June 30, 1936. G. R. PFLASTERER 2,046,180

RAILWAY TRACK SWITCH CONTROLLING APPARATUS

Filed Feb. 19, 1935 2 Sheets-Sheet 1

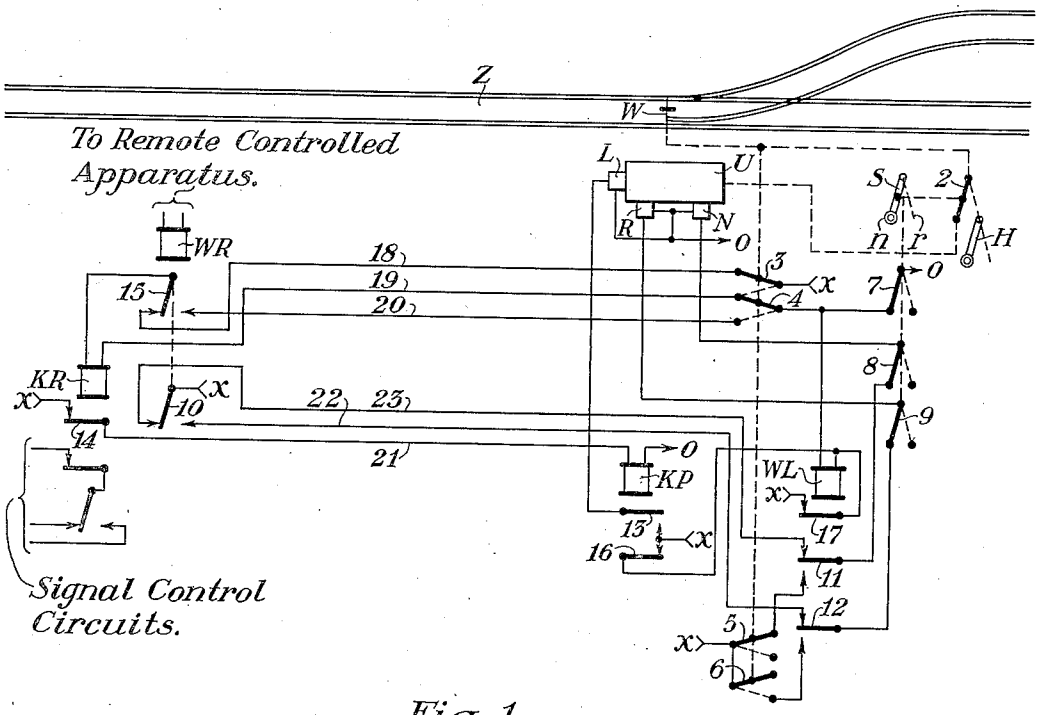


Fig. 1.

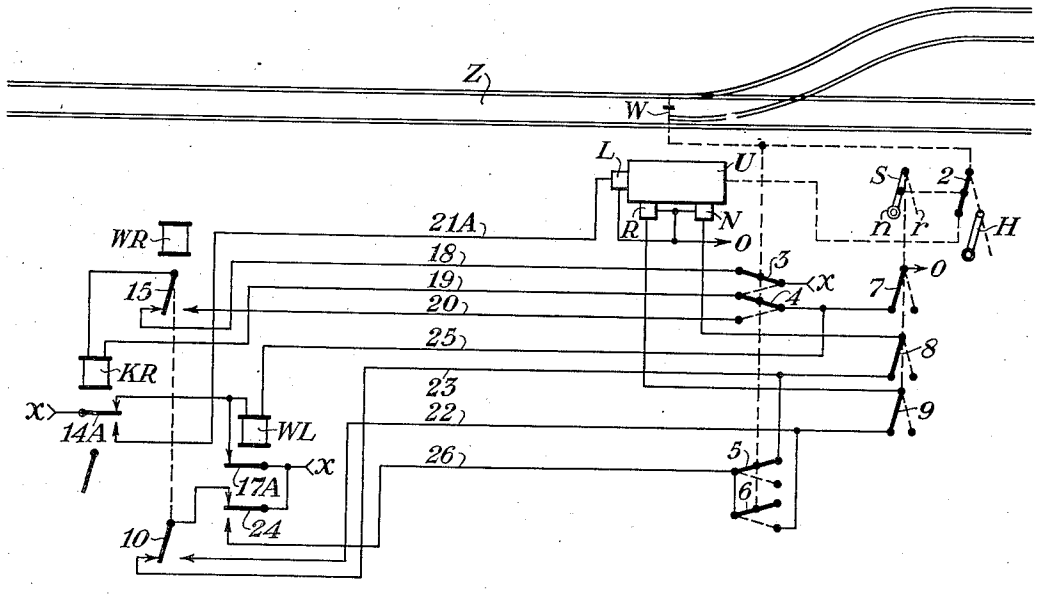


Fig. 2.

