for the coat to dry. Then, apply a coat of paint with an asphaltum base or any good insulating paint. If time permits, a little more than two hours can be allowed for the coats to set. The cable should then be filled in lightly at first, so as to not pit the protection, after which it can be filled in by the usual manner.

When burying cable, the bottom of the trench should be level and solid. In cases where a stretch of the trench bottom is soft, each end of the soft spot is solid, and the trench is filled in, large stones often have to be filled in again. Where the trench bottom is soft, it will settle more so than elsewhere, causing a strain on the cable, which may cause a fracture in the cable insulation, which means water will seep in. The silica, applied properly, will abolish this trouble.

## **OS'ing Device**

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THE accompanying drawing shows an OS'ing arrangement, recently placed in service on the Chicago & Illinois Midland, which utilizes the clicks of an operating highway for the same period a bell would

crossing protection flasher relay, in ring if connected to the selector addition to picking up the sounds (2 sec.). This, in turn, results in the of an approaching train. The device pick up of the SSR selector stick is in service at Manito, Ill., approximately 65 mi. from the dispatcher's office at Springfield, and about half way between Havana and Pekin (approximately 30 mi.) Operators are not on duty in this section at night and, at times, trains are delayed for reasons unknown to the the SSR picks up, and providing the dispatcher. By making a check of three track sections involved are their time in passing through Manito with the OS'ing arrangement, the to the transmitter through the 501B dispatcher can issue orders to other subset is closed over a front contrains accordingly, thus eliminating tact of that relay, thus placing the delays.

The device, which is located at an automatic highway crossing protection location, is placed in operation by the dispatcher keying the proper combination to operate a 60 AP selector on the dispatching telephone circuit at the crossing. Should a train stand on either track circuit 1T or 3T in approach to the crossing for an extended period, he can cut out operation of the transmitter. This is accomplished by keying the same selector combination on the phone circuit.

Operation of the circuits is as follows: When the selector operates, the SPR selector repeater relay is picked up over the bell contact of the selector, remaining energized



relay, providing the approach sec-tions IT and 3T and the short track section 2T over the crossing are unoccupied, the control of the SSR being over a front contract of the SPR and a back contact of the 1-2TPR track repeater relay. When still unoccupied, the battery circuit transmitter in operation to pick up the sounds of the flasher relay when it starts to operate and those of the train when it arrives at the crossing.

The SSR relay remains up over one of its own front contacts after the SPR has released, this stick contact by passing the SPR front contact in the control of the SSR. When a train approaching the crossing enters track section 3T, the 3TR relay is released, but the 1-2TPR relay remains down. This relay, however, is energized when the train enters track sections 2T and 1T, the control for the relay being over back contacts of the track relays for those sections, remaining up while the 2TR alone is down and as long as the 1TR and 3TR relays are down together. The stick of the SSR is thus broken, cutting out operation of the OS'ing transmitter. The 1-2TPR is released again when 2TR and 3TR pick up, even though the 1TR may still be down.

Should a train approaching the crossing on track section 3T stop for an extended period after the dispatcher has cut in the OS'ing transmitter, as explained above, operation of the 60 AP selector a second time will pick up the 1-2TPR relay momentarily, the control, in this instance, being over a back contact of the 3TR and a front contact of the SPR. The stick of the SSR is thus broken, causing the battery circuit to the transmitter to be opened. Circuit operation is similar for train movements in the opposite direction.

While this is the only OS'ing device of its kind on the railroad at the present time, we expect to install one or two more in the near future. The operation has proven very satisfactory, and little disturbance to conversation on the dispatcher's phone circuit has been experienced from operation of the device.