

No. 30,938. Electro-Thermostatic Anti-Freezing Apparatus for Water Pipes. (*Appareil électro-thermostatique pour empêcher de geler les tuyaux d'eau.*)

Edwin A. Newman, Washington, D. C., U. S., 19th March, 1889; 5 years.

Claim.—1st. The combination of the water supply pipe system, its inlet valve and air valve connected to the upper part of the pipe system, the thermostat, the cut-off circuit controlled by the thermostat and electro-magnetic devices for controlling the water inlet and air valves. 2nd. The combination of the water supply system, its inlet valve, the thermostat, a local circuit in which the thermostat is included, the cut-off circuit in which electro-magnetic devices for controlling the inlet valve are included, and a magnet in the local circuit for opening and closing the circuit. 3rd. The combination of one or more independent pipe systems, their inlet valves, the cut-off circuit, electro-magnetic devices in the cut-off circuit for controlling said inlet valves, a thermostat for controlling said circuit, and a shunt circuit around each inlet valve, whereby said valve may be short-circuited, and water admitted to the particular pipe system. 4th. The combination of a water supply pipe system, its inlet valve, the cut-off circuit, electro-magnetic devices in said circuit for controlling the inlet valve, a thermostat for controlling said circuit, and a shunt or short circuit around the magnetic controlling devices of the inlet valve. 5th. The combination of a pipe system, its inlet valve, electro-magnetic devices for controlling said valve, an electric circuit in which said magnetic devices are included, a thermostat for controlling said circuit, a shunt or short circuit around the magnetic devices of the inlet valve and a faucet, of the pipe system, having switch devices included in said shunt circuit, which are automatically operated on the turning of the faucet. 6th. The combination, with a pipe or conduit having an outlet faucet or cock, of an automatically-controlled cut-off valve or cock for shutting off the flow of liquid to the pipe, one or more thermostats placed, as described, so as to be affected by changes of temperature affecting the contents of the pipe, and a controlling device placed at or near the outlet faucet or cock and within the control of the operator for permitting the control of the cut-off valve independently of the condition of the thermostat or thermostats. 7th. The combination, with a section of pipe, of an electrically-controlled drain cock or faucet placed between said section of pipe and the main, one or more thermostats placed in proximity to the section of pipe, as described, and adjusted to be called into action on a determinate change of temperature, and an automatic valve for admitting air to the pipe when the drain-cock or faucet is opened. 8th. The combination, substantially as hereinbefore set forth, of an electrically operated valve, and a contact finger rigidly connected to the valve and moved co-incidentally therewith for opening and closing the electric circuit. 9th. The combination, substantially as hereinbefore set forth, of an electrically operated valve, a thermostat, and means operated co-incidentally with the movement of the valve for automatically opening and closing the circuit. 10th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, electrically operated valve apparatus for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, and an electric contact finger rigidly connected to the valve and rod, and moved co-incidentally with the valve or valves. 11th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, electrically operated valve apparatus for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, and an electric contact for making and breaking the circuit in the electric valve apparatus, moved co-incidentally with the valve or valves. 12th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, a valve or valves for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, an electro-magnet, its armature connections between the armature and the valve or valves, and an electric circuit including said electro-magnet and a thermostat. 13th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, a rotating valve arranged to open and close communication between the main and the service pipe, and between the service pipe and the drain pipe, and electro-magnetic devices for operating the valve. 14th. The combination, substantially as hereinbefore set forth, of the valve, the valve stem, the armature secured to the valve stem, the switch block, the electro-magnets, the contact fingers and the electric circuits that are opened and closed by the rotation of the armature. 15th. The combination, substantially as hereinbefore set forth, of the valve, the valve stem, the armature having wings with inclined surfaces secured to the valve stem, the switch block, the electro-magnets and two electric circuits, each including a magnet so arranged that one is broken at the switch block when the other is closed. 16th. The combination, substantially as hereinbefore set forth, of the water trap, a discharge opening in the trap, and a valve for opening and closing said opening. 17th. The combination, substantially as hereinbefore set forth, of the water trap, a discharge opening in the trap, a valve for opening and closing said opening, and electro-magnetic devices for operating the valve. 18th. The combination, substantially as hereinbefore set forth, of a water trap, a discharge opening in the trap, a valve for opening and closing said opening, an electro-magnet and circuit connections for opening the valve, and a separate magnet and separate circuit connectors for closing the valve. 19th. The combination, substantially as hereinbefore set forth, of the water main, the service pipe, the drain pipe, the water traps, electro-magnetic valve apparatus for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, and electro-magnetic valve apparatus for opening and closing communication between the water traps and their drain pipes. 20th. The combination of the main, the service pipe, a valve for opening and closing communication between the main and the service pipe, the electro-magnet, the armature of the electro-magnet connected to the valve, the electric circuit, including the coils of the electro-magnet, the faucets in the service pipes, and the circuit making and break-

