This invention relates to time announcers; more particularly it is directed to an electromechanical type of device of this character for use in telephone exchanges for supplying subscribers with the time of day.

One of the objects of the invention is to provide an electromechanical phonographic time or weather announcer to supply continuous single-voliced time or other announcements which will simulate closely those given by the present day manual telephone announcer, thus eliminating the expense, fatigue and delay of operators in large telephone exchanges in giving out the correct time or other announcements.

Another object of the invention is to provide a time service for telephone systems which will function to convey the correct time automatically, correctly, instantly and at any moment to give the correct time without having to depend upon human voice other than that provided on a record to convey the service to the subscriber.

In my Patent No. 2,144,628, there is disclosed a phonographic time announcer of the mechanical type including a movable grooved record, a screw-threaded propeller shaft and a fixedly mounted pivot rod above the record, a reproducer transmitter movably mounted on said pivot rod and cooperating with the screw-threaded propeller shaft, a needle provided on the reproducer transmitter and guided to move on the record, a timepiece connected to drive the propeller shaft, whereby said reproducer transmitter is moved on the pivot rod across the record by the screw threads on said propeller shaft and means for returning the reproducer transmitter to its starting position.

It has been found that if the minute hand of a timepiece is caused to make and break a circuit through an electromagnet at each minute intersection of the timepiece and if the pivot bar is movably mounted on the device instead of being fixedly mounted thereon with the reproducer transmitter secured to the pivot bar that the electromagnet can be operated to actuate means to move the pivot bar and hence the reproducer transmitter across the record.

It is therefore the aim and purpose of this invention to provide an improvement over the mechanical type of phonographic time announcer disclosed in my Patent No. 2,144,628, by fixedly securing the reproducer transmitter to a pivot bar, movably mounting the pivot bar on the device and causing the minute hand of the timepiece to make and break a circuit connected to an electromagnet at each minute intersection of the timepiece, the said electromagnet being adapted to actuate means which periodically engage means provided on the pivot bar in such a manner as to move the pivot bar on the device and hence the reproducer transmitter across the record.

Briefly stated, the improved phonographic time announcer comprises a phonographic groove record (disk) inscribed with sentences telling the various times of day, preferably one for each minute during the twelve hours, which constitute the ordinary period in which the hour hand of a timepiece makes a complete revolution; an elongated pivot bar adapted to be moved longitudinally on the device, a phonographic reproducer transmitter fixedly secured to the pivot bar and adapted to be moved across the record upon the movement of the pivot bar, a telephone receiver connected to said phonographic reproducer transmitter, a toothed wedge shape lip substantially equal in length to the radius of the record and longitudinally arranged on said bar, an electromagnetic mechanism, including a wire coil connected in circuit with each minute intersection of a timepiece through the minute hand thereof, a source of electrical potential, an iron core, a spring pressed elevator plunger actuated by said iron core, a shift plunger actuated by said elevator plunger, said shift plunger having teeth provided thereon which are adapted to mesh with the teeth on the lip of said bar upon the actuating of said shift plunger, whereby said bar is slightly raised and rotated thus rotating the reproducer transmitter and causing the needle provided thereon to be raised from the record, said shift plunger also being adapted to horizontally move the pivot bar on said device, whereby the reproducer transmitter is moved on the record a distance equal to the distance between concentric grooves on the record for reproducing the time announcements therein and means including a friction device for returning the reproducer transmitter to its initial starting position after completion of its travel across the record.

Modified methods of making and breaking the circuit through the wire coil of the electromagnetic mechanism consisting of forming an aperture at each minute intersection on the timepiece, providing a mirror or lens on the outer end of the minute hand of the timepiece and causing certain of the rays from the light source to
be projected onto the mirror or lens. The mirror or lens in turn causes the rays from the light source to be refracted or reflected through each aperture at each minute intersection of the timepiece onto a photoelectric cell connected in an auxiliary electric circuit and adapted to periodically open a magnetic switch connected in circuit with the wire coil of the electromagnetic mechanism. Substituting a small light source on the minute hand in place of the mirror or lens as in the first method, whereby the rays from the small light source are projected through the apertures at the minute intersections of the timepiece onto the photoelectric cell for varying the current in the auxiliary electric circuit to operate said magnetic switch for making and breaking the circuit through the wire coil, is also included within the scope of the invention.

