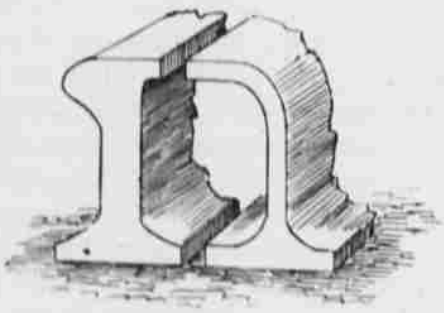
AN IMPORTANT OREGON INVENTION.

ELECTRICIANS interested in the application of electric power to the propulsion of street cars have long been engaged in studying some means whereby the electric current could be transmitted below the track, and thus dispense with unsightly and dangerous overhead wires and the poles to support them. The overhead wires are, of course, uninsulated, in order to admit of constant contact with the trolly that takes the current from the wire to conduct it to the dynamos underneath the car. To sustain the wire directly above the track, poles are planted on either side of the street, and wires stretched across between them, from which the wire conducting the current is suspended. Anything not a nonconductor coming in contact with the exposed and heavily charged wire will take the current as well as the trolly. Herein lies the dangerous feature. Another objection is the great waste of power through the dissipation of the current

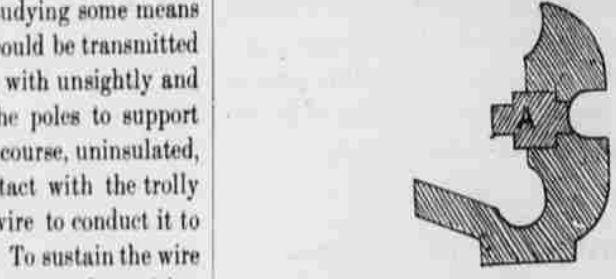


THE GUARD RAIL.

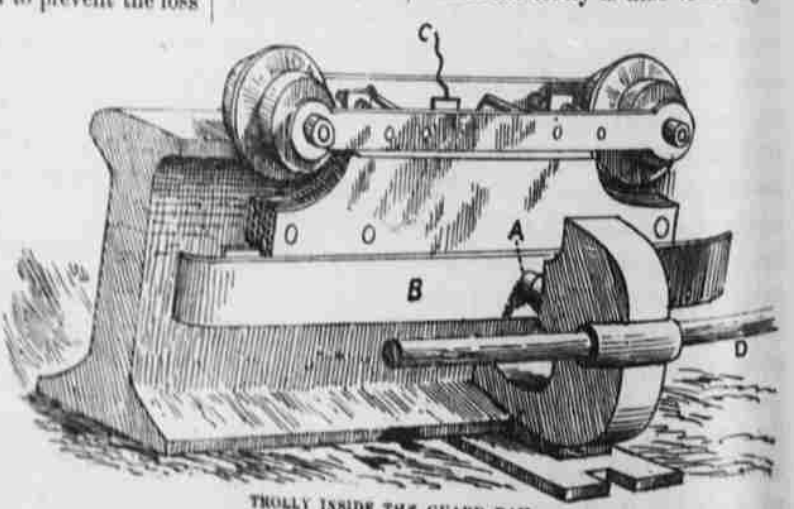
from the exposed wire. So great is this loss that it is impossible to operate long lines of electric railway without having power houses only six or eight miles apart. Near the power houses the wires are very heavily charged, while at the points farthest removed from them the current is barely strong enough to move the car.

Sundry experiments have been made with wires underneath the car to conduct the motive current for operating, but inventors have failed to prevent the loss resulting from exposed conducting points, and have at the same time experienced much trouble from the tendency of the electric current to short-circuit to the ground. The contrivance herewith illustrated is the invention of John W. Kern, of East Portland, and it is believed to obviate all the difficulties usually encountered in providing for the transmission of electric power under moving cars so that its application shall be continuous.

The distinctive feature of Kern's method of taking an electric current from an insulated wire lies in the movable point, A, which only comes in contact with the charged wire as the car requiring the current passes it. The guard rail shown is not a new thing. The inner half of the guard rail may be used for one of the track rails, thus contributing to economy of construction, the insulated wire running in the angle of the outer protection rail and held in place by the frog in the manner shown at the bottom of this page, D being the wire, and the outer guard rail being omitted. The guard rail is fastened to the ties of the road bed in the ordinary way. The securely insulated wire is laid, resting in frogs placed about five feet apart, with only a small spot exposed within the frog. At that small spot the conducting point, A, comes in contact with the electric wire only while the car is passing it, the slight spring that breaks the contact being pressed in by the light pressure of the trolly or plow. When the car is past the spring pushes the point, A, from the wire and breaks the contact so there is no liability to loss of power by leaving any direct exposure of the charged wire or any of its conducting connections. The trolly, which is a small car running on the guard rail and held in place by the slot between the rails, will have a copper plate, B, a little more than five feet long, which will take the current from the point, A, and transmit it through the wire, C, to the operating dynamos underneath the car at each pair of trucks. The trolly is long enough so that before one conducting point is passed it is upon another, and there is no resistance to releasing the first point, the whole current being transferred to the next, which the trolly is also touching.



SECTIONAL VIEW OF FROG, SHOWING MOVABLE CONDUCTING POINT AND SLOT FOR ELECTRIC WIRE.



TROLLY INSIDE THE GUARD RAIL.