

No. 746,615.

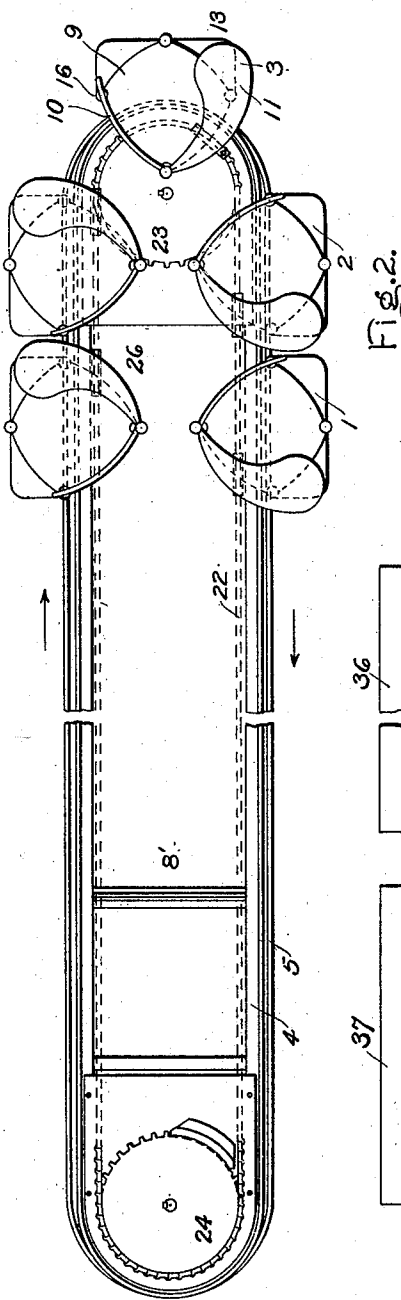
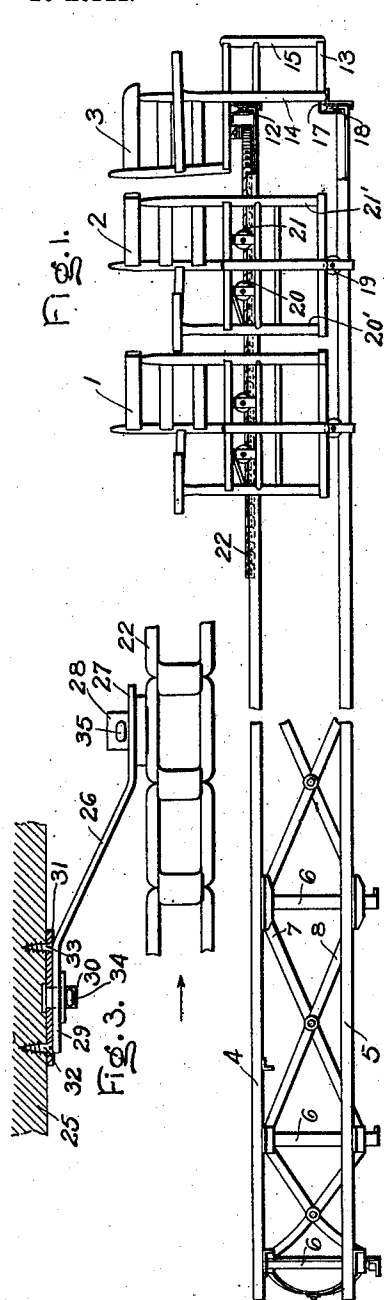
PATENTED DEC. 8, 1903.

H. I. WASHBURN.
CONTINUOUS DINING ROOM SERVICE.

APPLICATION FILED AUG. 24, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

George A. Thimble.
Harry Caldwell.

Inventor:

Herbert I. Washburn,
by *Alexander S. Funt.*
Att'y.

No. 746,615.