With the above and other objects and advantages in view, the invention consists of certain features of construction and operation of parts which will hereinafter appear and in which—

Fig. 1 is a top plan view of an electric phonograph embodying the invention;

Fig. 2 is a fragmentary elevation of the invention applied to an electric phonograph;

Fig. 3 is an enlarged fragmentary perspective view thereof;

Fig. 4 is an enlarged perspective view of a portion of a pivot bar having a threaded lip provided thereon for carrying out the invention;

Fig. 5 is an enlarged sectional view partially in elevation of an electromagnetic mechanism also used in carrying out the invention;

Fig. 6 is a perspective assembly view of the component parts of a modified apparatus for operating the electromagnetic mechanism, and including a light source for projecting rays through a plurality of apertures provided on a timepiece;

Fig. 7 is a fragmentary detail view of a modified manner of projecting the rays through the apertures shown in Fig. 6, by the light source;

Fig. 8 is a perspective view of a roller mounted on a fragmentary portion of a pivot bar used in carrying out the invention.

In the illustrated embodiment characterizing the invention 1 indicates a casing of a conventional electric phonograph in which a mechanism (not shown) is provided for revolving a turntable 2 having a record 3 mounted thereon. The turntable 2 is adapted to be rotated in the direction as indicated by the arrow, thereby rotating the record in the same direction.

The record 3 is adapted to be provided with at least 720 concentric grooves representing each minute during the twelve hours, which constitute the ordinary period in which the hour hand of a timepiece makes a complete revolution. For purposes of clearness the record 3 is illustrated as only having a certain number of concentric grooves 4. In groove a of the grooves 4 is recorded the words twelve o'clock; in groove b the words twelve-one; in groove c twelve two; etc., until in groove y the words eleven-fifty-eight, and in groove z the words eleven-fifty-nine.

The record 3 is also provided with connecting grooves a', b', c', etc., to z' and with a starting and spiral groove 5 and 6 respectively. The grooves a' to z' connect the concentric grooves a to z to each other and the groove 5 connects with the groove 3 and extends closely adjacent to the outer periphery of the record. The spiral groove 6 is provided at the center of the record and connects with the last groove z from which it continues spirally around the inclined raised portion 7 formed at the center of the record for causing a phonographic reproducer transmitter 8 provided with a needle 9 to be raised from the record after having reproduced the time announcement in the grooves a to z over a twelve hour period.

The apparatus used in causing the phonographic reproducer transmitter to travel across the record 3 for reproducing the time intervals recorded in the concentric grooves 4 and to return it to its initial starting position includes a suitable framework 10 composed of a bottom plate 11 which is mounted on the upper surface of the phonograph casing 1 beneath the turntable 2 and extends from adjacent the right hand side of the turntable 2 across to the left side of the casing. A framework 10 is provided with end plates 12 and 13 which extend up from the bottom plate 11, adjacent opposite sides of the turntable 2 and record 3.

The end plates 12 and 13 are provided each with a roller bearing 14 and 15 respectively. The roller bearings 14 and 15 are shaped like a hyperboloid of revolution and are provided for supporting an elongated pivot bar 16 which is slidable mounted in an opening 17 formed in the roller bearing 15, mounted on the roller side in the substantially keyhole shaped opening 17' in the roller bearing 14. On the forward side and at one end of the pivot bar 16 is a longitutinally arranged lip 18 which is wedge-shaped in cross-section and about equal in length to the radius of the record 3. The lip 18 which is mounted or formed on the pivot bar 16, illustrated in detail in Fig. 4, is provided with teeth 19 formed on the underneath surface thereof which are spaced exactly equal to the distance between the grooves 4 on the record 3, and adapted to be engaged periodically by teeth 20 provided on a shift plunger 21 of an electromagnetic mechanism indicated generally by A which is enclosed within a housing 22 made of any suitable nonmagnetic material and suitably secured to the outer surface of the end plate 12 of the supporting frame 10 under the lip 18 of the pivot shaft 16.

