

H and bridge-wall H¹ provided with opening *d*. 2nd. The combination, with the ash-pit E, of the connecting box or chamber I, provided with cut off K, whereby the blast into the ash-pit is regulated. 3rd. The combination, with the boiler A, of the smoke stack D provided with door O and damper *p*, fan-blower L, box *n* provided with air-openings *o o*, connecting box or chamber I, and chambered ash pit E. 4th. The combination, with the fan blower L, of the air and gas mixing box *n* provided with air openings *o o*. 5th. The combination, with the boiler A, of the fan blower L, consisting of cylindrical shell, shaft L₂, fan L composed of sleeve *m*, spiders *g*, circular plate *m*, lugs *i i*, wings *b b*, and braces *m m*. 6th. In a boiler fan-blower designed for returning smoke and uncondensed gases from the smoke stack to the boiler, the combination with the shaft L₂ provided with outside bearings *f f*, of the sleeve *m* and end plate *m*; having spaces K K between them, and inclined wing braces *m m*.

No. 14,640. Improvements on Ferry Boats or Tow Boats. (*Perfectionnements aux bateaux traversiers ou remorqueurs.*)

William Farquhar, William Norris et I. Alphonse M. Beaudry, Montreal, Que., 21st April, 1882; for 5 years.

Resumé.—1e. L'application des roues hydrauliques *a a*, à la locomotion des bateaux traversiers ou remorqueurs. 2e. L'application des roues dentées ou à friction d'angles *i i* et *j*, afin de changer l'axe de rotation du treuil. 3e. L'application des roues dentées ou à friction de diamètres différents *c d*, afin d'augmenter la vitesse du mouvement. 4th. L'application du treuil *c m* par les roues hydrauliques *a a*, par l'entremise des roues dentées à friction ou à courroies *d e i i* et *j* pour la locomotion des bateaux. 5e. L'application du câble de halage *b* (en lin, en métal ou de chaîne), fixé et maintenu aux deux extrémités *f* et *f*¹ ou *g*, et que le treuil enrôle d'un côté pour dévider de l'autre et opérer ainsi la locomotion du bateau.)

No. 14,641. Improvements in Cable Street Railroads. (*Perfectionnements aux tramways à traction de câble.*)

Worcester Haddock, Jacob Frank, Cincinnati, Ohio, and Isaac Frank, New York, U. S., 21st April, 1882; for 5 years.

Claim.—1st. The box or tube A, provided with rib or bracket C and opening *f*. 2nd. The box or tube A provided with rib or bracket C and supporting flange or lug *e* and top plate E. 3rd. The box or tube A provided with rib or bracket C, flange *e*, and top plate E. 4th. The box or tube A provided with rib or bracket C, supporting flange or lug *e*, flange *e*, and top plate E. 5th. In combination with the track H, and an underground cable, the plates E provided with the downwardly projecting flanges *e* and the upwardly projecting oblique flanges *f*, forming openings *f* for the reception of the clutch or gripper. 6th. The tube or box A provided with the flanges or brackets *e* and the flanges *b*. 7th. The tube or box A provided with the rib or bracket C and flange *b*. 8th. The tube or box A provided with rib or bracket C and flange or bracket *b*, and flange *b*. 9th. The combination at cross tracks of the crossing tube or box A and the flange *b*, and rib or bracket C fixed on said box or tube, the sides *a* of the main box being cut away to form openings *X*. 10th. The tube or box A provided with an upwardly projecting convex or arched bottom *a*. 11th. The tube or box A provided with the upwardly projecting or arched bottom *a* and drain outlets L. 12th. The tube or box A provided with the upwardly projecting or arched bottom, and passage openings *a* and drain outlets. 13th. The tube or box A provided with the upwardly projecting or arched bottom and passage openings *a* and drain outlets. 14th. The combination of the tube or box A, and the rib or bracket C, and the bracket C, and roller D and cable B. 15th. The combination of the tube or box A, the rib or bracket C, bottom *a*, roller D suitably supported, and cable B. 16th. The combination of the tube or box A provided with interior rib or bracket C and the brackets E. 17th. The brackets E suitably secured to the box A and provided with the dovetailed shoe F, in combination with the stringers G held in said shoes by a dovetailed wedge *h*. 18th. The combination of the brackets F provided with shoes F, and the stringers G held in said shoes by the wedge *h*. 19th. In a cable railway, the combination of the tube or box A and the telegraph or telephone wires *g*, running in the interior of said tube. 20th. The box or tube A, provided with the interior rib C, in combination with the telegraph or telephone wires *g*, said wires passing through the opening *g* in said ribs. 21st. The cable box or tube provided with the interior ribs C, in combination with the telegraph or telephone wires *g*, said wires being connected to the wooden strips *g* and passing through openings *g* in said ribs. 22nd. The combination of the main box or tube A, and a cross box or tube, the ends of the latter being bolted to the former, by bolts passing through the flanges *b* of the cross-box or tube, and the sides of the main box or tube. 23rd. The combination of a cable tube or box, bearing *p* and rail H, and rail bearing G. 24th. The combination of the cable tube or box, the bearing *p*, rail H, and bearing G for rail. 25th. The combination of a cable or tube or box, the bearing *p*, bearing *q*, and rail H and bearing G for rail. 26th. The combination of a cable box or tube, the bearing *p* and bearing *q*, and rail placed at an angle to the length of the box or tube. 27th. The combination of a cable box or tube, and the bearings *p* and end *o* forming openings *f*. 28th. The combination of a cable box or tube, and the bearing *p* and flanges *u*. 29th. The combination of a cable box or tube, and bearing *m* and flanges *u*. 30th. The combination of a cable box or tube, the bearing *m* and ends *u*. 31st. In combination with a cable box or tube, the shoe N. 32nd. The combination of a cable box or tube and shoe N, and ends *u* forming openings *f*. 33rd. In a cable box or tube, the upwardly arched or inclined bottom, in combination with the pulleys D, located over the highest point of said arch.

