

as a basis or principle in any composition of other sizing ingredients in and for sizing paper stock materials or paper-pulps, to make pulp sized papers, and for sizing any other article that has required or may require degree of a poreless gum-size or of a water-proof character imparted thereto or therein; 3rd. The process of sizing paper stock materials and paper-pulps to make pulp sized papers when chloride of lime or its equivalent, shall compose a constituent part of the composition or mass of other sizing ingredients or materials; 4th. Chloride of lime as a sizing ingredient in combination with resins, soaps, starches oils, tallow, and alams separately or collectively.

No. 1873. GEORGE W. OTIS, LYNN, Mass., U. S., 10th December, 1872, for 5 years: "A Lightning Rod." (Un paratonnerre.)

This invention relates to a method of making lightning rods continuous, of giving them greater surface with more angles of imparting rigidity with a limited quantity of metal and of coupling with them points or branches.

Claim.—The described lightning-rod, consisting of a continuous drawn copper-wire, with feathers or wings disposed around a central core twisted as described and coupled to its points and branches all arranged as a lightning rod.

No. 1874. JOHN S. WHITE, Portland, Me., U. S., 10th December, 1872, for 5 years: "A Brush." (Une brosse.)

Consists in the mode of attaching the filaments or bristles to the head of the brush and in binding the whole brush securely with rigid bands.

Claim.—1st. The novel combination of the head *a*, cement *b*, outer ring *c*, inner ring *f*, and bristles or filaments *e*. 2nd. The outer-ring or band *c*, and inner-ring or band *f*, in combination with the cement *b*, and bristles or filaments *e*.

No. 1875. JAMES H. McRAE, Wolfe Island, Ont., Assignee of Albert S. Shears, St. Louis, Mich., U. S., 11th December, 1872, for 5 years: "An Iron Sled Knee." (Un genou de traîneau en fer.)

Claim.—In securing the knee to the runner by the bolts *c, c*, with screws and square heads, and the bolt or bar *D*, instead of mortising the knee into the runner.

No. 1876. GEORGE HY. PIERCE, Richmond, & GEORGE O. DOAK, Coaticooke, Que., 11th December, 1872, for 5 years: "A Corn Broom with Detachable Handle." (Balais de maïs à manche mobile.)

Claim.—1st. The tapering socket with the tongue fig. 1; 2nd. The pin *a*; 3rd. The handle, fig. 2, tapering at the end with the slot *C*.

No. 1877. ISAAC SHUPE, Newmarket, Ont., Assignee of Welcome J. Burdick, Alfred, N. Y., U. S., 11th December, 1872, for 10 years: "A Rotary Harrow." (Une herse rotatoire.)

Relates to the construction of the hub holding the radial arms to the application of an adjustable weight to a reversible arm carried by a revolving wheel which travels on the circular track of the harrow, and to the application of a secondary roller under the draw-beam.

Claim.—1st. The construction of the hub formed of two parts *A*, and *B*, the former cast with a raised central portion *P*, and tube *D*, which passes through a central hole in the latter, and is held unitedly by the bolts *c*, passing through the radial arms *E*. 2nd. The adjustable weight *M* when applied to the reversible arm *L*, carried by the wheel *O*; 3rd. The application of the roller *L*, to the beam *F*, in combination with the roller *H*.

No. 1878. PASCAL P. PRATT, Assignee of Robt. Oliver, Buffalo, N. Y., U. S., 11th December, 1872, for 5 years: "A Pattern for Gear Wheels." (Moule pour la fonte des roues d'engrenage.)

Consists in the longitudinal curvature of the teeth of the wheel, the upper and lower edges of which form circular arcs of equal radius having their centres in the same straight line.

Claim.—1st. A pattern for a curved toothed wheel composed of the cylindrical body *A*, heads *B*, and detachable teeth *c*; 2nd. The process of forming the detachable curved teeth *C* from a hollow cylinder *E*, turned to fit the cylindrical body *A*, whereby the required close and accurate fit of the same upon the cylindrical body is ensured. 3rd. The process of constructing the detachable curved teeth *c*, with tenons, by inserting blocks in the mortises *b*, and gluing them to the ends of the cylinder *E*, and afterwards dividing the latter and forming the teeth.

No. 1879. PETER TATRO, JR., Hartford, Conn., U. S., 11th December, 1872, for 5 years: "Process of Treating Petroleum." (Mode de traitement du pétrole.)

Claim.—The process of applying the ingredients, viz: sulphuric acid and dry slacked lime or chloride of lime in about the proportions specified to crude petroleum or its distillate.

