

pully C, attached to the revolving axle B; 2nd. The combination and arrangement of the lifting rod I, bent lever H, rod H, and pivoted links G, G, with attachments; 3rd. The combination and arrangement of the shaft G, provided with the eye-bolt g, chain G, friction pulley J, and brake lever K; 4th. For the application of brakes to individual cars, or collectively to all the brakes on a train the rope M, extending from the engine or other suitable point throughout the whole or partial length of a train in combination with the lifting rods I, or their equivalent.

- No. 5334. PATRICK FITZGIBBONS, Oswego, N. Y., U. S., 2nd November, 1875, for 5 years: "Tube Expander." (Dilatateur de tuyaux.)

Claim.—1st. In combination with the hollow mandrel A, A, provided with the radial openings $a_1, a_2, \&c.$, the tooth jaws B, B, &c., placed within said openings, and the mandrel C, fitted into the axial opening a_1 , within said mandrel A, provided with the nut D, and having its tapered portion C, bearing against the inner faces of said jaws; 2nd. The mandrel A, A, a_1 , and a_2 , the jaws B, B, &c., the mandrel C, c, the head E, carrying the grooved rollers F, F, &c., the nuts D, and H, and the washer I.

- No. 5335. ADDISON CROSBY, New York, U. S., 2nd November, 1875, for 5 years: "Machine for Cleaning Flues." (Machine à nettoyer les bouilleurs.)

Claim.—1st. The combination of the stirrup-valve G, V, steam-jet I, bent nozzle C; 2nd. The combination of stirrup H, lever G, valve V, valve seat W, rod r, and spring o; 3rd. The valve seat W, in combination with stirrup H, and pipe E; 4th. The pipe C, and the nozzle I.

- No. 5336. PETER COOK, Detroit, Mich., U. S., 2nd November, for 5 years: "Hoop Cutting Machine." (Machine à couper les cerceles.)

Claim.—1st. The feed guide D, made in two parts hung upon the adjustable suspender d, d¹, and oscillating over the knives K, K¹, and concave beds C, C; 2nd. The feed guide D, hung upon a short arm in combination with the swinging hopper B, hung upon a longer arm and both oscillating over the knives K, K¹, and concave beds C, C.

- No. 5337. FREDERICK W. BARTLETT, Buffalo, N. Y., U. S., 2nd November, 1875, for 5 years: "Ozone Machine." (Machine à ozone.)

Claim.—1st. The glass generating tubes, or half tubes a, c, arranged in any suitable way in connection with the vessel A, or plunger B, around the periphery of the plunger B, or next to the inner walls of the glass generating chamber or vessel A; 2nd. The plunger B, in combination with the phosphorous tubes a, c, and chamber A; 3rd. The plunger B, formed with the half tube c, c, on its outside and arranged in connection with the half tubes a, a, of the outer vessel A, or independently thereof and having a projection from the inside of each tube or a movable thimble on which phosphorous sticks rest; 4th. The chamber C, interposed between the base A, and dome D, with walls f, g, constructed of wire or open work and with the purifying stuffs h, in connection therewith, for the purpose of allowing the air to enter freely at any part of its circumference and the ozone to filter out through the stuffs and walls; 5th. The combination of the expansion chamber or dome D, with the open work separating chamber C, vessel A, and phosphorous tubes a, c, all arranged in connection with each other; 6th. The flattened form of the phosphorous sticks e, e, whereby a better combustion and economy in use is obtained.

- No. 5338. CHARLES A. HENNICKE, Mitchell, Ont., 2nd November, 1875, for 5 years: "Improvements in the manufacture of Cutters." (Perfectionnements dans la Fabrication des traîneaux.)

Claim.—The combination of both arm pieces and back top rail E, E, and the mode of bending the back end of the body raves A, A, so as to admit the insertion of the back pannel C, into the groove made in the body raves A, A, and continued upwards into the arm pieces E, E, and back top rail connecting the arm pieces as shown in Fig. 4 of the drawing.

- No. 5339. DANIEL CAMERON and JOHN BALLANTINE, Galt, Ont., 2nd November, 1875, for 5 years: "Improvements on Rotary Bed Wood Planing Machines." (Perfectionnements aux machines à raboter le bois à tables rotatoires.)

Claim.—The double headed links C, C, in combination with the lugs B, B, provided with the cored-ends b, b, and notches b¹, the said lugs being cast or attached to the under side of the slats A, A.

- No. 5340. JAMES H. CONNOR, Brockville, Ont., 2nd November, 1875, for 5 years: "Washing-Machine." (Machine à laver.)

