

Duluth & Iron Range: 16.8 miles now manual to be changed to automatic.

Grand Rapids & Indiana: 55.8 miles manual.

Long Island: 18 miles automatic.

New York, New Haven & Hartford: 32.1 miles automatic.

New York, Ontario & Western: 17 miles automatic.

Norfolk & Western: 134.3 miles now manual to be changed to automatic.

Pennsylvania Company: 108.8 miles manual.

Philadelphia & Reading: 13.8 miles manual.

St. Louis & San Francisco: 575.7 miles automatic.

St. Louis, Iron Mountain & Southern: 29.5 miles automatic.

Southern Pacific: 512 miles automatic.

Vandalia: 117.3 miles manual.

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MECHANICAL INTERLOCKING AT STATE LINE.

An interlocking plant which is said to contain one of the largest, if not the largest, mechanical interlocking machines in the United States is situated, on the Chicago



Fig. 1.

& Western Indiana, at the state line between Illinois and Indiana, about a mile from Hammond, Ind. This plant is now being rehabilitated by the signal department forces. An addition of 24 levers is being made to the machine, and ground connections and additions to the lead-out are being put in for the purpose of accommodating the tracks of the Kensington & Eastern. One of the tracks of this road is to be equipped for electric operation, the other will be operated as a steam road track.

The interlocking machine is of the National type. As the tower stood before the tracks of the Kensington & Eastern were extended through the plant the machine contained 200 levers. The 24 lever addition, now being put in, brings the total capacity of the machine up to 224 levers. Of these 188 are working levers.

The illustrations show various points of interest in

and about the plant. Fig. 1 is a view in the tower showing a section of the machine. The taking in of the tracks of the electric road necessitated an addition of a pipe run of considerable size for the operations of the various new functions. Fig. 2 shows the lead-out connections to the



Fig. 2.

new pipe run. This part of the lead-out is situated on the opposite side of the tracks from the tower. The pipe line running toward the left-hand side of the illustration extends about 600 ft. to the point shown in Fig. 4, where the pipes are connected to deflecting bars. The pipes from the lead-out extend to the pipe ends, shown in the lower right-hand corner of Fig. 4. Leaving this deflecting bar turn, the pipe line follows the Chicago & Western Indiana track in a long curve which ends at the new crossing of the Kensington & Eastern. A part of the curve is shown

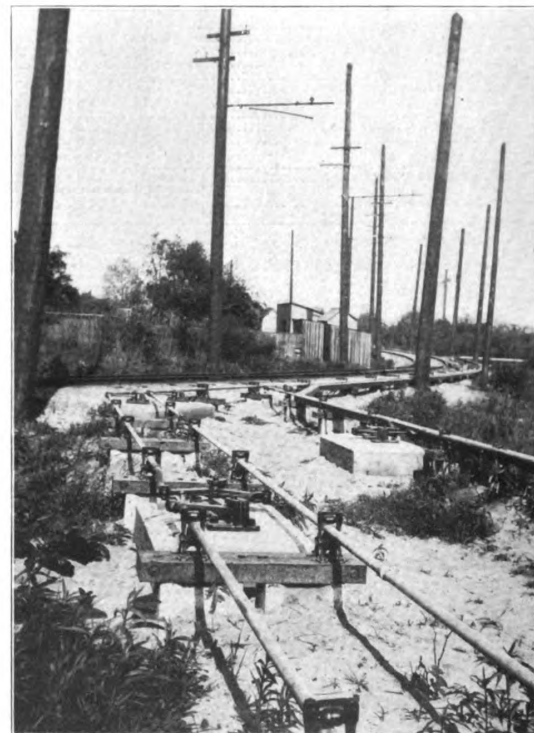


Fig. 3.

in Fig. 4. At the crossing of the electric railway, the large pipe run separates into the different smaller runs necessary for the operation of the functions on each track of the crossing. One part of the pipe run in Fig. 4 makes

a diagonal turn across the angle of the crossing nearest the tower. Fig. 3 shows a part of the lead-out crossing the angle and following the electrically operated track. Another part of the pipe run in Fig. 4, extends toward the signal shown in Fig. 5. This signal is located outside of a

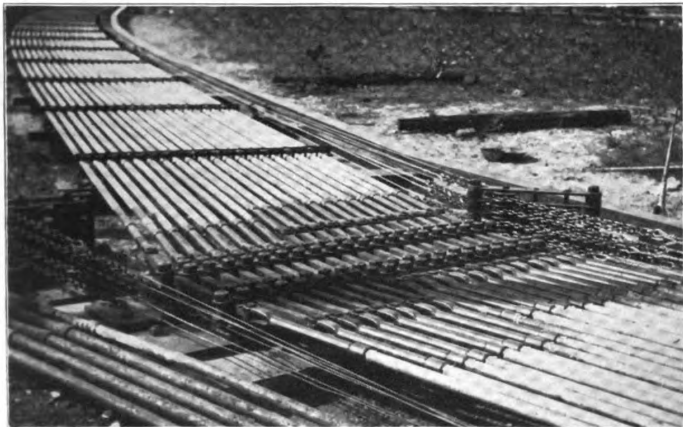


Fig. 4.

passing track and a spur track connection which lies between it and the main line. The "doll posts" on the signal are, reading from the left-hand side of the illustration, the spur track and the passing track, respectively; and the signal post will carry a signal for the main track.

