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INVENTIONS PATENTED.

No. 6917. Improvements in Smoke Consuming Devices.

(Perfectionnements aux appareils fumivores.)

Charles McWilliams and Levi C Barney Montreal Que., 28th December, 1876, for 5 ye. r.

Claim.—One or more pipe coils within a furnace perforated along their upper sides and adapted to deliver jets of air and steam into said furnace by the evaporation of water flowing through said coils.

No. 6918. Improvements on a Peg Cutting Machine.

(Perfectionnements a une machine a couper la chevilles.)

Louis Côté, Montreal, Que., 28th December, 1876, for 5 years

Claim.—1st. The process of cutting pegs inside of boots and shoes by means of a cutting blade H in the place of rasping or breaking them hitherto been done. 2nd The cutting blade or knife H operating within a guard K to cut the pegs in the inside of the boots or shoes. 3rd The knife or cutting blade H having a forward and backward and elliptical movement produced by the links J, the eccentric or cam F and the branch G. 4th In a machine to cut the inside portion of the pegs of boots and shoes the knife or cutting blade H in combination with the guard K. 5th The combination of the knife or cutting blade H with the branch or knife holder G. 6th The combination of the eccentric or cam F, the branch or knife holder G, the knife or cutting blade H, the arm I, the links J, the guard K and its movable plate M with the shaft D, the standard B and the table A.

No. 6919. Machine for Cutting the Pegs and Nails in Boots and Shoes.

(Machine à couper les chevilles et les clous dans les chaussures.)

Joseph O. Bourret, Montreal and Edmond A Bourret, St. Armand, Que., 28th December, 1876, for 5 years.

Résumé.—Le système de taille de la lime, a surface circulaire et oblique au az, sa garniture *cb* *cb* et *bc*, garde-fou des doublures et de l'empeigne de la chaussure l'entre deux C des parties BB de la lime. L'application de limes pour les différentes pointures des chaussures, et de donner à la lime une forme approchée de celle des différents points des semelles. L'attache de la lime au mâle D de la glissière à l'aide de la vis *ce* et de l'ergot *co*, et au besoin par tout autre mode d'attache ou de fixation, ce qui constitue son montage ou son démontage de dessus la machine quand il en est besoin. Le mode de glissière à rainures *q* *q* pratiqué dans l'intérieur de la tête des bras de support *af* et *F*, du levier *E* de cour. ande de la lime. Le mâle D de la glissière et son œil à chape *d* le dit bras de levier *E* et son œil *d* oscillation oblong *L*, l'axe *d* oscillation *G*, le coulis *ce* et les dits supports *F* et *F*, la bielle *J*, la manivelle ou disque *K* et ses trous de réglage *d* *d*, de la course de la bielle *J* et l'application de l'arbre *L*, sur ses coulis *ce* *ce*, du volant *O* et des poulies folles et fixes *M* *M*, de leur courroie *N*.

Claim.—The mode of cutting the file with a circular and oblique surface *a* *a*, its gearing *b* *b*, and *b* the protector for the humps and shoe vamp, the connection *C* of the parts *BB* of the file. The application of files for the different shapes of shoes, and to give to the file a form approximating to that of the different sizes of the soles. The attachment of the file to the stock *D*, of the slider by means of the screw *ce* and the hook *co* and if necessary by any other mode of attachment or fixing which constitutes its means of fixing or removing from the top of the machine when necessary. The application of the groove *q* *q* cut in the head of the supporting arm *F* *F*, of the lever *E* of the driving gear of the file, the stock *D* of the guide and its eye *d* of the lever arm *E* and its oblong oscillating eye *L*,

the oscillating axis *G*, the cross-head guide *H*, the supports *af* and *F*, the rod *J*, the crank or disc *K* and its regulating holes *d* *d*, the stroke of the rod *J*, the application of the arbour *L* upon its pillar blocks *P* *P*, the fly wheel *O* and its loose and fixed pulleys *M* *M* and their belt *N*.

