Dec. 14, 1948. J. B. ENGLANDER 2,455,922

ANNUNCIATING DEVICE

Filed Dec. 27, 1945 2 Sheets-Sheet 1

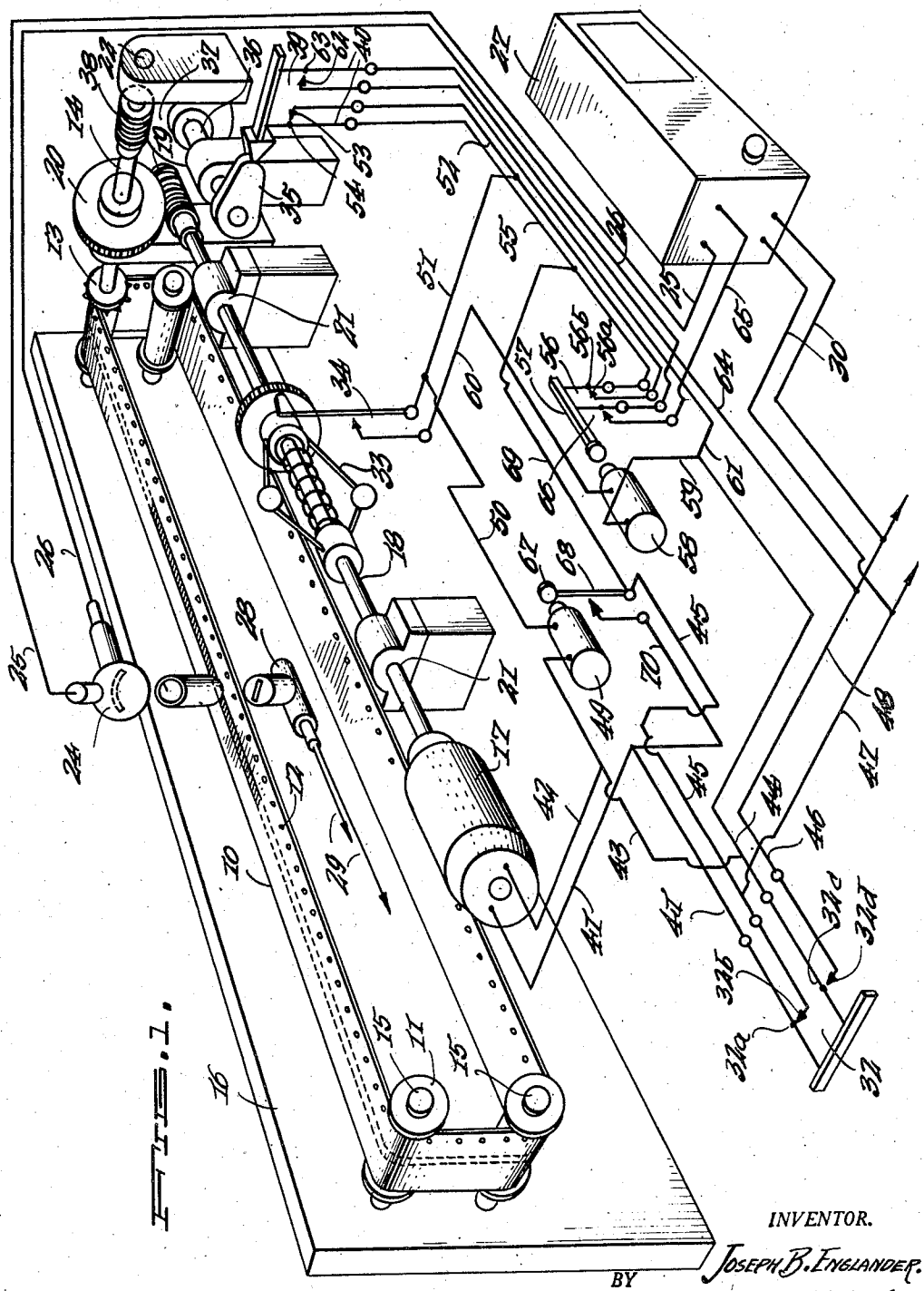


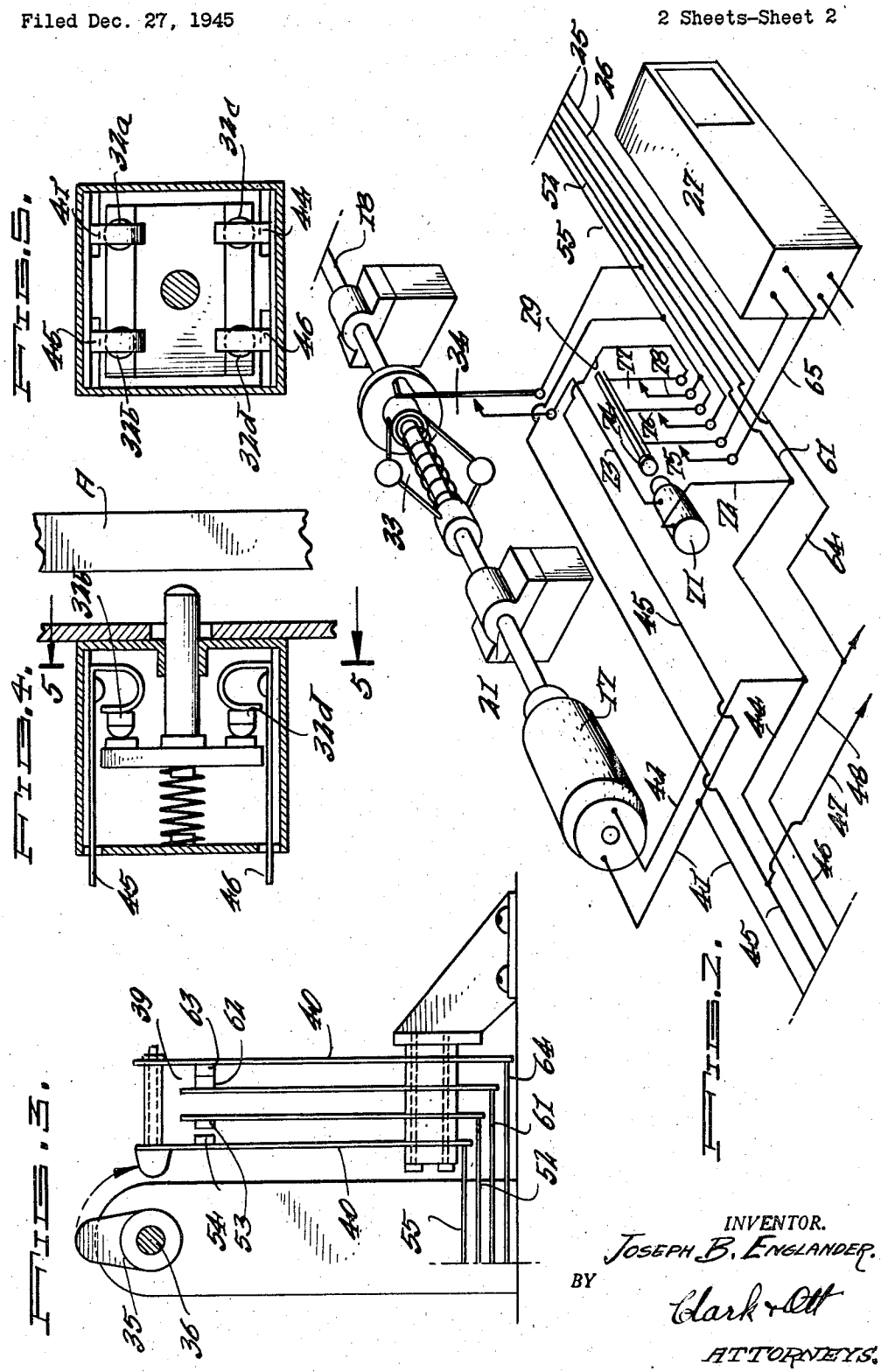
FIG. 1.

