

that will withstand the attacks of rodents composed of wood fibre or cellulose, mixed with a resinous compound and with a glutinous material, rendered insoluble in water by means of bichromate of potash, the dough-like compound thus produced being then mixed with resin soap and alum solutions and slacked lime, substantially as set forth.

No. 30,897. Adjustable Thermostat.

(*Thermostat mobile.*)

Etna H. Davis and Reuben Westervelt, Elmira, N. Y., U. S., 7th March, 1889; 5 years.

Claim.—1st. In a thermostat, an expansible element, a pair of insulated contact pieces co-operating therewith and supported upon a common base, in combination with a shaft independent of the base, and a rack and pinion gearing between the shaft and the base, as and for the purpose set forth. 2nd. In a thermostat, an expansible element, a pair of insulated contact pieces co-operating therewith and supported upon a common base, in combination with a shaft independent of the base, and a rack and pinion gearing between the shaft and the base, the said shaft carrying a pointer to co-operate with a suitable scale, as and for the purpose set forth. 3rd. In a thermostat, an expansible bar and a case enclosing the same, a front plate marked with a vertical scale and supporting a thermometer tube alongside the scale, a pair of insulated contact pieces, one on each side of the bar, and supported on a common base, in combination with a shaft independent of the said base, and a rack and pinion connection between the shaft and the base, the said shaft carrying a pointer which sweeps over segmental scale on the front plate, as and for the purpose set forth.

No. 30,898. Electric Valve Controller.

(*Soupage à contrôle électrique.*)

Etna H. Davis and Reuben Westervelt, Elmira, N. Y., U. S., 7th March, 1889; 5 years.

Claim.—1st. In an electro-magnetic motor, the combination, with an electric magnet and its armature, of a circuit breaker operated by the latter, and a pawl also connected with the armature, the said pawl acting on the ratchet secured to the motor shaft, as and for the purpose set forth. 2nd. In a valve operating apparatus, the combination, with a motor box having inlet and outlet passages for a fluid under pressure, of a pair of bars respectively controlling said passages, and an eccentric attached to a shaft between the two bars, and a suitable motor for the shaft, as and for the purpose set forth. 3rd. In a valve-operating apparatus, the combination, with a motor box having inlet and outlet passages for a fluid under pressure, of a pair of bars respectively controlling said passages, and an eccentric attached to a shaft between the two bars, and a suitable motor for the shaft, and a ratchet on the shaft, and an electro-magnet whose armature is provided with a pawl for operating the ratchet, as and for the purpose set forth. 4th. In a heat regulating system, a thermostat controlling two branch circuits, an electro-magnet connected with each branch, and an automatic out-for breaking the circuit of either branch, after it has been closed at the thermostat, as and for the purpose set forth. 5th. In a heat regulating system, a thermostat and two branch circuits controlled thereby, an electro-magnet connected with each branch, and a pair of springs, one in each branch, the said springs bearing upon a rotating disk, a shaft to which the said disk is attached, and a pawl and ratchet for operating the shaft, the pawl being connected with the magnet armature. 6th. In a heat regulating system, a thermostat and two branch circuits controlled thereby, an electro-magnet connected with each branch, and a pair of springs, one in each branch, the said springs bearing upon a rotating disk, a shaft to which the said disk is attached, and a pawl and ratchet for operating the shaft, the pawl being connected with the magnet armature, and the said disk having an insulating portion, as and for the purpose set forth. 7th. An airtight box, having inlet and outlet passages for a fluid under pressure, the said box containing a pair of bars respectively controlling the said passages, the said bars being mechanically connected at corresponding ends, and being operated upon at the opposite ends by an eccentric secured to a shaft between the said opposite ends, as and for the purpose set forth.

No. 30,899. Universal Metal Joint.

(*Joint métallique universel.*)

Jotham C. Haggitt, Dunkirk, N. Y., U. S., 7th March, 1889; 5 years.

Claim.—1st. The combination of the case 1, having a socket-seat 2, a cover 16 adapted to screw on to the head of the case, and having an inward-projecting piece 19 and a semi-spherical hollow portion 3 adapted to fit the seat 2, and provided with a cross-bar having a depression 15 to receive the end of the projecting portion 19, and having a screw-thread at the opposite end for attachment to a pipe, substantially as described. 2nd. In a universal metal joint, the combination of a socket case, having a socket seat at one end and a cover at the opposite end, provided with a projecting piece 19 to keep the ball portion in place, a ball portion having at the large end a cross-bar provided with a depression to receive the projecting piece from the cover, and a packing ring secured in a groove surrounding the ball portion, substantially as described. 3rd. In a universal metal joint, the combination of a socket case having a projecting internal screw-threaded portion on one side, a socket-seat at one end and a screw-threaded portion at the opposite end to receive the cover, a semi-spherical ball portion adapted to fit the socket seat, having at one end an internal screw-threaded portion, and at the ball end a cross-bar provided with a recess or depression, and a cover having an inner projecting portion reaching down into the recess in the cross-bar, substantially as described. 4th. In a universal metal joint, a socket-case having a socket-seat at one end and a cover at the opposite end, provided with a projecting piece to keep the ball portion in place, in combination with a ball portion having at the large end a cross-bar provided with a depression to receive the projecting piece from the cover, and a packing ring secured in a circular groove be-

tween the seat and the ball portion, a supplementary groove leaving an opening between the side of the packing groove and packing, and holes for admitting steam thereto, substantially as and for the purposes described. 5th. In a universal metal joint, the combination, with a ball and socket joint, of a packing ring of yielding material, secured in a groove between the socket and ball portion, for the purposes described.

