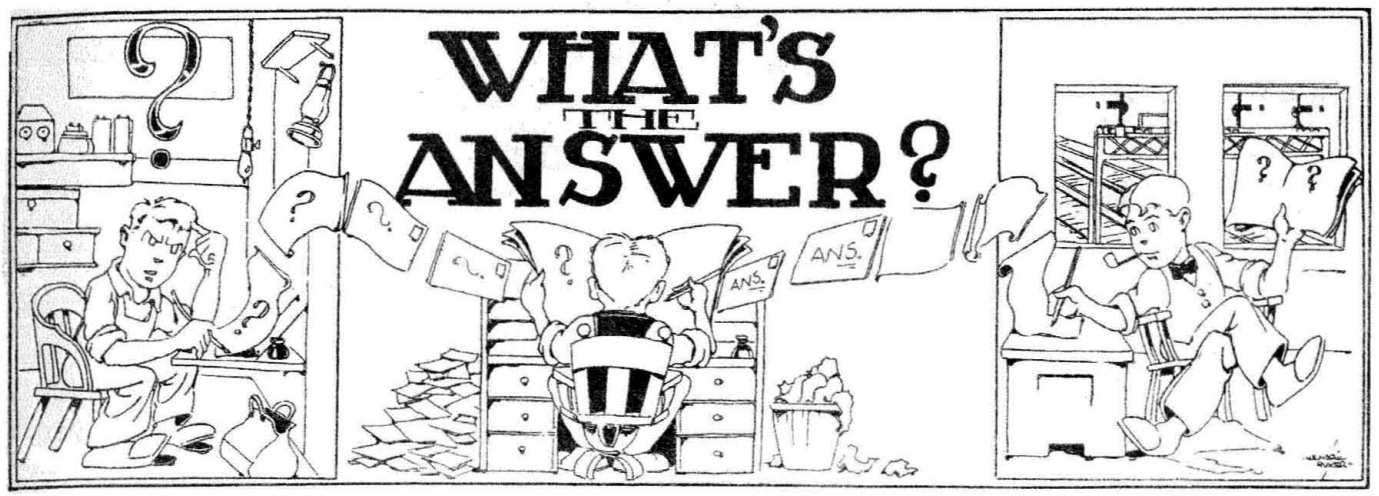


An open forum for the discussion of maintenance and construction problems encountered in the signaling field. *Railway Signaling* solicits the cooperation of its readers both in submitting and answering any questions of interest.

To be answered next month

(1) *What is the best procedure for a maintainer when renewing primary battery?*

(2) *What voltage and wattage is recommended for electric lighting semaphore signal lamps, where primary or storage batteries are used as source of energy?*

(3) *What circuits are used to control the recurrent acknowledgment loop feeds on continuous train stop or train control installations?*

Derail Pockets for Interlocking of Crossing at Joint Passenger Station

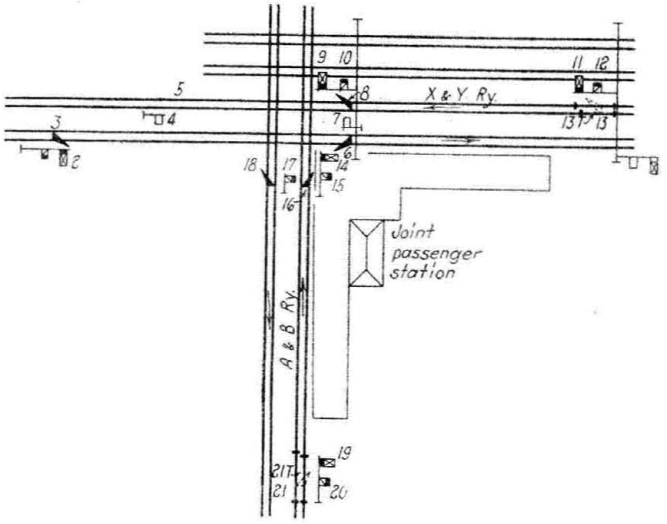
"At interlocked railroad crossings with a passenger station inside the home signal limits how are inner derails near the crossing used to permit trains on one road to cross while a train is standing at the station on the other road? How are the several signals controlled?"

