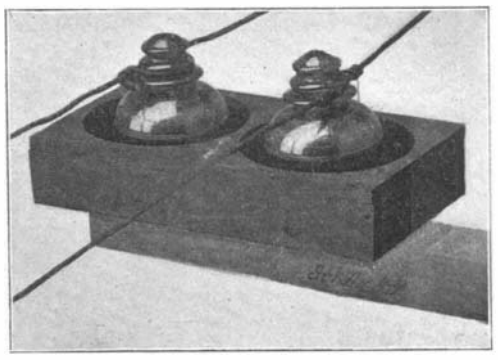
Patent Department

INSULATOR FOR LINES CARRYING CURRENTS OF HIGH VOLTAGE.

BY W. R. GREENWOOD.

Tests made near Santa Monica, Cal., have demonstrated the utility of a device designed to maintain the insulation of long-distance high-voltage electric currents. The United Electric Gas and Power Company, from its central power house located at Santa Monica,



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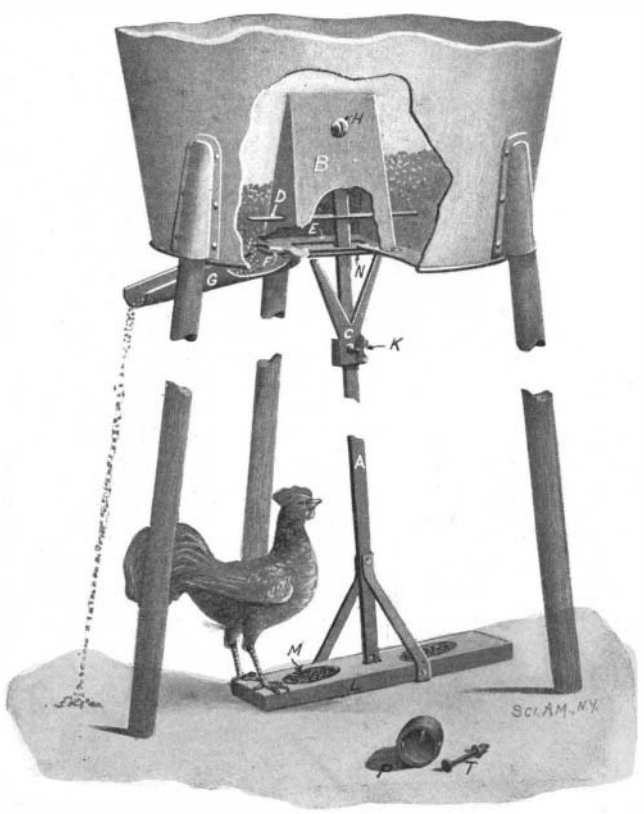
supplies current for lighting and power purposes to Long Beach, San Pedro, Terminal Island and Redondo. The total length of the circuit is forty-five miles. The current is generated by direct-connected units at a pressure of 2300 volts. By means of transformers this pressure is raised to 22,000 volts and transmitted over the circuit to the different towns, and by means of step-down transformers it is lowered again to 2300 volts.

Ever since the installation of this system eighteen months ago the company has experienced the greatest difficulty in keeping the current from "slopping over" and burning off the pins. That is on account of fogs along the coast. The insulators used are of the types known as "No. 1 Provo" and "Lock," both of 60,000-volt glass. It was found that the leakage was not due to any fault of the insulation of the glass, but to the action of the fog. This was demonstrated by the fact that the line worked perfectly in wet weather. In dry weather dust would accumulate under the bell. In time of fog the damp atmosphere as it moved past the insulator would deposit moisture with the dust and form a sort of paste, which appeared to establish a good conductor for the high-tension currents to flash across. Within a short time the pin would be burnt off. The wire, dropping on to the cross arm, would burn it off and, in almost all cases, would next swing in against the pole and burn it off.

After having tried almost every conceivable scheme to overcome this serious trouble the company hit upon the novel device for housing or fencing in the pin and glass. The new arrangement, which has been shown by tests to have completely overcome the leakage and to have thereby prevented the burning off of the pins, is a box made of 1-inch wood 12 inches square and 4 inches thick. The box has on its upper side a round hole 10 inches in diameter. The device is placed so that the 7-inch bell of the insulator projects down a little into the hole. The box is previously treated with gas tar and has holes in its bottom sufficient for drainage. By preserving the static condition of the air under the bell of the insulator the deposit of moisture there is prevented.