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ANNUNCIATING DEVICE

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This invention relates to annunciating devices and has particular reference to an annunciator for reproducing and audibly making an announcement upon the actuation of a control switch.

The invention has for one of its purposes an annunciator for giving a warning such as "Watch your step" which is made when the door of a bus, coach or other vehicle opens to discharge or receive passengers. With such purpose in view the invention comprehends the provision of a recording on an endless sound track and means for synchronizing the audible reproduction thereof with the movement of the door of the vehicle so that the recording or warning is reproduced commencing at the beginning thereof shortly after the opening of the door, is repeated continually during the time that the door is open, and upon the closing of the door the recording will cease after completion of the warning.

The invention also has in view an annunciator of the indicated character in which the endless sound track is moved with reference to the sound reproducing means at a rate of speed adapted to obtain clarity of pronunciation of the recording and in which the sound reproducing means does not become effective until the desired rate of speed of the sound track is attained.

The invention has for another of its purposes the provision of an annunciator for audibly reproducing an advertisement or slogan upon the actuation of the control switch therefor by the deposit of a coin or slug in a vending machine or the like.

With the foregoing and other objects in view reference is now made to the following specification and accompanying drawings in which the preferred embodiment of the invention is illustrated.

In the drawings:

Fig. 1 is a schematic perspective view of an anannunciating device constructed in accordance with the invention.

Fig. 2 is a fragmentary schematic perspective view illustrating a modified form of annunciating device embodying the invention.

Fig. 3 is an enlarged view of the synchronizing cam and switch actuated thereby.

Fig. 4 is an enlarged sectional view of the switch and actuating means for starting the motor.

Fig. 5 is a sectional view taken approximately on line 5—5 of Fig. 4.

Referring to the drawings by characters of reference, the device includes an endless film 10 mounted upon rollers 11 and having sprocket

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engaging openings 12 adjacent a longitudinal edge thereof for engagement with a sprocket roller 13 secured to a shaft 14. The rollers 11 are journaled on trunnions 15 affixed to a suitable support 16 and are arranged in parallel relation with the longitudinal axis of the shaft 14.

The film 10 is driven by an electric motor 17 through a drive shaft 18 affixed to the armature thereof and having a worm 19 at its free end which meshes with a gear 20 secured to the shaft 14. The drive shaft 18 is mounted for rotation in bearings 21 while the shaft 14 is mounted for rotation in a bearing in the support 16 and in a bearing 22 at the opposite end thereof.

The film 10 is formed with a sound track on which is recorded an announcement, warning or message which is audibly reproduced by any desired means such as a photo-electric cell 24 arranged in juxtaposition to the sound track and connected by conductor wires 25 and 26 in an electric circuit with an audio amplifier and speaker 27. The excitor 28 of the photo-electric cell 24 is connected by conductor wires 29 with a source of current supply and the audio amplifier and speaker 27 is also connected with a source of current supply as illustrated by conductor wires 30. A switch 32 is actuated by any desired means such as the opening and closing of a door or other movable object indicated generally by the reference character A in Fig. 4 of the drawings for controlling the starting of the motor 17.

In order to provide means for putting the photo-electric cell into operation when the film has attained a rate of speed best adapted for clarity of pronunciation of the recording, a governor 33 is provided which is mounted on the drive shaft 18 and has a normally open switch 34 connected in said electric circuit with the photo-electric cell and which governor functions to close said switch 34 when the desired rate of speed of the film has been attained. A cam 35 is provided for synchronizing the beginning and ending of the audible reproduction of the recording on the sound track so that the reproduction starts and ceases when the "dead" or unrecorded portion of the sound track is in juxtaposition to the photo-electric cell. The cam 35 is affixed to one end of a shaft 36 arranged at right angles to the shaft 14 and has a gear 37 affixed to the opposite end thereof which is in meshing engagement with a worm 38 secured to the end of the shaft 14. The shaft 36 is revolvably mounted so as to disposed the cam in juxtaposition to a switch 39 the free end of which is engaged by the high portion of the cam

for moving said switch in one direction against the tension of springs 40 which springs function to return the switch to its normal position after release by the cam.

