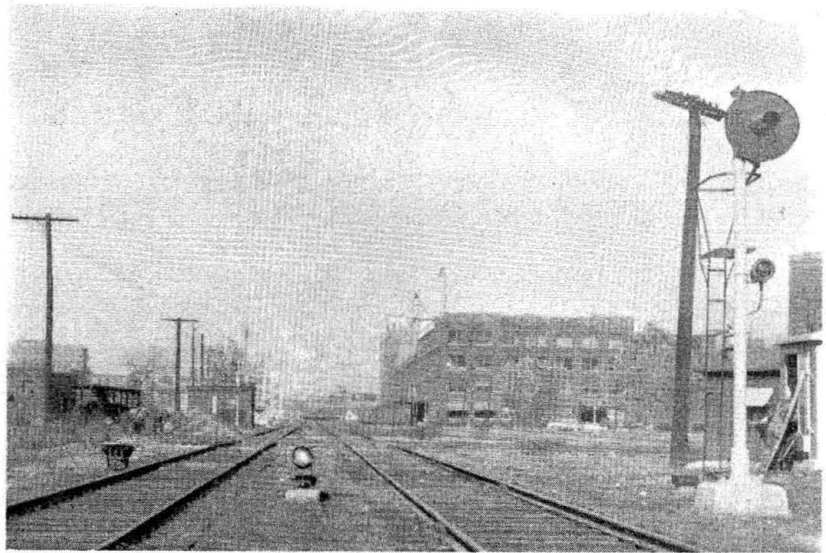


View looking north
with signal 1 at the
right and signal 2
between the tracks



**New installation pro-
tects crossing with
Wabash near the
west approach to
Merchants Bridge**

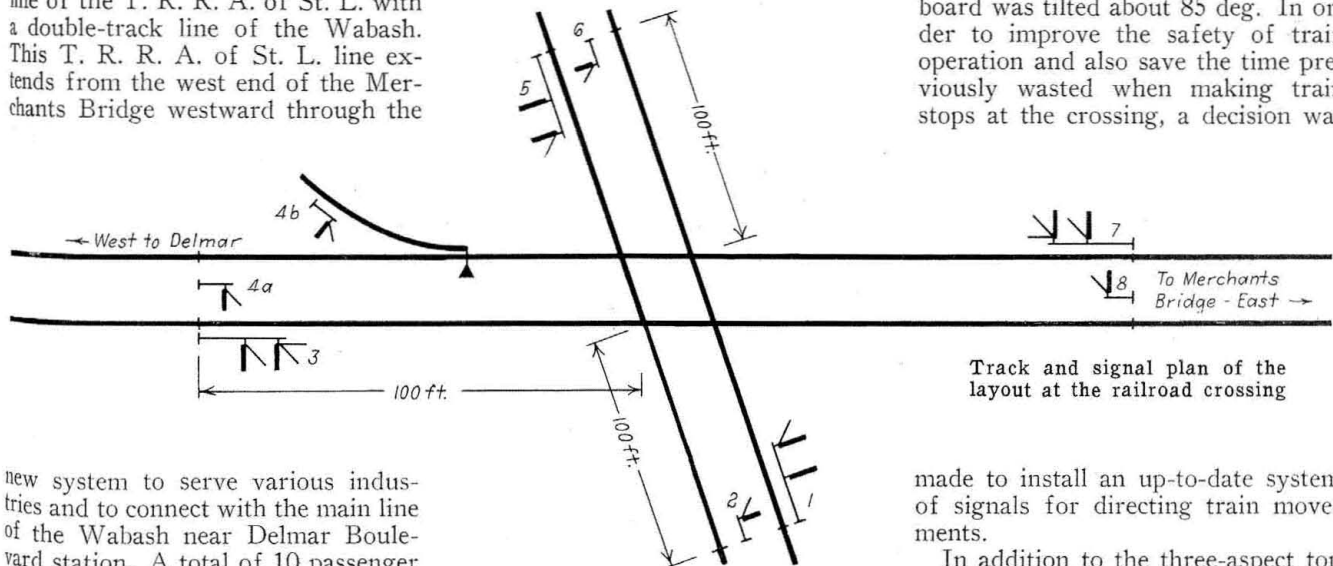
All-Relay Signal System

Installed on Terminal Railroad of St. Louis

At May street in the north part of St. Louis, Mo., the Terminal Railroad Association of St. Louis has installed an all-relay signal system for the protection of a crossing of a double-track line of the T. R. R. A. of St. L. with a double-track line of the Wabash. This T. R. R. A. of St. L. line extends from the west end of the Merchants Bridge westward through the

another. The second line which forms the crossing at May Street is a double-track freight line of the Wabash which is used primarily for switching moves

crossing was to be used by trains on the T. R. R. A. of St. L. tracks, the target was placed horizontal, and when the crossing was to be used by trains on