Incidentally the box protects the insulator from damage by shot or other missiles.

The model of the device was perfected by Superintendent J. J. Davis, of the United Electric Gas and Power Company. The company, satisfied as to its utility, is installing the boxes along its transmission line and already has about ten miles of the circuit so equipped.



AN INGENIOUS POULTRY-FEEDING DEVICE.

STOCK AND POULTRY-FEEDING DEVICE.

A very ingenious device for feeding stock and poultry has recently been invented by Mr. Zachariah Xevers, of Santa Cruz, Cal. Briefly the device consists of a hopper or magazine from which feed is automatically discharged by action of a bait-box operated by an animal in its effort to reach the bait.

Our illustration shows the device as adapted for the use of poultry. A hopper for the grain is supported on legs at a suitable distance from the ground. An elongated opening, *E*, is formed in the bottom of this hopper. This opening is covered by a hood, *B*, at the upper end of which a swing rod, *A*, is pivoted. The swing rod passes downward through the opening, *E*, and supports the bait-box, *L*, near the ground. A slide, *F*, is secured to the rod, *A*, and is adapted to slide in the guides, *N*, in the bottom of the hopper. This slide normally closes an opening through which the feed falls when the device is operated. The bait-box, *L*, is provided with two cups, *M*, in which grain is placed. A wire netting covers each cup, the mesh of which is too small to permit the extraction of the grain. Assuming that the flock of fowls surround the bait-box, being called by the male bird of the flock, as the grain is protected by the screen covers, the fowls, and particularly the rooster, will peck at the covered grain, and the male bird may possibly hop upon the bait-box to scratch over the grain. It will be seen that the natural efforts of the fowls to get at the food held in the bait-box will impart a swinging movement thereto. The pendulum motion given to the rod, *A*, by the efforts of the fowl will move the slide, *F*, back and forth, consequently opening and closing the aperture in the hopper bottom, and permitting the food to drop into the chute, *G*, and thence to the ground. An agitator, *D*, fastened to the rod, *A*, serves to prevent the feed from packing. A regulator, *C*, is employed for regulating the amount of discharge at each oscillation. This can be secured at any desired position on the rod, *A*, by tightening the thumb screw, *K*. It is evident that by sliding this regulator toward the hopper, the length of the oscillation will be diminished, being checked by the prongs which engage the bottom of the hopper.

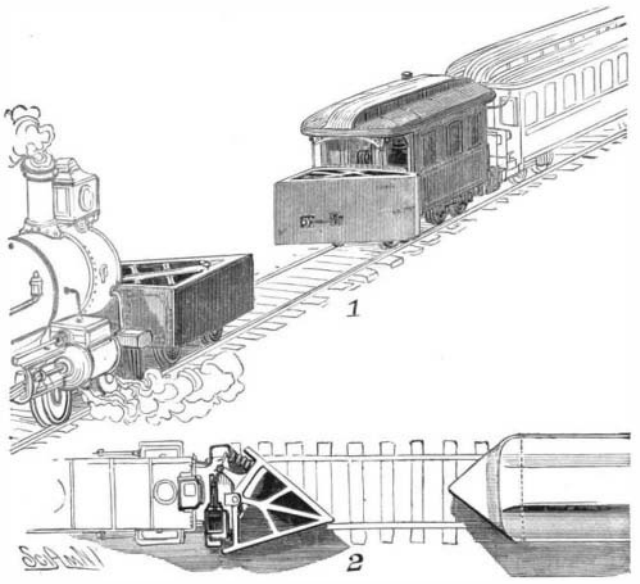
For pigs, rabbits or other animals, the cup, *P*, is used in place of the bait-box, *L*. This cup is slipped onto the end of the rod, *A*, and is fastened by bolt, *T*, which passes through the rod and both walls of the cup. The size of the cup prevents the bait from being reached, and in its effort to get the food, the animal will cause the oscillation of rod, *A*, and the discharge of a suitable amount of feed from the hopper above.

ANTI-TELESCOPING TRAIN GUARD.

In railroad accidents the most serious loss of life usually results from the telescoping of trains. Such accidents are continually occurring, and the list of killed and injured is always appalling. We are familiar also with other forms of accidents in which the locomotives leap onto the tops of passenger cars, crushing and grinding them and their occupants. Of much less serious importance are accidents caused by the derailment of a train. In such cases the locomotive and cars merely bump along the ties until their momentum is exhausted, or at worst the train may be overturned. Obviously, then, if some device were invented whereby derailment could always be substituted for the telescoping or crushing of trains, such a device would greatly lessen the danger of railway travel. Aside from this, cars or locomotives if derailed suffer ordinarily but slight injury, and can be easily righted and repaired, while if telescoped or crushed they are a dead loss to the railroad company.

