Aug. 9, 1932. J. O. PRESCOTT 1,870,294

SUBWAY ANNOUNCING APPARATUS

Filed April 8, 1931 2 Sheets-Sheet 1

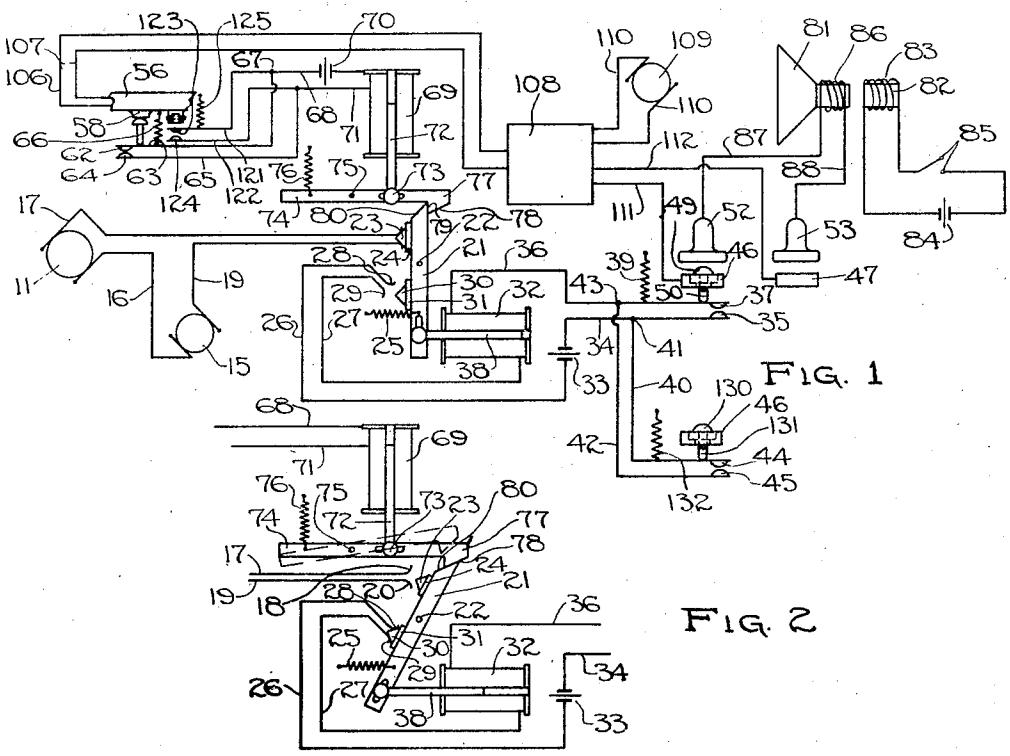


FIG. 1

FIG. 2

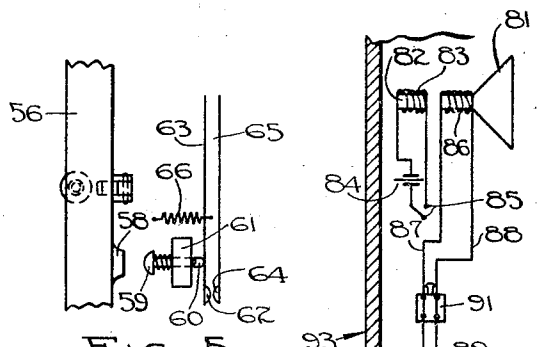


FIG. 3

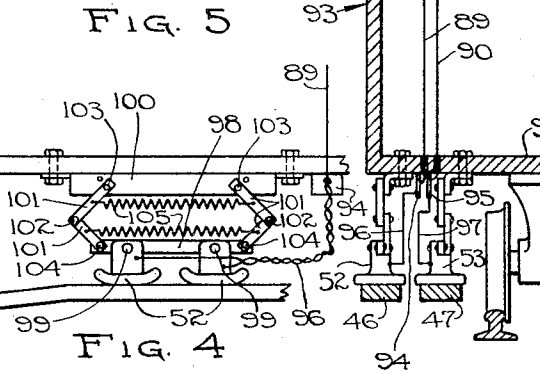


FIG. 5

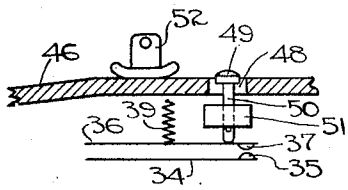


FIG. 6

FIG. 4

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SUBWAY ANNOUNCING APPARATUS

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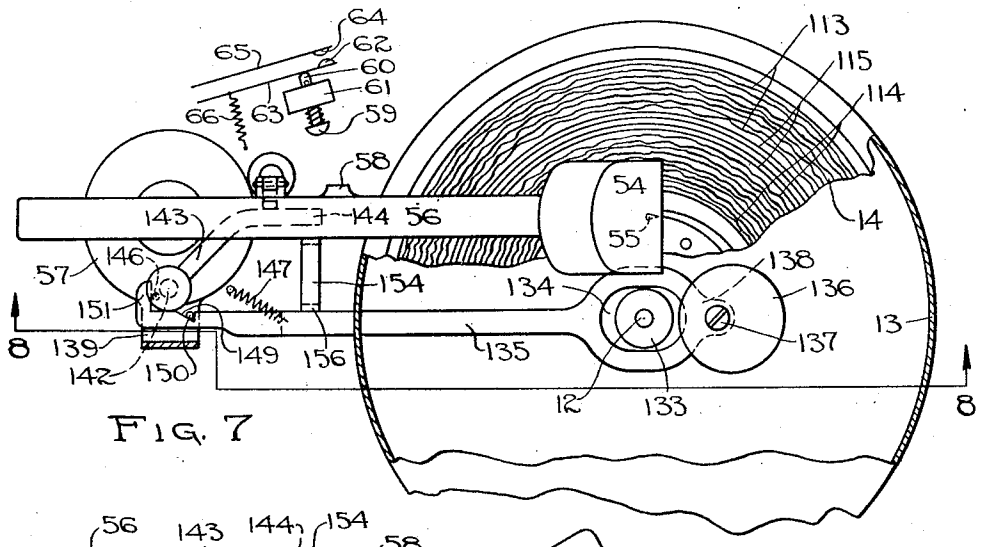


FIG. 7

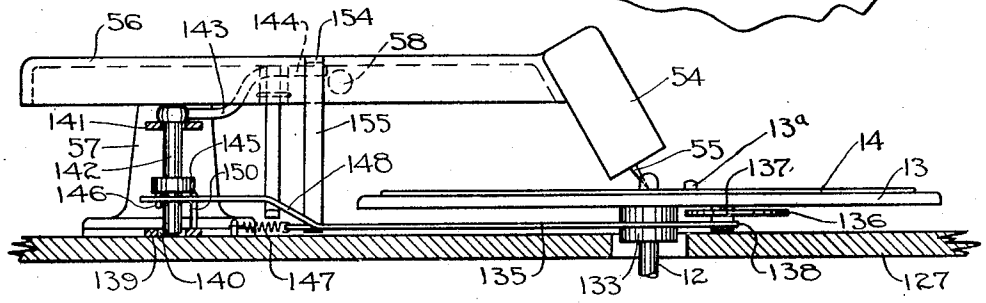


FIG. 8

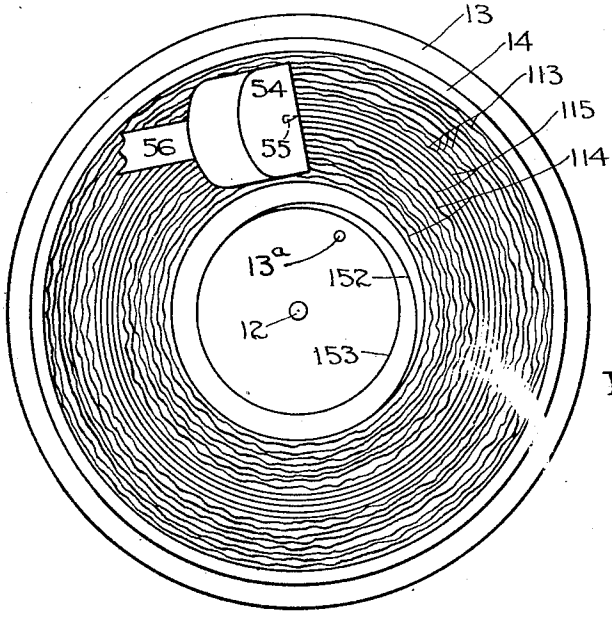


FIG. 9

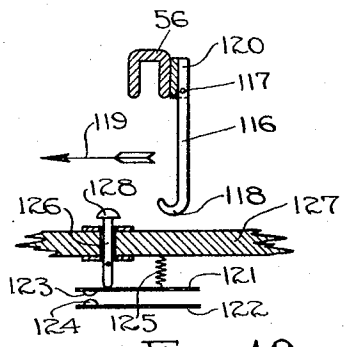


FIG. 10

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SUBWAY ANNOUNCING APPARATUS

Application filed April 8, 1931. Serial No. 528,581.

This invention relates to new and useful improvements in station announcing means such as may be used in connection with subways, trains, elevated trains and the like.

An object of the invention is to provide a simple and effective means for announcing to subway patrons the stops about to be made or which will next be made by the train in which such patrons may be riding, in order that a patron will be definitely advised as to what stops are being made by the train and will be ready to alight from the train when his stop is reached.