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RAILWAY TRACK SWITCH CONTROLLING APPARATUS

Filed Feb. 19, 1935 2 Sheets-Sheet 2

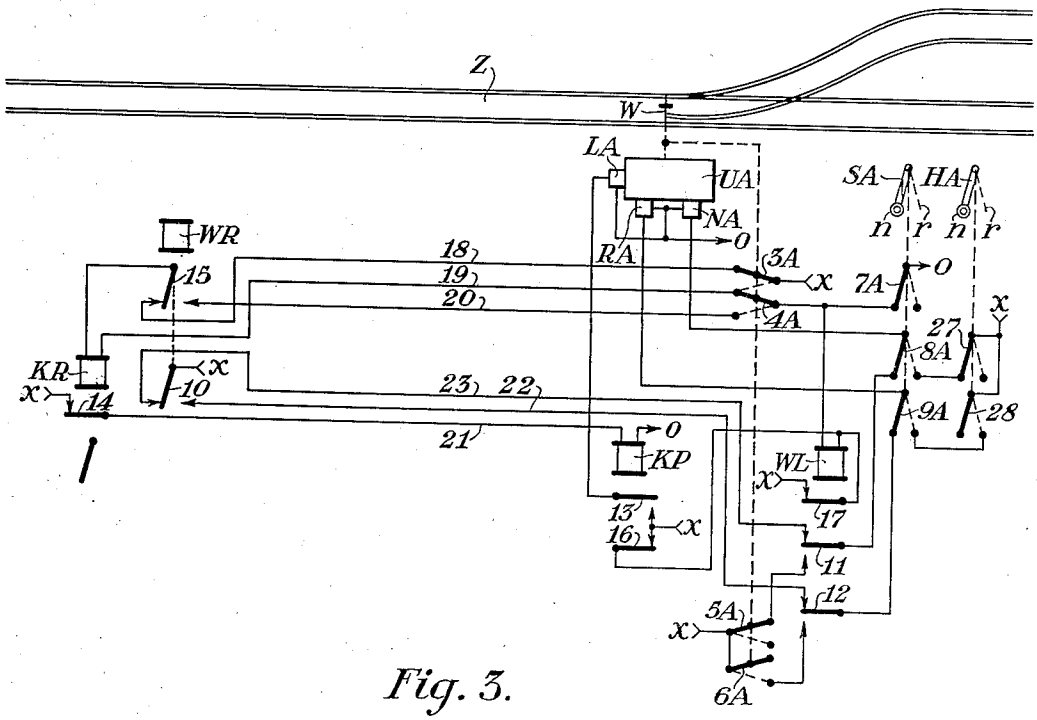


Fig. 3.

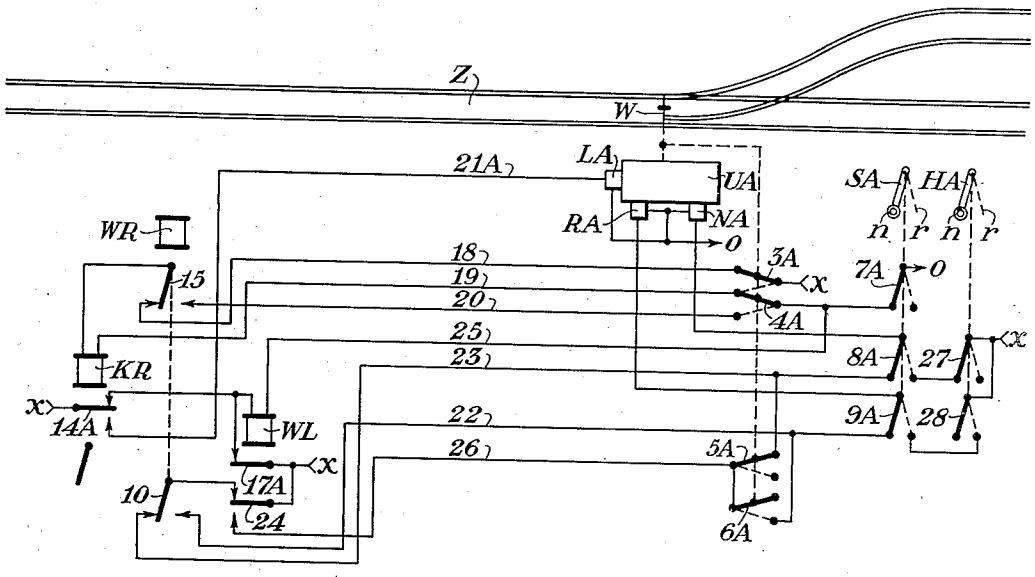


Fig. 4.

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Patented June 30, 1936

2,046,180

UNITED STATES PATENT OFFICE

2,046,180

RAILWAY TRACK SWITCH CONTROLLING APPARATUS

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Application February 19, 1935, Serial No. 7,225

20 Claims. (Cl. 246—3)

My invention relates to railway track switch controlling apparatus, and more particularly to a means for safeguarding the operation of a remotely controlled power operated switch under conditions where local operation of the switch is required.

One object of my invention is the provision, in apparatus of this character, of means for insuring that a power operated switch controlled from a point remote from the switch may not, after being operated from a point local to the switch, be restored to control by the apparatus at the remote point unless the position of the switch and the condition of the remote controlled apparatus are in agreement.

Another object of my invention is the provision of means effective to maintain the switch by power in the position to which last operated locally until such time as the remote controlled apparatus again assumes control of the switch.

Other objects of my invention will become apparent from the following description.

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

In the accompanying drawings, Fig. 1 is a diagrammatic view illustrating one form of apparatus embodying my invention as applied to one type of switch operating mechanism. Fig. 2 is a diagrammatic view illustrating a modified form of the apparatus shown in Fig. 1, and also embodying my invention. Fig. 3 is a diagrammatic view illustrating the form of apparatus shown in Fig. 1 as applied to another type of switch operating mechanism, and also embodying my invention. Fig. 4 is a diagrammatic view illustrating a modified form of the apparatus shown in Fig. 3, and also embodying my invention.