A JOINT passenger station located at an interlocked crossing requires an arrangement of derails and signals which will permit passenger trains on both railroads to be making the station stop at the same time. Derails and signals located as shown on the diagram form the pockets *13* to *8*, and *21* to *16* in which trains may stand to make station stop and at the same time permit trains on either road being moved over crossing on other tracks.

The inner pocket derails, *8* and *16*, are located about 100 ft. from the crossing but the outer derails, *13* and *21*, must be out sufficient distance to permit a passenger train to stand in the pocket. The mechanical locking for this arrangement is such that levers for the outer as well as the inner derails lock against the derail levers of opposing road. It is therefore necessary that the movement into the pocket is first on one road and then on the other.

The signaling of an X. & Y. railway train into pocket would be done by clearing derail *13* and signal *11* or *12* but it is not necessary to reverse derail *8* if train is to be held in pocket. When train has cleared detector circuit *13T*, the derail may be placed normal. Levers *8* and *13* now being normal releases the mechanical locking against levers *21* and *16* so that the route on the A. & B. railway may be cleared for a train to enter its pocket while the X. & Y. railway train is making a station stop. The placing of signal and derail *21* back to normal position releases the X. & Y. railway derail lever *8* so that the starting signal *9* may be cleared and the train moved over the crossing while the A. & B. railway train is standing at the station in the pocket.

A pocket derail interlocking arrangement of this type was in operation for several years at a crossing of two large railroads entering Chicago and the operation of the



Arrangement of Derails and Signals at Crossing to Permit Simultaneous Station Stops

plant was satisfactory until the passenger trains, because of the increased number of cars, would not clear the outer derails. This caused serious delays as trains on the opposing road were held outside of the pocket.

To avoid these delays it became necessary to enlarge the pocket space or eliminate the outer derails using signals only for controlling the entrance to station pockets. Derails *13* and *21* were removed and the signaling was arranged so that high speed signals, *11* or *19*, could be cleared only when the complete route over the crossing was lined up or all derails on the opposing road were normal. The mechanical locking is now so arranged that when high speed signal *11* is cleared, the derails on the A. & B. railway and high speed signal *19* must be normal, this permits one train at a time to approach station on a high speed signal.

There is no mechanical locking between slow speed signals *12* and *20* or between a slow speed signal and the

derails or high speed signals of the cross road. This arrangement makes it possible to advance a train on one road with the slow speed signal when the crossing is occupied on the other road. Trains may be entering the pockets simultaneously, i. e. one on a high speed signal or a low speed signal and the other on a slow speed signal.

This arrangement of signaling will eliminate all train delays caused by short pockets and is a step toward the general elimination of all main track derails.

Chicago. J. H. MOLLOY,
Office Engineer, Signal Department, Chicago, Rock Island & Pacific.

Training of New Levermen

"Who is responsible for the training of new levermen on your road?"

THE New York Central on the installation of its controlled manual signal system on its main line between New York and Buffalo, N. Y., in 1892, when something over 20 signal stations were placed in service on the 440 miles, employed for each of the main line divisions a chief signalman who was in responsible charge of the men employed to work the signal levers in the signal stations whose title, in accord with our rules, was that of signalman and not leverman. In some of our signal stations a train director is employed but these as well as the other men employed in the signal station are given the name of signalmen.

Since 1892 we have found it advisable to employ a chief signalman on each division on which there are about 15 or more interlocking plants, the chief signalmen having also charge of telegraph operators at stations not provided with signals, but does not have charge of agents at stations except as to their duties as telegraph operators.

We have found the chief signalmen to be a necessary part of our signal supervisory force for they not only have charge of and examine the signalmen on the rules but also instruct the men in the operation of the signals and see that everything is done to expedite the safe movement of trains. In addition, the chief signalmen examine all engine and train men on signal rules, on the signals in use on the division, and are responsible for the men in the train service being fully qualified on signals. The chief signalman reports to the superintendent as an operating official and is not a part of or subject to the authority of the signal department.

