

Report on Economics of Signaling

THE committee submitted reports on: (1) study of economies effected by the installation of signals and interlockings, based on the freight train delay hour on a given railroad; (2) reduction of train delays by the use of spring switches*; (3) economies effected by automatic signaling at railroad grade crossings†; (4) economies effected by a central interlocking station for the control of signals and switches formerly controlled from three interlocking stations‡; (5) economies effected by the use of power operated switches at a hump yard.

Spring Switches Eliminate Delays

The Atchison, Topeka & Santa Fe reports the use on main tracks of switches each fitted with a spring to permit a train to move through them in trailing direction without requiring the train to stop to open the switch and to stop again to close it.

The committee will welcome information from the members of the Signal section as to the economic results and the use of spring switches on their respective roads.

Action taken; acceptance accepted as information.

Automatic Signals at Railroad Grade Crossings

The Great Northern has installed automatic signaling at railroad grade crossings to replace a number of mechanical interlocking plants. These installations have been made at crossings where there are no switches or crossovers within the home signal limits.

The conclusions of the committee are that the economic advantages of automatic signaling at railroad grade crossings are such as to warrant a more extensive use of these time-

*See *Railway Signaling* for June, 1924, for illustrated article on "Spring Switches Reduce Delays on Santa Fe."

†See *Railway Signaling*, December, 1924, for an illustrated article "Automatic Interlockings on the G. N." Also *Railway Signal Engineer*, April, 1921, for a full discussion of the subject under the title "Non-Interlocking Non-Stop Grade Crossings."

‡On the Great Northern Railway, this method of signaling is known as an "Automatic Interlocking System."

§This plant was described in an article by F. A. Beck, "New Plant on the Pennsylvania," *Railway Signaling*, May, 1924.

and-labor-saving devices where traffic is light and delay of superior by inferior trains is not important.

Action taken; accepted as information.

Power Operated Switches at a Hump Yard

At a hump yard it became necessary to add some new classification tracks, including 12 switches, to properly handle the increased traffic.

After the additional tracks and switches were installed, 12 ground switchmen were added to the regular force at the hump yard to operate the switches in a satisfactory manner.

Some time later the 12 switches were connected to an adjacent power interlocking machine and 9 of the 12 ground switchmen were relieved from the hump force at a daily saving in wages of \$37.56 or a yearly saving of \$13,709.40.

Action taken; accepted as information.

Encouraging Remarks by Mr. Basford

G. M. BASFORD, of the G. M. Basford Company, who was the organizer and first secretary of the Railway Signal Club in 1895, gave a brief address. His remarks follow:

It is fitting to celebrate the thirtieth anniversary of this organization by this impressive entrance of signaling into real railroad operation. It is altogether appropriate to bring the signal engineer, as these papers do bring him, into the front ranks of those who are making for more intensive use of track, of equipment, of everything the railroad owns, and for more effective performance of the railroad operating dollar.

This day, with this subject, is a great day for railroad operation, a wonderful day for this organization, a sunrise for signal officers. This is the biggest subject the section has ever discussed; there is more money in it than in anything now being considered in approved railroad operation. Gentlemen, the subject, the improvement, is in safe hands.

Relieving Congestion by Signals

By W. M. POST

Superintendent of Signals and Telegraph, Central Region, Pennsylvania Railroad, Pittsburgh, Pa.

GENERALLY it has not been considered as good practice to operate trains on single track, or against traffic, by signal indication only, unless controlled by track circuit and traffic locking. A system of continuous track circuit and traffic locking was developed by C. C. Anthony of the Pennsylvania, and was first installed on the Renovo division between Huntley, Pa., and Cameron, on January 7, 1907. The original installation consisted of a single track railroad 8.6 miles in length with three interlocking block stations; one located on the east end at Huntley HY where the single track led into a double track road with a middle passing siding extending eastward from HY and passing siding extending westward from HY paralleling the single track.

A second plant was located at Sterling Run SG with passing sidings to hold 85 cars east of the interlocking station, and 85 cars west of the interlocking station. A third plant was located at the west end at Cameron FR where the single track led into a double track road with a passing siding extending eastward paralleling the single track. During 1917 the single track line between Cam-

eron FR and Sterling Run SG, 3.5 miles, was double tracked by extending the passing siding at FR eastward and connecting it to the west end of the passing siding extending eastward from SG, and on October 12, 1917, the controlled manual block system was extended to cover the new westward and eastward tracks in both directions.

How the Controlled Manual System Operates

The controlled manual system is absolute for opposing movements, and permissive for following movements. Continuous d. c. track circuits are provided, and each interlocking is equipped with approach locking with clock work time releases. At each interlocking block station there is a block instrument controlling each block. This instrument consists of two electrically locked semaphore indicators and circuit controllers, each having its own miniature lever standing normally in the vertical position, which can be moved to the right or left. One lever is used to control the block between its block station and the one at the other end of the block, and is known as