

Claim.—1st. A boiler for hot water or steam composed of sections A, with connecting pipes B, B₁, and B₂; 2nd the pipes B, and B₁, provided with filling strips X; 3rd. In combination with the sections A, the chambers B, E, provided with water ways F, F₁; 4th The combination of the sections A, pipes B, B₁, and B₂, with or without filling pieces X, pipes G, and G₁, and chambers E, E₁.

No. 4683. CANDIDUS BILHARZ, Pittsylvania Court House, Va., U. S., 27th April, 1875, for 5 years: "Improvements on Hammers." (*Perfectionnements des marteaux.*)

Claim.—1st A hammer head; 2nd. The combination of a movable jaw G, with a hammer head, or instrument for drawing nails.

No. 4684. GEORGE McNAUGHTON, Brooklyn, N. Y., U. S., 27th April, 1875, for 15 years: "Steam Engine." (*Machine à vapeur.*)

Claim.—1st. A hollow valve B, having induction port D, and opposite balance port E, the education port E, and opposite balance port E₁, and exhaust ports F, F₁, discharging exhaust steam through covered exhaust ports F, F₁, at the end of the valve in combination with the casing A, having induction port a, and education ports b, and c. 2nd. The conical valve R, operating in a correspondingly formed seat by the screw spindle O₁. 3rd. The screw J, cog-wheel O, latch-lever P, and spring O₂, operated by the spindle O₁, of the valve R, 4th. The frame L, and spring N, in combination with the spindle K, for operating the valve B; 5th. The spiral spring W, applied to the shaft of the governor; 6th. The slide blocks X, the rocking-blocks Y, and Z₁, connecting-rod Z, and rocking link M, in combination with a governor for operating the valve B; 7th. The rocking link M in combination with a rock shaft M₂, and rocking arm M₃.

No. 4685. BERNARD DOUCE, Constantinople, Turkey, 27th April, 1875, for 5 years: "Paper Bag Machine." (*Machine à faire les sacs de papier.*)

Claim.—1st The combination of the bands X, Y; 2nd The combination of the bands X, Y, with the folders 24, lifters 25, plate K, L, M, N, holders 31, and grating 35; 3rd. The combination of the bands X, Y, with the draw-rollers 5, 6, and 7, 8; 4th. The combination of the rollers 1 and 2.

No. 4686. DAVID P. COREY, Consecon, Ont., 27th April, 1875, for 5 years: "Improvements on Car-couplers." (*Perfectionnements aux attelages de wagons.*)

Claim.—1st. The draw-head A, with the guides b, b, and springs so that the draw-link is certain to be correctly directed and entered by the action of said guides and springs, and the certainty of action of the draw-pin dropping into position and becoming secure; 2nd. The regulation of the height of the draw-head, so that it may accommodate and bring draw-heads on different cars to the same level.

No. 4687. SAMUEL KEIM, Attoona, Pa., U. S., 27th April, 1875, for 5 years: "Mill Stone Dress." (*Rhabillage des meules.*)

Claim.—1st. The dress of the runner stone having the lands all running to a point near the eye, and the furrows terminating in curved or semi-circular edges, in the dress of the bed-stone, having the furrows tangential to a smooth eyes encircling part, the diameter of which is equal to the distance of diametrically opposite terminal points of the lands of the runner.

No. 4688. RUFUS NUTTING, Wheaton, Ill., U. S., 27th April, 1875, for 5 years: "Improvements in Lanterns." (*Perfectionnements aux lanternes.*)

Claim.—1st. The adjustable case A, in combination with a lantern; 2nd. The detachable pedestal B, provided with a screw for combining it with a lantern fount; 3rd. The lantern pedestal B, in sections detachably joined together; 4th. The screw C, attached to the bottom of a lantern fount; 5th. The sides of the automatic fount D, semi-circular in form, in combination with a fount top and burner; 6th. The fount top F, in combination with a fount and burner; 7th. The ballast E, in combination with the bottom of a lantern or lamp fount; 8th. The automatic fount D, in combination with a burner and a globe-chimney or other protector; 9th. The V-shaped filling trough G, in combination with a fount; 10th. The detachable trace chamber H, in combination with a lantern fount and protector bottom; 11th. The automatic dampers H₂, in combination with the trace chamber H, or the wind break of a lantern below the burner; 12th. Automatic dampers poised and hung in combination with a lantern above or below the burner; 13th. The screw I₁, attached to a lantern bottom, in combination with a burner and fount; 14th. The perforated concave

