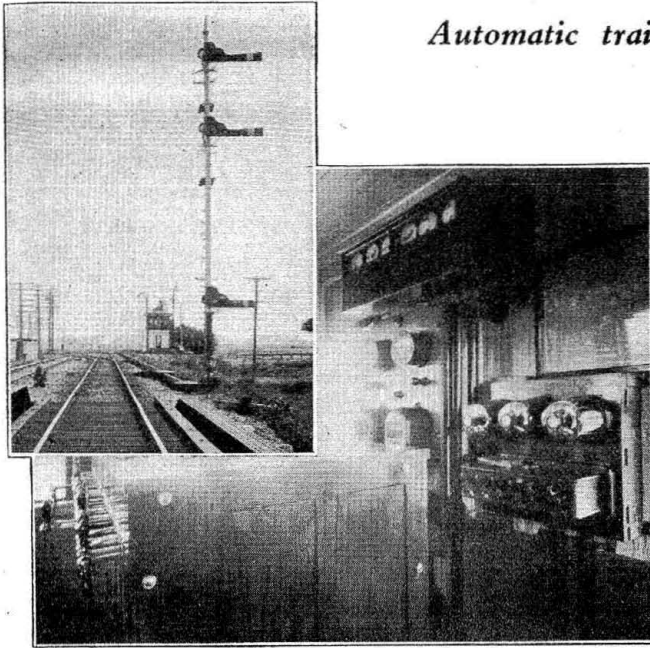


C. & A. Modernizes Signaling Facilities

Automatic train control installed in connection with reconstruction program



Model-2A power home signals replaced an obsolete type—Circuit controllers, electric locks and a new mechanical locking bed were added to the machine in the tower

AS a part of its automatic train control installation work recently completed, between Bloomington, Ill., and Chicago, the Chicago & Alton has modernized its automatic signal installation and also its mechanical and electrical interlocking plants in this territory. The signal reconstruction involved the replacing of Hall Style-D, two-position, lower-quadrant, normal-stop signals with General Railway Signal Type-D, two-indication, color-light signals. The interlocking work at the mechanical plants involved the installation of approach and detector locking circuits, the removal of detector bars, and the installation of power-operated signals. At an electric interlocking plant in this same territory, the C. & A. carried out, in addition to the aforementioned changes, other improvements which will be described in detail in this article.

Automatic Signal Work

The most recent section of signaling which the Alton has converted is that on its 25-mile single-track main line between South Joliet, Ill., and Mazonia. A feature of this installation is the use of two-indication (red and green) color-light signals, with a standard overlap of one block beyond the next signal. This section of line is used almost exclusively for passenger trains, there being 18 such trains and also two way-freights each day. The Alton has an alternate freight line between Mazonia and South Joliet via Pequot, Ill., over which the tonnage freight trains are operated.

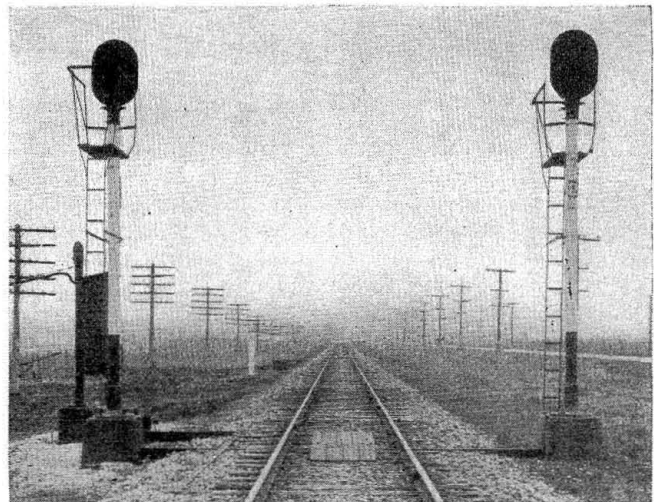
None of the old signaling remains, not even the foundations. The new Type-D color-light signals are mounted at a height of 16 ft. The signals display only two indications with an exception, however, at Wilmington, where three-indication entrance signals are used at each end of the passing track, and a three-indication approach signal is used in advance

of the entrance signal. These three-position signals were used to avoid the necessity of making two passenger train stops when meeting trains at Wilmington. In this connection, the circuits are so arranged that the usual "double distant" control of an entrance signal and approach signal thereto is not employed. Owing to the relatively light traffic on this line, it was found that two indication signals would answer the purpose. Proper braking distances are obtained by overlapping the stop signal control one block beyond the next signal in practically every instance.

Constant Lighting Employed

These signals are lighted normally by power from the alternating current line, using 8-volt, 18-watt lamps which burn constantly. In the event of a power failure, the signal feed circuit is connected to a reserve storage battery by means of a G-R-S Type-H power-off relay. The lighting transformer also furnishes energy to the Balkite Model-C1 rectifier for charging the storage battery. The latter is a four-cell Exide Type-KXHS 125-a.h. battery and is located in a concrete battery box adjoining the signal. The necessity for the 125-a.h. storage battery arises from the fact that the wayside train stop inductor which is energized from this four-cell battery, requires a current of two amperes to energize its winding.

The wayside inductor of the National Safety Appliance Company's train control system, as shown in one of the illustrations, is located in the center of the track and in line with the signal. A short energizing track section, about 250 ft. long, is provided at each signal. At a double location, there are two energizing sections, one in each direction from the signal location. An approaching train, when within 250 ft. of the signal, drops a quick-acting track relay in the short track section and this energizes the wind-



Two-indication (red and green) color-light signals are used on major portion of recent 25-mile signal construction