ing devices operated by the faucets, substantially as set forth. 21st. The combination of the main, the service pipe, a valve for opening and closing communication between the main and the service pipe, the electro-magnet, the valve spindle, the armature of the electro-magnet connected to the valve spindle, the electric circuit, including the coils of the electro-magnet, the thermostat for automatically making and breaking the circuit, the faucets in the service pipe and the circuit making and breaking devices operated by the faucets, substantially as set forth. 22nd. The combination of the main, the service pipe, the drain pipe, a pipe coupling connecting the main, the service pipe and the drain pipe, a valve within the coupling for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, the valve spindle, the electro-magnet, the armature of the electro-magnet connected to the valve spindle, and the electric circuit, including the coils of the magnet, substantially as set forth. 23rd. The combination of the main, the service pipe, the valve for opening and closing communication between the main and the service pipe, the electro-magnet, the valve spindle passing through the core of the magnet, the armature carried by the valve spindle, the electric circuit, the contact finger carried by the armature and moving co-incidentally therewith for making and breaking the circuit, and the thermostat included in the circuit, substantially as set forth. 24th. The combination of the main, the service pipe, the drain pipe, a valve for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, the electro-magnet, the valve spindle passing through the core of the magnet, the armature of the electro-magnet secured to the valve spindle, the electric circuit, including the pipes, the thermostat for automatically breaking and making the circuit, the faucet, the switch block, the contact ring for making and breaking the circuit at the faucet, the electro-magnet, its armature, the catch operated thereby, the electric circuit, including the pipes and the magnet, and the contact ring for making and breaking the circuit at the faucet, substantially as set forth. 25th. The combination of the main, the service pipe, the valve for opening and closing communication between the main and the service pipe, the electro-magnet, the valve spindle passing through the core of the magnet, the armature of the electro-magnet secured to the valve spindle, the sewer trap, the valve in the bend of the trap, the electro-magnet for operating the valve, the electric circuit, including the coils of the electro-magnets, the thermostat for automatically making and breaking the circuit, the faucet and the circuit making and breaking devices operated by the faucet, substantially as set forth. 26th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, a valve for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, the valve spindle, an electro-magnet, the armature of the electro-magnet secured to the valve spindle, and an electric circuit including the electro-magnet and contact finger, and devices operated by the faucets for opening and closing the circuit. 27th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, the valve casing which couples together the main, the service pipe and the drain pipe, a valve or valves for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, an electro-magnet, its armature, the valve spindle connecting the armature to the valve or valves, a thermostat and an electric circuit, including said electro-magnet and the thermostat. 28th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, a rotating valve arranged to open and close communication between the main and the service pipe, and between the service pipe and the drain pipe, the valve spindle, an electro-magnet and a rotating armature secured to the valve spindle and operated by the electro-magnet. 29th. The combination, substantially as hereinbefore set forth, of a house pipe water supply system, the cocks and faucets, an electrically operated valve and a contact finger rigidly connected with the valve and moved co-incidentally with the valve for opening and closing the electric circuit. 30th. The combination, substantially as hereinbefore set forth, of a valve normally held open by water pressure, electrically controlled apparatus for closing the valve, and a contact finger rigidly connected with the valve and moved co-incidentally therewith for opening and closing the electric circuit of the valve operating apparatus.

No. 30,939. Insulating Device for Supporting Telegraph and other Wires or Electrical Conductors. (*Isoloir pour fils télégraphiques et autres ou conducteurs électriques.*)

George Fowler, Peckham, Eng., 19th March, 1889; 5 years.

Claim.—1st. An automatically adjustable insulator, having a constant tendency to move in one direction and maintain a conductor supported thereby in a state of practically uniform tension, but capable of yielding in the opposite direction, for the purposes specified. 2nd. In an insulating device for supporting an electrical conductor, the combination of an insulator proper and a spring arranged to cause said insulator to move or tend to move in one direction, and to allow it to yield in the opposite direction, substantially as herein described for the purposes specified. 3rd. In an insulating device for supporting an electrical conductor, the combination of an insulator proper, a support for carrying said insulator, and a spring connected at one end to said support, and arranged to cause said insulator to move or tend to move in one direction and to yield in the opposite direction, substantially as herein described for the purposes specified. 4th. In an insulating device for supporting an electrical conductor, the combination of an insulator proper, a support for carrying said insulator, and a spring arranged between said insulator and support, substantially as herein described for the purposes set forth. 5th. In an insulating device for supporting an electrical conductor, the combination of an insulator proper, a support for carrying the same, and a spring arranged between and in rigid connection with said insulator and with said support, substantially as herein described for the purposes set forth. 6th. In an insulating device for supporting an electrical conductor, the combination of an insulator