liquid, which by boiling carries off the heat of the said part or parts. 2nd. In electric devices of the character described, the method of cooling the part or parts likely to become heated, which consists in immersing the said part or parts in a volatile fluid, which by boiling carries off the heat, substantially as described. 3rd. In electric devices of the character described, the method of cooling the part or parts likely to become heated, which consists in placing in juxtaposition to said part or parts a volatile fluid which by boiling carries off the heat, and in reducing the pressure on said volatile fluid, substantially as and for the purposes described. 4th. In electric devices of the character described, the method of cooling the part or parts likely to become heated, which consists in immersing the said part or parts in a volatile fluid, and in reducing the pressure on said volatile fluid, substantially as and for the purposes described. 5th. A device for cooling transformers comprising a closed vessel, a volatile liquid partly filling said vessel, and a transformer immersed in said volatile liquid, substantially as described. 6th. A device for cooling transformers comprising a closed vessel, a volatile liquid partly filling said vessel, a transformer immersed in said volatile liquid, and a condenser connected at either end to said closed vessel, substantially as described. 7th. A device for cooling transformers comprising a closed vessel, a volatile liquid partly filling said vessel, and a transformer immersed in said volatile liquid, and means for reducing the pressure in said vessel, substantially as and for the purposes described. 8th. A vessel for cooling transformers, comprising a closed vessel, a volatile liquid, partly filling said vessel, a transformer immersed in said volatile liquid, a condenser connected at either end to said closed vessel, and means for reducing the pressure in said vessel, substantially as and for the purposes described.

No. 42,566. Method of Cooling Electrical Conductors.

(*Méthode de refroidir les conducteurs électriques.*)

Henry A. Rowland, Baltimore, Maryland, U.S.A., 12th April, 1893; 6 years.

Claim.—1st. The method of cooling hollow conductors carrying electric currents, which consists in passing a conducting fluid through said conductors, and in breaking the electrical continuity of said fluid after it leaves said conductor. 2nd. The method of cooling hollow conductors carrying electric currents, which consists in passing water through said conductors, and in breaking the electrical continuity of said water after it leaves said conductor. 3rd. The method of cooling hollow conductors carrying electric currents, which consists in passing a conducting fluid through said conductors, and in breaking the electrical continuity of said fluid before it reaches and after it leaves said conductor, substantially as and for the purpose described. 4th. The method of cooling hollow conductors carrying electric currents which consists in passing water through said conductors, and in breaking the electrical continuity of said water before it reaches and after it leaves said conductor, substantially as and for the purposes described. 5th. The combination of a hollow conductor carrying electric currents, a conducting fluid passing therethrough, and means for separating said fluid into parts which are insulated from each other, substantially as and for the purposes described. 6th. The combination of a hollow conductor adapted to carry large electric currents, a conducting fluid passing through said conductor, and means for breaking the electrical continuity of said fluid after it leaves said conductor, substantially as described. 7th. The combination of a hollow conductor adapted to carry large electric currents, a conducting fluid passing through said conductor, and means for breaking the electrical continuity of said fluid before it reaches and after it leaves said conductor, substantially as and for the purposes described. 8th. In a transformer, the combination with the iron core, of a coil mounted on said core composed of a hollow conductor, a conducting fluid passing through said hollow conductor, and means for separating said fluid after it leaves said conductor into parts insulated from each other. 9th. In a transformer, the combination with the iron core, of a coil mounted on said core composed of a hollow conductor, a conducting fluid passing through said hollow conductor, and means for separating said fluid before it reaches and after it leaves said conductor into parts insulated from each other. 10th. In a transformer, the combination of coils consisting of a hollow conductor, and a fluid passing therethrough, substantially as and for the purposes described.

No. 42,567. Valve Gear. (*Garniture de soupape.*)

Charles F. Littlejohn, Bridgeport, Connecticut, U.S.A., 12th April, 1893; 6 years.

Claim.—1st. In a machine of the character described, the combination with the main shaft, of a grooved ring hung thereon, means for changing the plane of rotation of the ring, and a connection, substantially as described, between said ring and the valve, whereby the position of the ring will determine the throw of the valve, substantially as described. 2nd. The combination, with the cylinder and steam chest, having suitable ports, of a rocker valve mounted in the steam chest, a shaft whereon said valve is borne and whereby it is actuated, a grooved ring pivoted on the main shaft, a connection between the valve shaft and the ring, and means, as described, for varying the plane of rotation of said ring, substantially as specified. 3rd. In a machine of the character described, the shaft 13, bearing a hub and a grooved ring hung on gimbals to said hub, in combination with a rock shaft actuated by said grooved ring, a connection between said rock shaft and the valve and means, as described, whereby the plane of rotation of the grooved ring may be controlled and varied. 4th. In a machine of the character described, the shaft 13, the hub mounted thereon, and a ring provided with a peripheral groove and secured to said hub by a gimbal connection, in combination with the rock shaft 16, actuated from the ring, the valve and suitable connection between it and the rock shaft, a sliding hub splined on the shaft 13, and connected to the ring, and an operating lever and means for connecting it with the splined hub, the whole arranged substantially as described.

