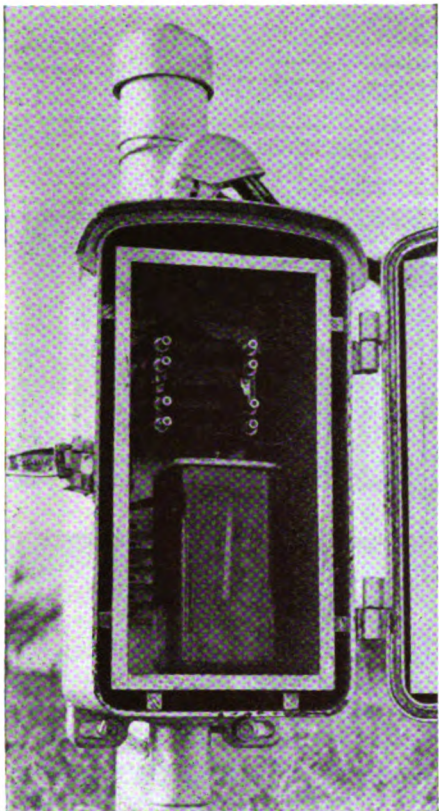




Track battery-rectifier in a two-way case

the T. & P. crossing near the tower, including two self-restoring circuit controllers, one for each road. These are housed in cast-iron boxes, mounted on a short cable post, and are accessible only to trainmen having the authorized switch key.

In the case cited, the T. & P. train stops at the home signal and a trainman proceeds to the crossing and operates the proper push button. This opens the HP circuit which normally guarantees that the T. & P. home signals are in the zero or stop position, and allows the Santa Fe or the S. P. signals to clear. Opening this normal repeater circuit, in turn, opens the HR or signal control of the signal standing clear, and causes this signal to return to normal. Other limiting conditions permitting, the T. & P. home signal clears immediately and the train proceeds over the crossing by signal indication and under signal protection. Special instructions to T. & P. trainmen, governing the use of the releases, are as follows:

"A train stopped by the home signal must, if no train is using or approaching the crossing on the other lines, send a trainman to the crossings, and if no train of the other lines is seen or heard approaching, the trainman will operate the release, whereupon the home signal should clear. The release box is located on the south side of the track,

approximately half way between the T. & N. O. (S.P.) and the G. C. & S. F. crossings. If the release should fail to clear the home signal, the train may, after waiting one minute, proceed on a hand signal given by its own trainman, who must be stationed at the crossing and remain there protecting against trains on the other lines, until the engine of his train has reached the crossing."

This same procedure applies to the other approaches equally. A second releasing station has been provided at the cotton compress crossing over the S. P. for the same kind of operations.

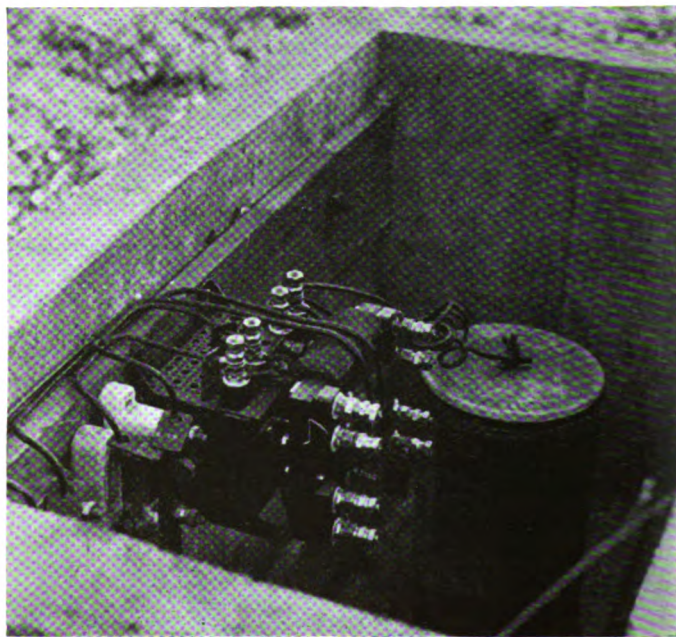
Time-Recorder Covers All Signals

By an ingenious method of controlling the pen elements of the time recorder, the 10 pens record: (1) Occupancy of any approach to the plant, (2) clearing of each home signal and, in some instances, its return to normal, (3) occupancy of track circuits within home signal limits, (4) direction of the movement, and (5) data for use in computing the average speed of any train moving over any track circuit.

Counting each track circuit and each home signal as an element of the interlocking, the recorder covers the functioning of 22 distinct ele-

so, a 60-deg. and a 0-deg. contact in parallel and together in series with the control of pen No. 1 interrupt the circuit during the clearing stroke but complete it again as the proceed aspect is displayed, the pen responding in either of its two positions, successively recording these operations. When the home track circuit is occupied, the track relay again breaks the pen circuit. It is closed for the third time as the locomotive occupies the trailing-off track section, and remains so until the train clears the circuit entirely. Thus, the following events are recorded by successive changes of pen No. 1 between its two positions: (1) Occupancy of the approach, (2) clearing of signal 2, (3) occupancy of the home track circuit, (4) occupancy of the trailing-off track circuit, and (5) clearing of the plant. For such a train movement, pen No. 2 also records the occupancy of the approach circuit and, in addition, its release and the release of the home track circuit as well. Pen No. 1, therefore, records five events and, with pen No. 2, covers all of the events entailed in a normal eastward T. & P. train movement, with the exception of the return of signal 2 to normal upon occupancy of the home track circuit. Of course, this may be taken for granted. The other

Track circuits are energized by one primary cell and an automatic rectifier



ments. This may be illustrated by tracing the control of pen No. 1. The magnet for this pen is normally de-energized. When the approach to signal 2 is occupied, the pen moves to record the incident, because a back contact in relay 1TP completes the circuit. As the train proceeds, signal 2 ordinarily will assume the proceed aspect. In doing

pens are similarly controlled to completely cover the plant operations.

This interlocking has been in satisfactory operation since it was placed in service, and has resulted in substantial savings in operating expenses. The project was designed and installed by the signal forces of the Texas & Pacific.