Referring first to Fig. 1, the reference character W designates a railway track switch in a section of track here designated by the reference character Z. The switch W may connect track Z with one end of a passing siding or may be the converging end of a stretch of double track.

The switch W may be operated by any suitable remote controlled means such, for example, as a mechanism U which is here illustrated as the well-known electro-pneumatic switch operating mechanism. The switch W is also provided with local control means here illustrated as two mechanical levers H and S, which, when operated in sequence, permit the switch to be operated by hand. As will be pointed out in detail hereinafter, lever S controls apparatus which at times prevents control of the switch by its remote controlled means and at the same time inserts a mechanical medium between the switch and lever H whereby lever H will operate the switch. In the form here shown diagrammatically, this mechanical medium is a link 2 operated by the manually operable selector lever S. When lever S occupies its normal or left-hand position the link 2 couples the switch W with the mechanism U. When lever S is moved to its right-hand or reverse position, the switch W is disconnected from the mechanism U and is connected with the lever H which may then be manipulated to operate the switch.

When the switch W is conditioned for remote operation, the mechanism U may be caused to move the switch W between its normal and reverse positions by the energization of a normal magnet N or a reverse magnet R, provided a lock magnet L is energized. The normal and reverse magnets N and R are controlled by a polar switch control relay WR and the lock magnet L is controlled by a switch indicating repeating relay KP. The relay KP is controlled by a polar switch indicating relay KR. The relays KP and KR are also employed for other purposes which hereinafter will be explained more in detail.

The switch operating relay WR may be controlled from a point remote from the switch by any suitable means, not shown in the drawings, such, for example, as described in Patent No. 1,380,452 issued June 7, 1921, to Paul F. Willard.

The switch indicating relay KR has a neutral armature which is energized only if the selector lever is in its normal position and then only if the position of the switch W corresponds with the position of the polar armature of the relay WR. The relay KR also has a polar armature which, when relay KR is energized, assumes a position to correspond to the position of the switch.

The relay KR, in addition to controlling the relay KP, may also be employed for controlling wayside signals in any suitable manner, such, for example, as in the manner disclosed in Patent No. 1,959,072, granted May 15, 1934, to Herbert A. Wallace.

The switch W governs four contacts 3, 4, 5 and 6 in accordance with the switch position, by any usual and well-known means. Contacts 3 and 4 are employed in the control circuit for the relay KR and are effective for energizing relay KR with current of one polarity or another in accordance with the position of the switch. The contacts 5 and 6 are employed, as will be explained more in detail hereinafter, for at times

controlling the normal or reverse magnet N or R in accordance with the switch position.

The selector lever S is provided with three contacts 7, 8, and 9, each of which is closed only when lever S is in its normal position.

The reference character WL designates a lock relay which, as will be explained more in detail hereinafter, is at times effective for transferring the switch W from control by the relay WR to control by the switch indicating contacts 5 and 6.

The normal magnet N is provided with two circuits, one of which passes from terminal X of a suitable source of current through normal point of polar contact 18 of relay WR, front point of contact 11 of relay WL, selector lever contact 8, and magnet N to terminal O of the same source of current. The other circuit for magnet N includes normal switch indicating contact 5 and back point of contact 11 of relay WL, as well as selector lever contact 8. The reverse magnet R is also provided with two circuits. One circuit includes reverse point of polar contact 18 of relay WR and front point of contact 12 of relay WL, as well as selector lever contact 9. The other circuit for magnet R includes reverse switch indicating contact 6 and front point of contact 12 of relay WL, as well as selector lever contact 9. The lock magnet L is provided with a circuit which includes back contact 13 of relay KP. The mechanism U, therefore, when relay KP is deenergized, may be caused to operate the switch W between its normal and reverse positions by the corresponding movement of contact 10 of relay WR provided relay WL is energized and provided selector lever S is in its normal position. If relay WL is deenergized and selector lever S is in its normal position, the normal magnet N or reverse magnet R will be energized by normal switch indicating contact 5 or reverse switch indicating contact 6, respectively, depending upon the position of the switch.

The relay KP is provided with a circuit which includes only front contact 14 of relay KR, so that relay KP is energized or deenergized in accordance with the energization or deenergization of relay KR.

The relay KR is provided with a circuit which includes selector lever contact 7 and switch indicating contacts 3 and 4 as well as polar contact 15 of relay WR. Thus, relay KR will be energized only if selector lever S is in its normal position and then only if the position of contact 15 of relay WR corresponds to the position of the switch W. When selector lever S is in its normal position, therefore, the relay KR may be caused to assume a normal or reverse position depending upon the position of the switch W provided that the position of relay WR is in agreement with the position of the switch W. It is apparent that when relay WR is operated by the remote control apparatus, not shown in the drawings, the relay KR will become released and will again become energized only when the switch W moves to a position to agree with the position of relay WR. When relay KR is released, the signal control circuits, not shown in the drawings, are opened, and relay KP becomes released to energize lock magnet L.

