rotary feed cup A, stationary ring C, feed opening *o*, gate I and cone E; 4th. The combination of the rotary feed cup A, stationary ring C, feed opening *o*, gate I, cone E and rotating distributor D; 5th. The combination of the rotary feed cup A, stationary ring C provided with a lateral feed opening and gate I, and the arm M arranged to force the fertilizer into the path of the gate; 6th. The combination of the rotary feed cup A, ring C, opening *o*, gate I and hopper F; 7th. The combination of the rotary feed cup A, provided with a stationary ring C having lateral feed opening and a gate, and the hopper F and plate *b*; 8th. The combination of the rotating feed cup A, stationary ring C provided with a feed opening and a gate, and the bottom plate B and the gear G; 9th. The combination of the rotating feed cup A, stationary ring C, feed opening *o*, gate I, gear G, supporting plate J and hopper F; 10th. The combination of the feed shell W having projecting lip *t* and feed cup A provided with a central discharge opening, and supported by the open frame S having rim T; 11th. The circular feeding shell W, provided with projecting lip *t*, in combination with a feed cup having a central discharge opening; 12th. The combination of the feed cup A, provided with a central discharge opening, and the distributor D and feeding shell W; 13th. The combination of the supporting plate S having rim T, the rotating feed cup A provided with a central discharge opening, and the feeding shell W; 14th. The combination of the feed cup A and distributor D attached to the cup by slotted lug $g_1$; 15th. The combination of the feed cup A, supporting plate S and feeding shell W attached to the plate, so as to be readily removed therefrom by lugs $x$ $x$ and slots $b^1$ $b^1$.

## No. 10,424. Apparatus for Dropping the Cuts of Augers and Auger Bits. (*Appareil à forger les hélices et les mèches des tarrières.*)

Garven Gilmore, Côte St. Paul, Que., (Assignee of William Tucker, Fiskedale, Mass., U.S.), 6th September, 1879, (Extension of Patent No. 3993), for 5 years.

## No. 10,425. Screw Propeller. (*Propulseur à hélice.*)

John I. Thornycroft, Chiswick, England, 6th September, 1879 (Extension of Patent No. 3968), for 5 years.

## No. 10,426. Nut Locks. (*Arrête-noix.*)

Joseph A. Quesnel, Arthabaskaville, Que., 6th September, 1879, for 5 years.

*Claim.*—1st. The elliptic or spring shaped nut lock plate C having an oblong or other shaped key-hole J and a star-shaped aperture I, to allow the nut D to pass through it; 2nd. The nut lock key F provided with a flat or other shaped head having pins G projecting from its under side and the cross-bar H on its other end; 3rd. The fish-plate B having bolt holes L and key holes M; 4th. The elliptic or spring shaped nut lock plate C having an oblong or other shaped key-hole J, a star-shaped aperture I, key F having cross-bar H and pins G, fish-plate B provided with bolt holes L and key holes M.

## No. 10,427. Swing. (*Balançoire.*)

Evangéliste Lavigne, Quebec, 8th September, 1879, (Extension of Patent No. 37), for 5 years.

## No. 10,428. Steam Generator. (*Générateur de vapeur.*)

Charles C. Holton, Chicago, Ill., U. S., (Assignee of Edward G. Good), 8th September, 1879, for 5 years.

*Claim.*—1st. The combination, with the fire-box or furnace of a steam boiler, or other steam generating apparatus, of the series of drop pipes *a a a* and the main circulating pipe C provided with the syphon end D; 2nd. In a steam generating and circulating attachment for steam boilers, the combination, with the boiler A, of the main circulating pipe C and the series of drop pipes *a a a*, the said pipe C receiving the water from the boiler at a point near the bottom and returning the same to the boiler again in the form of steam, through the syphon end of the pipe C inserted in the boiler, in such a manner as to always discharge the steam below the water line, whereby a continuous and regular circulation is maintained.

## No. 10,429. Improvements in Rope Clamps. (*Perfectionnements aux serre-cables.*)

James C. Covert, Troy, N. Y., U. S., 8th September, 1879, for 5 years.

*Claim.*—1st. The method of connecting one part of a rope adjacent to another part, or the ends of two ropes by clamping the same with one or more open rings of metal under extreme pressure; 2nd. One or more open rings clamped around a braided or twisted rope under pressure to prevent unbraiding or untwisting.

## No. 10,430. Music Leaf Turner. (*Appareil à tourner les feuilles de musique.*)

Oliver H. Goodwin, San Francisco, Cal., U. S., 8th September, 1879, for 5 years.

*Claim.*—1st. The holding bars E E with their guiding pieces $F^1$, the bars being united by the diagonal parallel strips F pivoted to the back, in combination with the operating thumb piece G, so that they may be opened and closed; 2nd. The turning arms K provided at their outer ends with the nippers or holders composed of the jaws L N with the spring O and the elastic cushion *d*; 3rd. The turning arms K with their springs V, said arms having the circular enlargement *e* secured to an axis P and provided with a notch R, in combination with the stem T and catch S; 4th. The turning arms K with the hinged circular enlargement *e*, having a pin *a* upon one side, in combination with the eccentrics W and the arms Y with the hooks or catches Z to engage with the pins, said arms being pivoted and operated by the eccentrics; 5th. The arms K mounted to turn upon a central axis, the holding bars E having their leaf retaining edges in a line with the axis of the turning bars; 6th. The music supporting back D, having an inclined base or foot with the slotted openings C, in combination with the studs or screws B projecting from the table, so that the device may be easily attached or detached and held at the proper angle.