The electromagnetic mechanism A comprises a wire coil 23 having one end connected by a conductor 24 in circuits provided for revolving with on the other side of which is connected by a conductor 26 with the minute hand 27 of a timepiece 28 having electrical contact points 29 at each of the sixty minute intersections thereof, as illustrated in Figs. 2 and 3. Each of the contacts 29 are connected by a separate conductor 30 which is in turn connected with the other end of the wire coil 23 of the electromagnetic mechanism by a common return conductor 31. The wire coil 23 is wrapped around a horizontally extending soft iron core 32 having end members 33 and 33' provided thereon. One end 34 of the iron core 32 extends through the end member 33' into an aperture 35 provided in a vertically extending partition 36 integrally formed in the housing 22. The partition 36 provides a pocket 37 on one end of the housing 22 in which an elevator plunger 38 made of iron or other suitable material is mounted. The elevator plunger 38 is shorter in length than the pocket 37 and is provided with a projection 39 on the left side thereof which extends into and engages closely adjacent to the outer periphery of the aperture 35 at one side of the partition 36 and in an opposite direction to the end 34 of the iron core 32. An expansion spring 40 is provided in the aperture 35 which
surrounds the projection 39 of the elevator plunger 38 and abuts at one end against the end 34 of the iron core and with the inner side of the elevator plunger 38 at its other end, whereby the elevator plunger is held by the spring 48 to the right against one side of the pocket 37 of the housing 22. In order to adjust the height of the elevator plunger 38 within the pocket 37 of the housing 22, an adjusting plate 41 is provided in the lower surface of the pocket which is adapted to be raised or lowered by adjusting screws 42 which are vertically mounted on the housing 22 beneath the pocket 37 thereof. The upper portion of the elevator plunger 38 is provided with an inclined surface 43 which extends upwardly and outwardly where it terminates in a vertical extension 44. The shift plunger 21, having the teeth 28 on its upper surface, is provided with a lower inclined surface 45 which is adapted to seat on the inclined surface 43 of the elevator plunger 38 and includes a projection 46 which is adapted to project into one end of an aperture 47 formed in an upwardly extending portion 48 at one side of the partition 36 of the housing 22. Within the aperture 47 of the portion 48 is an expansion spring 49 which surrounds the projection 46 of the shift plunger 21 and abuts at one end against the shift plunger 21 and with the inner end of an adjusting screw 50 threadedly mounted in the other end of the aperture 47 of the upwardly extending portion 48 of the partition 36, whereby the shift plunger 21 is adjustably held by the spring 49 to the right on the inclined surface of the elevator plunger 38.

The reproducer transmitter 8 comprises a casing 51 which is securely fixed at its lower central portion to the pivot bar 16 at 52 and is provided with a horizontally extending tube 53 containing a freely movable ball 54 which is adapted to unbalance the reproducer transmitter in a forward or rearward direction. An ordinary telephone receiver 55, as shown in Figs. 1, 2 and 3, which illustrates the use of the apparatus is connected to telephone line wires 56 and 57 which are in turn connected with the reproducer transmitter and form a part of the circuit to which subscriber telephones are attached. In the use of the apparatus in connection with telephone exchanges of course this telephone circuit passes through the exchange or central station. Formed on the rear of the reproducer transmitter is a horizontally extending arcuate-shaped groove 58, as illustrated in Fig. 3, having threads 59 provided thereon which are adapted to engage screw threads 60 of a threaded portion 61 provided on a return shaft 62 which is adapted at one end 63 to slide in a forward or rearward direction within a slot 64 formed in the rear end of the end plate 13 at a particular point in the operation of the apparatus. A disk 65 is secured to the outer end of the end 63 of the return shaft 62 which bears against the outer surface of the end plate 13 and prevents the return shaft from moving to the left of the device. The threaded portion 61 of the return shaft 62 terminates in an enlarged incline threaded end 66.