No. 14,642. Improvements on Barbed Wire Fences. (*Perfectionnements aux clôtures en fil métallique barbelées.*)

Thompson McCosh, (Assignee of Milton C. Shinn,) Burlington, Iowa, U. S., 21st April, 1882; for 5 years.

Claim.—A four-pointed metallic fence-barb composed of two wires of nearly equal length, the two barb-wires being closely wound interspirally around one of the cable wires of the fence, and only crossing each other at one point, where they are made to interlock with each other, for the purpose of being firmly united into one unchangeable barb.

No. 14,643. Improvements on Cigarettes.

(*Perfectionnements aux cigarettes.*)

Kinney Tobacco Company, (Assignee of Henry A. Cuppia,) New York, N. Y., U. S., 21st April, 1882; for 5 years.

Claim.—A cigarette having a mouth-piece attachment abutting against its end, and secured in place by a binding strip that envelopes both the cigarette and the end of the mouth piece.

No. 14,644. Improvements on Tow Boats.

(*Perfectionnements aux remorqueurs.*)

Alexander McDougall, Cleveland, Ohio, U. S., 21st April, 1882; for 5 years.

Claim.—1st. A tow-boat having a flat bottom, vertical sides and completely roofed in from stern to stern by a deck of semi-cylindrical form. 2nd. A tow-boat having a flat bottom, vertical sides, semi-cylindrical upper portion and bow and stern alike. 3rd. A tow-boat having turrets and supporting decks. 4th. In a tow-boat, the combination of a turret at each end of the upper deck, a cabin or forecabin immediately below the same, and a passage between the turrets and the cabin and forecabin. 5th. In a tow-boat, the combination of central frames alike in all respects, and bow and stern frames alike in all respects. 6th. In a tow-boat, the combination, with the hatch combings, of the stanchions secured thereto at one end.

No. 14,645. Improvements on Hay Presses.

(*Perfectionnements aux presses à foin.*)

Peter K. Dederick, Albany, N. Y., U. S., 21st April, 1882; (Extension of Patent No. 7485.)

No. 14,646. Improvements in Machines for Making Spikes. (*Perfectionnements aux machines à faire les clous barbelés.*)

William A. D. Bowman, Jersey City, N. J., and August W. Almquist, Brooklyn, N. Y., U. S., 24th April, 1882; for 5 years.

Claim.—1st. The combination, with a pair of vertical pointing dies, of a pair of horizontal or lateral indentation dies arranged to indent the spike bar on opposite sides, and reduce its width before it is acted on by the pointing dies. 2nd. The combination, with a pair of vertical pointing dies, of a pair of horizontal or lateral indentation dies, adjustable during motion of the machine to regulate the depth of indentation. 3rd. The combination, with the sliding indentation dies I, of the cam *h* fitted to slide transversely in the revolving shaft H, the axial expanding block J and the adjusting screw K swivelled to the said block, and mounted in the stationary bearing nut K. 4th. The combination of the blank supporting heading die L and the laterally or transversely movable gripping die M working in conjunction, to grasp diagonally opposite angles of the pointed blank along the entire shank part of the latter, and thus retain it in position while the spike head is being formed. 5th. The upright rocking arm *m* pivoted at its lower end, and provided at its upper end with a laterally projecting die holder or cross head *m* carrying the gripping arm M, in combination with the cam P actuating that end of the holder which is opposite to the die M, and with the stationary heading die L for the purpose of gripping the blank with an obliquely descending movement. 6th. In combination with the heading die L, the gripping die M and a mechanism to impart to the said gripping die, the successive transverse and longitudinal movements described, so as to cause it to grasp the blank for heading and eject the spike when completed. 7th. In combination with the gripping die M and a revolving cam P arranged to move the said gripping die in a direction at right angles to the spike bar, a severing cam *p* arranged to move the gripping die successively in a direction parallel with the spike bar. 8th. The revolving cam P having a curviform rise or roller *p* upon its side, in combination with the holder *m* of the gripping die, having suitable working surfaces *n n* arranged to be acted on successively in direction transverse to, and parallel with the spike bar. 9th. The yoke R R¹ having guides *r* and the header Q arranged to slide in said guides, in combination with the crank shaft *s s*, and the worm gear T for adjusting the elevation of the front end R, of said yoke. 10th. The yoke R R¹ having guides *r* and the header Q arranged to slide in said guide, in combination, with the toggle links U V, centre pivoting hub W and the swivelled rod X for adjusting the elevation of the rear end R¹ of said yoke. 11th. The combination of the yoke R R¹ having guides *r*, the sliding header Q, the eccentric *b b*, the crank shaft *s s*, worm gear T, toggle joint U V W and swivelled screw rod X. 12th. The combination of the crank adjusting screw *e* and the toothed wheel *z* upon the said screw, with the stationary pawls F F¹ kept automatically from contact with the said wheel and provided with means for projecting them at will, to intercept and turn the said wheel a little for one revolution of the crank, to vary the length of the throw while the machine is in motion.

No. 14,647. Improvements on Water Heaters.

(*Perfectionnements aux calorifères.*)

Peter Smith, Detroit, Mich., U. S., 24th April, 1882; for 5 years.

Claim.—An upright furnace with an inclosing water jacket, a conduit leading into the jacket from the outside of a furnace, and a pipe coil arranged within the furnace and having one terminal connected with the water jacket, and the other leading directly to the outside of the furnace, and adapted for connecting with a water conveying pipe.