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PHONOGRAPH SYSTEM FOR REVOLVING AUDITORIUMS.

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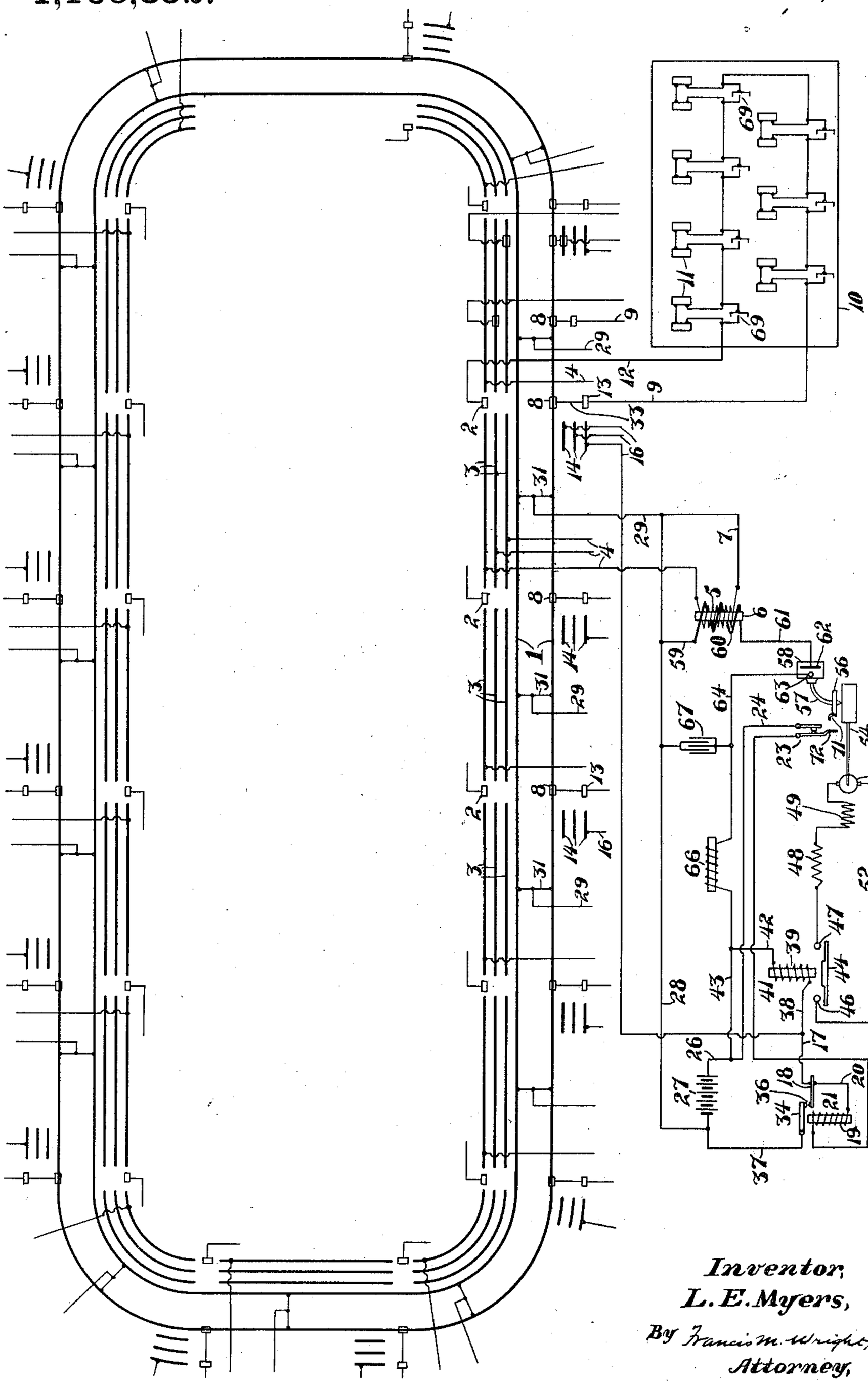

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PHONOGRAPH SYSTEM FOR REVOLVING AUDITORIUMS.