We illustrate herewith two inventions of Mr. Weldon B. Heyburn, of Wallace, Idaho, which are adapted to accomplish this very result. In the first form it will be seen that the locomotive is provided with a heavy pilot having vertical faces, and that the front face is diagonally disposed entirely across the track. The pilot is preferably supported on trucks, so as to relieve the engine of its extra weight. In case of a head-on collision between two locomotives thus equipped, these diagonal faces would cause a sidewise shift of the engine, which would effectually avoid telescoping or "rearing." As a protection against rear-end collisions, a similar guard could be attached to the rear car of the train, or better yet, a special car might be built according to the design illustrated, in which the guard has a permanent jointed connection with the car. Some suitable coupling attachment such as shown could be provided for use in drilling or switching this car about.

It will occur to some of our readers perhaps that this arrangement of guards might in some instances cause disastrous results, such as throwing a train down a steep embankment. In order to overcome this difficulty, Mr. Heyburn has devised the second arrangement, which is shown in plan view. Here it will be noticed that the guard is provided with a V-

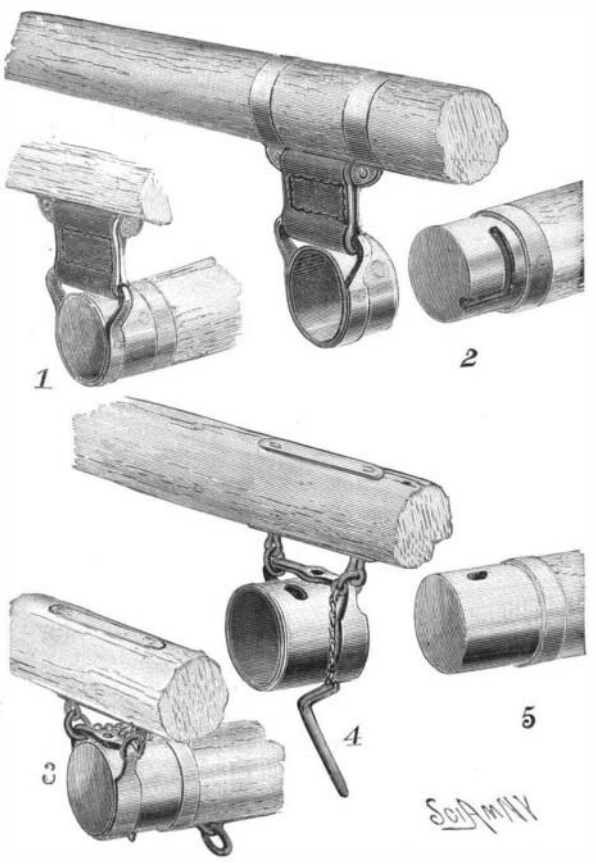


ANTI-TELESCOPING TRAIN GUARD.

shaped impact surface, and that the guard on the locomotive is capable of adjustment to the one side or the other. Normally this pilot or guard will be held, by strong coil springs, with its point midway of the track. A cylinder on the locomotive, which is shown in section, is provided with a piston connected to an arm on the pilot. This piston may be operated by steam, but will preferably be operated from the compressed-air system of the train. Suitable connections are provided, whereby the engineer may admit the compressed air to one side or the other of the piston-head, so that in event of an impending collision he may quickly swing the pilot to one side or the other, thus choosing the most favorable side for the derailment.

NECK-YOKE ATTACHMENT.

An improved method of securing a neck-yoke to the tongue of a vehicle has recently been invented by Mr. David M. Luse, of Chinook, Mont. Briefly stated, the invention provides in connection with a neck-yoke a sleeve to fit and be secured on the tip end of the vehicle tongue. This coupling-sleeve is provided at its front end with a brace-band spaced at its upper side away from the sleeve, to receive devices which connect it with the neck-yoke. Two constructions are illustrated; that in Figs. 1 and 2 is adapted specially for buggies, while the other figures illustrate a form preferably used on wagon tongues. In Fig. 1 the parts are assembled, while in Fig. 2 the tongue is shown



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