New Devices

A NEW TRACK INSTRUMENT

A new form of track instrument has recently been developed by the Pennsylvania Railroad to secure greater reliability, with a simple mechanism that would need little attention. A service test made at Altoona, Pa., last winter with several instruments indicates that these qualities are realized. There was plenty of snow and rain and the temperature went down to zero repeatedly, but the instruments required no attention and never failed.

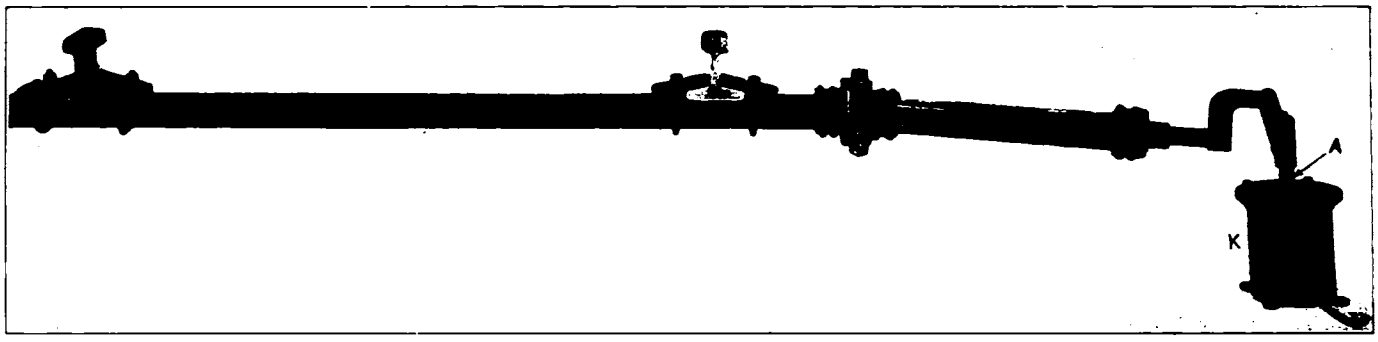

Fig. 1. Application of the Recently Developed Track Instrument.

The instrument is operated by the relative movement between the track rails and the ground during the passage of a train, 1/16 in. depression being sufficient to cause the contacts to close. Its general appearance is shown in Fig. 1. The instrument proper consists of a cast iron cylinder, K, with cover, having a guide

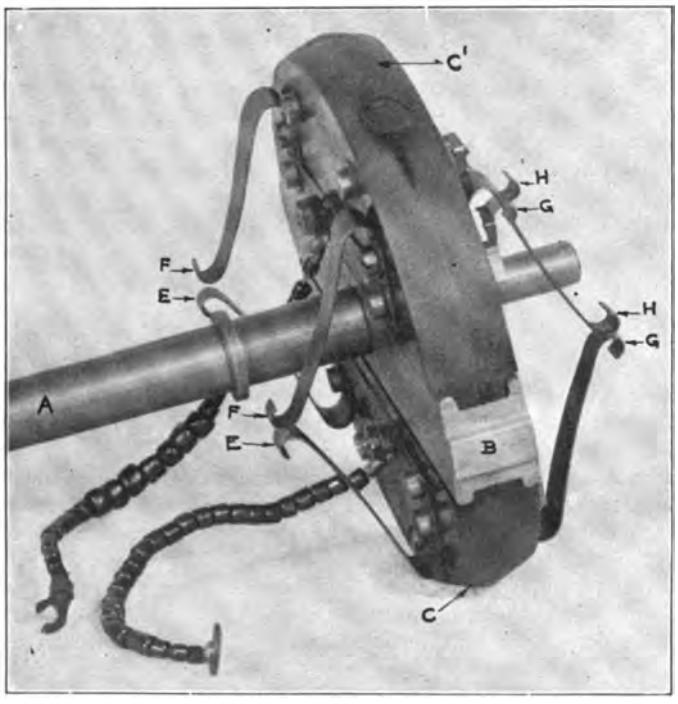

Fig. 2. Details of Plunger, Showing Means of Closing Circuit.

through which a vertical rod, A, connected to the track rails, is free to move up or down. The cylinder is filled with oil. In the Altoona tests the lubricant used was "pale semaphore oil." The lower part of the rod carries a metal cross-piece, B, Fig. 2, which supports the moving elements. These are in the form of two semi-circular wings, C and C', which together form a piston or follower. They are made of insulating material. Normally they are held horizontal against the cross-piece by two helical springs in tension, inside of them. The sides of the cross-piece are shaped so as to provide a bearing surface or fulcrum for the wings. Each wing supports two spring contacts, E, F, G, H, on both top and bottom, so adjusted, in the assembled mechanism, that the contacts are separated about 3/16 in. The contacts E and G on one wing can be connected to the positive wire of a circuit, while those on the other wing, F and H, are connected to the negative wire.

Now, as a car or engine passes over the track, the rails and ties are depressed; and this, through the agency of the bar and link connections, ordinarily moves the vertical rod downwardly. The rod carries the cross-piece, B, downward and causes the wings to turn upwardly about the upper bearings of the cross-piece, due to the resistance of the oil in the box. This action of the wings brings the upper contacts, E and F, together momentarily so as to close the circuit. If, for any reason, the depression of the rail opposite the side of the track on which the box is located is greater than the depression of the side adjacent to the box, the rod moves upwardly, causes the wings to rock downwardly and effects contact between the lower contacts, G and H. The force of the helical springs tending to hold the wings in normal position, and the movement of the track, after the passage of a train, to normal position, both act to bring the wings to their normal horizontal position.

The instrument, as shown, provides for a circuit normally open, but it can be arranged readily for a normally closed circuit.

The instrument proper and the link connection between it and the track are designed to provide for a gradual two-inch raising or lowering of the track; or a longitudinal creepage of track in either direction of about 18 in., and a lateral creepage in either direction of several inches, without the necessity of moving the box or of making any adjustments.

The photographic view, Fig. 1, shows the position assumed by the link and straps with a longitudinal creepage of track of 18 in.

The instrument is satisfactory for use both on battery circuits and on 600-volt crossing signal circuits, generally used along electric lines, where an ordinary air broken contact burns excessively.

A NEW WORM DRIVE WIG-WAG

A motor-operated wig-wag signal for highway crossing protection, in which the speed reduction is made by means of a worm and gear, is being marketed by the Protective Signal Manufacturing Company, Denver, Colo. With alternating current, 1/10-hp., 1,150-r. p. m. motors are used, providing sufficient power to carry several times the weight of the swinging disc, so that windstorms, snow or sleet have no effect upon its operation. With direct current, standard signal motors are used. The worm and gear effect a speed reduction of 40 to 1, so that the disc is operated at a rate of approximately 30 oscillations per minute.

The disc which gives the indication is 28 in. in diameter, enameled bright red, with the word "stop" in 6-in. white letters