1,166,852. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed June 12, 1915. Serial No. 33,852.

To all whom it may concern:

Be it known that I, LOUIS E. MYERS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Phonograph Systems for Revolving Auditoriums, of which the following is a specification.

The object of the present invention is to provide an apparatus by which persons traveling in a closed or cyclical path can be audibly informed automatically by phonographs of facts particularly pertaining or appropriate to the portion of the path over which they are at the time traveling.

It has been especially designed for use in connection with the representation of the Panama Canal on a small scale at the Panama-Pacific International Exposition at San Francisco, but obviously also applicable to many other uses.

In the accompanying drawing, the figure is a diagrammatic representation of my invention.

Referring to the drawing, 1 indicates a pair of rails forming a track extending in a closed or cyclical path around an object to be viewed, such as the representation of the Panama Canal. On said track can travel a series of cars 10 each containing seats for a number of spectators of said object. Each car carries a contact shoe 2 which is adapted to contact in succession with the contact rails 3 of one of three series, fifteen rails being here shown in each series, extending parallel with the rails 1 of the track, the rails of each series being spaced from each other a short distance. Each rail is connected by a wire 4 to the secondary 5 of an induction coil 6 which is also connected by a wire 7 with both rails of the track, and therefore by the contact shoe 2 contacting with the rail 3 an electric circuit through said secondary is closed as follows:—by the rail 3, wire 4, secondary 5, wire 7, rail 1, sliding contact 8 carried by the car, wire 9, a series of telephone receivers 11 in the car, wire 12 and contact shoe 2. After the car has traveled a short distance farther a contact shoe 13 carried thereby contacts with the corresponding one of three short rails 14 and thereby closes an electric circuit as follows:—contact rail 14, wire 16, wire 17, contact arm 18, wire 20, coil 19 of a relay 21, wire 22, closed switch 23, wire 24, wire 26, battery 27, wire 28, wire 29, bond 31 connecting the two rails 1, rail 1, contact shoe 8 carried by the car, wire 33, and contact shoe 13. Thereby said relay 21 is energized, attracting an armature 34 and closing contacts 36, thereby closing a circuit through the relay independent of the shoe 13 and rail 14 as follows:—from the battery 27, by a wire 37, armature 34, contacts 36, contact arm 18, wire 20, relay coil 21, wire 22, switch 23, and wire 24, and wire 26 to the battery. By this means a branch circuit from the battery is closed leading from the arm 18 by wires 17, 38 through the coil 39 of a relay 41 and then by wires 42, 43 and the wire 26. The relay 41 is energized and attracts an armature 44 which closes a circuit from the main line at a comparatively high voltage as follows:—from one side of the line by a wire 45 to a contact 46, armature 44, contact 47, resistance 48, field coils 49 of a motor 51, through the brushes and armature of said motor and then by a wire 52 to the other side of the main line. The motor 51 is thereby rotated and rotates the shaft of a photographic record holder 54 having a reproducer 56 connected with a rubber tube 57 conveying the sound to a telephone transmitter 58. Said transmitter is furnished with current by the battery 27, by the wire 28 and a wire 59 connected with the primary 60 of the induction coil and then by a wire 61 attached to the diaphragm 62 of said transmitter, the granules 63 of said transmitter being electrically connected by a wire 64 with an inductive resistance 66 and back by the wire 26 to the battery. The winding of the secondary 5 of the induction coil is made fine in order to give high voltage to insure a good contact between the contact shoe 2 and the rail 3. This high voltage is necessary because the contact shoes are made of cast iron, this being the only metal in common use which has been found to be practical. It is impractical to use a rolling contact, for the reason that the rollers gather dirt between themselves and the rails, and eventually cause a poor contact. Brass, copper and other metals in common use do not wear sufficiently well, but it is found that the sliding contact of a cast iron shoe on a steel rail produces on the cast iron shoe a smooth, bright surface which insures good electrical connection. The inductive resistance is interposed in the primary telephone circuit in order to prevent cross talk, as is common. As is also

common, a condenser 67 is bridged across said circuit.