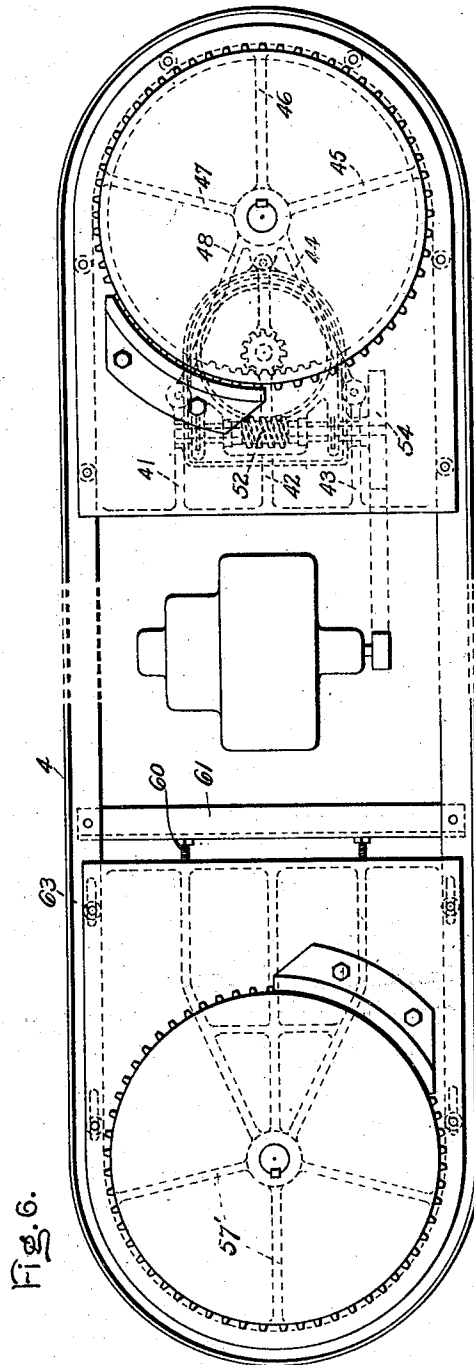
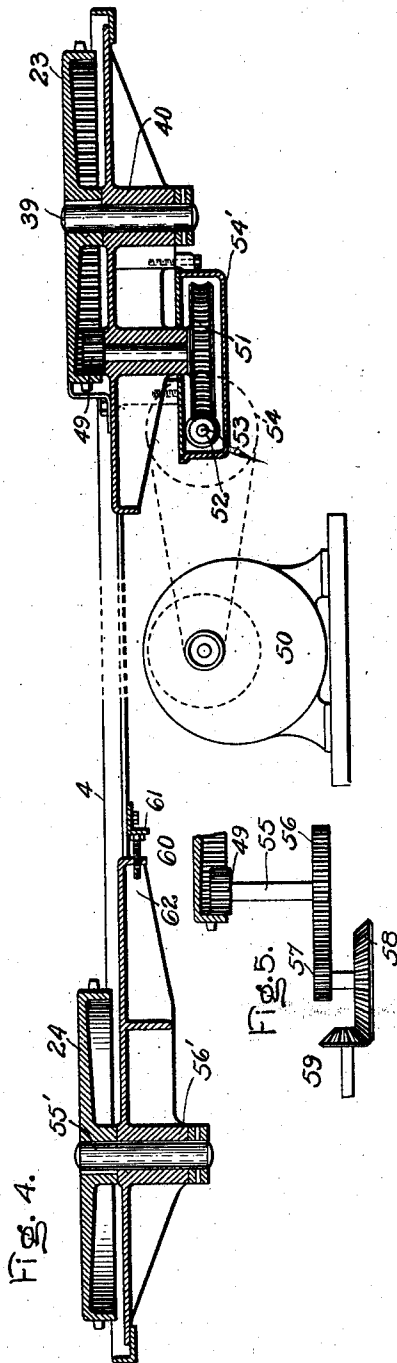
PATENTED DEC. 8, 1903.

H. I. WASHBURN.
CONTINUOUS DINING ROOM SERVICE.

APPLICATION FILED AUG. 24, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:

George A. Thornton.
Harry Caldwell

Inventor:

Herbert I. Washburn,
by *Alexander S. Hunt.*
Att'y.

UNITED STATES PATENT OFFICE.

HERBERT I. WASHBURN, OF SCHENECTADY, NEW YORK.