The reproducer transmitter is returned to its initial starting position by the same apparatus disclosed in my above mentioned patent which includes a pinion 67 provided on the inner end of the return shaft 62 and adapted to mesh with a crown wheel or ring rack gear 68 mounted on the forward side of a wheel 69 having a felt or rubber tire 70 on its outer surface. The crown wheel or ring rack gear 68 and the wheel 69 containing the rubber tire 70 are partially inclosed within a housing 71 which is closed on its underneat forward side by a curved portion 72. The other portion of the bottom of the housing 71 is open and permits the lower end of the wheel 69 and tire 70 to extend therethrough below the bottom of the housing 71, whereby the rubber tire 70 may frictionally contact with the record 3 for rotating the wheel 69 and gear 68 to thus rotate the return shaft 62 through the portion 67 in the direction as indicated by the arrows.

In order to unbalance the return shaft 62 and its connecting mechanism countermlevels 73 and 74 are provided. The countermweight 75 is secured to the free end of an elongated body portion 76 which is pivotally connected at its rear end to the pivot bar 16 at 76 and return shaft 62 at 77 by rollers 78 of the type illustrated in Fig. 8, while the countermweight 74 is mounted on the outer end of an elongated body portion 79 on the housing 71 of the friction device, indicated generally by B, and which is in turn pivotally mounted on the pivot bar 16 by a roller bearing 80 also of the type illustrated in Fig. 8.

The friction device B which includes the gear 81, wheel 82 and rubber or felt tire 83 is pivotally mounted on the housing 71 by a shaft 84 which is arranged at right angles to the return shaft 62. In order to facilitate adjustment of the bearing frame 85, swivel adjustment screws 86 may be provided which contact with the upper surface of the casing 1 and with the side edge of the bearing plates 10 and 12 of the bearing frame.

The electromagnetic mechanism A may be operated for actuating the pivot bar 16 by means of the apparatus disclosed in Fig. 6 wherein instead of the contacts 19 being placed at each of the minute intersections of the timepiece 20, apertures 83 are formed in the timepiece 20' at each of the minute intersections of the timepiece and a reflector or lens 84 is suitably secured to the outer end of the minute hand 21' of the timepiece and arranged thereon in such a manner that certain rays 85 from a light source 86 will be reflected or refracted through an aperture 82 of the timepiece, when the minute hand 21' is at that particular minute intersection of the timepiece. The other rays from the light source are prevented from passing through the apertures 83 by the face of the timepiece. The rays which are reflected or refracted by the reflector or lens 84 on the minute hand 21' are caused to be projected onto a cathode 87 of a photoelectric cell 88 including the anode 89. The cathode 87 of the photoelectric cell 88 is connected by means of a conductor 90 to one end of the solenoid 91 of a magnetic switch 92 including an armature 93 and contact 94. The other end of the solenoid 91 of the magnetic switch 92 is connected to the negative side of a battery 95 by conductor 96, the said battery 95 being connected at its positive side to the anode 89 of the photoelectric cell 88 by a conductor 97. One end of the armature 93 of the magnetic switch 92 may be connected to the conductor 26 which in the first device is connected to the minute hand 21, and the other end of said switch 92 may be connected to the conductor 31 which in the first mentioned device is connected to the conductors 38. If desired the reflector or lens 84 and the light source 86 shown in Fig. 6 may be eliminated and a small light source 86 may be substituted on the minute hand 21', in place of the reflector or lens 84 in which case the small light source 86 would project its rays through the apertures 83 onto the photoelectric cell 88.
In the operation of the mechanism, illustrated in Figs. 1 to 5, inclusive, the reproducer transmitter 8 and pivot bar 16 having been placed to the right of the device at their initial starting position with the metal ball 54 in the forward end of the tube 53, the reproducer transmitter is then caused to tilt in a forward direction causing the pivot bar 16 to rotate in the end plates 12 and 13 of the supporting frame 10 with the needle 9 of the reproducer transmitter engaging in the deep starting groove 5 which guides the needle to the first concentric groove a of the record when the hands of the timepiece are at twelve o'clock, whereby the reproduced transmitted is caused to announce over the telephone line wires 56 and 57 to the substation at the telephone receiver 55 the words twelve o'clock.