The relay WL is provided with a pick-up circuit and with a stick circuit each of which includes selector lever contact 7. The pick-up circuit also includes front contact 16 of relay KP and the stick circuit also includes front contact 17 of relay WL. Thus, relay WL will become deenergized only upon the reversal of selector lever S and will remain in that position unless relay KP is energized even if lever S is restored to its normal position. When relay WL is energized, it will be held in that position by its stick circuit, and will not release upon the momentary deenergization of relay KP during the usual operation of the switch W by the relay WR.

Having thus described in general the various parts illustrated in Fig. 1, I shall now explain their operation.

With all apparatus in its normal condition, as shown in the drawings, I shall assume that switch W is to be moved to its reverse position in response to the reversal of switch control relay WR by the remote controlled apparatus, not shown in the drawings. The movement of polar contacts 10 and 15 of relay WR to their reverse positions will energize reverse magnet R and release relay KR, respectively. The deenergization of relay KR will release relay KP, and also will open the signal control circuits so that no signal (not shown in the drawings) can be caused to indicate proceed. The deenergization of relay KP will energize lock magnet L. Since reverse magnet R is already energized, the mechanism will cause switch W to move to its reverse position upon the energization of lock magnet L. When switch W has moved to its reverse position so that the position of switch indicating contacts 3 and 4 corresponds to the position of relay WR, the relay KR will again become energized to reestablish the signal control circuits, not shown in the drawings, and to energize the relay KP. The energization of relay KP will remove energy from lock magnet L and the switch W is in its reverse position and in a safe condition for the movement of traffic.

Experience has shown that switching movements over a remotely controlled power operated switch usually may be facilitated greatly if the switch is operated locally. In order to explain the operation of the apparatus shown in Fig. 1 when the switch is to be operated locally, I shall assume that a train desiring to make a number of switching movements over the switch W has arrived at the switch. A trainman proceeds to the switch and moves selector lever S to its reverse position to condition the switch W for local operation.

The reversal of lever S moves link 2 out of engagement with mechanism U and into engagement with lever H and also opens contacts 7, 8, and 9. The opening of contact 7 will release both relay WL and relay KR, and the opening of contacts 8 and 9 will open the control circuits for magnets N and R, respectively. The releasing of relay WL also opens the control circuits for magnets N and R by the opening of the front points of contacts 11 and 12, respectively, of relay WL. The releasing of relay KR will open the signal control circuits so that no signal may be caused to indicate proceed over the switch. The releasing of relay KR also releases the relay KP. The deenergization of relay KP will cause its back contact 13 to become closed and its front contact 16 to become opened. The closing of back contact 13 will energize lock magnet L and the opening of front contact 16 will open the pick-up circuit for relay WL.

Since the signal control circuits are now opened and the control circuit for the normal magnet N and reverse magnet R is also each opened, so that no signal, not shown in the drawings, may be caused to indicate proceed and the switch mechanism U may not be operated by the relay WR, the switch W is in a safe condition for local operation by the lever H.

I shall next assume that the switching movements have been completed, that the switch has been placed by lever H in its normal position, and that the selector lever S has been restored to its normal position. The movement of selector lever S to its normal position removes link 2 from engagement with lever H and restores it to engagement with mechanism U. The movement of lever S to its normal position will also close contacts 7, 8, and 9. The closing of contact 7 causes relay KR to become energized. The energization of relay KR causes relay KP to become energized and the energization of relay KP causes relay WL to become energized. The energization of relay WL will reestablish the control circuits for the normal and reverse magnets N and R because contacts 8 and 9 have already become closed. The switch W now may again be controlled by the relay WR.

In the event the switch W, after switching movements have been completed, is left by the trainman in a position which does not agree with the position of the polar armature of relay WR, such, for example, as if the relay WR were in its normal position, as shown in the drawings, and the switch W were in its reverse position, the relay KR may not be energized. If the relay KR may not be energized, the relay KP likewise may not be energized so that relay WL will remain deenergized and the control of the switch W may not be restored to relay WR until such time as the relay WR is caused, by operation of the remote controlled apparatus (not shown in the drawings) to assume a position which corresponds to the position of the switch W. Furthermore, when relay WL is prevented from picking up due to a disagreement between the position of the switch and the position of the polar armature of relay WR, energy is applied, by means of either switch indicating contact 5 or switch indicating contact 6, directly to either the normal magnet N or the reverse magnet R depending upon the position of the switch. Since the lock magnet L is energized as long as relay KP remains released, the switch W will be maintained by power in the position to which last operated locally until such time as the relay WL is again energized. The switch W, therefore, is in a safe condition for the movement of traffic, when the selector lever is in its normal position, regardless of the position of relay WR with respect to the position of the switch.

From the foregoing explanation of the apparatus shown in Fig. 1, it will be seen that I have provided a simple and reliable means for safeguarding the local control of a remotely controlled power operated switch. When the switch is conditioned for local operation, the switch is removed from control by the remote controlled apparatus and the control circuits for the signals governing traffic over the switch are interrupted to hold the signals, not shown in the drawings, in the stop condition. The apparatus shown in Fig. 1 further provides for the restoration of the control of the switch to the remote controlled apparatus only if the selector lever is returned to its initial condition, and then only if the position of the switch and the position of the switch control relay are in agreement. Furthermore, in the event of disagreement between the position of the switch and the position of the switch control relay when the selector lever is returned to its normal position, the switch will be maintained by power in the position to which last operated locally until such time as the switch control relay WR assumes a position corresponding to the position of the switch.