The motor having been started the reproducer travels along the record and causes sound to be emitted from the ear pieces or telephone receivers, which, being connected in series, also require that the secondary circuit of the telephone should be of high voltage. The wires leading to each telephone receiver are bridged by a condenser 69, so that, if any telephone receiver becomes disabled or its connections break, the talk can proceed through the other telephone receivers by means of the condenser of the disabled telephone and without increasing in volume, the condenser being adjusted to the resistance of the receiver.

The contact shoe 2 is caused to contact with the rail 3 before the contact shoe 13 contacts with the rail 14 in order that there may be a closed receiver circuit when the reproducer begins to move over the record, thus avoiding the spectator being apprised by the sound of the closing of said circuit. Before the contact shoe 2 leaves the rail 3, the telephonic reproduction has ceased, and the reproducer has been automatically returned to its initial position by the usual mechanism, and, in so returning, an arm 71 attached to said reproducer impinges against an arm 72 extending from the switch 23 and temporarily opens said switch, thereby breaking the circuit through the relay 21 and releasing the armature 34 and thereby breaking the circuit also through the second relay 39, and thereby also breaking the circuit from the main line and arresting the phonograph motor. All this is done while the contact shoe 2 is in the gap between the two rails 3 of the series of rails, and in time to commence to repeat the operation just described upon the succeeding rail of said series.

The provision of the three series of contact rails 3, and the shoes 2 arranged on the successive cars to contact in succession with said rails constitutes an important feature of my invention, for it enables the phonograph to be used to audibly inform the passengers in any car in regard to the objects directly in front of the car.

If only one series of rails were employed, each of a much greater length than one car, then the persons seated at one end of the car would have to be listening to the same information as those seated at the other end, and therefore possibly relating to an object not clearly visible to either of them. In the representation at San Francisco of the Panama Canal nine cars, each eight feet in length, are served by three records, one record being used for every three cars, it being found that the distance of twenty-four feet between objects about which the same phonograph is talking is not inconvenient to the spectator. But if one record were used for the whole nine cars, which cars would occupy a length of seventy-two feet. then a person seated on the foremost car would not be able to apply the information given him in regard to an object opposite to the rearmost car, and conversely. On the other hand, if a different record were used for every three cars, then the records would be inconveniently short, and the interruptions of the talk would be too frequent for the successful operation of the apparatus. By the present arrangement, therefore, in which the same phonograph talks at different times to persons occupying three successive cars, that is, when a different phonograph talks to every group of three cars thus coupled electrically, both these objections are avoided.

I claim:—

1. The combination of a track, a series of cars traveling on said track, telephone receivers carried by the cars, a series of talking machines, records thereon descriptive of facts appropriate to successive portions of the track, a corresponding series of telephone transmitters operatively connected with the reproducers of said talking machines, and means whereby a telephone receiver on each car can be successively included in the circuits of the successive telephone transmitters of the series.

2. The combination of an endless track, a series of cars traveling on said track, telephone receivers carried by the cars, a series of talking machines, records thereon descriptive of facts appropriate to successive portions of the track, a corresponding series of telephone transmitters operatively connected with the reproducers of said talking machines, and means whereby a telephone receiver on each car can be successively included in the circuits of the successive telephone transmitters of the series.

3. The combination of a track, a series of cars traveling on said track, telephone receivers carried by the cars, a series of talking machines, records thereon descriptive of facts appropriate to successive portions of the track, a corresponding series of telephone transmitters operatively connected with the reproducers of said talking machines, means whereby a telephone receiver on each car can be successively included in the circuits of the successive telephone transmitters of the series, and means whereby each talking machine is automatically started rotating when a car arrives at a definite portion of the track.

