

bridge *r*, moving upon an oblique axis which if prolonged would cut the axis of the joint bolt *s*; 6th. The switch *t*, and the bridge *u*, constructed with a hinge joint and mounted upon a single stud *v*. The rake head *G*, provided with pendent arm *h*, and roller *I*, combined with and attached directly to the rake beater *H*, 8th. The roller upon the arm holder moving upon an axis perpendicular to the joint bolt *u*, so that said roller will always track smoothly in its path; 9th. The bell crank latch *Y*, combined with the switch *t*; 10th. In combination with the base plate *B*, cam *D*, and revolving carrier *F*, the sleeve journal *E*, cap *e*, and bolt *d'*; 11th. The rake bridge *A*, constructed with a lateral offset *e*, and attached at its front end to the lug *b*, and at its rear end to the arm *T*; 12th. The rake cam *D*, rake carrier *F*, spindle *q'*, base plate *B*, and bridge *A*, all combined for joint operation as described; 13th. The shoe *P*, constructed with the tubular bearing *Q* for the attachment of the drag bar *C*; 14th. The shoe *P* constructed with the outer rim or flange *e*; 15th. In combination with the shoe *P*, and shield *Z*, as described; 16th. In combination with the shoe *P*, the bracket *V*, bolted directly thereto and the divider *W*, bolted only to said bracket; 17th. The *L* shaped clutch lever *J*, combined with the clutch sleeve *a*, and cam faced box *O*; 18th. The seat spring *U*, composed of a single piece of metal in the form and manner set forth, 19th. The rock shaft *L*, combined with the latch lever *R*, and notched segment *f*, at one end and the crank and link *i*, at the other to actuate and control the front end of the drag bar *C*; 20th. The rectangular frame composed of four bars *A*, the rear bar bent upward as at *g*, for the purpose of supporting the pivot of the lifting lever *D*, of the cutting apparatus, 21st. In combination with the main frame *A*, and main axle *F*, the brace *M*, extending from the end of the front cross bar of said frame to the inner end of said axle as set forth.

No. 3610. JAMES W. CUTHBERTSON, Brantford, Ont., 8th July, 1874, for 5 years: "Improvements on scrubbing Mops." (Perfectionnements aux balais à laver.)

*Claim*.—1st. The sleeve *D*, stop and attachment *M*, with holes *N*, in handle, also latch *O*, 2nd. The head *E*, with boss *I*, operated on by screw *G*, and thumb nut *H* at the lower end of sleeve *G*.

No. 3611. ABNER BUREANK and HENRY E. SHAFFER, Rochester, N. Y., U. S., 8th July 1874, for 5 years: "Improvement on Lamps." (Perfectionnement des lampes.)

*Claim*.—1st. The combination with a lamp *A*, and an induction air pipe *D*, of a side tube *E*, which extends around outside the lamp and convey the air in an independent jet from the induction pipe beyond the lamp to a closed chamber beneath the blaze so that said jet does not come in contact with the oil before reaching the blaze; 2nd. The combination with a side tube *E* which extends around the lamp and with a closed chamber beneath the blaze of a nozzle *F*, which fits in a socket in such a manner that the said tube may be connected with or disconnected from the lamp; 3rd. The nozzle *F*, with one or more side openings or spaces *g*, and a supplementary nozzle *A*, when employed in a lamp for the purpose of forcing a current of the outside air with the impelled current to the blaze as described.

No. 3612. JOSEPH HUGHES, Bloomington, Ill., U. S., 8th July, 1874, for 5 years: "Machine for Repairing Boiler Flues." (Machine à réparer les carneaux des chaudières.)

*Claim*.—1st. The combination of the mandrel *O*, with its standards *S*, the die *K*, and hammer *CJ*, constructed to operate as set forth. 2nd. The combination of the hammer *C*, *J*, spring *A*, trip-wheel *F*, and die *K*, 3rd. The mechanism described, as applied to welding boiler flues, as specified.

No. 3613. FRANCIS PATERSON, Kingston, Ont., 8th July, 1874, for 5 years: "Portable Apparatus for Loading and Unloading Vessels." (Appareil portatif pour charger et décharger les vaisseaux.)

*Claim*.—1st. The side *e*, provided with pulleys *q*, *q'*, and eyes *g* and *m*, in combination with boom *k* and guy bar *n*; 2nd. The side *e*, having gaugways *f*, in combination with boom *k*, guy-bar *n*, and pulleys *q*, *q'* and tackle *r*, all working together as set forth.

No. 3614. FRANCIS PATERSON, Kingston, Ont., 8th July, 1874, for 10 years: "Improvements on Steamboats." (Perfectionnements aux bateaux à vapeur.)

A new form of vessel, more particularly adapted to shallow water, such as river navigation, for carrying light weights, such as passengers, express freight and mails.

*Claim*.—1st. The frame work *a*, *b*, disc *c*, band of vessels *f*, all working in combination as set forth; 2nd. The vessel *g*, forming a continuous band of vessels with discs or drums *c*, *d*, actuated by power with or without friction wheels *k*, as set forth.