CONTINUOUS DINING-ROOM SERVICE.

SPECIFICATION forming part of Letters Patent No. 746,615, dated December 8, 1903.

Application filed August 24, 1903. Serial No. 170,544. (No model.)

To all whom it may concern:

Be it known that I, HERBERT I. WASHBURN, a citizen of the United States, residing at Schenectady, county of Schenectady, and State of New York, have invented certain new and useful Improvements in Continuous Dining-Room Services, of which the following is a specification.

My invention relates to apparatus for use in dining or lunch rooms, and is intended to provide means whereby customers may be quickly and continuously served and without confusion or interference with one another.

My invention is useful under a great variety of circumstances, but is of more particular advantage in cases where the space for dining purposes is in the form of a long and more or less narrow room. Ordinarily in such cases in rush hours customers stand several deep in front of the lunch-counters, and thus cause considerable confusion and at the same time more or less delay in the service. Moreover, the customers are apt to congregate in that part of the dining-room near the entrance, so as practically to blockade the entrance to as well as the front part of the room, and thus render the back portion of the room relatively inaccessible to newcomers, and consequently practically useless.

My invention enables the whole of the space, of whatever depth, to be advantageously utilized during heavy or light patronage, and thus increases the earning capacity of the dining-room.

In accordance with my invention I provide a continuously-moving chain of chairs or seats which pass along in front of the lunch-counters, closely adjacent thereto, so that a customer seated in one of the chairs or seats is enabled as he passes along to take from the counter or counters any dishes or articles of food thereon which he may select.

The features of novelty which I believe are characteristic of my invention I have pointed out with particularity in the appended claims. The invention itself, however, both as to its details of construction and mode of operation, will be better understood by reference to the following description, taken in connection with the accompanying drawings, which illustrate one of the various embodiments which my invention may assume in practice.

In the drawings, Figure 1 is a side elevation of a chain of chairs or seats arranged according to my invention. Fig. 2 is a plan view corresponding to Fig. 1 and showing the relation of the chairs to the counters carrying articles of food. Fig. 3 represents, on an enlarged scale, the driving connection used between each chair and the continuous driving member or chain for propelling or driving the chairs. Figs. 4 and 6 are views, the one in elevation, partly in section, and the other in plan, of the driving mechanism for the chain of chairs represented in preceding figures; and Fig. 5 is a detail of modified form.

Referring now to Figs. 1 and 2, a series of chairs are shown at 1, 2, and 3 as illustrative of a continuous or endless chain of chairs or seats. In the drawings only a few such chairs are shown; but it is to be understood that any number of chairs may be used and may be spaced apart from each other at regular intervals or irregularly, if desired, and at any desired distance from each other. The chairs are mounted so as to move about an endless track and are preferably arranged so as to move on rollers, grooved wheels, or other antifriction devices.

The track or surface upon which the chairs roll or otherwise move may be constructed in a variety of ways and may be fashioned either of wood or of metal, as desired. In the drawings I have represented a track structure of metal-work. As shown, the general outline in plan view is long and narrow with straight sides and rounded ends. The length may be anything desired, as I have intended to indicate by the broken-away middle sections of Figs. 1 and 2. A track structure of the general form indicated is suitable for long narrow rooms. Without the aid of my invention such rooms, by reason of the narrow passageway afforded and the consequent relative inaccessibility of the back part of the room, cannot be efficiently used for dining-room purposes.

The metal-work construction for supporting the chain of chairs is a sort of endless girder or truss, the upper and lower members 4 and 5 of which are formed of angle-iron and serve, respectively, as track-rails. Supporting-posts, such as at 6, with feet for securing the same to the floor are located at regular

intervals along the structure and serve to support the weight of the parts and to space apart the track-rails at the proper distance. Diagonals or tie-bars, such as at 7 and 8, extend, as shown, between the vertical supports or struts 6 and hold the parts against parallel movement of the upper and lower rails 4 and 5 relatively to each other. Cross-braces—as shown in plan view, for example, at 8—give lateral stiffness to the structure, and of these as many may be provided as desired.

