

secondary side of the testing transformer. This transformer has ten taps of one volt each and ten taps of ten volts each.

G. R. PFLASTERER,
Nashville, Tenn. Signal Shop Foreman, N. C. & St. L.

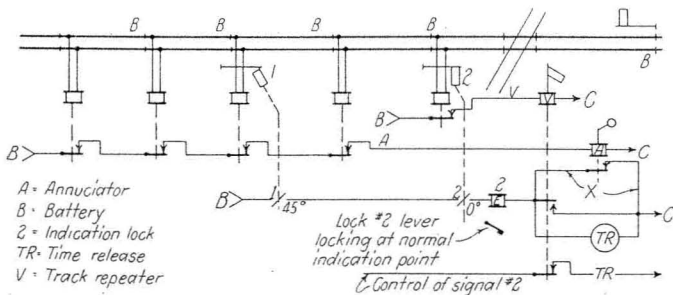
Approach Locking Circuit That Is Dependent Upon Signal Position

“What kind of an approach locking circuit has been designed that is dependent on the position of the home and distant signals? What are the advantages?”

First Answer

THE accompanying sketch shows the essentials of an approach locking circuit which requires practically nothing in addition to circuits installed for other purposes and requires the dependence on the normal position of home and distant signals at all times.

Circuit *E* is primarily an “indication” or “back lock” circuit checking the normal position of the home and



Special Locking Circuit Proposed by C. & N. W.

distant signals. Circuit *A* is primarily an annunciator circuit announcing the approach of trains. Circuit *V* is the track circuit repeater.

Lever 2 cannot be returned to normal, after having been reversed, if a train is approaching in the annunciator circuit until the train has passed the home signal, and then only when the home signal is at stop and the distant signal is between or at 0 and 45 deg. positions. In case it is necessary to change a route, the time release is provided which on reversal will provide a path around the point of the track repeater used for the lock circuit. It is necessary to control the home signal through the time release normal; in order to give a time interval between the setting of the home signal to the stop position and the releasing of the lock. In order to prevent a failure of the track repeater *V* from

releasing the route at any time the home signal control should be broken through the repeater so that the home signal will be at stop when the repeater is open.

If *stick locking* is desired instead of approach locking, the two wires marked *X* should be eliminated. Detector or sectional locking are in addition to the above circuits and are not shown.

The question as to the advantages is difficult to answer because from the question it is not possible to tell what the comparison is to be made with. I am, therefore, submitting the circuit on its own merits which can be compared, by anyone who is interested, with other circuits which accomplish the same results.

Chicago.

R. M. PHINNEY,
Assistant Signal Engineer, Chicago & North Western.

Second Answer

BY making an approach locking circuit dependent upon the position of the home and distant signals, the lever controlling the signal is not locked up unless the corresponding signal or signals are clear. This can be seen from the circuit drawing shown herewith. Other advantages in using this circuit are as follows:

After the signal or signals have cleared and the train backs off of the approach circuit, the lever is released after the signal or signals assume the stop position. Conversely, if, the signal or signals have cleared, the lever cannot be released if the signal or signals do not assume the stop position.

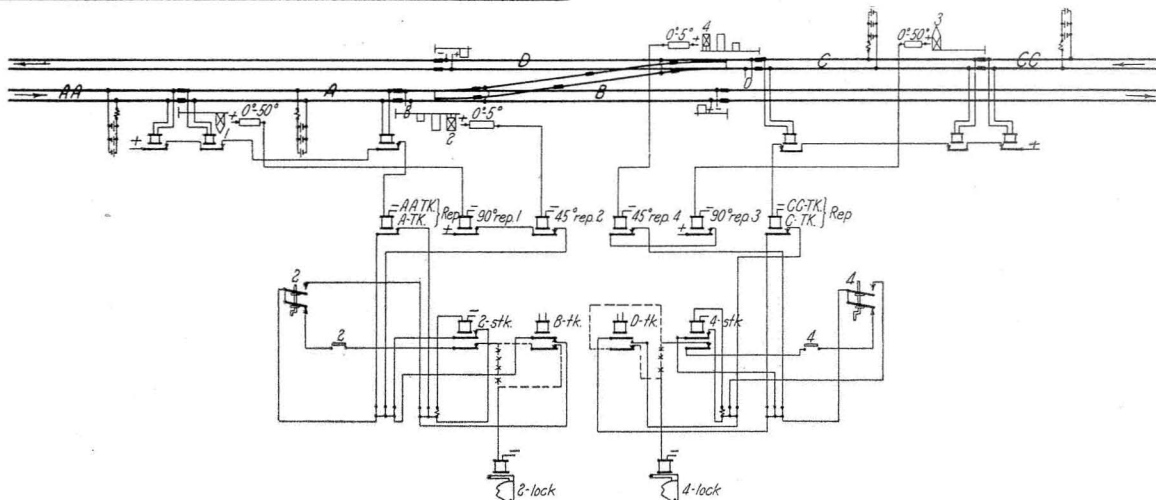
If it is desired to change the route with the approach section occupied, after the signal or signals have cleared, the screw release must be operated to the full reverse and back to the full normal positions before the lever is released. The lever is released with the passing of a train through the track section within interlocking limits.

It can be used at a point where the track layout is typical to that shown in the drawing, by inserting circuit shown dotted and taking out the circuit marked “X,” that being detector as well as approach locking.

Being designed on the closed circuit principle, failure of any part of this system will cause a most restrictive indication. It should be understood that all the relays shown on the sketch are not used solely for the purpose of approach locking. All signals in this scheme are of the normal danger type. The numerals shown in the circuit controller symbols at each signal indicate that these controls are made between the positions mentioned.

Albany, N. Y.

A. VALLEE,
Supervisor, Signal Construction, Delaware & Hudson.



Approach Locking Circuit That Is Dependent Upon the Position of Home and Distant Signals