the Wabash tracks, the board was tilted about 85 deg. In order to improve the safety of train operation and also save the time previously wasted when making train stops at the crossing, a decision was



Track and signal plan of the layout at the railroad crossing

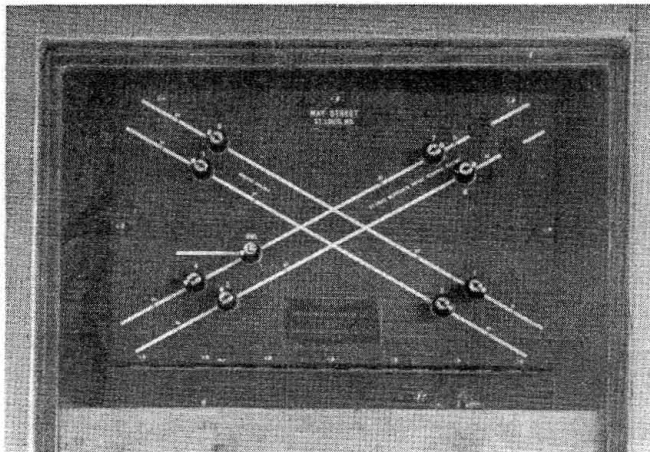
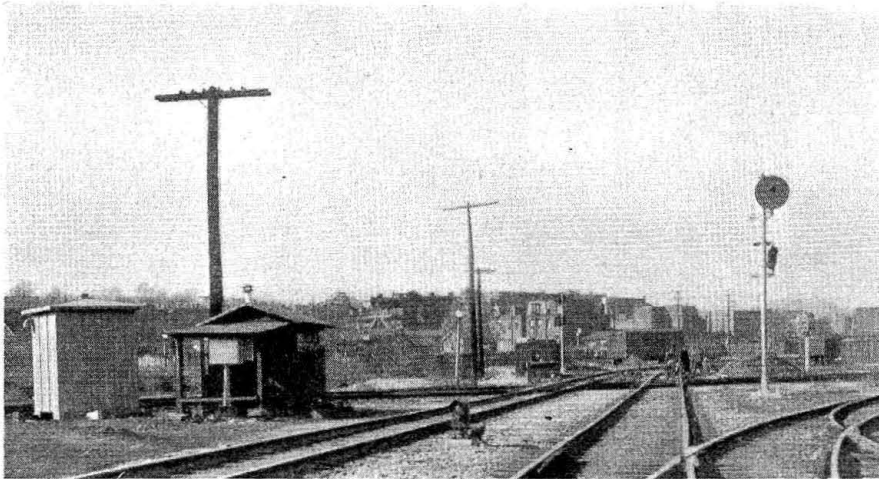
new system to serve various industries and to connect with the main line of the Wabash near Delmar Boulevard station. A total of 10 passenger trains daily of the Wabash between St. Louis and Chicago or Detroit are routed via Delmar Boulevard station, and, therefore, use this T. R. R. A. of St. L. line between Merchant Bridge and Delmar Boulevard station. This traffic includes 10 train movements daily in addition to numerous switching moves by the T. R. R. A. of St. L. to serve industries and transfer cars from one railroad to

to serve freight houses and various industries, and the number of such moves daily varies from about 15 to as many as 25 or more.