Upon the minute hand 27 of the timepiece which moves to the right, as indicated by the arrow in Figs. 1 and 2 striking the contact 29 at twelve one of the timepiece, a current is caused to flow from one side of the battery 28 through the minute hand 27 of the timepiece, the contact 29 at twelve one, the conductor 30 connected thereto, the common return conductor 31, the wire coil 23 which now forms a solenoid, back to the other side of the battery 28 through the conductor 24. The outer end of the minute hand 27 is so formed as to make contact with the contacts 29 at the minute intersections of the timepiece for a few seconds, whereby when the minute hand is at the contact at twelve one a current is set up long enough for the record to make one revolution, so the connecting groove a' will catch the needle and assist in carrying it to the next groove b. The current set up through the solenoid 28 by the minute hand 27 striking the contact 29 at twelve one of the timepiece makes an electromagnet out of the soft iron core 32 of the electromagnetic mechanism A which causes the elevator plunger 38 to be drawn to the left. At the beginning of this movement of the elevator plunger 38, the shift plunger 34 is raised vertically due to the inclined surface, the upper portion of the elevator plunger, whereby the teeth 20 on the upper surface of the shift plunger 21 are caused to engage in the teeth 19 formed on the lower surface of the lip 18 of the pivot bar 16, thereby lifting up on the lip 18 which causes the pivot bar 16 to rotate on the end plates 12 and 13 of the supporting frame 10 in a rearward direction which causes the reproducer transmitter 8 secured thereto, to rotate in the same direction to slightly lift its needle 9 from the record. Then the extension 44 on the elevator plunger engages the outer side of the shift plunger 21 to move the shift plunger 21 to the left which in turn horizontally moves the pivot bar 16 and reproducer transmitter 8 to the left a distance exactly equal to the distance between the grooves a and b. The horizontal movement to the left of the pivot bar 16 and reproducer transmitter is stopped when the outer end of the projection 46 of the shift plunger 21 comes in contact with the adjusting screw 59. As the minute hand 27 slides off of the contact at twelve one o'clock of the timepiece, the electric circuit is broken through the solenoid 23, whereby the iron core 32 is demagnetized which releases the elevator plunger 38 and permits the spring 40 to force it to the right, thereby allowing the shift plunger to be moved downwardly out of engagement with the lip 18 on the pivot bar 16 and to be forced to its original position to the right under the action of its spring 48, this action releases the pivot bar which due to the weight of the metal ball 54 on the outer end of the reproducer transmitter 8, causes the reproducer transmitter to be moved downwardly at its front end with its needle 9 engaging in the groove b, whereby the words twelve one are announced over the telephone line wires 56 and 57. In this manner the pivot bar 16 and hence the reproducer transmitter is moved at the end of each minute interval entirely across the face of the record during a twelve-hour period. The distance that the shift plunger 21 is raised for rotating the pivot bar 16 and hence the amount of elevation of the needle 9 of the reproducer transmitter 8 from the record 3 may be adjusted by means of screws 42 which are adapted to engage with the adjusting plate 41 for either lowering or raising the elevator and shift plunger 38 and 21 respectively. When the hands of the timepiece 28 have reached the time of eleven fifty-nine or one minute of twelve the needle 9 of the reproducer transmitter 8 will be in the last groove z of the record 3. As the minute hand 27 of the timepiece turns to twelve o'clock the needle 9 of the reproducer transmitter is given a lurch to the left to the beginning of the spiral groove 58 through a cam to carry the needle toward the center and raises it up the inclined portion 7 of the record 3.