No. 42,568. Hold Back for Vehicles.

(*Ragot de limonière pour voitures.*)

Edward P. Parker, Archdale, North Carolina, U.S.A., 12th April, 1893; 6 years.

Claim.—1st. In a breeching attachment, a spring actuated cam lever attachable to the breeching and adapted to be forced against the bottom of the thill by the pull upon the breeching, in combination with a fastening strap, substantially as described. 2nd. The herein described breeching attachment, provided with a binding cam lever, and means for fastening it to the thill, substantially as described. 3rd. The herein described breeching attachment, provided with a spring actuated cam lever in combination with a binding strap, substantially as described. 4th. In a breeching attachment, the combination with a loop provided with a spindle, a cam lever fulcrumed on the spindle, said cam lever having a bar to which the breeching strap is attachable, a button on the end of the spindle and a fastening strap adapted to embrace the thill, all arranged and adapted to operate in the manner and for the purpose set forth. 5th. In a hold back, the combination with a spindle, of a spring coiled around said spindle, a cam lever on said spindle actuated by the coil spring and a strap for holding said spindle in place, substantially as described. 6th. In a hold back, the combination with a spindle provided with a button at one end, of a coiled spring surrounding said spindle, a cam lever on said spindle, one end of said spring being attached to the spindle and the other bearing against the cam lever, a strap for securing the spindle in place, one end of said strap being provided with adjusting holes whereby it is adapted to fit various sized thills, and a stop pin on the side of the cam, substantially as and for the purpose set forth.

No. 42,569. Boiler. (*Chaudière.*)

Harry A. R. Dietrich, South Bethlehem, Pennsylvania, U.S.A., 12th April, 1893; 6 years.

Claim.—1st. In a boiler, the combination, with a series of sections capable of being connected and disconnected, each section complete in itself, the sections being hollowed to form water chambers and provided with depressions in their side faces, which depressions form when arranged oppositely, vertical combustion chambers, communicating directly with the fire pot, ribs located around the margins of the sides, and of the sections extending upward near their centres, said sections being further provided with a section of a fire pot located between the inner ribs, sections of smoke flues located between the inner and outer ribs, and a series of aligned tubes extending transversely through from face to face, placing the depressed portions of the side faces in connection, one set of said tubes being adapted to receive apertured pipes through which air may be introduced or coerced, substantially as set forth. 2nd. In a boiler, the combination with the vertical hollow water holding sections, having depressions a, and a^1, which depressions, when arranged oppositely, from vertical combustion chambers communicating with the fire pot, said sections having a series of horizontal transverse and aligned tubes, of the perforated air inlet tube 17, inserted in said aligned tubes, and made of considerably smaller diameter, and the bushings 27, supplied as shown and described.

No. 42,570. Boot and Shoe. (*Chaussure.*)

Jonathan O. Trotter, St. Catharines, Ontario, Canada, 12th April, 1893; 6 years.

Claim.—As an improved article of manufacture, a boot or shoe consisting of an outer casing of leather scraped internally and painted with rubber cement, an inner lining of rubber secured to the leather by the rubber cement, and to a felt or similar inner casing by its own adhesiveness, substantially as and for the purpose specified.

No. 42,571. Stove and Furnace. (*Poêle et fournaise.*)

Samuel P. Hutchison, Philadelphia, Pennsylvania, U.S.A., 12th April, 1893; 6 years.

Claim.—1st. In a furnace, the shell 4, ash pit 1, grate 11, dome 20, staves 18, perforated grate bearing 3, and adjustable ring 9, in combination with the perforated tiles 16 and 17, arranged to operate substantially as set forth. 2nd. In a furnace, the ash pit 1, provided with air tight fitting doors, and the perforated grate bearing 3, and tubular perforated grate 11, in combination with the grooved staves 18, arranged to operate substantially as set forth. 3rd. In a furnace, the air tight shell 4, staves 18, and means of admitting and regulating air thereto from the ash pit 1, in combination with the