Another object is to provide an announcing apparatus including a phonograph or other reproducing mechanism adapted to be located at a convenient fixed point, as for example, in the change maker's booth in the station, and one or more loud speaker mechanisms mounted on a train and adapted to be automatically connected with the phonograph or other sound reproducing apparatus, either as the train approaches the station whereby to announce to the occupants of the train the station at which the train is about to stop, or to be connected as the train leaves a station to announce to the occupants of the train the next station at which the train will stop, or to perform both of the above enumerated functions.

A further object is to provide improved apparatus and an improved arrangement or location of parts for an announcing apparatus adapted for use in connection with subways and the like to advise the occupants of trains as to the name of the next station or stop.

Other objects and advantages will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings. It is, of course, to be understood that the invention is not limited to the details shown since changes may be made within the scope of the appended claims and without departing from the spirit of the invention and reference must therefore be had to the claims for a definition of the limitations of the invention.

In the drawings:

Figure 1 is a diagrammatic view showing the wiring arrangement of the complete announcing apparatus;

Fig. 2 is a view showing a portion of the apparatus of Fig. 1 when moved to inoperative position;

Fig. 3 is a vertical sectional view through a portion of a train or the like showing the location of parts of the announcing apparatus;

Fig. 4 is a view at right angles to Fig. 3 and showing the mounting of the contact shoes adapted to form the connection between the train and bus bars located to be engaged by the shoes as the train enters a station or just before it enters a station or as it leaves a station;

Fig. 5 is a detail view showing the arrangement of a circuit closing means for bringing about the opening of the circuit to the motor of the phonograph or other sound reproducing device;

Fig. 6 is a detail sectional view showing the arrangement of a circuit closing means adapted to be operated to bring about the closing of the circuit to the phonograph motor whereby to start the phonograph;

Fig. 7 is a plan view showing the relative location of certain switch parts and showing in plan a means for swinging the pick-up arm of the phonograph from a position at the end of a record to a position at the beginning thereof;

Fig. 8 is a sectional view substantially along the lines 8—8 of Fig. 7;

Fig. 9 is a plan view of a record particularly adapted for use with the present apparatus and showing a pick-up associated therewith; and

Fig. 10 is a detail sectional view showing a means for bringing about the breaking or opening of the circuit to the phonograph motor when the pick-up reaches the position shown in Fig. 9.

While the invention is herein particularly described in its application to subway trains it will be understood that the invention is also applicable to surface and elevated trains or cars, store elevators and the like and it will therefore be understood that wherever in this specification or wherever in the accom-

panying claims the word train, car or conveyor is used it is intended to use each of these words in a general sense only and it is intended when using either of these words to cover any apparatus used as a passenger conveyance. Where the invention is applied to a store elevator the apparatus may be used for making announcements as to the floor about to be reached, and the goods for sale on said floor and while the elevator has been stopped the device may make an announcement as to whether or not the elevator is going up or down, this latter announcement being for the benefit of those awaiting elevator service.

It will also be apparent that while the device is shown as employing a spirally grooved disc record and a reproducing mechanism particularly adapted to such a record that the invention comprehends the use of records whether disc or film and having sound recorded thereon either in the form of engraved grooves or in the form of photo sound lines or the like.

Referring in detail to the drawings, at 11 is diagrammatically shown a phonograph motor arranged to drive a spindle 12 (Fig. 8) carrying a turntable 13 on which may be positioned a record 14. Motor 11 is adapted to be energized from a generator 15 or other source of power and one side of the generator is connected to one side of the motor as through a line 16 while the other side of the motor through a line 17 is connected with a contact 18. From the other side of generator 15 a wire 19 leads to a contact 20 arranged adjacent the contact 18.

Contacts 18 and 20 are spaced apart and the circuit to the motor 11 is normally open. The means for closing this circuit includes a lever 21 pivoted intermediate its ends as at 22 and at one side carrying a contact element 23 mounted on a block of insulating material 24 carried by the lever. When the lever 21 is positioned as shown in Fig. 1 the circuit to the motor 11 is closed. However, Fig. 2 shows the normal position of the lever 21 and from this figure it is obvious that the circuit between the contacts 18 and 20 is normally open. A spring 25 normally tends to move the lever 21 about its pivot to open the circuit through the wires 17 and 19 and to close the circuit through a pair of wires 26 and 27 having contacts 28 and 29 on their ends. For this purpose lever 21 below its pivot carries a contact element 30 mounted on a block of insulating material 31.

The wire 27 connects with a solenoid coil 32 while the wire 26 is connected with one side of a battery 33 from the other side of which a wire 34 leads to a contact 35. From the coil 32 a wire 36 extends to a contact 37 adapted to be moved into engagement with the contact 35 to close a circuit between the battery 33 and the coil 32 whereby to energize this coil. When the contacts 37 and 35 are engaged coil 32 being energized draws its core 38 inwardly shifting the lever 21 about its pivot 22 from the position shown in Fig. 2 to that shown in Fig. 1. Such action of the solenoid results in the opening of the circuit between the contacts 28 and 29 and the de-energizing of the coil 32 while at the same time closing the circuit between the contacts 18 and 20 and energizing the motor 11.