## No. 10,431. Galvanic Battery. (*Batterie galvanique.*)

William S. Wilson, Sunderland, England, 8th September, 1879, for 5 years.

*Claim.*—1st. The combination, in galvanic cells or batteries, of an isolator C with the porous diaphragm or cell D for the purpose of more effectually preventing the heavier liquid from gravitating into the lighter; 2nd. The packing of the oxygenating materials with or without sand between the porous diaphragm and the solator 3rd. The application, to cells or batteries, of the condenser E for condensing nitrous fumes, thus enabling them to recombine with the oxygen of oxygenating substances present in the cell and reform nitric acid; 4th. The partial covering of the elements by the isolating anti-corrosive material (paraffine); 5th. The combination, in a battery, of small electrode surfaces near the top of the cells only, with large quantities of liquids; 6th. The combination, in galvanic cells, of the three compartments A containing the positive element and water or saline solution, C containing the oxygenating substance and D containing the negative element and its exciting acid.

## No. 10,432. Artificial Fuel. (*Combustible artificiel.*)

Amisa P. Gotham, Chicago, Ill., U. S., 8th September, 1879, for 15 years.

*Claim.*—The process of making artificial fuel or fire kindling by treating native peat, after being cut into blocks and dried, first to a bath of inflammable liquid and then to a bath of resinous material, to first saturate the blocks with the elements of combustion, which is then sealed, to prevent evaporation, by forming in the block an integral wall of considerable depth, as distinguished from a surface coating or film.

## No. 10,433. Drip Basin for Barrels. (*Bassin recevant le liquide qui s'échappe des barils.*)

Ernest F. Pflueger, Akron, Ohio, U. S., 8th September, 1879, for 5 years.

*Claim.*—1st. The semi-circular trough-pieces D $D^1$ connected by interlocking flanges; 2nd. The basin A having the rack B, screen C and tank E; 3rd. The combination of the trough D $D^1$ and basin A having the screen C and tank E.

## No. 10,434. Churn Dasher. (*Batte-beurre.*)

Charles Frieteborn, Clare, Mich., U. S., 8th September, 1879, for 5 years.

*Claim.*—A churn dasher formed of the obtusely conical plate A having the axial tube or socket B and the inverted central inner cone *b*, and covered at intervals with the radial semi-circular tubes C tapering towards the central socket and provided with the side apertures *c*, the said cone A being provided, under and between the tubes C, with the holes *d e*.

## No. 10,435. Process for Extracting Copper from its Ores. (*Procédé pour extraire le cuivre du minérai.*)

Henry Doetsch, London, Eng., 8th September, 1879, for 5 years.

*Claim.*—The process for extracting copper from its natural ores by means of sulphurous acid, either alone or in connection with other agents.

## No. 10,436. Process for Extracting Copper from its Ores. (*Procédé pour extraire le cuivre du minerai.*)

Henry Doetsch, London, Eng., 8th September, 1879, for 5 years.

*Claim.*—The use of hydrochloric acid or of aquaregia simultaneously with peroxide of manganese or peroxide of iron, or both, or with the residuum of the chlorine works, or with chlorine gas, or chlorides, or hypochlorites, or other oxidizing agents as applied to the extraction of copper and the precious metals when present from crude or unburnt ores.

## No. 10,437. Improvements on Draw-Bars. (*Perfectionnements aux ressorts de traction.*)

Robert Hay, Mineral Point, Wis., U. S., 10th September, 1879, for 5 years.

*Claim.*—As an improvement in draw-bars for locomotives, the frame A with projection B and lugs *b* $b^1$ in combination with the coupling bar C having head *d*, shoulder K and collar *j*, the cross heads *g i* and intermediate spiral spring *h*, whereby when the engine is in motion the coupling bar bears against the spring through the cross-heads and the strain is taken up by the spring.

## No. 10,438. Improvements on Magazine Fire Arms. (*Perfectionnements aux armes à feu à répétition.*)

Andrew Burgess, Owego, N. Y., U. S., 10th September, 1879, for 5 years.

*Claim.*—1st. The combination of a mortised or shouldered breech-bolt with a pivoted lever working in the mortise or against the shoulders, to move and to lock the bolt; 2nd. The breech-bolt having the arc or bearing $B^1$ and shoulder $B^2$ in combination with the pivoted brace to move and lock said bolt; 3rd. A swinging brace locking the breech bolt at an angle with the barrel in combination with longitudinal ribs and grooves to resist the upward tendency of the bolt; 4th. The brace, the bolt and the firing pin in combination, whereby the firing pin is withdrawn by the unlocking of the brace; 5th. A firing pin provided with the downward projection *f* in combination with the brace L and reciprocating bolt; 6th. The combination of the bolt, the firing pin provided with the downward projection *f* and the locking lever L by which the forward movement of the firing pin is prevented until the bolt is locked; 7th. A starting lever *e*, pivoted to the movable part of the breech mechanism, in combination with studs or projections on the side of the frame; 8th. The pivoted ejecting lever *e* in combination with the bolt and with a stop or stops projecting from the inside of the receiver; 9th. A removable stop S in combination with the bolt and carrier.