4. The combination of an endless track, a series of cars traveling on said track, telephone receivers carried by the cars, a series of talking machines, records thereon descriptive of facts appropriate to successive portions of the track, a corresponding series

of telephone transmitters operatively connected with the reproducers of said talking machines, means whereby a telephone receiver on each car can be successively included in the circuits of the successive telephone transmitters of the series, and means whereby each talking machine is automatically started rotating when a car arrives at a definite portion of the track.

5. The combination of an endless track, a series of cars traveling on said track, telephone receivers carried by the cars, a series of talking machines, records thereon descriptive of facts appropriate to successive portions of the track, a corresponding series of telephone transmitters operatively connected with the reproducers of said talking machines, means whereby a telephone receiver on each car can be successively included in the circuits of the successive telephone transmitters of the series, and means whereby the several talking machines are started rotating upon the arrival of the car at said portions of the track respectively.

6. The combination of an endless track, a series of groups of cars traveling on said track, telephone receivers carried by the cars, a series of groups of talking machines, the machines of each group having similar records thereon, the records of the several groups being descriptive of facts appropriate to successive portions of the track, a corresponding series of telephone transmitters operatively connected with the reproducers of said talking machines, a like number of groups of parallel contact rails along the track, contact shoes carried by the cars, arranged to contact in succession with the rails of a group, and means whereby a telephone receiver on each car can by said contact be successively included in the circuits of the successive telephone transmitters of the series.

7. The combination of a car, a track upon which it travels, a telephone receiver carried by the car, a talking machine, a telephone transmitter, a tube connecting the reproducer of the talking machine with said transmitter, shoes carried by the car, rails adjacent to the track, and with which said shoes are adapted to respectively contact, electrical connections whereby the contact of one shoe with its rail closes a circuit through the telephone receiver, and the contact of another shoe with its rail closes a circuit operating to start the motor of the talking machine, and means traveling with the talking machine reproducer, and operating in its return to initial position to momentarily open said switch.

8. The combination of a car, a track upon which it travels, a telephone receiver carried by the car, a talking machine, a telephone transmitter, a tube connecting the reproducer of the talking machine with said transmitter, a switch, relays, shoes carried by the car, rails adjacent to the track, and with which said shoes are adapted to respectively contact, electrical connections whereby the contact of one shoe with its rail closes a circuit through the telephone receiver, and the contact of another shoe with its rail closes a circuit through one relay and the switch, means whereby the energization of said relay closes a circuit through said relay and switch independent of the contact of said latter shoe and rail, means whereby the energization of said relay also closes a circuit through said relay independent of the switch, means whereby the energization of the second relay closes a circuit through the motor of the talking machine, and means traveling with the talking machine reproducer, and operating in its return to initial position, to momentarily open said switch.

9. The combination of a car, a track upon which it travels, a telephone receiver carried by the car, a talking machine, a telephone transmitter, a tube connecting the reproducer of the talking machine with said transmitter, an induction coil, the primary of which is connected with the diaphragm of said transmitter, wires for supplying a main current, a switch, a battery, relays, shoes carried by the car, rails adjacent to the track, and with which said shoes are adapted to respectively contact, electrical connections whereby the contact of one shoe with its rail closes a circuit through the telephone receiver and the secondary of the induction coil, and the contact of another shoe with its rail closes a circuit through said battery and one relay and the switch, means whereby the energization of said relay closes a circuit through said battery, relay and switch independent of the contact of said latter shoe and rail, means whereby the energization of said relay also closes a circuit through said battery and a second relay independent of the switch, means whereby the energization of the second relay closes a circuit from the main line wires through the motor of the talking machine, and means traveling with the talking machine reproducer, and operating in its return to initial position, to momentarily open said switch.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LOUIS E. MYERS.

Witnesses:
JAMES H. HOOD,
ETHEL NOLAN.