bottom I, in combination with a perforated chamber H₂, and a burner; 15th. The bottom I, in combination with the beaded plate M; 16th. The swaged vertical strips K, in combination with the guards K₁, and studs P; 17th. The curved strips L, in combination with the guards K, K₁, and studs P; 18th. The beaded plate M, attached to the strips K, and L, in combination with the pannells L₁, and bottom I; 19th. The chambers U, in combination with the perforated concave bottom I, and a burner; 20th. The canopy O, in combination with the studs P, and passages S; 21st. The canopy O, in combination with the studs P, and chamber V; 22nd. The chamber V, in combination with canopy O, and tube 3; 23th. The chamber V, in combination with the canopy O, and bracket Q; 24th. The chamber V, detachable in combination with the canopy O, or a lantern top; 25th. The chamber V, in combination with the bracket Q, and cowl W; 26th. The pin O₁, in combination with the chamber V, and canopy O, or a lantern top; 27th. The cowl W, constructed, poised and combined with a lantern top; 28th. The tube 3, attached to the chamber V, in combination with the detachable passages S; 29th. The passages S, in combination with the tube 3, and studs P; 30th. The passages S, detachable; 31st. A passage for cooling and conducting heated air from above the flame of a lantern or lamp, down towards the flame, made of paper or other like non-conducting material; 32nd. The spring Q, in combination with a lantern top end and handle; 33th. The handle 4, detachable in combination with a lantern; 34th. The handle 4, joined for the purpose described, in combination with a lantern; 35th. In a coal-oil lantern or lamp burner, the combination of two or more small wick tubes, for dividing the flame into several parts, for more oxygen; 36th. A coal-oil burner with several small wick tubes, each having the wick moving-orifice 7, near the lowest end; 37th. A coal-oil burner, with several small wick tubes in combination with a cone or dome reflector; 38th. In wick tubes having the orifice 7, the enlargement 8 at the upper end; 39th. The perforated reversible stopper 8₁, in combination with wick tubes having the orifice 7, and enlargement 8; 40th. A wick tube of a lantern or lamp burner, corrugated or grooved for separate wicks; 41st. A coal-oil burner with several wick tubes, one or more of them inclined or curved in combination with ratchet wheel and shaft; 42nd. A coal-oil burner in combination with a globe-chimney or other flame protector; 43th. The screw 9, attached to the upper side of a lantern or lamp burner; 44th. The hunting chamber 10, having the orifice 11; 45th. The gas vent 12, attached to the top of the chamber 10; 46th. The flame covers 13, having air channels and flame hidings in combination with a coal oil burner; 47th. In flame covers 13₁, having channels and hidings, adjustable in combination with a coal oil burner; 48th. The cowl W, bracket Q, chamber V, tube 3, passages S, canopy O, studs P, bottom I, and chamber V, in combination with a globe or other protector; 49th. The cowl W, bracket Q, chamber V, canopy O, studs P, and bottom I, in combination with a globe, or other flame protector; 50th. The horizontal detachable reflector 14, in combination with the door of a flame protector; 51st. The detachable vertical reflector 14₁, in combination with the door of a flame protector; 52nd. The detachable candle socket 15, having screw attached to it as shown, in combination with the pedestal B; 53th. The detachable candle socket 15, in combination with the protector bottom I; 54th. The detachable candle socket 15, provided with an upper and lower screw, in combination with a globe or other flame protector.

No. 4689. WILLIAM C. EDGE, Newark, N. J., U. S., 27th April, 1875, for 5 years: "Machine for and Process of making the Heads of Chain Swivels." (*Machine et procédé pour faire les têtes des mailles tournantes.*)

Claim.—1st. The process of forming swivel heads from sheet metal blank a, by first forming each blank into a cup a₁, then elongating said cup, next forming it into a pear shape and lastly finishing it by turning between a stationary mould C, and reciprocating mould B; 2nd. The combination of the die d, guide ring e, plunger h₁, pin i₁, and spring j₁, all arranged for the purpose of contracting the open end of the cup shaped swivel head blank; 3rd. The reciprocating mould B, combined with the stationary mould C, and handle A, the opposite faces of the two moulds having cavities for the reception of a swivel head blank a₁, which is to be formed into a swivel head a₂, by the operation of the moulds; 4th. The process of adapting a sheet metal swivel head blank to the reception of a handle A, and to the operation of the moulds B, C, by punching a square hole through the end of the blank previous to the insertion within said moulds.

No. 4690. DANIEL K. WEST, London, Eng., 28th April, 1875, for 10 years: "Improvements in Steam, Water or other Engines." (*Perfectionnements aux machines à vapeur, hydrauliques et autres.*)

Claim.—1st. The combination of the parallel cylinders K, and the cone ended pistons P, with the disc B; 2nd. The combination of the parallel cylinders K, and the pistons P, having piston rods p, with the universal joint a, b, c; 3rd. The combination of the coned under surface L, of the disc B, with the coned bearing surface of the frame E; 4th. The combination of the described engine with the circular valve H; 5th. The combination of the described engine with the arrangement of oil passages e, and lastly the combination of the coned surface of the disc B, with the coned surface of the frame E, for the purpose of generating centrifugal force in air or other fluid.