The switch 32 is of the double pole single throw type and has a contact 32a thereof connected to one side of the motor 17 by a conductor wire 41. The opposite side of the motor is connected through conductor wires 42, 43 and 44 to the other contact 32c of said switch 32. The remaining contacts 32b and 32d of said switch are connected by conductor wires 45 and 46 to conductor wires 47 and 48 leading to a source of current supply. The conductor wire 43 is also connected to one side of a solenoid 49, the opposite side of which is connected by a conductor wire 50 to a conductor wire 51 which latter is connected to one side of the normally open switch 34 controlled by the governor 33 and to a conductor wire 52 leading to a contact 53 of the cam operated switch 39 and to a contact 55a of a switch 56. The opposite contact 54 of said switch 39 is connected by a conductor wire 55 to a contact 55b of said switch 56 thereby placing the two sets of contacts in parallel. The said switch is normally open and is closed by the attraction of the armature 57 to its solenoid 58 when the same is energized.

The contacts 53 and 54 of the cam operated switch 39 are normally open and are closed when the switch is engaged and moved by the high portion of the cam 35. The solenoid 58 is connected by a conductor wire 59 to the conductor wire 44 while the opposite side of said solenoid is connected by a conductor wire 60 to the remaining terminal of the switch 34 carried by the governor 33. This connects the solenoids 49 and 58 in parallel between the conductor wire 44 and the conductor wire 51 when the switch 34 is closed by the governor. The conductor wire 59 is also connected to a conductor wire 61 which has one end thereof connected to a contact 62 of said cam operated switch 39, the opposite contact 63 of which is connected by a conductor wire 64 to a source of current supply through the conductor wire 48. The contacts 62 and 63 of said cam operated switch 39 are normally closed when the switch is engaged by the lower portion of the cam and are opened when the switch is engaged by the high portion thereof.

The conductor wire 25 leading from the photo-electric cell is connected with one side of the audio amplifier and speaker 27, the opposite side thereof being connected by a conductor wire 65 to one side of a switch 66 which is normally open and is adapted to be closed by the attraction of the armature 57 to its solenoid 58 when the latter is energized. The opposite terminal of the switch 66 is connected with the conductor wire 26 leading from the photo-electric cell to thereby complete the circuit between the photo-electric cell and the audio amplifier and speaker and which is closed when the solenoid 58 is energized by the closing of contacts 53 and 54 of the cam operated switch 39 and by the closing of the switch 34 when the desired rate of speed of the film 10 has been attained. The armature 67 of the solenoid 49 controls a switch 68 having one terminal thereof connected to the conductor wire 55 by a conductor wire 69, the opposite end of the conductor wire 69 being connected to the conductor wire 45. The remaining terminal of the switch 68 is connected by a conductor wire 70 to the conductor wire 41.

When the switch 32 is closed by any desired means to thereby place in operation the motor 17 and start the movement of the film 10 and the revolving of the governor 33 and cam 35, the solenoid 49 will be energized when the switch 39 is moved by the high portion of the cam 35 to close the contacts 53 and 54. This results in an intermittent energizing thereof together with an intermittent opening and closing of the switch 68 by the attraction of the armature 67 to said solenoid until the switch 34 is moved to closed relation by the governor 33 attaining the desired speed for satisfactory reproduction of the recording on the sound track of the film. When the switch 34 is thus closed by the action of the governor 33 the solenoid 58 is energized by the closing of the circuit through the conductor wire 45 from the switch 32 to the conductor wire 69 and thence to the conductor wire 55 connected to the contact 54 and then through contact 53 and conductor wire 52 to conductor wire 51 and through the switch 34 to the conductor wire 60 which connects with one side of the solenoid 58. The opposite side of the solenoid 58 is connected by the conductor wire 59 to the conductor wire 44 and thence to the opposite contact of the switch 32. The energizing of the solenoid 58 effects the closing of the switch 56 which bridges the conductor wires 52 and 55 to thereby short-circuit the contacts 53 and 54 of the cam operated switch 39 and eliminating the intermittent energization of the solenoid 49 as the circuits through the solenoids 49 and 58 remain in closed relation.