No. 6920. Improvement in Hydrants.

(Perfectionnement des bornes-fontaines.)

Charles S. Clover Bay City, Mich., Harvey H. Clover, Joseph H. Strehli and James Kieran, Cincinnati, Ohio, U. S., 28th December, 1876, for 5 years.

Claim.—1st. A hydrant having in combination a valve governed supply pipe a vacuum chamber, an ejector to create the vacuum and a discharge pipe. 2nd The combination of the inlet pipe A, flexible diaphragm valve C, disc D, frame *f* *E* *F* *F*, *G* *G*, spring *G*, lever *F*, water chamber B and a discharge pipe *l*. 3rd The combination of the flexible diaphragm valve C (combined with mechanism whereby it will cut off the supply of water to the hydrant) inlet pipe A, chamber B, ejector T W, chamber M and discharge pipe *l*.

No. 6921. Improvements on Hot Air Furnaces.

(Perfectionnements aux calorifères à air.)

Thomas F. Hemmich and Davis C. Schneider, Reading, Pa., U. S., 28th December, 1876, for 5 years.

Claim.—1st. The displacing of one third of the fire space and in its place putting in an additional heating surface thereby saving the coal displaced and gaining heat radiated from the inner portion of the ring of fire thus preventing the burning of any embers. 2nd The inner inverted conical shaped cylinder or air flue in combination with the outer conical shaped casing thus presenting a double heating surface through and over the fire. 3rd The ring *o* tubes *r* with the tie bolt *u* in combination with the clamping spider *t* thus equalizing the strain of expansion and contraction. 4th The annular channel *d* and ring frame *u* in combination with the sectional grates *scrapers* *u* and means for revolving the grate. 5th The introduction of the cold air underneath the centre of the heater through or by the central opening of the base *o*, bringing the cold air to all parts of the outer heating surface in combination with the ring *u* dividing the cold air current to equalize the cold air to the inner heating surface and equally distribute its force.

No. 6922. Improvements on Trace Fastenings.

(Perfectionnements aux accroches-traites.)

James K. Lake and Bernard McDevitt, Chicago Ill., U. S., 28th December, 1876, for 5 years.

Claim.—1st The combination of the wedge pieces C staple or eye B and ring D with the rope or trace E. 2nd The plate A provided with the hook *a* and hook *b* or staple B. 3rd The wedge C provided with corrugations or serrations to fit the strand of the rope.

No. 6923. Improvements on Atmospheric Gas Engines.

(Perfectionnements aux machines a gaz atmosphériques.)

Joseph Wertheim Frankfort, Germany, 4th January 1877, for 5 years

Claim.—1st An atmospheric gas engine constructed mainly of an explosion dome and appendages of a syphon pipe with paddle wheel and liquid reservoir and of a liquid piston actuated by the explosive force of a suitable gas and air mixture in the dome. 2nd The combination of the explosive dome A having entrance opening *a* and ignition opening *a* with the slide valve *V* having segment opening *d* and ignitor *G*. 3rd The combination of explosion dome with entrance opening *a*, slide valve *V* with segment opening *d* and of covering plate *Az* with corresponding gas and air openings *f* *f*. 4th The combination of the slide valve *V* having pivot at upper end and guide slot at lower end with a revolving segmentally slotted disk at top and a square pivot guide of dome at lower part. 5th The combination of covering plate *A*, fastening pin *e* and clamp screw *e* with dome A to secure covering plate in rigid but detachable manner. 6th The combination of slide valve *V* and ignitor *G* with fixed gas pipe *h* of dome to light ignitor after each explosion. 7th The igniting apparatus *G* composed of an outer casing *g*, inner burner *g* and air supply pipe *u*. 8th The burner *g* of ignitor *G* constructed of gas pipe *g*, fixed tube *g* with central exit perforation and of sliding and spring actuated interior sleeves *g* with side exit perforations to extinguish flame at each explosion. 9th The combination of the spring acted supply cock *z* of ignitor *G* with contact face *z* of dome, to close air