

utilized, fuel and air being injected into the combustion chamber at one end, and the products issuing from the chamber at the same end and passing into the heating space of the boiler or other apparatus. 3th. The arrangements for supplying a number of furnaces with air and powdered fuel from a common source as described and illustrated at Figures 9 and 10: 5th. The combination with the revolving chamber A, of a furnace of a separate hollow wearing ring, figure 2 and 2a, fixed to and revolving with the chamber and having water circulating through it: 6th. The construction and use of furnaces having revolving chambers A, and flue pieces provided with wearing rings J, J', constructed as described in respect to figure 5 of the drawing: 7th. The combination of a rotating furnace chamber with a pipe or pipes through which air and fuel are injected into such chamber in such manner that the said air and fuel on entering the rotating chamber are caused to pass through the flue by which the products of combustion escape from the rotating chamber, as described.

No. 4092. JAMES F. CASS, L'Original, Ont., 26th November, 1874, for 5 years: "Folding Stand." (Trepied pliant.)

Claim.—The use and combination of the metal cap C, and the hooks d, d, with a centre block b, and folding arms a, a, as set forth.

No. 4093. CHARLES M. NES, York, Pa., U. S., 26th November, 1874, for 5 years: "Manufacture of Steel." (Fabrication de l'acier.)

Claim.—The manufacture of steel from silicon pig iron, either separately or in combination with ordinary pig or cast iron, as described.

No. 4094. SAMUEL KEYS, Bennington, Vt., U. S., 26th November, 1874, for 5 years: "Steam Boiler Furnace." (Fourneau de chaudière à vapeur.)

Claim.—1st. The combination of the horizontal steam boiler A, fire chamber B, fire flue C, and air space L, extending between and along the inner and outer casing J, and K, of the said steam-boiler, fire chamber and fire flue, all arranged as described: 2nd. The combination of the boiler A, fire chamber B, fire-flue C, air space L, extending along and between the inner and outer casing J, and K, of the said boiler, fire chamber and fire flue, and the air space or spaces O, immediately under the said fire-flue all arranged as described: 3rd. The combination of the boiler A, fire chamber B, flue C, air heating space L, extended along and between the inner and outer casing J, and K, of the said boiler, fire chamber and flue with or without the heating space or spaces O, and with inlet and outlet passages for air in the lower and upper parts of the said air heating space L, as set forth: 4th. The combination of steam boiler A, fire chamber B, fire flue C, draught chamber G, air heating space L, extending along and between the inner and outer casings J, and K, of the boiler, fire-chamber and fire flue with or without the space or spaces O, and with the air passages M, and N, or their equivalent arranged so as to direct external air into and through the said air heating space L, and thence in a heated condition into the said draught chamber as specified: 5th. The combination of the steam boiler A, fire chamber B, fire flue C, draught chamber G, air heating space L, between the casings J, and K, with or without the space or spaces O, and the air passages M, N, and P, furnished with dampers all arranged to operate as described.

No. 4095. EDWIN M. SLAYTON, Port Byron, N. Y., U. S., 26th November, 1874, for 5 years: "Seamless Paper Vessels." (Vaisseaux en papier sans coutures.)

Claim.—1st. A seamless body or shell I, made by winding successive layers of paper, pulp paper, or equivalent fibrous material, upon a mandrel or form for the purpose specified: 2nd. The combination with the body I, of the hoops k, wound either at the ends or the middle, or both as described: 3rd. The combination with the body I, of the concavo-convex heads K, K: 4th. The combination with a mandrel E, of a collapsible jacket H, for the purpose of removing the body or shell from the mandrel, 5th. The combination with a wet paper machine, of a series of two or more mandrels E, E, so arranged that they may be alternated in use as described.

No. 4096. MELANCTHON E. ZELLER, Ivesdale, Ill., U. S., 26th November, 1874, for 5 years: "Harness Findings." (Lormerie de harnais.)

Claim.—The saddle plate A, eye a, and cropper loop b, cast in one piece, in combination with the falling hook c, as specified.

No. 4097. WILLIAM J. KENT, Buffalo, N. Y., U. S., 26th November, 1874, for 5 years: "Improvements on Reed Organs." (Perfectionnements aux orgues à jeux d'anches.)

Claim.—1st. In combination with a double set of reeds a, a', the three reed openings b, b', c, and three mutes d, c, f, to produce the tone or stop called vox celestis, all constructed and arranged to operate as specified: 2nd. In combination with the single set of reeds c, the two reed openings b₁, b₁', b₁1', c', c', c', and two mutes h, g, all constructed and arranged to produce the Oboue and clarinet tones as specified: 3rd. Admitting the air vertically directly on to the vibrating ends of all the reeds by means of the vertical openings c, c', c', as set forth.

No. 4098. CARL A. BLOMQUIST, LaPorte, Ind., U. S., 26th November, 1874, for 5 years: "T Rail Joints." (Joints de rails en T.)

Claim.—The wedges D, D, and sleeve C, in combination with the leveling pieces E, E, which are connected by the cross-timbers F, F, as described.

No. 4099. WILLIAM F. PATTERSON, Boston, Mass., U. S., 26th November, 1874, for 5 years: "Improvements on Screw-Drivers." (Perfectionnements aux tourne-vis.)

Claim.—The blades A, A, threaded bosses B, B, and conical nut C, also the adjustable step D, d, case E, and handle F, as described.

No. 4100. ROBERT FREELAND, Montreal, Que., 26th November, 1874, for 5 years: "Manufacture of Soap." (Fabrication du savon.)

Claim.—1st. The novel process of heating within a confined space or spaces, open at or towards either extremity, and by means of dry steam contained within a jacket or coil (assisted if desired by a jet of live steam) a portion only of the ingredients contained within any closed vessel, thereby causing them to ascend, while the remaining portions left unheated, descend, thus establishing by ascending and descending currents an automatic, violent and continuous circulation, 2nd. The application of dry heat for the purpose of heating the portion of the ingredients contained within the annular space between the outer cylinder A, and inner shell C: 3rd. In combination with the cylinder A, and shell or shells C, the steam coil H, placed either within or without the shell C, and having connections I, and K, 4th. In combination with the cylinder A, shell C, and pipe L, the shield D, and aperture E, with reverser F: 5th. In combination with any closed vessel for the purposes mentioned, the vessel R, in its threefold use as condenser, injector and air or water heater as described.

No. 4101. GEORGE W. BROWN, Buffalo, N. Y., U. S., 26th November, 1874, for 5 years: "Improvements in Spring Bed Bottoms." (Perfectionnements des fonds de lits à ressorts.)

Claim.—The combination of the Slats C, C, having grooved double heads c, c', at each side of the ends of the slats, and the curved cross pieces D, D, spring f, f, and stay rods g, g, all constructed and arranged as described.

No. 4102. SAMUEL W. REESE and JOHN F. WRIGHT, Chicago, Ill., U. S., 26th November, 1874, for 5 years: "Improvements on Stencil Plates." (Perfectionnements des plaques à parotromer.)

Claim.—The plates A, each having a stencilled letter or character and provided with the folds or locks a, a', as set forth.

No. 4103. GATES CURTIS, Ogdensburgh, N. Y., U. S., 26th November, 1874, for 5 years: "Water Wheel." (Roue hydraulique.)

Claim.—The bonnet gate-ring E, made with inclined rims E', which carry the chute pads F, with the outwardly-curved chutes F', and having openings b, arranged over corresponding apertures b', of the bonnet or cap D, for regulating the flow of the water as described.