Obviously in the operation of the system it is necessary to return the reproducer transmitter 8 to its starting position after being extended over a twelve hour period. The return mechanism is such that the reproducer transmitter is returned to its starting position in a fraction of a minute and consequently there is no interference with the time keeping by such action.

In the operation of the return mechanism which is constructed and operates in the same manner as the return mechanism in my Patent No. 2,144,625, the return movement is begun when the needle 9 of the reproducer transmitter 8 nears the top of the inclined portion 7 at the center of the record 3. This upward movement of the needle 9 raises the forward end of the reproducer transmitter and causes the tube 53 thereof to be in an inclined or slanting position from the horizontal which causes the freely movable arm of the tube to the rear of the reproducer transmitter, which unbalances the reproducer transmitter and moves it together with the pivot bar 16 in a rearward direction, whereby the rear follower threads 99 of the arcuate groove 58 at the rear of the reproducer transmitter are caused to threadably engage the screw threads 61 of the return shaft 62. The weight of the ball 54 also begins to unbalance the return mechanism including the friction device 3, thereby lowering the ring rack gear 53 and wheel 56. The friction teeth 50 frictionally contacts with the rotating record 3. As the tire 70 comes into contact with the upper surface of the record 3, the wheel 59 and the gear 65 are rotated in the opposite direction from the record or in a counterclockwise direction which in turn rotates the pinion 61 in mesh with the gear 58 in a clock-wise direction and hence the return shaft 62 in the same direction, whereby the reproducer transmitter is screwed to the right on the return shaft 62 to the inclined portion 7 of the record 3, which is enlarged in diameter so that as the reproducer transmitter 8 reaches its starting position the threads provided on the enlarged portion 96 raises the rear of the reproducer transmitter up.
wardly until the rear of the tube $3$ is higher than its front end, thus causing the ball $84$ to roll forward overbalancing the reproducer transmitter in a forward direction to the starting groove $5$ on the record. After this movement the reproducer transmitter is again guided to the first concentric groove $a$ by the starting groove $5$. As the reproducer transmitter topples forward the return mechanism is overbalanced forward on the pivot bar $18$ by the counterweights $17$ and $12$, thereby raising the housing $71$ from the record $3$ and the friction device $B$.

In order to cause the reproducer transmitter $51$ to trip forward to start reproductions of announcements, as of weather reports, from the record at any point desired, the enlarged inclined portion in the end $69$ of the return shaft $62$ may be made ring-shaped and threadably mounted on the return shaft and the conical shaped raised portion $I$ containing the spiral groove $6$ in the center of the record may be made separate from the record and caused to engage the record in any suitable manner. Conical shaped pieces of different diameters containing spiral grooves may be used to raise the needle at any point desired on the record for returning the reproducer transmitter to its starting position.

It will thus be seen that there is provided a new and useful form of electromechanical phonographic time announcer which is well adapted for all the purposes intended. Even though there has been described and claimed certain features of construction and operation of parts, it is nevertheless to be understood that various changes may be made therein if the changes do not depart from the spirit or scope of the claims.

Having described my invention, what I claim as new and wish to secure by Letters Patent is:

1. A phonograph announcer having a movable record bearing a plurality of recorded announcement grooves, a reproducer transmitter including a needle supported to move across the record toward the center thereof, said needle adapted to travel in one of each of said grooves, means including an electromagnetic mechanism for actuating said reproducer transmitter to remove said needle from the record after having traveled in one of said grooves and to move said reproducer transmitter across the record a distance between said grooves, means for actuating said reproducer transmitter to place said needle in engagement with a groove adjacent to the traveled groove and means for returning said reproducer transmitter to its starting position after said needle has completed its travel in said grooves.

