

Two-Direction Train Order Signal.

At the last meeting of the Canadian Railway Club, in Montreal, Hiram Piper exhibited a model of a two-direction train order signal, respecting which he said:

This model is an exact representation of the signal in all details. There are two arms, one of which is displayed to the right and one to the left at right angles to the track. From the approaching train both are visible, one displayed in each direction. There are two lights displayed in a like manner in each direction. The governing arm and light are displayed to the right as seen from an approaching train. If the arm to the right is in a horizontal position, or if the light to the right is red, it indicates "Stop." If the arm to the right is in a diagonal position (at an angle of 60° below the horizontal), or if the light to the right is green, it indicates "Proceed." If so desired arms and lights displayed to the left instead of the right, may be used to govern the movement of trains, and glasses of any color may be substituted for red and green. The color of the back light corresponds in each case with that of the front light, and this feature is of the highest value in that it indicates the position of the governing signal at night from a train or engine which has passed

it. The greatest objection to other two-direction train order signals, is the fact that at night the governing light is visible only from an approaching train, and consequently in the event of a signal indicating "Proceed" being changed to indicate "Stop" after a train or engine passes it there is danger of such train or engine leaving before the restoration of the signal to "Proceed." All four lights are illuminated from one source; this is accomplished by attaching cylinders containing reflectors to the sides of the central lamp, by which means the light is reflected into lenses which show in opposite directions, and is from them projected through red and green glasses in supplemental spectacles which move in conformity with the arms. An important advantage derived from the use of only one lamp (apart from its economy) is the fact that in the event of the light being extinguished all night signals immediately disappear. With the use of two or more lamps the failure of one might lead to trouble through the men on a train mistaking the remaining light or lights.

With this signal the operator has full control of trains approaching from either direction without interfering in any way with those from the opposite direction, thus reducing by approximately one-half the number of stops

required of trains on single track for the purpose of obtaining clearance orders on train order signals displayed at stop, which do not affect them. This signal, while it is in every way adapted for double track, is therefore of even greater value on single track. In erecting the signal on a station, the horizontal arm should be placed 14½ ft. above the rail, this will bring the light 16 ft. above the rail. The object of getting it this height is that the view of the signal cannot be obstructed, and can be seen by the engineer on passing train even when another train is standing on track next the station. Where there is sufficient room between the tracks, the signal can be placed on a post and operated by a chain passing either over or under the tracks; in the former case the post requires to be high enough to ensure the chain being not less than 21 ft. above the rail, whilst in the latter case 16 or 18 ft. over all is quite sufficient. A great many superintendents object to putting anything between the tracks if it can possibly be avoided, and the only object in putting a two-direction signal in this position is that a slightly better view is obtained, but for all practical purposes it is much better on the station, with the supporting arm fixed so that the blade nearest the rail is not less than 5 ft. from it. Another thing in favor of this posi-

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