The angle-irons 4 and 5, constituting the track and guide rails, respectively, are arranged so that one flat side of each angle-iron is horizontal, while the other extends upwardly. The upper edge of track-rail 4 is in position to receive the grooved wheels by which the chairs are supported on the rails, while its lower corner is in position to engage with clips attached to the under surface of the chair-seat to prevent the chairs from tipping or leaving the rails. Similarly the upper edge of rail 5 is in position to engage with the flanges of the guide-wheel 18 to keep the chair in vertical position.

The construction will be readily apparent by reference to the right-hand portion of Fig. 1, in which the track structure is shown partly cut away in order the more clearly to indicate the mode of support of the chairs on the rails.

Each of the chairs—as, for example, chair 3—is provided with a seat 9, a back 10, and a single wide arm 11 of such shape and dimensions as readily to accommodate one or more plates, cups, and the like. The chair has two grooved rollers 12 secured to the seat 9 and tracking on the rail 4, one only of which grooved wheels on chair 3 shows in Fig. 1. A foot-rest and step 13 is secured, as shown, to the three legs 14, 15, and 16 of the chair. This foot-rest has secured thereto a suitable bracket 17, carrying a grooved guide-wheel 18, engaging with the lower rail 5. The view of chair 3 shown in Fig. 1 represents the anti-friction-wheels in end elevation. A front view of the wheels would be the same as the front view of the wheels 19, 20, and 21 of the adjacent chair 2.

In order to drive the chairs one after the other around the endless track, a variety of means may be employed. I have chosen for illustration, however, an endless link chain or belt 22, which at one end of the track passes around a driving sprocket-wheel 23, is supported at intermediate points by driving connections to the chairs, and at the other end passes around an idler 24. Fig. 3 shows, to an enlarged scale, the driving connection between the chain 22 and the bottom 25 of some one of the chairs or seats. This driving connection consists mainly of a link 26 of somewhat Z shape, with one of its parallel ends 27 pivoted to a lug or boss 28, extending from one of the links of the chain 22, and its other parallel portion 29 to a pin 30, held in place against the bottom 25 of the chair by

means of a plate 31. This pin, if desired, may be integral with the plate or may be held in position by means of screws 32 33 or other securing devices. Cotter-pins 34 35 hold the ends of the link 26 from disengagement from the lugs 28 and 30. The point of attachment of the link to the under surface of the chair-seat is chosen—as shown, for example, at the right of Fig. 2—so as to assist in keeping the chair on the track and so as to reduce friction between wheel-flanges and track while rounding the curves. If desired, of course, other modes of connection—such, for example, as lock-nuts or the like—may be employed without departing from my invention.

It will be noted by reference to Fig. 2, attention being paid to the arrows marked thereon and indicating the direction of motion of the chain of chairs around the endless track, that each chair faces, not at right angles to the direction of motion, but partly toward the direction in which the chair is advancing, at an angle approximating forty-five degrees. This permits the occupant of each chair as he passes in front of the counters 36 37 to observe more readily the various dishes or articles with which the counters are provided in advance of the time when his chair passes in front of them and permits him with greater ease and convenience to take from the counter or counters such dishes as he may choose or such articles of food, as the case may be.

By placing the chairs at an angle of about forty-five degrees to their direction of motion a strong and simple construction of chair may be used, as shown in the drawings. The construction is such that diagonally-located posts or legs, such as 20 and 21 in chair 2, are in a parallel line with the track and closely adjacent thereto. This mounting of the chairs has not only the advantage of greater strength and simplicity, but causes the backs of the chairs, or at least those portions of them which project over the track, each to present a pointed shape and together to form a scalloped outline, such as to permit a turn of short radius at the rounded ends of the track, together with a close spacing of the chairs, which would not otherwise be possible.

The elevation of the supporting-track to a position close under the chair-seat provides a space for driving motor, gearing, &c., while the closeness of the rail-tread to the center of gravity of the load permits a close spacing of the two supporting-wheels. In other words, it provides a truck of short wheel-base which readily rounds curves of small radius. This is a necessary feature in obtaining a small overall width of the track structure.