A coil spring 39 normally tends to move the contact 37 away from the contact 35 and these contacts are adapted to be moved into engagement by means carried by a train, either just before or as a train enters a station. Since the closing of the contacts 37 and 35 will result in motor 11 being energized the phonograph will operate to make an announcement.

If desired, means may be provided for announcing to the passengers on a train the next stop to be made by the train, the announcement to be made as the train leaves one station and to be in regard to the next station at which the train will stop. To provide such a means I have engaged a wire 40 with the wire 34 as at 41 and have engaged a wire 42 with the wire 36 as at 43. Wire 40 carries a contact 44 adapted to be moved into engagement with a contact 45 on the wire 42 as the train leaves a station. Obviously, closing the circuit between the contacts 44 and 45 will result in the motor 11 being energized the same as does the closing of the circuit between the contacts 37 and 35.

At the point where it is desired that the announcement be made bus bars 46 and 47 are located adjacent the train tracks. One of these bus bars as for example, bus bar 46 may be provided with an opening 48 (Fig. 6) through which extends the head 49 of a pin 50 operating through a guide 51 and normally urged into its uppermost position as by means of the spring 39. One car of each train or each car of the train may be equipped with shoes to engage these bus bars and as herein shown the shoes are arranged in pairs, two spaced shoes 52 being provided for engagement with the bus bar 46 and shoes 53 being provided for engagement with the bus bar 47. As the shoes 52 move along the bus bars, the shoes will obviously engage the head 49 of pin 50 and will depress this pin whereby the pin will act to move the contact 37 into engagement with the contact 35 and against the action of the spring 39.

Immediately the shoe passes over the head 49 of the pin the pin will be returned to normal position and the circuit between the contacts 35 and 37 opened. However, but a momentary closing of these contacts is necessary since such will serve to bring about energization of the solenoid coil 32 which will act as previously described to rock lever 21 about its pivot 22 and bring the contact ele-

ment 23 into position closing the circuit between the wires 17 and 19 and from the generator 15 or other sources of supply to the motor 11.

Arranged to co-operate with the record 14 on the turntable 13 is a pick-up 54 carrying a stylus 55 to engage in the grooves of the record, and mounted on a pick-up arm 56 which in turn is mounted on a support 57 for both horizontal and vertical movement. On one side of the arm 56 is a lug or projection 58 and this lug or projection is adapted in one position of the arm to engage the head 59 of a spring pressed pin 60, mounted in a guide bar 61, and depress said pin whereby to cause the same to move a contact element 62 on a conductor 63 into engagement with a contact element 64 on a conductor 65. A coil spring 66 serves normally to maintain the contacts 62 and 64 in spaced relation. At 67 the conductor 63 connects with a wire 68 and this wire leads to a solenoid coil 69. Conductor 65 connects with a wire 71 forming the other side of the circuit to the coil 69.

In the wire 68 is a battery 70 or other source of electrical energy and it will accordingly be apparent that as the contacts 62 and 64 are brought into engagement a circuit will be closed through the battery 70 and solenoid coil 69. A movable core 72 for the coil 69 is connected as at 73 with a lock lever 74 pivoted intermediate its ends at 75. A coil spring 76 connected with the lever 74 tends normally to swing the lever around its pivot 75 in a direction to draw the core 72 out of the coil 69.

The operative position of lever 74 is as shown in Fig. 1 and in that figure it will be seen that the lever has a head 77 including an inclined surface 78 and a shoulder 79. Lever 21 has an inclined end 80. When the coil 69 is energized it will raise the lever 74 from the position shown in Fig. 1 to the broken line position shown in Fig. 2 and will release the lever 21 whereby the same may be swung about its pivot by spring 25 to move it from the position shown in Fig. 1 to that shown in Fig. 2. The closing of the circuit between the contacts 62 and 64 is but momentary since as soon as the coil 69 is energized it acts to raise the lever 74 from its position as lock or keeper for the lever 21 and as soon as this is done spring 25 will act.

On coil 69 being de-energized the lever 74 is influenced by the spring 76 and its inclined surface 78 will be brought down onto the inclined surface 80 of the lever 21 whereby there will be a more or less cam like action between these inclined surfaces when coil 32 is again energized, the head 77 of lever 74 being forced upwardly to permit the end of lever 21 to pass beneath it into a position to again engage the shoulder 79.

From Fig. 7 it will be seen that pin 60 is adapted to be operated by lug 58 on the pick-up arm when the pick-up is moved to the outer edge or to the beginning of a record. The pick-up arm will be moved by the motor as will later be described and the motor will deposit the pick-up with its stylus on the smooth outer edge portion of the record. The action of the spring 66 and the spring on the pin 60 will be sufficient to move the pick-up inwardly to slide its stylus across the smooth outer edge portion of the record when the motor ceases to control movement of the pick-up after having deposited it on the record.