No. 1880. JAMES H. OLIVER, Baltimore, Md., U. S., 11th December, 1872, for 5 years: "A Shoe Peg." (Cheville de chaussure.)

Claim.—1st. A wooden shoe-peg, the structure of which is saturated with shoe-maker's wax, or similar adhesive material; 2nd. A wooden shoe-peg, the surface of which is coated with shoe-makers' wax or similar adhesive substance; 3rd. A wooden shoe-peg, having its structure saturated, and its surface coated with shoe-makers wax or similar adhesive material.

No. 1881. ELIZA D. MURFEY, New York, U. S., 11th December, 1872, for 5 years: "Piston Packing." (Garniture de piston.)

Claim.—1st. A packing consisting of a body of impregnated fibre, strands or layers and one or more tubes of rubber; 2nd. The combination in said packing, of tubes or wrappers of felt or its equivalent enclosing the rubber; 3rd. The combination of the strands *a*, each enclosed in a wrapper, and bound or twisted together and enclosed in an impregnated covering *b*; 4th. A packing consisting of the core *A*, rubber *C*, body *B*, and outer covering *a*; 5th. The combination with the tube *c*, (or with the core) of the body *B*, consisting of inner longitudinal or spiral strands and outer strands wrapped round the inner strands and enclosed by a covering.

No. 1882. ANGUS CAMPBELL, Brockville, Ont., 11th December, 1872, for 5 years: "A Towel Hanger." (Un porte-serviette.)

Claim.—The frame *A*, the brackets *B*, roller *C*, and spiral-spring bolt *D*, in combination as described, the whole forming a towel-hanger, in which a wooden-roller *C*, with metal end caps is suspended in cast metal brackets *B*, by spiral spring-bolts, the roller revolving freely on the bolts *D*, and being easily detached from the brackets by withdrawing one of the spring-bolts, the brackets *B*, being fastened to a wooden frame *A*, which frame may be conveniently suspended against a wall by screw-rings *a*.

No. 1883. LEWIS CASS PATTEE & CHESTER M. FAIRBANKS, Lebanon, N. H., U. S., 11th December, 1872, for 10 years: "Improvement in Circular Saw Mills." (Moulins à scies circulaires.)

Claim.—1st. The friction driving-pulley *A*¹, and moveable rail *A*², acting through proper mechanism in combination with the carriage *E*, and set-beams *G*, for automatically feeding the log to and from the saw; 2nd. The combination with the frictional rail *A*³, wheel *A*⁴, carriage *E* and set beam *G*, or equivalents thereof of the gauge-roller *H*¹, for arresting the movement of the log as it is fed to the saw to determine the thickness of material to be cut; 3rd. A circular saw-mill, the combination of the following elements, namely a reciprocating carriage to carry the log backwards and forwards, a frictional mechanism to move the log to and from the saw and a gauge-roller to determine the thickness of material to be cut by the saw, all acting in cooperation with each other and a saw; 4th. The hinged gauge-roller *H*², operated by a screw *E*², and having combined therewith a lip or flange *J*², upon the frame *K*², to prevent any lateral movement of the roller *H*²; 5th. The combination with the lever *m*, and gear *L*, of the double pawl *R*, rod *S*, stirrup *v*, lever *P*, cam *O*, and rod *n*, or their equivalents; 6th. The combination with the cam *O*, and lever *P*, of the slotted bearing *Q*; 7th. The combination of the lever *P*, pawl *R*, pivoted to the lever *m*, and provided with tooth *r*, with the width of the thickness of the wheel *L*, and tooth *r*, wider and projecting over the cam plate *a*³; 8th. The combination with the gear *L*, and pawl *R*, of the mechanism for disengaging the pawl *R*, from the wheel consisting of the link *f*³, segment lever *p*³, and the rod *S*, and the lever operating mechanism; 9th. The combination with the friction-rail *A*³, of the pawl *V*, and friction-roller *v*; 10th. The combination with a setting mechanism of a revolving index-drum *I*; 11th. The revolving index drum operated by a tape *C*, cord *e*, and spring *c*¹ or their equivalents.

No. 1884. MARY G. BRIGGS, wife of Evans E. Briggs, St. John, N. B., 13th December, 1872, for 5 years: "Bed and Seat Spring Bottom." (Fond de lit et de siège à ressort.)

A series of removable flat semi-elliptical springs, having S shaped ends entering box staples, secured to the frame by pins.

Claim.—1st. The springs *C*, constructed and arranged as set forth, in combination with frame *A*, 2nd. The pins *D*, and staples *B*, in combination with the springs *C*, and frame *A*.