2. A phonograph announcer having a movable record bearing a plurality of recorded announcement grooves, a reproducer transmitter movably supported above the record and including a needle adapted to travel in said grooves, means including an electromagnetic mechanism for actuating said reproducer transmitter to remove said needle from the record after having traveled in one of said grooves and to move said reproducer transmitter across the record a distance between said grooves, means for returning the reproducer transmitter after the needle has completed its travel in said grooves, and means for returning the reproducer transmitter to its starting position after the said reproducer transmitter is raised.

3. In a phonograph announcer having a movable record bearing a plurality of recorded announcement grooves, a reproducer transmitter including a needle adapted to travel in one of each of said grooves, a movably mounted pivot bar fixedly secured to said reproducer transmitter, means including an electromagnetic mechanism for periodically operating said pivot bar at timed intervals to move said pivot bar and reproducer transmitter secured thereto across the record a distance between said grooves, whereby said reproducer transmitter and needle is moved from one groove to another in succession across the record toward the center thereof, means for returning the pivot bar and reproducer transmitter to their starting position after said needle has traveled in all of said grooves.

4. In a phonograph announcer having a movable record bearing a plurality of recorded announcement grooves, a reproducer transmitter supported above the record and including a needle adapted to travel in each of said grooves, a pivot bar having a projecting portion thereon, said pivot bar fixedly secured to said reproducer transmitter and adapted to be moved across the record, an electromagnetic mechanism including a member adapted to periodically engage said projecting portion of the pivot bar and to move said pivot bar and reproducer transmitter secured thereto across the record a distance between said grooves, whereby said reproducer transmitter and needle is moved from one groove to another in succession across the record toward the center thereof, means for operating said electromagnetic mechanism, means including a source of electrical potential connected with said electromagnetic mechanism, a timepiece connected to said source of electrical potential and said electromagnetic mechanism, said timepiece adapted to periodically operate said electromagnetic mechanism at timed intervals for operating said pivot bar and means for returning the pivot bar and reproducer transmitter to their starting position after the needle of said reproducer transmitter has traveled in all of said grooves.

5. In a phonograph announcer having a movable record bearing a plurality of recorded announcement grooves, a reproducer transmitter supported above the record and including a needle adapted to travel in each of said grooves, a pivot bar having a threaded portion thereon, said pivot bar fixedly secured to said reproducer transmitter and adapted to be moved across the record, an electromagnetic mechanism including a member adapted to periodically engage said threaded portion of the pivot bar and to move said pivot bar and reproducer transmitter secured thereto across the record a distance between said grooves, whereby said reproducer transmitter and needle is moved from one groove to another in succession across the record toward the center thereof, a source of electrical potential connected with said electromagnetic mechanism, a timepiece having minute interruptions and including an electrical contact in each of said minute interruptions connected to said electromagnetic mechanism, and a minute hand adapted to periodically engage each of said electrical contacts, said minute hand connected to said source of electrical potential and adapted to engage each of said electrical contacts for periodically actuating said electromagnetic mechanism at timed intervals, and means for returning the pivot bar and reproducer transmitter to their
starting position after said needle has traveled in all of said grooves.

6. In a phonograph announcer having a moveable record bearing a plurality of recorded announcement grooves, a reproducer transmitter supported above the record and including a needle adapted to travel in one of each of said grooves, a pivot bar having a threaded portion thereon, said pivot bar fixedly secured to said reproducer transmitter and adapted to be moved across the record, an electromagnetic mechanism including an electromagnet, members adapted to be operated periodically by said electromagnet, one of said members adapted to engage the threaded portion of said pivot bar and to move said pivot bar and reproducer transmitter secured thereto across the record a distance between said grooves, whereby said reproducer transmitter and needle is moved from one groove to another in succession across the record toward the center thereof, a source of electrical potential, a normally inoperative magnetic switch connected to said source of electrical potential and an electromagnetic mechanism including an electromagnet connected to said additional source of electrical potential and a normally inoperative photoelectric cell connected to said additional source of electrical potential and said magnetic switch, a timepiece including minute intersections, an aperture formed at each of the minute intersections, a minute hand on said timepiece adapted to move past each of said apertures, a reflector mounted on said minute hand and arranged to reflect rays through one of each of said apertures in succession onto said photoelectric cell for actuating said photoelectric cell, a light source adapted to project certain of its rays onto said reflector, whereby said rays are periodically projected through one of each of said apertures in succession at minute intervals onto said photoelectric cell, whereby said magnetic switch is periodically operated to operate said electromagnet for actuating said member into engagement with said pivot bar at minute intervals, and means for returning the pivot bar and reproducer transmitter to their starting position after said needle has traveled in all of said grooves.