One or more loud speakers diagrammatically illustrated at 81 may be provided on or in each car of a train. The speaker 81 includes a field magnet 82, the coil 83 of which is adapted to be excited from a battery 84 on the closing of a switch 85. The voice coil 86 of the loud speaker 81 is included in the circuit with wires 87 and 88 connected with the shoes 52 and 53 respectively.

As shown in Fig. 3 wires 87 and 88 are connected with wires 89 and 90 through a suitable switch 91 positioned at a convenient point for opening and closing by one of the train crew. Wires 89 and 90 pass through opening in the floor 92 of a car 93 fragmentarily shown in Fig. 3. Beneath the floor these wires are connected with terminals 94 and 95 which terminals have the wires 96 and 97 from the shoes 52 and 53 respectively connected with them.

Two shoes 52 and two shoes 53 are shown for engagement with the respective bus bars 46 and 47. These bus bars may have in inclined approach portion as suggested in Fig. 4 whereby the shoes will ride up onto the bars. Each set of shoes is mounted the same and the mounting is clearly shown in Fig. 4 wherein details of the mounting of shoes 52 is shown. Shoes 52 are pivotally connected with a longitudinally extending link or bar 98 as at 99 and this bar 98 is connected with a mounting plate 100 through the medium of links 101 pivotally connected as at 102 and having their respective outer end portions pivoted to the plate 100 and the bar 98 as at 103 and 104 respectively. Connecting the respective links 101 are coil springs 105, these springs normally tending to straighten the links to move the shoes away from the car. Such action on the part of the springs obviously causes the shoes to ride firmly against the bus bars whereby a good electrical connection is had.

It is important that a good connection be made between the bus bars and the speaker 81 and to prevent the circuit being interrupted due to any irregular or rough places on the bus bars two shoes are employed in connection with each bus bar. The bus bars as previously suggested may be arranged to be engaged by the shoes 52 and 53 as a train approaches the station or the bus bars may be

arranged to be engaged by the shoes as the train leaves a station or the bus bars may be arranged to be engaged on both of these occasions.

The voice currents generated by the stylus 55 with the grooves of the record 14 are transmitted to the bus bars. For this purpose wires 106 and 107 are carried from the pick-up 54 to an amplifier 108 which may be of any desired type as for example, a push pull thermionic tube arrangement. Energy for the amplifier 108 is supplied from a generator or other source 109 through lead in wires 110. The output from the amplifier 108 is through wires 111 and 112 to the bus bars 46 and 47 through which the circuit to the loud speaker will be closed when the shoes 52 and 53 engage the bus bars.

The record 14 includes an outer series of sound recorded grooves 113, and an inner series of recorded grooves 114 and an intermediate series of grooves 115, which series 115 is blank or devoid of recorded sound. It is to be understood that all of the grooves represent a continuous spiral and that the stylus 55 on being placed at any point on the record and in the groove will be fed by the groove when the record is in motion. However, it might well be that means would be employed for feeding the stylus across the record. Further, the record 14 may be provided with an opening or hole arranged laterally of the center of the record to receive a pin 13*a* on the turntable whereby the record may be properly positioned on the turntable and secured against slippage.

The outer sound recorded portion 113 of the record may be adapted to be reproduced for the benefit of those on board a train as the train approaches a station. For example, this recording may contain the name of the station repeated once or twice and may contain some advertising matter as for example, may contain an announcement as to the name of a store or other establishment located in the vicinity of the station. As stated the portion 115 of the record has no sound to be reproduced and the phonograph may be stopped when the stylus enters this portion of the sound groove as will later be described. The inner or portion 114 of the sound groove is adapted to be reproduced as the train leaves the station and may contain an announcement as to the name of the next station and some other announcement as for example, in the nature of an advertisement.

The means for stopping the phonograph when the stylus enters the blank grooves 115 of the record may be as illustrated in Fig. 10. Here the means is shown as comprising a link or lever 116 pivoted to the pick-up arm 56 for movement about the pivot 117 and its lower end being curved or hooked shaped as 118. Lever 116 is so pivoted that when the pick-up arm 56 is moving in the direction indicated by the arrow 119 should the lever strike an obstruction it cannot move about its pivot 117 since its upper end portion 120 will be jammed into engagement with the pick-up arm 56.

A switch means including a pair of conductors 121 and 122 carrying contacts 123 and 124 are arranged to be moved toward each other to engage the contacts 123 and 124 on the stylus 55 entering blank grooves 115 of the record. A coil spring 125 serves normally to maintain the contact element 123 spaced from the contact element 124. The contact may be moved into engagement by a pin 126 operating as through a motor board 127. Normally, this pin has its head 128 disposed to be engaged by the hooked end 118 of the lever 116.