The arrangement of apparatus shown in Fig. 1 is particularly adapted for, though in no way limited to, application to switch layouts at which the switch control relay WR and switch indicating relay KR are located at some distance from the switch W, such, for example, as is frequently found when the switch control and indicating relays for a group of remote controlled switches are located in a central housing, not shown in the drawings. In the event that relays WR and KR were located some distance from the switch W and that relays KP and WL were located immediately adjacent the switch, no additional line wires above the number usually employed to operate the switch without the local control feature will be required between the relays WR and KR and the switch W. That is, if levers S and H were not provided and relays KP and WL were omitted, so that the switch W could be operated by relay WR only, the magnet L would be controlled directly over a back contact of relay KR by line wire 21, and line wires 18, 19, 20, 21, 22, and 23, or exactly the same number I have shown in Fig. 1, would be required to control the switch W. Thus, it will be seen that I have provided a means for safeguarding the local operation of a remote controlled switch without the use of additional line wires.

Referring now to Fig. 2, the apparatus shown therein operates substantially as just described for the apparatus shown in Fig. 1, although the relay KP has been omitted. Since relay KP has been omitted, the lock magnet L and the relay WL are both controlled by contact 14A of relay KR. Thus when relay KR is energized, relay WL will become energized provided lever S is in its normal position, and when relay KR is deenergized, lock magnet L will become energized. The relay WL is provided with a stick circuit which includes its own front contact 17A, so that, when relay WL is energized, it will remain energized when relay KR becomes deenergized due to the usual operation of the switch W by the relay WR. When relay WL is energized and front point of contact 24 of relay WL is closed, the normal and reverse magnets N and R are under control by the relay WR provided selector lever S is in its normal position and contacts 8 and 9 are closed. When relay WL is released so that front point of contact 24 becomes opened and back point of contact 24 becomes closed, the control of magnets N and R by relay WR is prevented; and if contacts 8 and 9 are closed, the magnets N and R are transferred to control by switch indicating contacts 5 and 6.

With all parts in their normal condition as illustrated in Fig. 2, the switch W may be caused to move between its normal and reverse positions under control by the relay WR in a manner similar to that described for the apparatus illustrated in Fig. 1. Likewise, when the switch W is to be operated locally, the reversal of selector lever S will move link 2 out of engagement with mechanism U and into engagement with lever H, and will also release relays KR and WL. The releasing of relay KR will open the signal control circuits, and the releasing of relay WL will prevent operation of the mechanism U by the relay WR, even if the lever S is restored to its initial position, until such time as the relay KR is again energized; that is, until the switch W and the relay WR occupy corresponding positions. The

releasing of relay WL also provides, when the selector lever S is in its normal position, a means for maintaining the switch W in the position to which last operated locally until such time as the switch is restored to control by relay WR. Thus it will be seen that the arrangement illustrated in Fig. 2 provides another simple and reliable means for safeguarding the local operation of a remote controlled power operated switch.

The arrangement of apparatus shown in Fig. 2 is particularly adapted for, though in no way limited to, application to switch layouts at which the switch control relay WR and the switch indicating relay KR as well as the lock relay WL are all located at the same point adjacent the switch. If the local control feature were not provided for the switch W, six line wires **18**, **19**, **20**, **21A**, **22**, and **23** will usually be required between the switch W and the relay location for the operation of the switch. The apparatus shown in Fig. 2 requires only two additional line wires **25** and **26** and, therefore, is an economical arrangement where the wires **25** and **26** may be comparatively short.

From the foregoing description of the apparatus illustrated in Figs. 1 and 2, it will be seen that these forms of my invention are particularly adapted for use with a railway track switch of the type provided with two operating mechanisms one of which is controlled by apparatus located at a point remote from the switch and the other of which is controlled by apparatus located at a point local to the switch. This type of switch is provided with a mechanical means for connecting the switch to the remote controlled mechanism or to the local mechanism as may be desired. The forms of apparatus illustrated in Figs. 3 and 4, which I shall next describe, are particularly adapted for application to a railway track switch provided with one operating mechanism which may be placed under control by apparatus located at a point remote from the switch or under control by apparatus located at a point local to the switch, as may be desired.

Referring now to Fig. 3, the reference character UA designates another mechanism of the well-known electro-pneumatic type suitable for the operation of the switch W. The mechanism UA is controlled in a manner substantially the same as described for the control of mechanism U shown in Fig. 1.

The mechanism UA may be caused to move the switch W between its normal and reverse position in response to the energization of a normal magnet NA or a reverse magnet RA provided a lock magnet LA is energized. The normal magnet NA and the reverse magnet RA may be controlled either by the switch control relay WR or by a local switch control means which will be described more in detail hereinafter. The lock magnet LA is controlled by the switch indicating repeating relay KP.

The local switch control means is here shown as a lever adjacent the switch W and designated by the reference character HA. Also associated with and adjacent the switch W is a selector lever designated by the reference character SA. When selector lever SA occupies its normal position, mechanism UA is under control by the relay WR provided relay WL is energized, and when lever SA is in its reverse position, mechanism UA is under control by the local switch control lever HA.