The plan view of the apparatus as shown in Fig. 2 represents an organization suitable for use in long narrow dining-rooms. The counters 36 and 37 of indeterminate length are supposed to be located at one side of the room and the chain of chairs between the

counters and the other side of the room. The chain of chairs, however, extends nearer to the door or entrance of the dining-room than the nearest counter, and thus enables customers to take their places in the chairs as the chairs move along that section of the track between the rounded end occupied in Fig. 2 by the chair 3 and the nearer end 38 of the counter 36. The space in which the passengers or customers may stand before taking their positions on the chairs corresponds to the blank space below the right-hand end of Fig. 2.

The driving mechanism for the chairs is shown more in detail in Figs. 4 and 6. In these figures the sprocket-wheel which drives the endless chain 22 is shown in sectional side elevation at 23. This wheel is keyed to a shaft 39, which rotates in suitable bearings formed in a frame 40, preferably of cast metal, with stiffening-ribs, some of which are shown in Fig. 4, but all of them in dotted lines at 41 to 48, inclusive, in Fig. 6. The frame 40 has straight sides with one straight end and one semicircular end and is of such dimensions as to allow of its being supported by the inwardly-projecting ledge of the angle-iron or upper rail 4, to which it may be fastened by the bolts, screws, or the like.

The inner side of the flange of the driving-wheel 23 is provided with gear-teeth. A pinion 49 engages with the teeth of the internal gear thus formed. This pinion is driven from the electric motor 50 through intermediate speed-reducing gearing of some appropriate character. In the present instance this speed-reducing gearing consists of a worm-wheel 51, mounted on the same shaft as the pinion 49 and meshing with the worm 52 on the shaft 53. This shaft carries the pulley 54, belted to the motor 50. The worm is mounted, as shown, in thrust-bearings, and all of its wearing parts, together with the bearings of the shaft carrying the worm, are thoroughly lubricated by means of oil placed in the box or oil-pot 54'.

Instead of using a worm and worm-wheel I may, if desired, use ordinary spur-gearing arranged to have the desired speed reduction. An arrangement of gears of this sort is shown in Fig. 5, in which the shaft corresponding to the shaft carrying a pinion 49 in Fig. 4 is indicated at 55. On this shaft in place of the worm-wheel a spur-gear 56, with a suitable number of teeth, is mounted. With this gear meshes a pinion 57, mounted on the same shaft with a beveled gear 58. With this beveled gear meshes in turn the beveled pinion 59, the shaft of which may, as before, be belted to the motor 50.

Instead of the forms of speed-reducing gearing shown and their arrangement in the particular organizations illustrated I may employ other suitable forms of gearing without departing from the broader features of my invention. Moreover, instead of using an electric motor for furnishing the power I may of

course derive the power from any other suitable source, in which case appropriate power-transmitting mechanism, such as counter-shaft or the like, may be utilized; also, in very long chains of chairs it may be desirable to have a driving-motor geared to each sprocket, thus avoiding an excessively-heavy driving-chain and heavy sprockets, gears, &c., at the ends. Whatever driving means be employed I may arrange the same so that the speed of the driven mechanism may, if desired, be changed from time to time.

The idler-sprocket 24, over which passes the chain 22 from the driving-sprocket 23, is shown at the left-hand side of Figs. 4 and 6, respectively. This sprocket, like the driving-sprocket 23, is mounted on a shaft 55', having bearings in a flat cast-metal support 56'. This support is provided with strengthening-ribs 57' and is of such dimensions as to fit over the inwardly-extending flange of curved angle-iron track 4 at the left-hand end of the structure.

Instead of being permanently secured to the angle-iron track the support 56' is arranged so that it may be adjusted longitudinally of the track 4, as occasion may require, so as to take up the slack of the driving-belt 22 as the same lengthens or stretches during use. Adjusting-screws 60, bearing against a cross-bar 61, extending between the two parallel tracks 4, serve as convenient means for effecting the adjustment mentioned. When the chain 22 becomes too long, the adjusting-screws 60 may be screwed into the frame or plate 62, so as to allow the latter to approach closely the cross-bar 61. The chain 22 may then be shortened by taking out one or more links, and its tension may then be readjusted by means of the screws 60. When the proper adjustment has been secured, the plate or frame 62 is clamped to the angle-iron track 4 by means of the bolts or screws 63. The openings in the angle-irons, through which these bolts or screws pass, may be in the form of slots extending in the direction of adjustment of the frame or plate 56', so as to permit adjustment of the frame or plate by merely loosening the screws or bolts without removing them.

