Sept. 8, 1931. G. A. DEL VALLE 1,822,727

FILM PHONOGRAPH

Filed Oct. 15, 1929

Fig. 1.

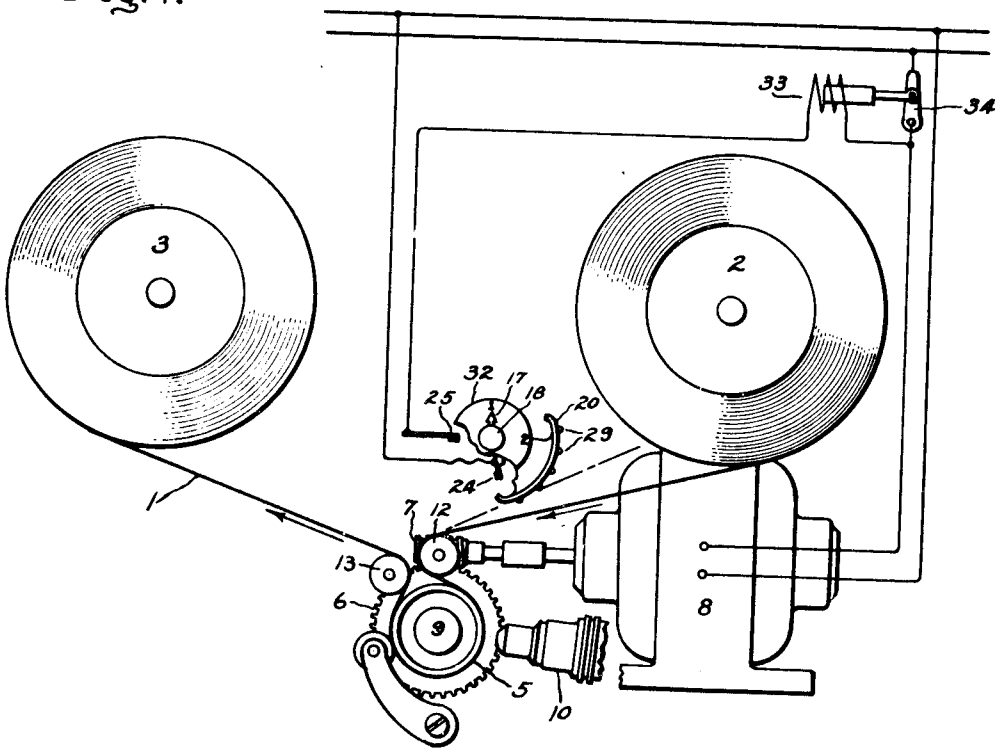
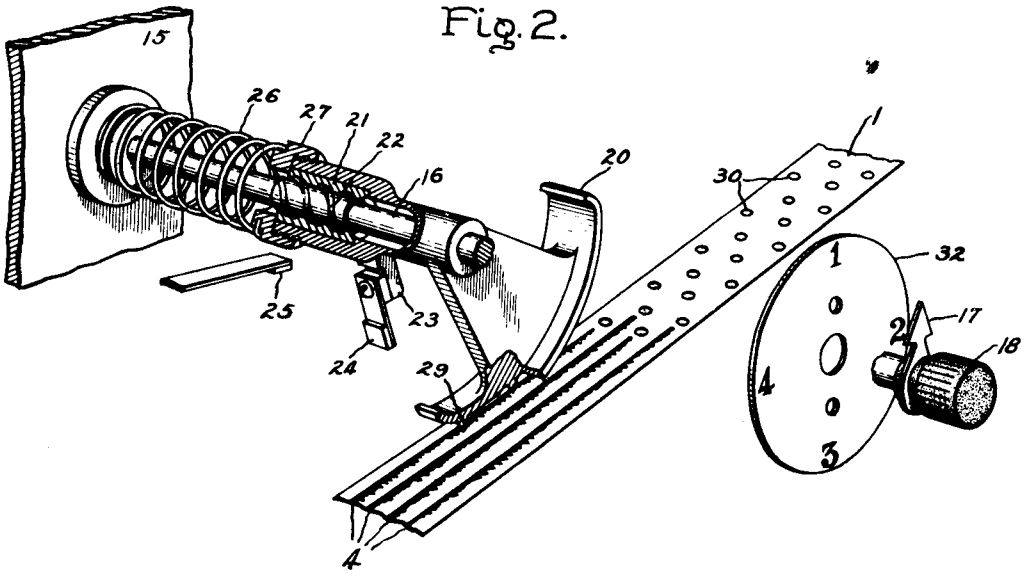


Fig. 2.



Inventor:
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UNITED STATES PATENT OFFICE

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FILM PHONOGRAPH

Application filed October 15, 1929. Serial No. 399,830.

My invention relates to a film phonograph and particularly to mechanism forming a part thereof which is operated only after a predetermined movement of the film. It is an object of my invention to provide an improved mechanism of this character which is simple, reliable, and inexpensive to manufacture.

My invention will be better understood from the following description taken in connection with the accompanying drawings and its scope will be pointed out in the appended claims.