No. 30,900. Round About or Merry-go-Round, and other Riding Toys.

(*Tourniquet ou autre manège-jouet.*)

Frank W. Allchin, Northampton, Eng., 7th March, 1889; 5 years.

Claim.—1st. In or in connection with round-abouts, sets of arms fixed upon outwardly projecting ends of radiating spindles which are carried by the revolving framings, and which are themselves caused to revolve on their own axis as they are carried around the central axis of the round-abouts, said arms carrying pins which project from the outer ends thereof, and from which are suspended boats, cars or corresponding parts capable of carrying riders, substantially as described for the purpose set forth. 2nd. In or in connection with round-abouts, sets of arms fixed upon the outwardly projecting ends of radiating spindles which are carried by the revolving framings, and which are themselves caused to revolve on their own axis as they are carried around the central axis of the round-abouts by means of toothed wheels gearing into a fixed circular rack, and fixed upon spindles which are connected direct by means of radiating rods with the inner ends of the spindles carrying the sets or arms, said arms carrying pins which project from the outer ends thereof and from which are suspended boats, cars or corresponding parts capable of carrying riders, substantially as described for the purpose set forth. 3rd. In or in connection with round-abouts, frames mounted upon platforms or framings which are carried upon wheels running on circular rails or trams laid upon the ground (or upon suitable sleepers thereon) such frames carrying each a spindle upon which are mounted arms, in the outer ends of which are fixed pins which carry swing boats (cars or corresponding parts) motion being imparted to said spindles to cause them to revolve around their own axis (as the platforms or framings of the round-abouts revolve their vertical axis) from the rolling movement of wheels on which the platforms or framings run, or of wheels which run in racks laid upon the ground (or upon suitable sleepers thereon), substantially as described for the purpose set forth. 4th. In or in connection with a round-about, the combination of a frame B₂, B₂ carried upon the revolving framing B₃ with a spindle *g* carrying two sets of arms D, the opposite arms of which are connected by pins carrying swing boats (cars or corresponding parts) motion being imparted to said spindle *g* from the spindle *c*, so as to cause such spindle *g* to revolve around its own axis as the round-about revolves around its central axis, substantially as described with reference to figure 7 of the drawings herewith for the purpose set forth. 5th. A truck or trolley upon which is mounted a spindle which is driven from an axle, and which carries sets of arms having pins projecting from the outer ends thereof, to which are suspended swing boats, cars or corresponding parts, substantially as described, with reference to figures 8 and 9, for the purpose set forth.

No. 30,901. Rubber Shoe or Golosh.

(*Soulier ou galoche de caoutchouc.*)

William S. Smith, Thomas H. Smith, Galt, Ont., and John A. Smith, Chicago, Ill., U. S., 8th March, 1889; 5 years.

Claim.—A rubber shoe or golosh having a copper rivet A, or other good electrical conductor, inserted in its heel or sole, substantially as and for the purpose specified.

No. 30,902. Method of and Apparatus for Compiling Statistics. (*Mode et appareil de compilation des statistiques*)

Herman Hollerith, New York, N. Y., U. S., 8th March, 1889; 5 years.

Claim.—1st. The herein described improvement in the art of compiling statistics, which consists in first forming or arranging a standard or template indicating the relative position in which each item or characteristic of the individual is to be recorded, secondly forming a record of each individual or thing by locating index points upon a strip or tablet, said index points representing the characteristics of the individual and bearing a determinate relation to each other and to the standard, and finally submitting said separate records successively to the action of circuit controlling devices for operating the registering devices representing the statistical items to be compiled, whereby each statistical item, or combination of items when contained in the record of any individual, is accurately registered. 2nd. The herein described method of compiling statistics, which consists in recording separate statistical items pertaining to the individual, by holes, or combinations of holes punched in sheets of electrically non-conducting material and bearing a specific relation to each other and to a standard, and then counting or tallying such statistical items separately or in combination by means of mechanical counters operated by electro-magnets, the circuits through which are controlled by the perforated sheets, substantially as and for the purpose set forth. 3rd. The combination with perforated sheets of electrically non-conducting material, said perforations representing statistical items of electro-magnets, and mechanical counters in circuits controlled by said perforated sheets, substantially as and for the purpose specified. 4th. The combination with a series of electro-magnets, and the series of mechanical counters actuated thereby, said electro-magnets being arranged in circuits controlled by relays of a perforated sheet of electrically non-conducting material, said perforations representing statistical items controlling the circuit through the electro-magnets of the relays above referred to, substantially as and for the purpose described. 5th. In a system such as described for automatically compiling and recording statistics, the combination, with a series of electric circuits, a series of electro-magnets connected thereto, a recording mechanism for each electro-magnet,