7. In a phonograph announcer having a moveable record bearing a plurality of recorded announcement grooves, a reproducer transmitter supported above the record and including a needle adapted to travel in one of each of said grooves, a pivot bar having a threaded portion, said pivot bar fixedly secured to said reproducer transmitter and adapted to be moved across the record, an electromagnetic mechanism including a source of electrical potential connected with said electromagnet, a timepiece connected to said source of potential and electromagnet and adapted to periodically operate said electromagnet to operate said members and means for returning the pivot bar and reproducer transmitter to their starting position after said needle has traveled in all of said grooves.

8. In a phonograph announcer having a moveable record bearing a plurality of recorded announcement grooves, a reproducer transmitter supported above the record and including a needle adapted to travel in each of said grooves, a pivot bar fixedly secured to said reproducer transmitter and adapted to be moved across the record, means comprising an electromagnetic mechanism including an electromagnet, a timepiece including minute intersections, an electrical contact at each of the minute intersections of the timepiece, each of said electrical contacts connected with said electromagnet, a minute hand connected with said source of potential and adapted to engage one of each of said electrical contacts for periodically making contact, a source of electrical potential connected with said electromagnet, a minute hand connected with said source of potential to said electromagnet, and means for returning the pivot bar and reproducer transmitter to their starting position after said needle has traveled in all of said grooves.

9. In a phonograph announcer having a moveable record bearing a plurality of recorded announcement grooves, a reproducer transmitter supported above the record, and including a needle adapted to travel in each of said grooves, a pivot bar fixedly secured to said reproducer transmitter and adapted to be moved across the record, means for periodically operating said pivot bar and reproducer transmitter secured thereto across the record, said means comprising an electromagnetic mechanism including an electromagnet, a member adapted to be periodically actuated into engagement with said pivot bar and to move said pivot bar and reproducer transmitter across the record a distance between said grooves, whereby said reproducer transmitter and needle is moved from one groove to another in succession across the record toward the center thereof, a source of electrical potential, a normally inoperative magnetic switch connected to said source of electrical potential and an electromagnetic mechanism including an electromagnet, a source of electrical potential, a normally inoperative photoelectric cell connected to said additional source of electrical potential and said magnetic switch, a timepiece including minute intersections and having an aperture formed at each of said minute intersections, a minute hand on said timepiece adapted to move past each of said apertures, a light source arranged on said minute hand and adapted to reflect rays through one of each of said apertures in succession onto said photoelectric cell, whereby said magnetic switch is periodically operated to energize said electromagnet for operating said electromagnetic mechanism and periodically actuating said member into engagement with said pivot bar and reproducer transmitter across the record a distance between said grooves, whereby said reproducer transmitter and needle is moved from one groove to another in succession across the record toward the center thereof, a source of electrical potential, a normally inoperative magnetic switch connected to said source of electrical potential and an electromagnetic mechanism including an electromagnet, a minute hand connected with said source of potential and adapted to engage one of said electrical contacts for periodically making contact, a source of electrical potential connected with said electromagnet, a minute hand connected with said source of potential to said electromagnet, and means for returning the pivot bar and reproducer transmitter to their starting position after said needle has traveled in all of said grooves.

DEAN A. HERMAN.