Therefore, with the pin 126 positioned as stated to be engaged by the end 118 of lever 116 when the stylus 55 enters the blank grooves 115 of the record the pin will be depressed against the action of spring 125 and move the contact 123 into engagement with the contact 124 and close the circuit through the conduits 121 and 122 which really are extensions of the wires 68 and 71 leading to the solenoid coil 69. Therefore, it will be apparent that when contacts 123 and 124 are engaged solenoid 69 will be energized to raise the lever 74 and release the lever 21 to the action of spring 25 which will operate to move contact element 23 and open the circuit between contacts 18 and 20 whereby the motor 11 will be de-energized.

Lever 116 will not depress the head 128 of pin 126 during the return movement of the arm 56 when the pick-up is being carried to the beginning of a record. However, should by any chance, the lever engage the pin the lever will simply fold on its pivot since it will be moving in a direction opposite to that indicated by arrow 119 and will not depress the pin.

The object in stopping the phonograph when the stylus enters the grooves 115 is that a train may stay quite a few minutes in the station and it is therefore deemed best that a certain standard announcement be made and that the phonograph be then stopped. As the train leaves the station the shoe 52 will engage the head 130 of a pin 131 whereby to move the contacts 44 and 45 into engagement against the action of a spring 132 to close a circuit through the wires 40 and 42 whereby to energize the solenoid 32 and cause it to act to close the circuit to the phonograph motor 11 as has been explained. The phonograph will then start up and will play through to the end of the record through the recorded portion 114.

When the stylus reaches the end of the sound groove the pick-up arm is rocked vertically and then swung outwardly to dispose the stylus 55 on the smooth outer edge por-

tion of the record. The means for accomplishing this is shown in Figs. 7 and 8 and will be described. When the arm is swung outwardly as stated, the lug 58 on the arm will be brought into engagement with the head 59 of the pin 60 whereby to move the pin and push the contact 62 into engagement with the contact 64 whereby to close a circuit through wires 63 and 65 to wires 68 and 71 to energize coil 69 and bring about a stopping of the motor 11 as has been fully described.

As soon as the motor is de-energized there is no power available to maintain the arm in position to depress contact 62 against the action of spring 66 and the spring about the pin 60 and these springs will therefore act to push the arm inwardly and thereby slide the stylus 55 across the smooth outer edge portion of the record and into the first portion of the sound groove of the record whereby the phonograph is set ready to start on the next train entering the station.

While any means may be provided for carrying the pick-up or reproducer from the end of a record and depositing it at the beginning of a record a comparatively simple and reliable means for this purpose is shown in Figs. 7 and 8.

This means includes a roller 133 made fast to the motor spindle 12 and arranged at the underside of the turntable 13. Wheel or roller 133 rotates with the spindle 12 in a loop or opening 134 adjacent one end of a rod 135. A disc 136 is mounted eccentrically as by bolt 137 on an outer end portion 138 of the rod 135. Disposed on or to one side of the base 57 of the pick-up arm 56 is a bracket including a lower plate 139 having opening 140 therein and an upper plate 141 having an opening through which extends a vertically disposed pin or rod 142 to the upper end of which is connected a vertically and laterally off-set link or bar 143 extending into the arm 56 so as to move with the same as suggested at 144. Intermediate its ends there is secured to the pin 142 a disc 145 which at its lower side carries a pin 146.

A spring 147 is secured at one of its ends to the rod 135 in a position to normally tend to draw this rod rearwardly in the direction of the base 57. The rod 135 adjacent its rear end is off-set upwardly as at 148 (see Fig. 8) and in this portion is notched as at 149 to receive a pin 150 carried on the base plate 139. The extreme rear end of rod 135 is shaped to provide a hook like portion 151 adapted to co-operate with the pin 146 on the disc 145 as will be described. Before going into the question of the operation of the mechanism just described, attention is directed to the fact that the record 14 has a high pitch cross over groove 152 leading from the end of the music or sound groove to a terminal circle 153. Further, on the arm 56 is a bracket 154 substantially in the form of an inverted L and including a depending arm 155.

During the playing of a record the disc or wheel 133 merely revolves in eye or loop 134 and the spring 147 maintains the shoulder of notch 149 in engagement with the pin 150. Therefore, the rod 135 cannot move rearwardly to bring the disc 136 into engagement with the roller 133. However, when the stylus moves into the high pitch cross over groove 152 the depending arm 155 of bracket 154 engages the rear portion of the rod 135 as at 156 and moves said rod to carry the shoulder of notch 149 away from the pin 150 whereby the rod is immediately shifted by spring 147 in a direction to bring the disc 136 into engagement with the roller 133. Since the roller 133 is rotating it will drive the disc 136 and as the high portion of disc 136, or that portion of the periphery of the disc most remote from its pivot 137, approaches or is drawn into engagement with the disc 133 rod 135 will be drawn forwardly.