The energizing of the solenoid 58 also effects the closing of the switch 66 to thereby close the circuit between the photo-electric cell 24 and the audio amplifier and speaker 27. The cam 35 has its high portion so positioned with reference to the location of the recording on the film 10 that when the high portion of the cam actuates the switch 39 to effect the energization of the solenoids as hereinbefore described the dead portion of the endless sound track between the opposite ends of the recording will then be located in juxtaposition to the photo-electric cell 24. The recording will be reproduced thereafter as soon as the sound track bearing the recording moves into juxtaposition to the photo-electric cell and will be continually repeated so long as the switch 32 remains in closed relation. When the switch 32 is opened the circuit from the source of current supply through the conductor wires 47 and 48 is completed through the contacts 62 and 63 which will be in closed relation provided any of the recorded portion of the sound track is in juxtaposition to the photo-electric cell 24. The reproduction of the recording will continue until the high portion of the cam 35 has moved the switch 39 to interrupt the circuit through the contacts 62 and 63 which will take place when the end of the recording has been reached and the dead portion of the sound track is in juxtaposition to the photo-electric cell. When this takes place the circuits to the motor and to the solenoids 49 and 58 are broken to discontinue operation of the device.

In place of the solenoids 49 and 58 hereinbefore described, the invention may include a single solenoid 71 which is connected by conductor wires 72 and 73 with the conductor wire 44 and with one of the terminals of the governor control switch 34 similar to the connection therewith of the solenoids 49 and 58 in the previously described form of the invention. The armature 74 of the solenoid 71 controls three switches 75, 76 and 77, the switch 75 being connected by the

conductor wires 26 and 65 with the photo-electric cell 24 and the audio amplifier and speaker 27 similar to the switch 66 in the previous form of the invention. The switch 76 is connected by the conductor wires 52 and 55 with the contacts 53 and 54 of the cam operated switch 39 similar to the switch 56 in the previously described form of the invention. While the switch 77 is connected by a conductor wire 78 with the conductor wire 55 and by a conductor wire 79 with the conductor wire 45 leading to the contact 32c of the switch 32 similar to the switch 68 in the previous form of the invention. Thus when the solenoid 71 is energized upon the closing of the governor control switch 34, the armature 74 thereof will be moved to close the three switches 75, 76 and 77 which will function similarly to the switches 65, 56 and 68 in the previously described form of the invention.

While the invention has been shown and described in its application to the preferred embodiment thereof, it is to be understood that the invenion is not limited to the details of construction shown and described but that the same shall cover and include various modifications thereof as come within the scope of the claims.

What is claimed is:

1. In an annunciating device, a movably mounted member having an endless sound track and a sound recording thereon, means for reproducing and audibly amplifying said recording, an electric motor for driving said movably mounted member, a governor, a cam driven by said motor in timed relation with the movement of the recording on said member, a normally open switch controlled by said governor, a pair of solenoids arranged in parallel in an electric circuit between a source of current supply and said governor controlled switch, a normally open switch controlled by the movement of the armature of one of the solenoids and a pair of normally open switches controlled by the movement of the armature of the other solenoid, a pair of switches controlled by the movement of said cam, one of said cam controlled switches being moved to open relation when engaged by the high portion of said cam and being connected in circuit with said governor controlled switch and with one switch of said pair of armature controlled switches and with the switch controlled by the other armature and the other of said cam controlled switches being closed when engaged by the high portion of said cam and connected in circuit with said source of current supply and with the solenoid having said pair of armature controlled switches, and a normally open switch connected in circuit with said motor and said source of current supply for controlling the operation of the motor and functioning when said switch is closed and said solenoids energized upon the closing of said governor controlled switch by the attainment of a predetermined rate of speed of the movable member to effect the closing of the armature controlled switches and thereby close the circuit between the reproducing and audio amplifying means for rendering the same operative to continually repeat the recording during the time that the said last named switch is closed and to complete the reproduction of the recording after opening of said last named switch.