The lever SA is provided with a contact **7A** which is closed only when the lever SA is in its normal position, and is also provided with contacts **8A** and **9A** which are employed at times for transferring the control of the normal and reverse magnets NA and RA, respectively, to control by lever HA. The lever HA is provided with contacts **27** and **28** which are employed, when lever SA is in its reverse position, for energizing either the normal magnet NA or the reverse magnet RA depending upon the position of local operating lever H.

The switch W governs four contacts **3A**, **4A**, **5A**, and **6A** in accordance with the switch position, by any usual and well-known means. Contacts **3A** and **4A** are employed for at times controlling the relay KR and contacts **5A** and **6A** are employed for at times controlling the magnets NA and RA.

The relays KR, KP, and WL are controlled in exactly the same manner as described for the arrangement illustrated in Fig. 1.

The lock magnet LA is controlled by back contact **13** of relay KP. The normal magnet NA and the reverse magnet RA are controlled by the normal and reverse points, respectively, of polar contact **10** of relay WR, provided selector lever SA is in its normal position and relay WL is energized. When selector lever SA is in its reverse position, the magnets N and R are under control by local switch control lever contacts **27** and **28**, respectively. When selector lever SA is in its normal position and relay WL is deenergized, the magnets N and R are governed by switch indicating contacts **5A** and **6A**, respectively.

The apparatus shown in Fig. 3 may be operated from a remote point in a manner identical to that described for the apparatus shown in Fig. 1.

When the switch W is conditioned for local operation by the reversal of selector lever SA, the opening of contact **7A** will release relays KR and WL and the reversal of contacts **8A** and **9A** will place normal magnet NA and reverse magnet RA under control by local switch control lever HA. The deenergization of relay KR will release relay KP which will cause lock magnet LA to become energized. When lock magnet LA is energized, the mechanism UA may then be caused to move the switch W between its normal and reverse positions in response to the corresponding manipulation of lever HA. When the switching movements have been completed and selector lever SA is returned to its normal position, the relay KR, if the position of the switch and the position of the relay WR are in agreement, will become energized, thereby picking up relay KP so that relay WL will become energized. When relay WL is energized the switch W is again restored to control by the relay WR. In the event that the position of the switch does not correspond to the position of the relay WR when the selector lever SA is returned to its normal position, the relay KR will not become energized until such correspondence is effected upon the operation of relay WR by the remote controlled apparatus, not shown in the drawings. In the meantime, relay KP and consequently relay WL will each remain deenergized. As long as relay KP remains deenergized the lock magnet LA will remain energized, and as long as relay WL remains deenergized the normal and reverse magnets NA and RA will be under control by switch indicating contacts **5A** and **6A**, respectively. The switch W, therefore, will be maintained by power in the position to which last operated until such time as the relay KR becomes energized. Thus it

will be seen that the apparatus, illustrated in Fig. 3, provides a simple and reliable means for safeguarding the local control of a remote controlled power switch equipped with an electro-pneumatic mechanism of a type different from that employed in Figs. 1 and 2.

For the same reasons as outlined for the arrangement illustrated in Fig. 1, the apparatus shown in Fig. 3 is particularly adapted for, but not limited to, use at switch layouts where the relays WR and KR are located at some distance from the switch W.

Referring now to Fig. 4, the reference character UA designates an electro-pneumatic mechanism of the type illustrated in Fig. 3. The mechanism UA is controlled in a manner substantially the same as described for the control of mechanism U shown in Fig. 2. The selector lever SA governing contacts 7A, 8A, and 9A and the local switch control lever HA governing contacts 27 and 28, each operates in a manner similar to that described for levers SA and HA shown in Fig. 3. The switch indicating contacts 3A, 4A, 5A, and 6A each performs the same function as contacts 3, 4, 5, and 6 shown in Fig. 2, and relays WR, KR, and WL each operates in the same manner and performs the same functions as described for the arrangement shown in Fig. 2. It will be readily apparent from the drawings and from the foregoing remarks as to the manner in which the apparatus shown in Fig. 4 operates. It will also be readily apparent that for the same reasons as outlined for the arrangement shown in Fig. 2, the apparatus shown in Fig. 4 is particularly adapted for, though not limited to, use at switch layouts where the relay WL is to be located in the same housing (not shown in the drawings) as relays WR and KR.

In each of the modifications of my invention as illustrated in Figs. 1, 2, 3, and 4, it will be seen that I have provided a reliable means for the local control of a remotely controlled power operated railway track switch, in which, if the selector lever and the local switch operating lever is each in either the full normal or the full reverse position, the switch is in a safe condition for traffic regardless of whether the switch is under control by the remotely controlled apparatus or by the local control apparatus. Also, each of the modifications of my invention provides a means for causing the signals governing traffic over the switch to indicate stop when the switch is conditioned for local operation, and a means for reestablishing the signal control circuits when the switch is restored to control by the remote controlled apparatus. Furthermore, each modification of my invention provides a means for safeguarding the local control of a remote controlled power operated switch with a minimum number of line wires between the switch and the switch control and indicating relays. No additional line wires are required for the arrangement shown in Figs. 1 and 3, and only two additional line wires are required for the arrangement shown in Figs. 2 and 4.