As the rod moves forwardly its hooked end 151 will engage the pin 146 and the first part of the resulting action will be that the lower end of bar 142 will move forwardly in the opening 140 in plate 139 resulting in the pick-up 56 being rocked vertically to lift the stylus 55 out of the record groove. Further movement of the rod 135 will result in a turning movement of the bar 142, it being noted that pin 146 is mounted eccentrically with respect to this bar, and as the bar turns, the arm 56 will obviously be turned about its pivot in a direction to move the stylus 55 to the outer edge of the record 14. Of course, when disc 136 has made a revolution its lower portion will be back opposite the disc or wheel 133 and spring 147 will move the rod 135 to dispose the shoulder of the notch 149 against the pin 150.

When the mechanism sets the reproducer down with its stylus on the smooth outer edge portion of the record the lug 58 has moved pin 60 to bring about the opening of the circuit to the motor 11 and the pick-up arm will be moved inwardly by the spring 66 and the spring on the pin 60 to dispose the stylus in the beginning of the sound groove as previously explained.

Since the operations described will be repeated each time a train enters a station to discharge or take on passengers and leaves the station, it will be apparent that the first portion of a record or the portion 113 will be reproduced and the message thereon broadcasted into the interior of the train as the train approaches a station and that when the train is in the station the phonograph is stopped due to engagement of the head of pin 126 (Fig. 10) by lever 116 resulting in the closing of the circuit between contacts 123 and 124 and the energizing of solenoid 69 to bring about the opening of the circuit to

the phonograph motor 11. When a train is not to stop at a station the switch 91 is to be opened by a trainman and no announcement of the station will be made.

Since the phonograph is stopped the message on the record will not be repeated too often and the message on the second portion of the record, that is the portion 114, will not be broadcast until the train is leaving the station. When or as the train leaves the station the phonograph will again be started to announce to the occupants of the train the message contained on the inner portion of the record or in the grooves 114.

From what has been said it will be apparent that a phonograph mechanism need be provided only for each station and not for each train or car and that there is no danger of the stylus being jostled around on the record as might occur were the phonograph mounted on the moving train. Further, it will appear that one speaker may be provided per car or one speaker might be arranged in each end of the car and that should an ordinary record be used wherein but one message is repeated over and over the repetition of the message may be stopped by the train guard or the like opening the switch 91. Otherwise, it might happen that should the train remain for some time in a station a record containing only one message repeated over and over again would continue to play through and repeat the message with an annoying monotony.

It will be obvious that means other than that herein disclosed may be used for starting and stopping the motor 11. For example, the starting and stopping could be controlled by radiant energy or by the interrupting of a light beam or by other suitable means. Further, it will be understood that a record other than a grooved disc or cylinder might be employed, a grooved film might be employed or a film having a message or sound recorded thereon photographically might be used, all of these suggested mechanisms being deemed to be in a broad sense the equivalent of the phonograph mechanism shown in the accompanying drawings and described herein in detail.

Having thus described the invention, what is claimed is:

1. In a train announcing system, in combination, a voice current generating mechanism arranged at a fixed point apart from a train, a loud speaker on a train, and means to establish a wired circuit from the mechanism to the loud speaker whereby current impulses generated by the mechanism will be converted into sound and broadcast by the speaker.

2. In a train announcing system, in combination, a sound record reproducing mechanism arranged at a train station, an amplifier at said station in circuit with said sound reproducing mechanism, a loud speaker on a train, and means to establish a wired circuit from the amplifier to the loud speaker whereby sound impulses reproduced by the mechanism will be broadcast by the speaker.

3. In a train announcing system, in combination, a sound record reproducing mechanism arranged at a train station, a loud speaker on a train, means to establish a circuit between the reproducing mechanism and the loud speaker whereby sound impulses reproduced by the mechanism will be broadcast by the speaker, said means including bus bars arranged to be engaged by contact shoes carried on the train.

4. In a train announcing system, in combination, a normally inoperative sound record reproducing means arranged at a train stop, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, and means to render the reproducing means operative on the closing of said circuit.

5. In a train announcing system, in combination, a normally inoperative sound record reproducing means arranged at or near a train stop, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, and means operated by means on the train for closing a circuit to start the reproducing means.

6. In a train announcing system, in combination, a normally inoperative sound record reproducing means arranged at a train stop, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, means operated by means on the train for closing a circuit to start the reproducing means, and means to open said circuit to stop the reproducing means when an announcement has been made.

7. In a train announcing system, in combination, a normally inoperative sound record reproducing means arranged at a train stop, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, means operated by means on the train for closing a circuit to start the reproducing means, and means operated by means movable with a part of the reproducing means to open said circuit when an announcement has been made.

8. In a train announcing system, in combination, a normally inoperative sound record reproducing means arranged at a train stop, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, and means including a solenoid for closing a circuit to start the reproducing means.

9. In a train announcing system, in combination, a normally inoperative sound record reproducing means arranged at a train stop, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, and means in-

cluding a solenoid and operated by means on the train for closing a circuit to start the reproducing means.