2. In an annunciating device, a movably mounted member having an endless sound track and a sound recording thereon, means for reproducing and audibly amplifying said recording, an electric motor for driving said movably mounted member, a governor, a cam driven by said motor in timed relation with the movement of the recording on said member, a normally open switch controlled by said governor, a pair of switches controlled by the movement of said cam, one of said cam controlled switches being moved to open relation when engaged by the high portion of said cam and the other switch thereof being closed when engaged by the high portion of said cam, relay controlled switches in circuit with one of said cam controlled switches and with the reproducing and audible amplifying means, the relay of said relay controlled switches being connected in circuit between a source of current supply and said governor controlled switch, and a normally open switch connected in circuit with said motor and said source of current supply for controlling the operation of the motor and functioning when in closed relation and upon the closing of said governor controlled switch by the attainment of a predetermined rate of speed of the movable member to close the circuit with the relay and thereby effect the actuation of said relay controlled switches for rendering the reproducing and audio amplifying means operative to continually repeat the recording during the time that the said last named switch is closed.

3. In an annunciating device, a movably mounted member having an endless sound track and a sound recording thereon, means for reproducing and audibly amplifying said recording, an electric motor for driving said movably mounted member, a governor, a cam driven by said motor in timed relation with the movement of the recording on said member, a normally open switch controlled by said governor, a pair of switches controlled by the movement of said cam, one of said cam controlled switches being moved to open relation when engaged by the high portion of said cam and the other switch thereof being closed when engaged by the high portion of said cam, a pair of relays connected in circuit between a source of current supply and said governor controlled switch, one of said relays controlling a switch in circuit with one of said cam controlled switches and also controlling a switch in circuit with said reproducing and audio amplifying means and the other of said relays controlling a switch connected to one side of the source of current supply and with one of said cam controlled switches, the other of said cam controlled switches being connected to the source of current supply and to one of said relays, and a normally open switch connected in circuit with said motor and said source of current supply for controlling the operation of the motor and functioning when in closed relation and upon the closing of said governor controlled switch by the attainment of a predetermined rate of speed of the movable member to close the circuits with the relays and thereby effect the actuation of said relay controlled switches for rendering the same operative to continually repeat the recording during the time that the said last named relay is closed and to complete the reproduction of the recording after opening of said last named switch.

4. In an annunciating device, a movably mounted member having an endless sound track and a sound recording thereon, means for reproducing and audibly amplifying said recording, an electric motor for driving said movably mounted member, a governor driven by said motor, a cam

driven by said motor in timed relation with the movement of the recording on said member, a normally open switch controlled by said governor, a pair of switches controlled by the movement of said cam, one of said cam controlled switches being moved to open relation when engaged by the high portion of said cam and the other switch thereof being in closed relation when engaged by the high portion of said cam, a relay in circuit with a source of current supply and with one terminal of said governor controlled switch, the armature of said relay controlling three switches one of said switches being in circuit with said reproducing and amplifying means and the other two switches thereof being in circuit with the first described cam controlled switch and with the opposite terminal of said governor controlled switch and a normally open starting switch in circuit with said motor and source of current supply and with the second of said cam controlled switches for controlling the operation of the motor and functioning when in closed relation

and upon the closing of said governor controlled switch by the attainment of a predetermined rate of speed of the movable member to close the circuit with said relay and thereby effect the actuation of said relay controlled switches for rendering the reproducing and audio amplifying means operative to continually repeat the recording during the time that the said starting switch is closed.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,700,833	Engel	Feb. 5, 1929

FOREIGN PATENTS

Number	Country	Date
298,297	Great Britain	1928