side elevated so as to leave an air space between the two wads, as and for the purpose set forth. 2nd. In wads for shot-guns, a dish-shaped lower wad covering the powder charge, having a concave under surface next the latter, an inclined or rounded upper surface, a wad having a flat surface resting upon the latter and having its upper side concaved to form a bed for the shot, substantially as and for the purpose hereinbefore set forth. 3rd. In a shot gun charge for either a cartridge shell or for the gun without the latter, the combined wads between the powder and shot, consisting of a conic frustrum-shaped wad, concave on the under side next the powder, and a wad of plano-concave form resting on said conic frustrum-shaped wad, and having its plane surface next the latter, and its concave surface next the shot, substantially as and for the purpose set forth. 4th. In a powder charge, either fixed or loose, the combination, with a concavo-convex wad, of a wad having a plane surface adapted to abut against or lie upon the convex side of said concavo-convex wad, the concave side of the latter being adapted to cover said powder charge, whereby the deposit of burned powder may be carried out of the bore of the gun, substantially as set forth. 5th. In shot gun-wads, the two wads between the powder and shot, the lower wad being concave on its under side or surface, and having its upper side elevated at the centre, and the upper wad being either flat or convex on its under surface, and concave on its upper surface, as set forth. 6th. In a cartridge for shot guns, the two wads interposed between the powder and shot, said wads being formed so as to have an air-space between them when lying in contact, substantially as and for the purpose set forth.

No. 36,019. Sewing Machine.

(*Machine à coudre*)

Ernest Charles Lea, Silverdale, Kingston-on-Thames, Surry, England, 20th February, 1891; 5 years.

Claim.—1st. The combination of the convex vertical piece of steel *m*, *m*, fixed in a tube or box *l*, herein named the plunger, to slide up or down or to revolve in the cylinder *k*, by the blow from the needle-point, substantially as herein described and according to figures 1, 2, 3 and 4. 2nd. The combination of the spring *j*, or j^1, and the cam *o*, on the socket *r*, and the shuttle-carrier and arm fixed to the socket and the pivot *s*, substantially as herein described and according to figures 1 and 2. 3rd. The combination of the mechanism geared to be worked by the point of a needle placed vertical, horizontal, or in any other position, substantially as herein described. 4th. The mouth of the convex vertical portion, of the plunger *l* to revolve in the cylinder *k*, for the purpose to prevent the needle point from being injured or otherwise damaged when delivering the blow, substantially as herein described and according to the accompanying drawings. 5th. The combination of pieces of steel *m*, fitted in the plunger *l* and the spring l^2 and *p* plunger l^1, substantially as herein described and according to figure 5.

No. 36,020. Water Conductor for Turbines.

(*Conduit d'eau pour turbines.*)

John Graham, Minneapolis, Minnesota, U.S.A., 20th February, 1891; 5 years.

Claim.—The combination, with a vertical pipe, having a long and a short leg, a water inlet pipe J, connected with said long leg between its ends, and a valved vent I in the middle of said vertical pipe, at its top, of a horizontal valve G, under the open end of the short leg of said vertical pipe, vertical parallel screw rods H, mounted in bearings on the sides of said short leg and carrying a valve G, pinions H^1 on the threaded portions of said rods, parallel transverse shafts H^4, having worms H^2, meshing with the pinions H^1, bevel gears H^5 on said shafts, an operating shaft H^7, having bevel gears H^6, meshing with the gears H^5, a gate K at the lower or discharge end of the long leg of the vertical pipe, and a turbine F, into which said long leg discharges, substantially as shown and described for the purpose set forth.

No. 36,021. Folding Wooden Boat.

(*Canot de bois pliant.*)

George W. Schermerhorn, Philadelphia, Pennsylvania, U.S.A., 20th February, 1891; 5 years.

Claim.—1st. The combination in a folding boat, of two flexible boards, the two corresponding lower edges of which are cut to a curve and secured by hinges, a water-proof covering and a prop for distention, the whole adapted to form a sharp bottomed boat when distended, substantially as described. 2nd. The combination in a folding boat, of a bottom formed of two flexible boards, the corresponding edges of which are similarly curved, and the lower curved edges of which are secured together by suitable hinges, the sides formed of flexible boards, the lower edges of which are curved similarly with and hinged to the upper edges of the bottom boards and the flexible water-proof covering, the whole adapted, when distended, to form a double-ended dead rise boat. 3rd. The combination, with a flexible boat, of an out-rigger formed of the parts I and J, extending across the boat, and the fore and aft parts G and H, said parts I and J being attached to the boat by the loops L and pins K, and said fore and aft parts being secured to said parts I and J by mortises and pins *k*, substantially as shown and described.

No. 36,022. Safety Device for Incline Cars.

(*Appareil de sûreté pour chars.*)

William Peach, Allegheny, Pennsylvania, U.S.A., 20th February, 1891; 5 years.