10. In a train announcing system, in combination, a normally inoperative sound reproducing means arranged at a train stop, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, means operated by means on the train for closing the circuit to start the reproducing means, and means including a solenoid operative to open said circuit to stop the reproducing means when an announcement has been made.

11. In a train announcing system, in combination, a normally inoperative sound reproducing means arranged at a train stop, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, means operated by means on the train for closing a circuit to start the reproducing means, and means operated by a means movable with a part of the reproducing means and including a solenoid to open said circuit when an announcement has been made.

12. In a train announcing system, in combination, a reproducing means arranged at a station, a loud speaker on a train, means whereby as the train enters the station an announcement by the reproducing means is broadcast on the train, and means whereby a second announcement by the reproducing means is broadcast on the train as the train leaves the station.

13. In a train announcing system, in combination, a normally inoperative reproducing means arranged at a station, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means as the train enters the station and as the train leaves the station, means to close a circuit to the reproducing means to set the same in operation as the train enters the station, means to thereafter open the circuit to render the reproducing mechanism inoperative after an announcement has been made, and means to again close the circuit to render the reproducing means operative to have the reproducing means make another announcement as the train leaves the station.

14. In a train announcing system, in combination, a normally inoperative reproducing means arranged at a station, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means as the train enters the station and as the train leaves the station, and means to set the reproducing means into operation as the train enters and leaves the station whereby to have the reproducing means make announcements through the loud speaker at such times.

15. In a train announcing system, in combination, a sound record reproducing mechanism arranged at a station, a loud speaker on a train, and means to set said reproducing mechanism into operation and close a circuit between the reproducing mechanism and loud speaker as the train enters the station whereby sound impulses reproduced by the mechanism will be converted and broadcast by the speaker.

16. In a conveyor stop announcing system, in combination, a stationary normally inoperative electrical sound record reproducing an amplifying system, a loud speaker on a conveyor, fixed conductors connected with said amplifying system, contact makers and conductors carried by said conveyor, and means whereby said contact makers are automatically brought into engagement with said fixed conductors to have said loud speaker make announcement from said amplifying system.

17. In an announcing system, in combination, a conveyor, a normally inoperative stationary voice current generating mechanism positioned apart from the conveyor, a loud speaker on the conveyor, means for starting and means for stopping the mechanism, and means to establish a circuit from the mechanism to the loud speaker whereby current impulses generated by the mechanism will be broadcast as sound by the loud speaker.

18. In a repeating announcing system, in combination, a conveyor, a normally inoperative voice current generating mechanism located apart from the conveyor, a sound record associated with said mechanism, a loud speaker on the conveyor, means for starting and means for stopping the mechanism, means to establish a circuit between the mechanism and the loud speaker whereby current impulses generated by the mechanism will be broadcast as sound by the loud speaker, and means to cause the repetition of the announcement at desired intervals.

19. In a repeating announcing system, in combination, a conveyor, a voice current generating mechanism stationary at a point apart from the conveyor, a loud speaker for making announcements audible in the conveyor, means carried by the conveyor to start operation of the mechanism whereby current impulses will be broadcast as sound by the loud speaker, and means to cause the repetition of the announcement at desired intervals.

20. In an announcing system, in combination, a conveyor, a voice current generating mechanism stationary at a point apart from the conveyor, a loud speaker for making announcements audible in the conveyor and means carried by the conveyor to start operation of the mechanism whereby current impulses will be broadcast as sound by the loud speaker.

21. In a conveyor announcing system, in combination, a conveyor, a voice current generating mechanism stationary at a point apart from the conveyor, a loud speaker on

the conveyor, means whereby as the conveyor approaches the station an announcement by the voice current generating mechanism is broadcast through the loud speaker, and means whereby a second announcement is broadcast by the loud speaker as the conveyor leaves the station.

22. In an announcing system, in combination, a conveyor, a sound record reproducing means arranged at a point apart from the conveyor, a record on said means and having a plurality of announcements recorded thereon, a loud speaker on the conveyor, and means whereby one of said announcements is reproduced by said means and broadcast by said loud speaker as the conveyor approaches a stop and another of said announcements is reproduced by said means and broadcast by said loud speaker as the conveyor leaves the stop.

23. In a train announcing system, in combination, a normally inoperative sound record reproducing means arranged at a train stop, a sound record on said means, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, and means for closing a circuit to start said reproducing means and cause the same to reproduce said record as the train leaves a stop.

24. In a train announcing system, in combination, a normally inoperative sound record reproducing means arranged at a train stop, a sound record having an announcement thereon, said record on said means, a loud speaker on a train, means to establish a circuit between the loud speaker and the reproducing means, and means for closing a circuit to start said reproducing means and cause the same to reproduce said announcement as the train approaches a stop.

Signed at New York, in the county of New York and State of New York, this 24th day of March, A. D. 1931.

JOHN O. PRESCOTT.