

inlet port, suitable channels or ducts openings near the inlet port and at the ends of the cylinder, and provided with suitable exhaust ports, with a piston having an annular recess at or near its middle, as and for the purpose shown and set forth. 5th. The combination of a cylinder having an inlet port at or near its middle formed into a recess at the inner side of the cylinder, having channels or grooves separated from the inlet recess by shoulders or bridges, and said channels or grooves extending to the ends of the cylinder and having suitable exhaust ports in its sides, with a piston having an annular recess at or near its middle, as and for the purpose shown and set forth. 6th. The combination of a cylinder having an inlet port at or near its middle, formed into a recess at the inner side of the cylinder having channels or grooves separated from the inlet recess by shoulders or bridges, said channels or grooves extending to the ends of the cylinder and increasing in dimensions towards the ends and having suitable exhaust ports in its side, with a piston having an annular recess at or near its middle, as and for the purposes shown and set forth. 7th. The combination of a cylinder having an inlet port at or near its middle formed into a recess at the inner side of the cylinder, having a channel or groove separated from the inlet recess by a shoulder or bridge, said channel or grooves increasing in dimensions towards the forward end of the cylinder, extending towards the said end and being of smaller dimensions and capacity than the rearwardly extending groove and having suitable exhaust ports, with a piston having an annular recess at or near its middle, as and for the purpose shown and set forth. 8th. The combination, in a rock drill, of the cylinder having the open wedge-shaped recesses arranged longitudinally diametrically opposite to one another, and the recessed piston balanced in the cylinder between said recesses and having expansible packing rings, whereby a steam-tight joint is formed between the heads and the piston and the solid inside part of the cylinder, substantially as set forth. 9th. The combination, in a rock-drill, of the cylinder having on two of its sides the open recesses arranged longitudinally and facing one another, and on its other two sides the exhaust port and the narrow longitudinal channels arranged opposite to the same, and the recessed piston having expansible packing rings at each end of its solid heads on opposite sides of the recesses, substantially as and for the purpose shown and set forth. 10th. In a rock-drill, a cylinder constructed with an interiorly recessed inlet part on one side, two flaring recesses arranged longitudinally on opposite sides of the central recess, two corresponding flaring recesses on the diametrically opposite side of the cylinder, the longitudinal steam grooves or channels cut in the inside of the cylinder, in a plane at right angles to a plane laid longitudinally through the middle of the diametrically opposite flaring recesses, and the exhaust ports located diametrically opposite to said narrow steam grooves or channels, substantially as and for the purpose shown and set forth. 11th. The combination of the recessed drill-head, the divided bushing inserted into the recess and having means, substantially as described, for holding it therein, the locking pieces inserted through slots in the recessed head and bearing with their inner sides against the sides of the divided bushing, the collar having the slot *c* and screw-threaded boss *U*, the wedge-shaped key inserted through the slot in the collar and the two binding screws, the whole constructed and combined to operate substantially as and for the purpose herein shown and set forth.

No. 20,890. Roller Skate. (*Patin à Roulettes*.)

Henry A. Wilbur, West Somerville, and Frank W. Lowe, Boston, Mass., U.S., 16th January, 1885; 5 years.

Claim.—1st. The frame *A* composed of two metal plates having a space between, in combination with a hanger capable of being adjusted lengthwise of the frame, as and for the purpose set forth. 2nd. The adjustable springs *G*, *G*, arranged one on either side of the hangers *E*, in combination with the bearings *F*, substantially as and for the purpose specified.

No. 20,891. Device for Securing in any Desired Position Piano Stools, &c. (*Pied de Banc de Piano, &c.*)

William A. C. Matthie, Montreal, Que., 16th January, 1885; 5 years.

Claim.—A sleeve *C* formed to receive the spindle *B*, having annular grooves *a* cut in it, in combination with a dog *D* pivoted in a recess cut in said sleeve, and having a projection *d*, and spring *E* acting against the tail *b* formed in the said dog, and which tail is provided with a handle *F*, substantially as and for the purpose specified.

No. 20,892. Producing Textile Fabrics. (*Production des Tissus Textiles*.)

Emile Maertens, Oswego Falls, N. Y., U. S., 16th January, 1885; 5 years.

Claim.—1st. The mode, herein described, of making open-work gauze, pile, looped, matelassé, repoussé, sunken, or other fabrics, consisting in weaving the fabric with animal and vegetable fibres, and then eliminating the vegetable fibres from the woven fabric by destroying them, substantially as set forth. 2nd. The mode herein described of making open work, gauze, pile, looped, matelassé, repoussé, sunken, or other fabrics, consisting in, first weaving a fabric of animal and vegetable fibre threads, then setting the threads and then subjecting the fabric to an agent that destroys the vegetable fibres without affecting the animal fibres, substantially as set forth. 3rd. The mode, herein described, of making fabric, consisting in twisting threads of animal fibre together, using the double threads thus produced as warps in weaving the fabric, and then subjecting the fabric to an agent that destroys the vegetable fibre threads without affecting the animal fibre threads, substantially as set forth. 4th. The mode, herein described, of making fabrics, consisting in weaving it of animal fibre threads and vegetable fibre threads, part of the latter being treated with sulphuric acid, hydrochloric acid, or an analogous chemical agent before being woven, and then subjecting the woven fabric to heat after the fabric has been steamed or moistened, whereby the chemically treated vegetable fibre threads are destroyed and eliminated from the fabric, the vegetable threads not treated remaining in the fabric, substantially as set forth. 5th. The mode,

