

10th. The combination with electric apparatus K, counter C, differential gear i, j, k , and elastic extensible belting, of a friction disc D and a traversing friction-piece d , the displacement of which friction-piece from the centre of the disc is controlled by the electric current to be measured. 11th. In dynamical integrating apparatus, the combination of a traversing friction-piece and a friction disc, driven by an elastic extensible belting, with differential gear and a counter, substantially as described, with reference to Fig. 15a of the drawings. 12th. The combination, with a counter C, and pair of fluid motors M, M' adapted to be driven at different velocities, of pulleys, differential gear, and elastic extensible belting, arranged in the manner and for the purpose described, with reference to Figs. 16 and 17 of the drawings. 13th. The adaptation to the meterage of water of my dynamical integrating apparatus in the manner described, with reference to Figs. 18 and 19 of the drawings. 14th. The combination, with integrating apparatus, constructed as described, and fitted with a friction disc D, and friction-piece d , of means for driving the pulley B, of the apparatus from a motor worked or controlled by the fluid in passing, and a valve or its equivalent arranged to displace the said friction-piece, and at the same time to vary the size of the outlet and regulate and control the flow of the fluid, substantially as and for the purpose set forth. 15th. The means, hereinbefore described, with reference to the drawings, for effecting and controlling, for the various purposes of my invention, the velocity of a shaft or pulley driven directly or indirectly through contact with an elastic extensible driving belt, which control is of the nature of retardation, and is effected by causing the said shaft or pulley to do work, (a) in overcoming the resistance of a traversing friction-piece kept pressed against the surface of a revolving disc or cone driven by or from the said shaft or pulley, (b) in overcoming the resistance to motion experienced when an electrical conductor is moved to or from an electric current or its equivalent, as when the said shaft or pulley drives a dynamo, or causes a metallic disc to revolve between the poles of a magnet, (c) in overcoming a resistance introduced by fluid friction, as when the said shaft or pulley drives vanes or their equivalent immersed in a fluid.

No. 22,175. Roller Skate. (*Patin à Roulettes.*)

John Lovett, Indianapolis, Ind., U.S., 1st August, 1885; years.

Claim.—1st. The combination, with the hanger and roller-frame, of a roller skate, of an elastic plate for securing the roller-frame and hanger together, substantially as described. 2nd. The combination, with the roller frame and hanger of a roller skate, of an elastic plate for securing said parts together, and a tension regulator for said plate, substantially as described. 3rd. The combination, with the roller-frame and hanger of a roller skate, of an elastic plate for securing said parts together, and an elastic cushion or spring for cushioning the lateral play of said parts, substantially as described. 4th. The combination, with the roller-frame and hanger of a roller skate, of an elastic plate for securing said parts together, an elastic cushion or spring to cushion the play of said parts, and a compressor to regulate the resistance of said cushion, substantially as described. 5th. The combination, with the roller-frame and hanger of a roller-skate, of an elastic plate for securing said parts together, a tension regulator for said plate, an elastic cushion or spring for cushioning the said parts, and a compressor for regulating the resistance of said cushion, substantially as described. 6th. The combination of the roller-frame and hanger of a roller skate, of a corrugated plate to secure said parts together, substantially as described. 7th. The combination, with the roller-frame and hanger of a roller skate, of an elastic plate to secure said parts together, and an adjusting screw engaged with said plate to regulate its tension, substantially as described. 8th. The combination, with the roller-frame and hanger of a roller skate, of an elastic plate for securing said parts together, an elastic cushion or spring to cushion said parts and a screw to regulate the resistance of the cushion, substantially as described. 9th. The combination, with the hanger having the slot in its top, of the roller-frame formed with a finger or stud projecting through said slot to limit the play of one part on the other, substantially as described. 10th. The roller-frame for a roller skate framed with a lubricant chamber extending from the upper portion to the axle box and adapted to hold a plastic lubricant, substantially as described. 11th. The roller-frame for a roller skate, provided with lugs on its lower end, substantially as and for the purpose described. 12th. The roller-frame for a roller skate, having an axle box at its lower end, and provided with a substantially vertical lubricant chamber, adapted to hold a plastic lubricant and to feed the same automatically as required, substantially as described. 13th. The roller-frame for a roller skate formed with journal pins at its upper end, and lugs at its lower end, and having a lubricant chamber extending from its upper portion to the axle box, substantially as described. 14th. The hanger for a roller skate, having the central recess and slot and journal bearings, and the interiorly threaded heel at one end and interiorly threaded lip or extension at the other end, substantially as described. 15th. The corrugated elastic plate for securing the bracket and hanger of a roller skate together, substantially as described. 16th. The combination with the clamping jaws of a skate, of a plate having said jaws secured thereto, and adapted to be secured to the foot piece of a skate, substantially as described. 17th. A wooden roller for skates, composed of a series of wedge-shaped sections, bearing with their inner ends on the hub or box, and cut in such a manner that the grain of the wood runs lengthwise of the sections, and secured together by metallic plates or rings applied to the sides of the roller, and bolts or rivets passing through said plates or rings and said sections, substantially as set forth. 18th. The combination of a frame provided with a hub, having recesses or sockets x, y , of an axle or shaft extending through the socket y , and a flanged box fitting each socket X, and friction rollers arranged within the box to bear upon the axle and upon the inner face of the flange, substantially as described. 19th. The combination, with a revolving axle, of a box perforated for the passage of the axle and adapted to a socket in the part supporting the axle, and provided with an annular

flange and friction rollers arranged within said flange to afford bearings for the axle, substantially as described. 20th. The combination, with the roller frame having a recess or socket y , of a transverse axle supporting the rollers and provided with a peripheral groove e , and a retaining pin or key h , substantially as et forth. 21st. The combination of the frame, revolving axle provided with a peripheral groove adapted to a retaining device h , and boxes recessed for the passage of the axle and inclosing anti-friction rollers, substantially as described.