Although I have herein shown and described only a few forms 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. In combination, a railway traffic governing device, means controlled from a point remote from said device for at times operating the device, means local to said device for at other times operating the device, selecting apparatus having a normal position in which said device is conditioned for operation by said remote controlled means and another position in which said device is conditioned for operation by said local means, a normally energized lock relay effective when deenergized to prevent control of said device by said remote controlled means, means for causing said lock relay to become deenergized when said selecting apparatus is moved to such other position, an indicating relay energized only when said selecting apparatus is restored to its normal position provided said device and said remote controlled means is each in a particular condition, and means independent of traffic conditions adjacent said switch for maintaining said lock relay in its deenergized condition when said selecting apparatus is restored to its normal position effective until such time as said indicating relay becomes energized.

2. In combination, a railway traffic governing device, means controlled from a point remote from said device for at times operating the device, means local to said device for at other times operating the device, selecting apparatus having a normal position in which said device is conditioned for operation by said remote controlled means and another position in which said device is conditioned for operation by said local means, a normally energized lock relay effective when deenergized to prevent control of said device by said remote controlled means, means for causing said lock relay to become deenergized when said selecting apparatus is moved to such other position, an indicating relay energized only when said selecting apparatus is restored to its normal position provided said device and said remote controlled means is each in a particular condition, a repeating relay energized or deenergized in accordance with the condition of said indicating relay, and means for maintaining said lock relay in its deenergized condition when said selecting apparatus is restored to its normal position effective until such time as said repeating relay becomes energized.

3. In combination, a railway traffic governing device, means controlled from a point remote from said device for at times operating the device, means local to said device for at other times operating the device, selecting apparatus having a normal position in which said device is conditioned for operation by said remote controlled means and another position in which said device is conditioned for operation by said local means, an indicating relay energized only if said device and said remote controlled means is each in a particular condition when said selecting apparatus is in its normal position, and means for maintaining said device in a particular condition until such time as said indicating relay becomes energized effective when said selecting apparatus is restored to its normal position after having been placed in such other position.

4. In combination, a railway traffic governing device, means controlled from a point remote from said device for at times operating the device, means local to said device for at other times operating the device, selecting apparatus having a normal position in which said device is conditioned for operation by said remote controlled means and another position in which said device is conditioned for operation by said local means,

an indicating relay energized only if said device and said remote controlled means is each in a particular condition when said selecting apparatus is in its normal position, a pair of switch indicating contacts, and means for placing said device under control by said pair of switch indicating contacts when said selecting apparatus is returned to its normal position after having been moved to such other position effective only if said indicating relay is deenergized.

5. In combination, a railway traffic governing device, a power mechanism for operating said device, means controlled from a point remote from said device for at times governing said mechanism, means local to said device for at other times governing said mechanism, selecting apparatus having a normal position in which said mechanism is conditioned for operation by said remote controlled means and another position in which said mechanism is conditioned for operation by said local means, an indicating relay energized only if said device and said remote controlled means is each in a particular condition when said selecting apparatus is in its normal position, a normally energized lock relay effective when deenergized to maintain said device by power in a particular condition provided said selecting apparatus is in its normal position and said indicating relay is deenergized, means for deenergizing said lock relay when said selecting apparatus is placed in such other position, and means for maintaining said lock relay in its deenergized condition when said selecting apparatus is restored to its normal position effective until such time as said indicating relay becomes energized.

6. In combination, a railway traffic governing device having two positions, remote controlled apparatus capable of assuming different conditions, means for operating said device to one position or the other in accordance with the condition of said remote controlled means, manually operable means for conditioning said device for local operation, a lock relay having a normal position, means for causing said lock relay to assume a different position upon the manipulation of said manually operable means to condition said device for local operation, means for removing said device from control by said remote controlled apparatus when said lock relay assumes such different position, an indicating relay energized if the condition of said device corresponds to the position of said remote controlled apparatus provided said manually operable means is in its initial condition, means including said indicating relay effective to cause said lock relay to assume its normal position to restore said device to control by said remote controlled apparatus, and means for maintaining said device in one position or the other effective when said lock relay is in such different position provided said manually operable means is in its initial condition.

7. In combination, a railway traffic governing device having two positions, remote controlled apparatus capable of assuming different conditions, means for operating said device to one position or the other in accordance with the condition of said remote controlled apparatus, manually operable means for conditioning said device for local operation, a normally energized lock relay, means for deenergizing said lock relay upon the operation of said manually operable means to condition said device for local operation, means for removing said device from control by said remote controlled apparatus when said lock relay is deenergized, an indicating relay energized when said manually operable means is in its initial condition provided the position of said device corresponds to the condition of said remote controlled apparatus, means for energizing said lock relay to restore said device to control by said remote controlled apparatus effective when said indicating relay is energized, and means for maintaining said device in the position to which last operated until said device is restored to control by said remote controlled apparatus.

8. In combination, a railway traffic governing device, power mechanism for operating said device, a source of power, a first relay remote from said device for governing said mechanism, another relay remote from said device for indicating the condition of the device with respect to the condition of said first relay, a third relay adjacent said device repeating the condition of said other relay, means controlled by said third relay for supplying power for the operation of said mechanism in accordance with the condition of said other relay, a circuit controller adjacent said device, means for transferring said power mechanism to control by said circuit controller, and means including said third relay for supplying power continuously to said mechanism as long as the mechanism remains under control by said circuit controller.

9. In combination, a railway track switch, a normal and a reverse magnet for controlling movements of said switch to normal and reverse positions respectively, a circuit for said normal magnet and a circuit for said reverse magnet, remote controlled means for at times governing said circuits, means local to said switch for at other times governing said normal and reverse magnets, apparatus for selecting between said remote controlled means and said local means, a lock relay controlled in part by said selecting apparatus, and a contact of said lock relay included in said circuit for the normal magnet as well as in said circuit for the reverse magnet.