herein described, of making pile fabrics, consisting in weaving loops of animal fibre threads over vegetable fibre threads, which latter are then carbonized or otherwise destroyed and eliminated from the fabrics, whereby loops or bridges are formed of animal thread, which may, if desired, be sheared off or cut, substantially as set forth. 6th. The herein-described method of producing fancy fabrics, consisting in weaving the fabric of animal and vegetable fibre threads, then applying a destructive agent that will destroy the vegetable fibre threads upon the fabric, according to some design in the different ways set forth in the specification, and then subjecting the fabric to heat, substantially as set forth. 7th. The herein-described method of producing fancy fabrics, consisting in weaving fabrics of mixed animal and vegetable fibre threads, then treating certain parts of the fabric according to the design to be produced with chemicals, whereby some of the vegetable fibre threads are eliminated, and then washing and finishing and drying the fabric in the usual manner, substantially as herein shown and described. 8th. The herein-described method of producing fancy fabrics, consisting in weaving fabrics of mixed animal and vegetable fibre threads, then treating certain parts of the fabric according to the design to be produced with chemicals, whereby some of the vegetable fibre threads are eliminated, and then finishing and drying the animal and vegetable components of the fabric in different colors, substantially as herein set forth and described.

No. 20,893. Butter Tub. (*Tinette*.)

James McAdam, Postville, Iowa, U.S., 16th January, 1885; 5 years.

Claim.—1st. In a butter tub, the combination, with a pail or tub provided with the metal tongues *L*, of the cover *H* having its free edges bent inwardly and downwardly and provided with the slots *K*, substantially as herein shown and described. 2nd. In a butter tub, the combination, with the sheet metal pail *A* provided with the paper covering *C* and the tongues *L*, of the cover *H* provided with the paper covering *I* and the upwardly projecting flange *J*, having its free edge bent outwardly and downwardly, and provided with the slots *K* in the said edge, substantially as herein shown and described. 3rd. The combination, with the metal tub or pail *A*, of the paper covering *C*, the strips *E*, the ears *F* and the bail *G*, substantially as herein shown and described. 4th. The combination, with the tub or pail, of a wooden cover *M* provided with a flange *N* on its rim, and of the tongues *L* secured to the pail and adapted to be bent over and secured on the wooden cover, substantially as herein shown and described.

No. 20,894. Odometer. (*Odomètre*.)

James Gillespie, West Point, Ohio, U.S., 16th January, 1885; 5 years.

Claim.—1st. In an odometer, the combination of the saddle base *b* adapted to be clipped to the axle, having the screw shaft *p*, and provided with the pronged wheel *t*, with the cylindrical case *a* having the counting mechanism, pointers and dials arranged in it, said counting mechanism being geared with the screw shaft, as shown and described. 2nd. The combination, with a vehicle axle, of a wheel having stud *j* on its hub *k*, a shaft *q* carrying a worm *h* and six pronged wheel *i*, the unit wheel carrying a cam stud *r*, the shaft *m* carrying the pointer *n*, the ratchet and pawl *p*, *q*, the hammer *u*, the bell *v* and the spring *w*, whereby the desired distance will be simultaneously registered and announced, as described. 3rd. The combination, in a counting mechanism for odometers, of the unit wheel *i* tripping and driving stud *q* and an adding wheel *x*, said wheel having notches *h* and a holding pawl *h*, having an arm *h* for being lifted by the stud *q*, and a spring *l* to return the pawl into the notches of said wheel, substantially as described. 4th. The combination, with the pointer shaft *m*, carrying disk *g*, the sleeves *h*, carrying pointers *e*, *z*, the wheels *at* *q*, of which the latter has stud pin *h* and the coil spring *et*, as and for the purpose set forth. 5th. The combination with the wheels *at*, *x*, having the side cavities *h* and the spring pawls *h*, of the disk *g* having stud pin *q*, the wheel *x* being also provided with a stud pin *h*, as and for the purposes specified.

No. 20,895. Process and Apparatus for Treating Metalliferous Ores. (*Procédé et Appareil de Traitement des Minerais Metallifères*.)

Cummings Cherry, Sr., Chicago, Ill., U. S., 19th January, 1885; 5 years.

Claim.—1st. The process, herein described, of treating metal bearing ores, said process consisting in comminuting said ore, mingling the same with calcium or sodium chloride, roasting the mixture in a retort in the absence of atmospheric air, then introducing super-heated steam, to the retort, muffle, or oven, and finally, after shutting off the steam, forcing super-heated air into the retort, both the steam and the air being forced in under pressure, and the temperature in the retort being maintained, substantially in the manner and for the purpose set forth. 2nd. In the treatment of metal bearing ores, the process, herein set forth, consisting in comminuting or pulverizing the ore, mingling it with calcium or sodium-chloride, and roasting the mixture in the absence of atmospheric air, substantially as and for the purpose set forth. 3rd. In the treatment of metal bearing ores, the process, herein set forth, consisting in comminuting said ores, mingling the same with calcium or sodium-chloride, roasting the mixture in the absence of atmospheric air, and subsequently introducing super-heated steam into the retort, substantially as and for the purpose set forth. 4th. In the treatment of metal bearing ores, the process, hereinbefore described, consisting in comminuting or pulverizing said ores, and roasting in a retort, muffle, or oven, in the absence of atmospheric air, and subsequently introducing super-heated steam into the retort, substantially as and for the purpose set forth. 5th. In the treatment of metalliferous ores, the process, herein described, consisting in comminuting said ores, roasting the same in a suitable retort, muffle, or oven, subsequently introducing super-heated steam into the retort, and finally forcing super-heated air therein, both the steam and the air being driven in under pressure, substantially in the manner and for the purposes set forth. 6th. The combination of the vertical air-tight retorts with their escape