

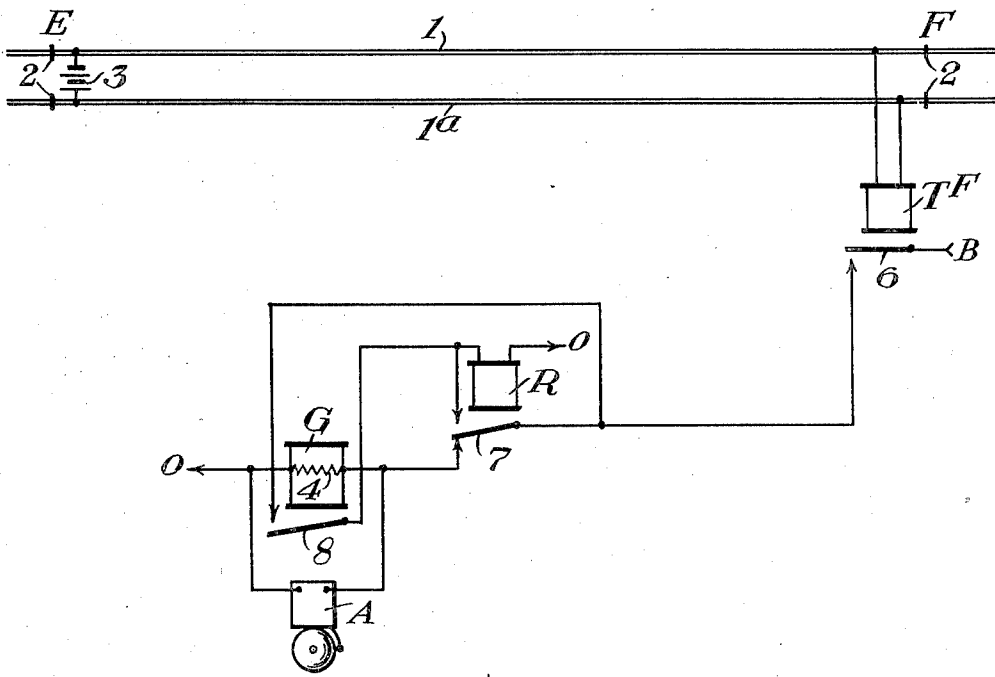
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TRAIN ANNUNCIATING APPARATUS

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TRAIN-ANNUNCIATING APPARATUS

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My invention relates to train annunciating apparatus, that is, to apparatus for announcing or indicating the approach of trains in an interlocking tower or other central location.

One feature of my invention is the provision of novel and improved means for limiting the time of operation of the annunciator.

I will describe one form of apparatus embodying my invention, and will then point out the novel features thereof in claims.

The accompanying drawing is a diagrammatic view showing one form of apparatus embodying my invention.

Referring to the drawing, the reference characters 1 and 1^a designate the track rails of a railway track, which rails are divided by insulated joints 2 to form a track section E—F. This section is provided with a track circuit comprising a track battery 3, and a track relay T^F. This track relay includes a back contact 6, which contact is therefore normally open and becomes closed when the section E—F is occupied by a train.

Located in an interlocking tower or other central point, is an annunciator A, which, as here shown, is an electric bell. This bell is controlled by a slow pick-up relay G, and by a cut-out relay R. As here shown, the relay G is a thermal relay having an operating winding 4 and a normally open contact 8 which becomes closed after winding 4 has been energized for a given interval of time.

Normally, track relay T^F is energized, so that back contact 6 of this relay is open, with the result that the bell A and the relays G and R are all de-energized. When a train enters section E—F, it will de-energize relay T^F, so that back contact 6 of this relay will become closed. A circuit will then be closed from terminal B of a suitable source of current through back contact 6, back point of contact 7 of relay R, bell A and winding 4 of relay G in multiple, to terminal O of the same source of current. Bell A will then begin to ring, and after a given interval of time contact 8 of relay G will close, thereby closing a pick-up circuit for relay R, which circuit passes from terminal B, through back contact 6, contact 8 of relay G, and the wind-

ing of relay R to terminal O. The energization of relay R will cause the back point of contact 7 of this relay to become opened, thereby opening the circuit for bell A and the operating winding of relay G, with the result that bell A will cease to ring. Relay R will then remain energized as long as relay T^F is energized, because of a stick circuit which passes from terminal B, through back contact 6, front point of contact 7 of relay R, and the winding of this relay to terminal O. As soon as the train passes out of section E—F, track relay T^F will again become energized, and this will open the stick circuit for relay R, so that the parts will be restored to the conditions in which they are shown in the drawing.

It will be seen from the foregoing, that bell A will ring for only a limited interval of time after a train enters section E—F.

One important feature of my invention is that no current is consumed by the annunciating apparatus, except when section E—F is occupied by a train. Another feature is that the thermal relay G is energized only during the limited interval of time in which the bell A is in operation.

Although as shown in the drawing the winding 4 of relay G is connected in multiple with the bell A, this specific arrangement of the circuit is not essential, because this winding might equally well be placed in series with the bell.

Although I have herein shown and described only one form of apparatus embodying my invention, it is understood that various changes and modifications may be made therein within the scope of the appended claims without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is:

1. A system for indicating the approach of trains, comprising a section of track, a train controlled relay associated with said section and having a normally open contact which is closed when the section is occupied, an annunciator, a slow pick-up relay, a normally de-energized cut-out relay, a circuit for said annunciator including said normal-

ly open contact and a back contact of said cut-out relay as well as the winding of said slow pick-up relay, a pick-up circuit for said cut-out relay including said normally open contact and the contact of said slow pick-up relay, and a stick circuit for said cut-out relay including said normally open contact and a front contact of the cut-out relay.

2. A system for indicating the approach of trains, comprising a section of track, a train controlled relay associated with said section and having a normally open contact which is closed when the section is occupied, an annunciator, a slow pick-up relay, means for simultaneously setting said annunciator into operation and energizing said slow pick-up relay in response to the closing of said contact, a normally de-energized cut-out relay, means for energizing said cut-out relay when said slow pick-up relay closes and for subsequently keeping it energized as long as said normally open contact is closed, and means for stopping the operation of said annunciator and de-energizing said slow pick-up relay when said cut-out relay closes.

In testimony whereof I affix my signature.

PAUL H. CRAGO.

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