Claim.—The herein described safety attachment for incline cars, consisting of the draw-head *b*, capable of moving a limited distance in the direction of its length, and actuated by a suitable spring *i* and bar *j*, hinged to the frame of the car and provided with downwardly-projecting hooks *m*, adapted to engage with the cross-ties of the track, and a catch *l* arranged beneath the draw-head *b*, in a manner that when the strain is removed from the said draw-head, the hooked bars will drop and engage with the ties of the track, substantially as set forth.

No. 36,023. Slate Cleaner, Pencil Holder and Pencil Sharpener. (*Eponge pour ardoises porte et taille crayon.*)

John Draper, Whitby, Ontario, 28th February, 1891; 5 years.

Claim.—1st. A slate-cleaner, consisting of a bottle A, provided with a plug B, having a small opening in it protected by the spring cap C, one or more wings D, designed to hold a sponge, substantially as and for the purpose specified. 2nd. A slate cleaner and pencil-sharpener, consisting of a bottle A, provided with a plug B, having a small opening in it protected by the spring cap C, one or more wings D, designed to hold sponges, the pencil-holder G and sharpening plate I attached to the bottle, substantially as and for the purpose specified.

No. 36,024. Hoop Machine.

(*Machine à cercles.*)

Alfred Wadsworth, assignee of John B. Dougherty, Warsaw, New York, U.S.A., 20th February, 1891; 5 years.

Claim.—1st. In a hoop machine, in combination, with a reciprocating cross-head and slides therefor, a non-rotating tilting shaft, provided with a cutter, pivots for said tilting shaft, and guides for the free end of the shaft, substantially as shown and described. 2nd. In a hoop machine, in combination, with a moving cross-head and slides therefor, a tilting shaft held in bearings on said cross-head, a cutter held by the shaft, a cam to tilt the shaft and actuators for the cam, substantially as described. 3rd. The reciprocating head of a hoop machine and slides therefor, in combination with a shaft held by the head, a vertical cutter for the shaft, a horizontal cutter and a holder for the same secured adjustably to the head, substantially as and for the purpose set forth.

No. 36,025. Hoop Machine.

(*Machine à cercles.*)

Alfred Wadsworth, assignee of John B. Dougherty, Warsaw, New York, U.S.A., 20th February, 1891; 5 years.

Claim.—1st. A machine for cutting hoops, provided with a sliding head, holding a series of rolling cutters mounted on shafts, a part of said shafts being horizontal, and a part inclined to a horizontal, the horizontal shafts and inclined shafts being alternated, substantially as shown. 2nd. A machine for cutting hoop, having a sliding head carrying a series of rolling cutters, the shafts of a part of the cutters being horizontal, and the remainder of the shafts being inclined, the horizontal shafts and inclined shafts being alternated, and adjusting screws for said shafts, substantially as shown and described. 3rd. A hoop machine, having a sliding-head, holding a series of rolling cutters, in combination with a rigid blade or knife held by said sliding-head, the plane of the edge of said knife being tangant to the peripheries of the rolling cutters, substantially as and for the purpose set forth. 4th. A hoop machine, having a sliding head provided with cutters, in combination with a cam on said sliding head, a lever *t* moved by said cam, a carriage having toothed racks, a lifting shaft and pinion for said racks, a pawl carrier and pawl and ratchet on said lifting shaft. 5th. In a hoop machine, a sliding head having a series of rolling cutters, and a rigid blade secured to the sliding head, in combination with a guard roller held by the sliding head, having its axis parallel with the plane of the blade, substantially as shown and for the purpose set forth.

No. 36,026. Register for Cars.

(*Registre pour chars.*)

Hiram Collins Mapes, Gorham, New York, U.S.A., 21st February, 1891; 5 years.

Claim.—The combination, with the roller b^2, means for rotating the said rollers, and the gong, of the tappet wheel having its arms curving outward and provided with short cross-bars, which curve in their circumferential length, the tappet I, and the hammer I^1, substantially as set forth.

No. 36,027. Turbine Wheel. (*Turbine.*)

John Charles Lansing, Shelbourne, Ontario, Canada, 21st February, 1891, 5 years.

Claim.—1st. A turbine, having a wheel contained within the casing, provided with a series of buckets, each bucket of which extends from inside to outside, back from the radial line, passing through the inner end of the bucket in the direction in which the wheel revolves, the top, however, being flared in the opposite direction, substantially as specified. 2nd. A turbine, having a wheel contained within the casing, provided with a series of buckets, each bucket of which extends from inside to outside, back from the radial line, passing through the inner end of the bucket in the direction in which the wheel revolves, the top, however, being flared in the opposite direction, and the bucket being also constructed lengthwise with the upper portion, curved downwardly and outwardly, so as to recede in the same direction in which the wheel revolves, and the lower portion continuing the curve in the opposite direction, the cross-section of the bucket at the top being slightly concaved, and the concave and width gradually increased from top to bottom, substantially as and for the purpose specified. 3rd. A turbine, having