10. In combination, a railway track switch, a normal and a reverse magnet for controlling movements of said switch to normal and reverse positions respectively, remote controlled means for at times controlling said normal and reverse magnets, a lock relay having a normal condition, a normal switch indicating contact, a reverse switch indicating contact, means for causing said lock relay to assume a different condition to remove said normal and reverse magnets from control by said remote controlled means and to place said normal and reverse magnets under control by said normal and reverse switch indicating contacts, a switch indicating relay, and means controlled in part by said switch indicating relay effective to restore said lock relay to its normal condition.

11. In combination with a railway track switch, remote controlled means for at times operating said switch, means local to said switch for at other times operating the switch, a selector lever having a normal position in which said switch is conditioned for operation by said remote controlled means and a reverse position in which said switch is conditioned for operation by said local means, a contact closed only when said selector lever is in its normal position, a switch indicating relay remote from said switch, a switch indicating repeating relay adjacent said switch, a normally energized stick relay effective when deenergized to prevent remote control of said switch, a pick-up circuit for said stick relay including a

contact of said repeating relay and said selector lever contact, and a stick circuit for said stick relay including its own front contact and said selector lever contact.

12. In combination, a railway track switch, mechanism for controlling said switch including a normal and a reverse magnet as well as a lock magnet and adapted to move said switch between its normal and reverse positions in response to the energization of said normal and reverse magnets respectively provided said lock magnet is energized, a switch control relay for at times controlling said normal and reverse magnets, a switch indicating relay remote from said switch, a relay adjacent said switch repeating said indicating relay, means including said repeating relay for governing said lock magnet, and means controlled in part by said repeating relay effective at times to prevent control of said normal and reverse magnets by said switch control relay.

13. In combination, a railway track switch, mechanism for controlling said switch including a normal and a reverse magnet as well as a lock magnet and adapted to move said switch between its normal and reverse positions in response to the energization of said normal and reverse magnets respectively provided said lock magnet is energized, a switch control relay for at times controlling said normal and reverse magnets, a switch indicating relay, means including a back contact of said switch indicating relay for governing said lock magnet, a normally energized lock relay effective when deenergized to prevent control of said normal and reverse magnets by said switch control relay, and means controlled by a front contact of said switch indicating relay effective at times to govern said lock relay.

14. In combination, a railway track switch, a normal and a reverse magnet for controlling movements of said switch to normal and reverse positions respectively, remote controlled means for at times governing said normal and reverse magnets, means local to said switch for at other times governing the switch, apparatus for selecting between said remote controlled means and said local means, a pair of switch indicating contacts, a switch indicating repeating relay, and a lock relay controlled by said switch indicating repeating relay and by said selecting apparatus and effective at times to place said normal and reverse magnets under control by said pair of switch indicating contacts.

15. In combination, a railway track switch, a normal and a reverse magnet for controlling movements of said switch to normal and reverse positions respectively, remote controlled means for at times governing said normal and reverse magnets, means local to said switch for at other times governing said normal and reverse magnets, apparatus for selecting between said remote controlled means and said local means, a pair of switch indicating contacts, a switch indicating repeating relay, and a lock relay controlled by said switch indicating repeating relay as well as by said selecting apparatus and effective at times to place said normal and reverse magnets under control by said pair of switch indicating contacts.

16. In combination, a railway track switch, mechanism for operating said switch, a switch control relay, a switch indicating relay which becomes deenergized when said switch and said switch control relay are in disagreement, means controlled by said switch control relay for at times governing said mechanism, said means being effective when and only when said switch indicating relay is deenergized, and apparatus controlled in part by said switch indicating relay for at other times removing said mechanism from control by said means.

17. In combination, a railway track switch, power mechanism for operating said switch, a switch control relay, a switch indicating relay which becomes deenergized when said switch and said switch control relay are in disagreement, means controlled by said switch control relay for at times governing said mechanism, said means being effective when and only when said switch indicating relay is deenergized and apparatus controlled in part by said switch indicating relay for at other times removing said mechanism from control by said means and then maintaining the switch in a particular position by power.

18. In combination, a railway track switch, mechanism for operating said switch, a switch control relay, a switch indicating relay, circuits controlled jointly by said switch control relay and said switch indicating relay for at times governing said mechanism, other switch indicating means operably connected to said switch, and apparatus controlled in part by said switch indicating relay for at other times removing said mechanism from control by said circuits and then placing said mechanism under control by said other switch indicating means.

19. In combination, a railway track switch, mechanism for operating said switch, a switch control relay, a switch indicating relay, circuits controlled jointly by said switch control relay and said switch indicating relay for at times governing said mechanism, a repeating relay controlled only by said switch indicating relay, and means controlled in part by said repeating relay for at other times removing said mechanism from control by said circuits.

20. In combination, a railway track switch, mechanism for operating said switch, a switch control relay, a switch indicating relay which becomes deenergized when said switch and said switch control relay are in disagreement, circuits controlled by said switch control relay for at times governing said mechanism, said circuits being effective when and only when said switch indicating relay is deenergized, and a relay controlled in part by said switch indicating relay for at other times removing said mechanism from control by said circuits.

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