Referring to the drawings, Fig. 1 is a combined side view and circuit diagram of a construction involving my invention and Fig. 2 is a perspective view of a portion thereof.

The film 1 which in the operation of the machine unwinds from reel 2 and winds up on reel 3 may have a sound record forming a single track or have a plurality of record tracks thereon extending parallel to each other as illustrated at 4 in Fig. 2. The film may be driven at the desired uniform speed by any suitable means and may be supported at the point at which the record is reproduced by any suitable gate device. In the present embodiment I have shown the film as supported and driven by the drum 5 which by the worm wheel 6 and worm 7 is connected to the motor 8. Within the drum 5 is the photoelectric cell 9 which is suitably connected through amplifying devices in the well known manner to a loud speaker. In the construction shown a narrow light beam is focused upon the film by the optical system indicated at 10, the light modified by the sound record passing on into the cell.

Where the film approaches and leaves the drum it passes over the rollers 12 and 13 respectively.

Arranged above that part of the film extending from the reel 2 to the roller 12 I have provided the apparatus now to be described for deenergizing the driving motor when the end of the sound track is reached from which reproduction is being made. Frictionally supported in the wall 15, which may form a part of a casing enclosing the apparatus, is the shaft 16 which terminates in the pointer 17 and knob 18. Rotatably mounted on the shaft 16 is the arcuate contact operating lever 20 having the nut 21 which engages the screw threads 22 on shaft 16. Lever 20 also has the contact arm 23 to which is secured the movable contact 24 which when the lever is rotated by the film is arranged to connect with the fixed contact 25. Coil spring 26 having its ends secured respectively to the wall 15 and lever 20 through the screw cap 27 serves to return the lever to the initial position in which it is illustrated, a suitable stop, not shown, being provided at that position. On the face of the lever 20 are a series of pins or projections 29 having rounded ends and in the film at the end of each sound record track is a series of perforations 30 adapted to receive the projections 29. The lever 20 is so positioned above the film that it does not begin to contact therewith until the film is nearly all unwound at which time the position of the film is represented for example by the dot and dash line. By turning the knob 18 on shaft 16 a quarter turn the lever 20 is moved axially an amount equal to the distance between two adjacent sound tracks, the pointer 17 cooperating with the fixed scale 32 marked off in quarters. Switch contacts 24 and 25 close the circuit of the relay 33 the operation of which opens the motor circuit at 34.

Suitably means, not shown, are employed for causing registration of the light beam and the particular sound track from which reproduction is to be made and before or during the reproduction the knob and pointer are turned to the corresponding sound track number. Shortly before the end of the film is reached the projections in the lever 20 begin to touch the film and when the end of the track is reached they engage in the openings 30. The continued movement of the film then rotates the lever to close the circuit at contacts 24 and 25 which by the operation of the relay 33 opens the motor circuit at 34. The motor soon comes to rest and before the film has been entirely withdrawn from the reel 2. The film may then be wound back on reel 2 by hand or if desired by reversing the motor.

I have chosen the particular embodiment described above as illustrated of my invention and it will be apparent that various modifications may be made without departing from the spirit and scope of my invention which modifications I aim to cover by the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a film phonograph adapted to receive a roll of film having a sound record track thereon, a member normally spaced from the film and arranged to be engaged by said film when the film roll has been unwound to a predetermined diameter, said film having means at the end of said sound track for moving said member in response to its linear movement.

2. In a film phonograph adapted to receive a roll of film having a sound track thereon and actuating means at the end of said track, a member arranged to be actuated by said means in response to the linear movement of the film being unwound from said roll said member being normally out of engagement with the film and arranged to become engaged with the film when the roll has decreased to a predetermined diameter.

3. In a film phonograph adapted to reproduce sound from a film having a plurality of sound record tracks thereon, a film actuated member having a film engaging portion, said film having an opening adjacent the end of each sound track and means for selectively moving said member laterally of the film to be engaged by any one of said openings.

4. In a film phonograph adapted to receive a roll of film having a plurality of sound record tracks thereon, a member arranged to become engaged by said film in response to the unwinding of said roll to a predetermined diameter, said film having means at the end of each track for moving said member in response to a linear movement of the film and means for shifting said member laterally of the film.

5. In a film phonograph adapted to receive a roll of film having a plurality of sound record tracks thereon, a circuit controlling member having a plurality of projections thereon arranged to become engaged with said film when the roll has been unwound to a predetermined diameter, said film having a plurality of openings therein at the end of each sound track arranged to be engaged by the respective projections, and means for shifting said member laterally of said film to be operated at the end of one or another of sound record tracks.

6. In a film phonograph adapted to receive a roll of film having a plurality of sound record tracks thereon, a curved circuit controlling member having a plurality of projections thereon arranged to become engaged with the film when the roll has been unwound to a predetermined diameter, said film having a plurality of openings therein at the end of each sound track, and means for selectively shifting said member laterally of the film to cause it to be operated by the openings at the end of any sound track.

In witness whereof, I have hereunto set my hand this 14th day of October, 1929.

GUILLERMO A. DEL VALLE.