No. 22,176. Hose. (*Tuyau Elastique.*)

James Jones, Dublin, Ireland, 1st August, 1885; 5 years.

Claim.—1st. Hose or tubing formed of fabric treated with oils to render it air and liquid proof, and placed around a spiral wire core, substantially as herein shown and described. 2nd. Hose or tubing formed of fabric treated with oils to render it air and liquid proof, and wound on a spiral wire core, the fabric being held on the core by cords, wires or cables wound spirally on the covering, substantially as herein shown and described. 3rd. The combination, with the spiral wire core A, of the fabric covering B, treated with oils to render it air and liquid proof, and wound on the core, the wire C, wound on the fabric B, and wire C, and the binding wires E, wound around the fabric D, substantially as herein shown and described. 4th. Hose or tubing made of fabric treated with oils to render it air and liquid proof, substantially as herein shown and described.

No. 22,177. Oscillating Engine.

(*Machine à Cylindre Oscillant.*)

Albert Cunningham, Milwaukee, Wis., U.S., 1st August, 1885; 5 years.

Claim.—1st. The combination, in an oscillating engine, of the trunnion C, having bearing faces on two diametrically opposite sides, one of which is closed, and the other provided with ports communicating through said trunnion with supply and exhaust ports or connections, cylinder A having a transverse bore to receive said trunnion C upon which it is mounted and oscillates, and passages c and f communicating with opposite ends of said cylinder and registering with the ports in said trunnion, substantially as and for the purposes set forth. 2nd. The combination, in an oscillating engine, of the cylinder A, having a transverse bore to receive the trunnion C, upon which it is supported and oscillates, trunnion C having passages leading from its end or ends and opening at one side thereof, so as to register with ports or passages communicating with opposite ends of cylinder, and a yielding box or block bearing against said trunnion upon the opposite side opposite the openings of said passages therein, substantially as and for the purposes set forth. 3rd. The combination, in an oscillating engine, of the trunnion C having bearing faces on two diametrically opposite sides, one of which is closed and the other provided with ports communicating through said trunnion with the valve chamber M, cylinder A having a transverse bore to receive said trunnion C, upon which it is mounted and oscillates, passages c and f , communicating with the opposite ends of said cylinder and registering with the ports in said trunnion and valve N, substantially as and for the purposes set forth. 4th. The combination, in an oscillating engine, of the cylinder A, mounted upon trunnion C and provided with passages c and f , communicating with the lower and upper ends of said cylinder respectively, passage g , connecting passage f with a cavity u, u below the trunnion and the segmental box L, substantially as and for the purpose set forth. 5th. The combination, in an oscillating engine, of cylinder A, trunnion C, upon which it is mounted and vibrates, passages c and f leading from opposite ends of said cylinder to the face of the trunnion passages, through said trunnion registering with said passages c and f , box L, at the opposite side of said trunnion, and a steam connection with the passage supplying the upper end of said cylinder, whereby the same steam pressure which is introduced to the top of said cylinder, is exerted upon said box L, substantially as and for the purposes set forth. 6th. The combination, in an oscillating engine, of the cylinder A provided with passages c and f communicating with its opposite ends and the trunnion upon which it swings, trunnion C, provided with induction and eduction passages which register with said passages c and f , segmental box L, pressure plate O, diaphragm a, a , steam cavity u, u , and passage g , connecting the same with passage f , substantially as and for the purposes set forth. 7th. The combination, in an oscillating engine, of the cylinder A, having a transverse bore to receive trunnion C, upon which it is mounted and oscillates, trunnion C having passages d and e opening at one side and at the end or ends thereof, passages c and f registering with said passages d and e and communicating with opposite ends of said cylinder A, and a connection between the face of said trunnion opposite to the ports therein and the end of the cylinder in which the pressure tends to separate the valve face of said trunnion from its bearing, whereby the latter are held closely together, substantially as and for the purposes set forth. 8th. The combination, in an oscillating engine, of the cylinder A, having a transverse bore to receive trunnion C upon which it is supported and oscillates, passages c and f leading from said trunnion to the opposite ends of said cylinder, trunnion C having passages d and e opening on one side thereof and registering with said passages c and f , the box or block L bearing against said trunnion upon the opposite side and connections between said block L and the end of said cylinder in which the pressure tends to separate the valve face of said trunnion from the valve face against which it bears, whereby said valve faces are snugly held together, substantially as and for the purposes set forth.

No. 22,178. Horse Shoe. (*Fer à Cheval.*)

William J. Smith, Oxenden, Ont., 3rd August, 1885; 5 years.

Claim.—A calkless horse-shoe having an outer ridge D, sloped inwardly on the exterior and interior, an inner ridge F of lesser height bevelled in opposite directions, and a groove between said ridges perforated with nail holes, as set forth.