The deflecting bar turn in the pipe run at the point

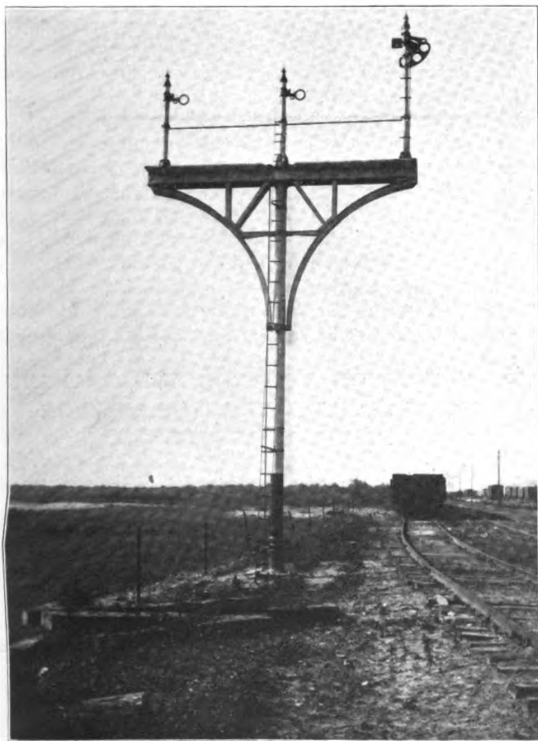


Fig. 5.

shown in Fig. 4, is one of the first constructions of this kind in which the improved deflecting bars, manufactured by the Union Switch & Signal Company are used.

There is not much needed in the way of electric protection at this point on account of the location of the

tower. The tracks of the Chicago & Western Indiana are, however, provided with electric locks. Power distant signals are also to be installed on the tracks of this road. These signals will be of the electro-gas operated type.

The construction work at State Line is being done according to the standards of the signal department of the Chicago & Western Indiana, which call for a very high grade of work in every particular. The rehabilitation and addition of the levers necessary for the new electric line are being carried on by the department forces under the direction of C. H. Berger, foreman. The plans for this work were made in the office of F. E. Jacob, signal engineer, under whose supervision the construction is being rapidly pushed to completion.

SIGNALING AND INTERLOCKING CONSTRUCTION ON THE SOUTHERN PACIFIC.

The Southern Pacific was announced in *The Signal Engineer* for April, 1910, as planning to construct 471 miles of continuous automatic signals. Since the first of the year authority has been granted for the additional installation of station protection

signals on 71 miles of track and the reconstruction of 26 miles of double track signaling. On March 25, twenty miles of the new automatic signals were in service and the remainder of the work was approximately 50 per cent completed. Since that date a stretch of 32 additional miles of automatics has been completed, but is not yet in service. The remainder of the automatic signal work now under way is now about 50 per cent completed.

The construction of six of the 15 interlocking plants for which authority was received since January 1, as mentioned in *The Signal Engineer* for April, 1910, has been temporarily postponed pending further consideration of the track lay-outs at the points concerned. One of the plants, situated at Live Oak, has been completed and is now in service. This plant has ten operated units. Work has been started on all of the five drawbridge interlockers, which were also previously mentioned. The material has been ordered for the remainder of the 15 plants, and the work of completing these has been begun.

The changing of the signals from direct to alternating current operation within the electric zone in and around Oakland, Cal., is progressing satisfactorily, though final plans for a part of this work have not been made on account of the fact that the track changes are not yet completed. It is expected, however, that conditions will permit the work to be taken up and completed in the near future.

CARE OF DETECTOR BARS AND LOCKS.

BY J. A. H.

Detector bars should be kept straight and true, both vertically and horizontally. It is an easy matter to straighten a bar on the rail, and a few kinks will cause a hard-working bar. As F. P. L. levers are apt to be the hardest working ones in the tower they must be made to work as easily as possible. All links or motion plates should be well oiled—not over oiled—but well oiled, and kept as nearly free from grit as possible. The bars should rise at least $\frac{3}{4}$ in. above the rail during their movement, and rest $\frac{1}{4}$ in. below top of rail when the movement is completed.

Switch and lock movements, being a combination of two functions, should have twice the attention of either. Adjustment here is of primary importance, and special care must be taken in watching for broken castings.