd. The leg-frame *A*, provided with dovetail-shaped locking lugs; 4th. The combination of leg-frames *A* and tie rods *D*, having hooked ends *D*₂ engaging said frames; 5th. The combination of the leg-frames with recesses *A*₂, brace-frame *C* with tenons *C*₂, and tie rods with hooks *D*₂; 6th. The tie rod *D*, having its hooked end spherical in form to engage recesses *a* in the lugs *a* of the leg-frame; 7th. The bar *E*₁, connected at or near the centre to the sandal *E*, and whose ends have bearing respectively beneath the sandal bearing bar *D* and the lower end *E*₂ of the pitman; 8th. The combination with the pitman *F* *E*₃ and socket bearing; The slot *E*₃ for the introduction and removal of the pitman to and from its bearing in the sandal; 9th. The ball-bearing of the pitman consisting of a lower part *E*₅ and an upper part *F*; 10th. The pitman consisting of the two parts *F*₁ *F*₂ and *F*₃ *F*₄ *F*₅, fitted together with a longitudinal rib and groove joint capable of movement in relation to each other to compensate for wear of bearing; 11th. The combination of socket bearing *E*₃ *E*₅, ball bearing *F*₁ *F*₂ of pitman *F* *E*₃, with divided upper hollow-bearing *F*₁ *F*₂ and globular crank wrist *G*; 12th. The combination with the bearing *F* *F*₄ *G*₁ and *F*₃ *F*₅ *E*₃ *E*₅ of the sandal *E*, rod *D*, bar *E*₁ and adjusting screw *E*₄, by which all lost motion may be eliminated from the bearings; 13th. The hanger *H*, cast in two counterpart portions which fit together upon the shaft *G*, and the suspension lugs *I*₁ *I*₂ of the turn table; 14th. The combination of the hanger cast in counterpart pieces with boxes *H*₁ *H*₂, shaft *G* and screws *H*₃, holding the parts of the hanger together upon the supporting lugs *I*₁ *I*₂ and the shaft *G*; 15th. The combination of hanger *H* made in counterpart portions and cleat *I*₁ *I*₂ beneath the turn table *I*, 16th. In combination with the turn table *I* and sectional cover *J*, the bracket *J*₁ connecting the parts of the turn table and forming the pivot bearings and rests of the cover; 17th. The combination of circular needle bar and tubular presser-foot bar *d*, permitting the turning adjustment of the presser foot without affecting the position of the needle bar, and without affecting the relative positions of the needle and presser-foot; 18th. The combination of counterpart casting *K* *R* and presser foot bar or barrel *d*; 19th. The shaft *N*, having globular crank wrist *X* for the lower end of the pitman; 20th. The shaft *N*, having take up cam *n*, in combination with the pitman of the take up; 21st. The shaft *N*, having the feed cam *N*, in combination with the slider *S*; 22nd. The shaft *N*, having the feed cam *N*₁, in combination with the slider *S*; 23rd. The rigid construction in one and the same piece of the shaft *N*, the crank wrist *X*, the take up cam *n*₁, the feed cam *N*₂ *N*₃ and the cup *O*, so that all parts have a positive motion relatively to each other; 24th. The tubular presser-foot bar *d*, with circumferential groove *d*₁, to receive the toe of the lifting lever *f* in all positions of said bar; 25th. The combination of bar *d* with groove *d*₁, lever *f* and cam