Claim.—1st. In combination with the tub A, the rubbing board C, hung eccentrically on the rock shaft D; 2nd. The grooves or slots E, inclinedly cut in the sides of the tub A, to receive the rock shaft D; 3rd. The tub A, having bars B, of the oval or O, G, form arranged so that the

rounded curvature tends downwardly to receive the direct action of the rubbing-board; 4th. The legs G, and H, inclinedly arranged and abutting; 5th. Providing the side pieces J, with notches K; 6th. A packing of soft spun-cotton M, applied to the joints of the boards B.

- No. 5341. FREDERICK J. CHUBB, (Co-inventor with, and Assignee of, B. Hunniford) Guelph, Ont., 2nd November, 1875, for 5 years: "Improvements on Lime Kilns." (Perfectionnements aux fourneaux à chaux.)

Claim.—1st The hopper C, having an increasing horizontal section (equivalent on all sides) from the top downward to the beginning of the hopper bottom and provided with a hopper bottom Cr, the outline of the section of which may be described as a "cima recta" formed by concave and convex curves a and b; 2nd. The tie rods or timbers I, built in the masonry at intervals in the height of the kiln and notched and bolted or otherwise fastened at the angles; 3rd. In a kiln for calcining lime stone the layer of ashes H¹, or equivalent material inserted between the fire brick hopper lining H, and the masonry; 4th. The hood G, erected upon and fastened to the top of the masonry of the kiln; 5th. The inclined plane J, having the hopped sides M, leading from the back of the draw bars D, to the front of the kiln and provided with the sliding hopper-bottomed measure K; 6th. The sliding door N, provided with the ventilator O; 7th. The slide furnaces E, consisting of the three radially placed fire chambers e, e, e, provided with a common outside opening E¹, and fitted on the hopper openings with iron gratings F, built to conform to the shape of the hopper.

- No. 5342. RICHARD M. EAMES, Albany, N. Y., 2nd November, 1875, for 5 years: "Improvement on Apparatus and Processes for the Reduction of Ores." (Perfectionnement des appareils et procédés de réduction des minerais.)

Claim.—1st. The employment or use of the vapours of volatile hydrocarbons and fatty matters combined with superheated steam and atmospheric air for the production of heat in a reverberatory furnace, also in cupola furnaces; 2nd. In combination with the hydrocarbon vapours the cylinders E, and F, the pipe H, and combustion chamber D.

- No. 5343. EMMA E. O. WARNER, wife of J. P. WARNER, DeKalb, Ill., U. S., 2nd November, 1875, for 5 years: "Hinged Baking Pan." (Casserole de boulangerie à charnières.)

Claim.—A baking pan in which the portion surrounding the bottom to form the sides and ends or circumference is constructed in sections hinged to the bottom of the pan in combination with flanges on the end edges of each section with clasps at the ends of the upper wired edges of alternate sections.

- No. 5344. THOMAS BOOTH, Toronto, Ont., 2nd November, 1875, for 5 years: "Pipe Wrench." (Clé à tuyaux.)

Claim.—1st. The block C, with working face constructed to the outline shown in combination with and pivoted to the lever B, the end of said lever acting in connection with the block being finished to a convex outline and provided with a serrated face; 2nd. The notched or slotted lever end B¹, provided with the detachable disc G, the said disc being secured in place by means of the screws g, g; 3rd. The pivot pin D, provided with the central flatted faces in combination with the slot E, provided with the notches E¹; 4th. The block C, provided with the bearing face C¹.

- No. 5345. WILLIAM BURROWS, New-York, U. S., 2nd November, 1875, for 10 years: "Improvements in Stoves." (Perfectionnements dans les poêles.)

Claim.—1st. A stove made of cast metal plates A, and ornamented with tiles B, or their equivalent removably secured to openings in the various plates so that the faces of the tiles are exposed to view through or within said openings; 2nd. As an improvement upon ornamental stoves, a stove composed of cast metal plates having openings for the display of ornamental tiles, said plates having flanges or lugs upon the same adapted to hold said tiles and display them through or with in said openings as well as to permit the removal or replacement of the same without disturbance of the proper plates; 3rd. The ornamentation of the plates A, thereof with tiles B, when the latter are removably attached to the former.

- No. 5346. JOHN YOCUM, Dunville, Ont., 2nd November, 1875 (Extension of Patent No. 718), for 5 years: "Improvement in Ploughs." (Perfectionnement dans les charrues.)

Claim.—The combination of the wrought and cast iron beam and combining and fastening of the cast iron part H, R, S, D, with the wrought iron part D, E, F, by means of the bolts.

- No. 5347. STEPHEN T. DRAPER, Clarence, Ont., 8th November, 1875, for 5 years: "Improvement on