Albany, N. Y. W. H. ELLIOTT,
Signal Engineer, New York Central (Buffalo and East).

Second Answer

A SIGNAL cabin inspector has recently been assigned on our road to devote his entire time to the investigation of operating methods at interlocking plants. Although only engaged in his new duties but a short time he has already rendered assistance in getting trains through interlocked territories as fast as possible and has been instrumental in inaugurating a system of qualifying operators for positions as levermen. Following is an outline of his duties:

1. Qualify new operators.
2. Check old operators.
3. Inspect cabins and interlocking plants.
4. Check unauthorized persons in cabins.
5. Check traffic locking operation.
6. Note infractions of rules applying to operators.
7. Note infractions of rules applying to trainmen.
8. Prepare written report to division superintendent and superintendent of signals on operators qualified.
9. Prepare written report to division superintendent and superintendent of signals on infractions of rules.
10. Check fire protection.
11. Check movement of trains or operation of train through interlocking plant in order to save train delays.
12. Prepare a list of qualified towermen on each division for use of dispatcher.
13. Make such special investigation of interlocking plants as may be required.
14. Check all rules relative to cabin operation and operation of trains at interlocking plants.
15. Check electric wiring in cabins.

Richmond, Va. BURT T. ANDERSON,
Superintendent of Signals, Chesapeake & Ohio.

C. M. & St. P. Preliminary Report

E. H. DEGROOT, JR., director of the Bureau of Signals and Train Control Devices, of the Interstate Commerce Commission, has directed a letter to B. B. Greer, formerly chief operating officer of the Chicago, Milwaukee & St. Paul, regarding the preliminary inspection of the installation of the Union Switch & Signal Company's continuous inductive two element automatic train stop system on the 24 miles of double track between Bridge Switch, Minn., and Winona, Minn., on the C. M. & St. P. As a result of this inspection, the following criticisms and comments are offered:

1. It is suggested that the cut-in feature at the beginning of train control territory in this installation be carefully considered with a view to possibly securing increased protection in case the locomotive device should become defective while in non-equipped territory, and that this protection might be of such character as to result in a penalty brake application should the device for any reason fail to cut-in automatically.

It is further suggested that some means be provided for checking the integrity of the locomotive circuits when the locomotive is operating in non-equipped territory.

2. No interference from foreign current influence was reported and none observed during the inspection, nor was there any evidence of foreign current having been existent at any time. However, the trouble which might result from the presence of stray current could be so serious that it is deemed proper to say here that, should it later develop, effective means will have to be provided for promptly overcoming the trouble.

3. Great care should be exercised in the assembling and installation of the automatic train stop device. It was noted that the service exhaust choke had been omitted from the engineman's brake valve on locomotive No. 5623, causing a more rapid reduction of brake pipe pressure during various tests than was had with locomotives having orifice of the proper size.

4. All equipped locomotives should be properly tuned and in good working order before leaving the terminals at La-Crosse and Minneapolis. It was noted during the inspection that there was room for improvement in this respect.

5. It was noted that the apparatus of the modified equipment has been so constructed as to prevent release of the brakes after an automatic application, until the train has been brought to a stop, and it is understood that this modified equipment is to replace that of the older type on all locomotives.

6. Careful investigation should be made to ascertain, beyond doubt, the cause of undesirable operations such as that of locomotive 6320 on September 11 and 14, 1925, and to remove this cause.

7. In the modified equipment the placing of the automatic train stop valve group in the engine cab where it will not be affected by cold should increase the reliability of the device. It is understood that this modified equipment will replace that of the older type.

8. The failure of the automatic train stop device on locomotive 5623 to initiate a brake application with main reservoir pressure below 65 lb., on September 10, 1925, emphasizes the necessity for preventing undue frictional resistance in the valve affected.