Electric Light Signal Installation for the Electric Railway Stockholm—Djursholm.

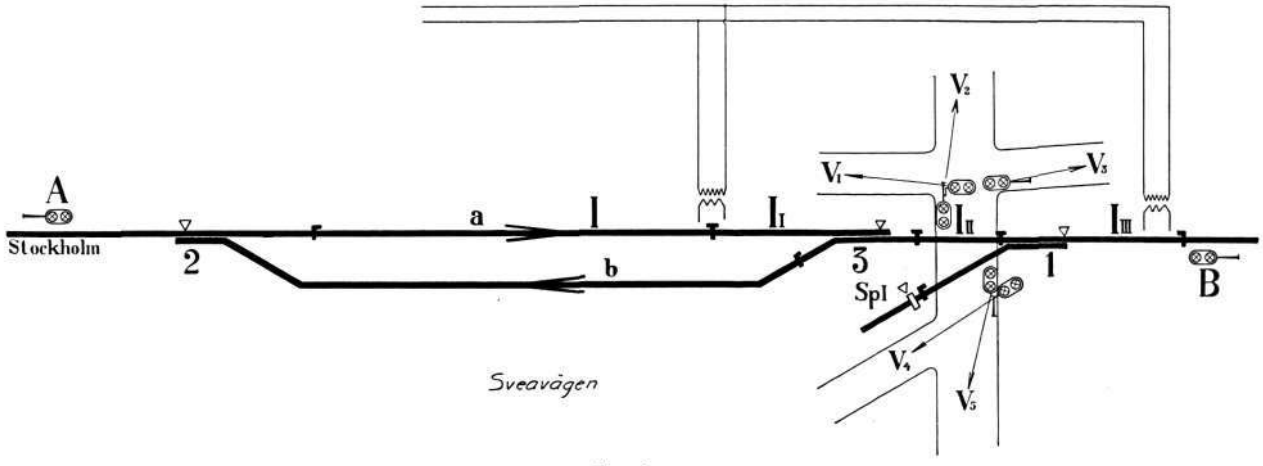

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Fig. 1.

Telefonaktiebolaget L. M. Ericsson — through Signalbolaget — has furnished the Djursholm rapid transit company with an electric signal and safety installation of unusual scope for the Sveavägen station on this road. Formerly, a mechanical interlocking machine was used for the locking of points and signals. Also, the crossing gates at the grade crossing between points Nos. 1 and 3 were manoeuvered from this interlocking machine. All these arrangements have now been replaced by automatic devices, making it possible to reduce the force and leave this point of traffic unguarded. The tracks *a* and *b*, which are used for left hand traffic, are provided with automatic spring points (2 and 3) whose normal positions lead to the left hand track. Outgoing trains push over the tongues of the switch, a spring causing them to return to normal after the passing of the train. The incoming light signals A and B are day signals connected to contacts at the aforementioned points and, at point 1 and skotch block *Sp. I*, to a siding for the temporary parking of coaches. Normally, the signals show a green light which is changed to red as soon as the respective entering point or siding point and skotch block *Sp. I* are not in correct position. Trains from Stockholm usually drop a car on the track *a* before continuing on their way, this car being coupled to the train again on its return run. Thus when track *a* is occupied by a car, the incoming signal *A* shows red, this being obtained by means of a track circuit. So as not to interfere with the traction current — which is D. C., the rails serving as conductors for the return current

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Fig. 2.

— A. C. is used for the track circuit. This alternating current is obtained from a 220-volt local net and is admitted at one end of the circuit after having been transformed down to a suitable voltage. An A. C. relay is connected in the circuit at its other end, the signal current being led over contacts in this relay. The A. C. relays used in this installation are of the disc type and are not energized by the traction current.

The former crossing gates have been removed and are now replaced by regular light signals in conjunction with track circuits I_I and I_{III} on both sides of the crossing, and the disconnecting circuit I_{II} over the crossing itself. As shown in fig. 1, several roads come together at this crossing, necessitating the erection of five light signals V_1 to V_5. These light signals (see figs. 2 and 3) show an intermittent flashing white light when the tracks may be safety crossed, which changes to an intermittent flashing red light as soon as a train enters one of the track circuits I_I or I_{III} and approaches the crossing. When the train has passed the crossing and left the disconnecting circuit I_{II} the signals again show a flashing white light. The flashing signals are obtained by means of a common intermittent flashing device fed with A. C. from the above-mentioned local net.

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Fig. 3.

The saving in maintenace effectuated by this installation — resulting from the reduction in personnel — was so great as to permit the amortization of the total cost of installation in less than one year.

G. P.