Heretofore, all trains were required to make a stop short of the crossing in order to insure safety. Train movements over the crossing were directed by a manually-operated tilting board target signal. When the

made to install an up-to-date system of signals for directing train movements.

In addition to the three-aspect top arms on the normal-direction high home signals 7 and 8, a two-aspect lower arm on each of these signals is provided to display a yellow aspect as a call-on indication to advance a train over the crossing when the block ahead is occupied. The top arm on each of the high home signals 1 and 5 on the Wabash display only the red and the yellow aspects because switching movements only are handled on



Above—Looking west with signal 7 at right and signal 8 between the tracks. Left—Panel of control machine at the railroad crossing

these tracks. A fixed red second arm is provided on signals 1 and 5 to complete the standard aspect for a high home signal. The dwarf signal for directing back-up moves each display two aspects. The westward signals on the T. R. R. A. of St. L. are located 65 ft. from the crossing, thus excluding a spur track switch from the home signal limits. The remainder of the signals are approximately 100 ft. from the crossing.

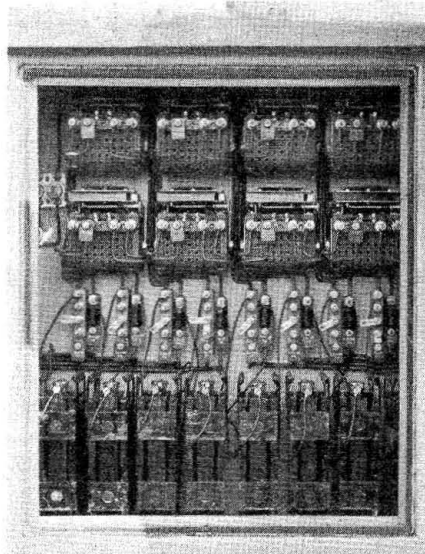
On the westward T. R. R. A. of St. L. track, a switch leading to a coal yard is located 15 ft. west of the crossing, and, therefore, this switch is within home signal limits. An electric switch lock was provided at this switch and a dwarf signal 4B was installed to direct train movements from this spur track to the main line.

The small one-story frame building, formerly at this crossing, was retained in service as protection for the man who operates the signals. The new control machine is located outside of the building about 5 ft. from and facing the door. An open porch roof protects the doorway and the machine. The machine is mounted in a sheet-metal case bolted on top of a 3-in. pipe post on a concrete foundation.

The control machine is of the cabinet type with the rotating knobs which control the signals and the elec-

tric switch lock, mounted on the lines representing the tracks on the diagram. The outer rim of a knob is rotated 90 deg. to the left to clear a signal in ordinary operation, but if a call-on aspect must be displayed the knob for signal 3 or signal 7 can be rotated 90 deg. to the right. The inner section of each knob is fixed and includes a black arrow pointing in the

Right—Relays in the house.
Below—Track feed location



direction which the signal controls. This arrow is lighted when the corresponding signal is cleared. A knob mounted at the point representing the switch to the coal yard spur, is used to release the electric lock on that switch. When this switch is reversed, operation of knob 4 clears the dwarf 4B to direct a train to pull out of the spur to the main line.

The relays, battery and charging equipment for this system are housed in a sheet-metal bungalow. Each track circuit on the T. R. R. A. of St. L. is fed by one cell of Edison storage battery and each track circuit on the Wabash is fed by three cells of primary battery. The main battery for operation of the home signals and the control circuits consists of 5 cells of lead type storage battery. The wiring connections between the instrument house, the control machine and the various signals and track connections are all in underground cable. Under the main tracks these cables are run through sections of tubular asbestos fiber conduit so that pounding of the track will not damage the cables.

This interlocking was installed by the signal forces of the T. R. R. A. of St. L. under the direction of A. P. Hix, signal engineer, the major items of equipment being furnished by the General Railway Signal Company.