No. 3615. ROBERT M. CAFFALL, Alton, Eng., 8th July, 1874, for 5 years: "Improvements on Appliances for and Means of Automatically Preventing the Back Rush of Gas from Gas-

ometers, for Purifying the Gas and for Improving the Brilliancy of the Light." (Perfectionnements aux appareils pour empêcher automatiquement le retour soudain du Gaz des gazomètres, purifier le gaz et en améliorer l'éclat de la lumière.)

*Claim*.—An apparatus having an automatic opening and closing device between the exhauster and gasometer or between gasometers of gas works, consisting of the box *A*, containing a sealing or purifying or carburating fluid, lead, *J*, outlet *h*, bonnet *C*, rock lever *G* and counterpoise *H*, arranged to operate as set forth to automatically resist the back pressure of gas and for purifying and enriching the gas, with the provision of a syphon *D* and pipe *E* or other equivalent devices, for regulating the liquid therein and for supply thereto as described.

No. 3616. JACOB SCOTT and ALBERT SCOTT, Richmond, Que., 8th July, 1874, for 5 years: "Improvements on Force Pumps." (Perfectionnements aux pompes foulantes.)

*Claim*.—The cylinder *a*, made in one, with delivery chamber *b*, with bottom *c*, gasket *d*, bolts *f* and *d'*, all working together as set forth.

No. 3617. ROBERT M. CAFFALL and ALFRED THOMAS, London, Eng., 8th July, 1874, for 5 years: "Apparatus for Moveably Sealing Dip-Pipes, in Gas Hydraulic Mains." (Appareil à emboîture mobile des tuyaux d'inclinaison aux barillets à gaz.)

*Claim*.—1st. A moveable extension piece of pipe on or in connection with the bottom end of a dip-pipe in a hydraulic main in gas works which when out of contact with the dip-pipe gives freedom for passage of gas from retorts and which when in contact permits a column or body of liquid to rise up the dip-pipe and form a liquid seal, as set forth; 2nd. The operating moveable dip-pipe extension pieces of hydraulic mains of gas works as described and shown especially the two methods represented in figures 1 and 4 of the drawings.

No. 3618. JOHN S. PERRY and ANDREW DICKEY, Albany, N. Y., U. S., 8th July, 1874, for 5 years: "Improvements on Heating Stoves." (Perfectionnements aux poeles de chauffage.)

*Claim*.—1st. The combination of ascending and descending flues, placed in the rear of a stove, illuminating windows or doors in the draught chamber base section, and the free open space *R*, between the top surface of the grate or fire bed and the base of the fire pot or combustion chamber proper; 2nd. The check draught passage regulated by the register *n*, or its equivalent, whereby a draught circulation may be established from the draught chamber base section into the ascending flue *h* as described; 3rd. The grate frame constructed with legs, supported upon and in combination with a flange or projection upon the side wall of the draught chamber base section.

No. 3619. GEORGE M. HINKLEY, Milwaukee, Wis., U. S., 8th July, 1874, for 15 years: "Improvements on Saw-guides." (Perfectionnement aux guides-scies.)

*Claim*.—1st. A saw-guide having its arms pivoted or hinged in such manner that they may be turned back from the saw as described; 2nd. A saw guide consisting of two arms adjustable in relation to each other, and so connected that they may be adjusted laterally together without changing the distance between them when constructed as described; 3rd. The saw guide consisting of the arm *A*, having the groove *h*, and threaded Shank *a*, the arm *B*, having the Shank *b*, the screw *h*, and the bed-plate *C*, containing the nut *E*, when constructed and arranged as shown; 4th. In combination with the arms *A*, *B*, having the shanks *a*, *b* constructed and arranged as shown, the support *C*, nut *E* and spring *i* arranged as shown; 5th. A saw-guide having two separate arms connected by an adjusting screw *h* as shown.

No. 3620. THOMAS ROBERTSON, Toronto, Ont., 8th July, 1874, for 5 years: "Lozenge Machine." (Machine à losange.)

*Claim*.—1st. The printing head or block *K*<sub>2</sub>, with adjustable dies *K*<sub>1</sub>, attached standard *K*<sub>3</sub>, working in guides *K*<sub>4</sub>, in the frame *A*, girder *K*<sub>4</sub>, in combination with the hinged lever, *K*<sub>3</sub>, and connections, arranged and operating as described; 2nd. The bevel gear *K*<sub>8</sub> operated by the handle *K*<sub>5</sub>, and toothed wheels *K*<sub>3</sub>, in combination with the toothed rack *K*<sub>4</sub> sunk in the lower face of cutting boards *L*, arranged and operating as described; 3rd. The spring haul *K*<sub>7</sub>, operated by the lifting lever *K*<sub>2</sub>, in combination with the stop holes *K*<sub>3</sub> sunk at intervals in the lower side of the cutting boards *L*, arranged and operating as described; 4th. The driving shaft *B*, driving pulley *B*<sub>1</sub>, fly wheel *B*<sub>2</sub>, toothed wheels *B*<sub>3</sub>, and *B*<sub>4</sub>, shaft *C*, and wheels *D* with eccentric channels *d*, sunk in their faces in combination with the friction rollers *d*, standards