It will be evident from the foregoing description that various modifications in the details of construction and in the arrangement of the particular embodiment chosen for illustration may be made without departing from the spirit of my invention, for which reason I do not wish to be limited to the exact details shown and described.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a dining-room-service mechanism, the combination of a plurality of seats or chairs, means for causing said chairs to move in an endless path, and a support or supports for vendible articles or other commodities arranged so as to be passed periodically by said

seats or chairs so that an occupant of a seat or chair is brought within reaching distance of said articles.

2. The combination of a chain of seats or chairs each comprising a seat having four vertically-arranged posts and each arranged so that opposite or diagonally-situated posts are in line with the general direction of said chain, and means for producing simultaneous motion of said chairs or seats.

3. The combination of an endless track, and a chair or chairs mounted to move thereon and arranged to face in a direction inclined to the direction of movement of the chair or chairs on said track.

4. The combination of an endless track, a driving-wheel and an idler located respectively at opposite ends of the track, a flexible driving connection between said wheel and idler, means for taking up slack in said driving connection, and a plurality of seats or chairs moving on said track and operatively related to said driving connection.

5. The combination of a chain of seats movable in an endless path, means for producing a continuous movement of said chairs or seats at a speed which may be varied from time to time, and a support for vendible articles or commodities arranged to be passed periodically by each chair or seat and within reaching distance of the occupants of said chairs or seats.

6. The combination of a track, and a seat or seats of approximately square or lozenge shape arranged to move on said track and mounted so that a diagonal of the seat is parallel with the track.

7. The combination of a chair or seat, and means for moving said chair or seat in an endless path such that a diagonal of the seat is parallel to the direction of motion in said endless path.

8. The combination of one or more supports for vendible articles or commodities, an endless series or chain of seats or chairs, and means for moving the seats or chairs past said support or supports and within reaching distance of said articles.

9. The combination of a continuous driving member, a plurality of chairs driven thereby and each arranged so as to face toward its direction of motion and a counter or counters arranged to be passed in close proximity by each chair during its circuit.

10. In a dining-room-service mechanism, the combination of one or more lunch-counters, a continuous chain of chairs, and means for continuously moving said chairs in succession past said lunch counter or counters and within reaching distance thereof, the arrangement being such that each chair in its cycle of movement is passing for only a part of the time in front of the lunch counter or counters.

11. The combination of endless track-rails, a plurality of chairs, means for mounting each chair in rolling engagement with said

rails so that the weight of the chair is carried by one of said rails while the other rail serves as a guide, an endless driving member, a connection between each chair and said driving member, and means for producing a continuous motion of said driving member.

12. The combination of endless angle-iron track-rails, a plurality of chairs mounted in movable relation to said track-rails, an endless driving-chain, driving connections between said chain and said chairs, sprocket-wheels engaged by said chain, and a motor geared to one of said sprocket-wheels.

13. The combination of endless track-rails formed of angle-irons, a plurality of chairs each mounted on rollers or wheels engaging said track-rails, an endless driving-chain, connections between said chairs and said chain, and means for producing a continuous motion of said driving-chain.

14. The combination of a track rail or rails, a plurality of chairs mounted in movable engagement with said rails, an endless driving member and a connecting-link between each chair and said driving member.

15. The combination of a chain of chairs movable in an endless path and each mounted so as to face toward the direction of movement, means for producing a continuous and uniform movement of said chairs, and a counter or counters arranged so that each chair passes periodically in front of said counter or counters.

16. The combination of an endless track, a plurality of chairs each provided with wheels engaging said track, a continuous driving member, a driving connection between each chair and said driving member, a driving-wheel for said driving member, and a motor geared to said driving-wheel.

17. The combination of a driving-sprocket and an idler-sprocket, a chain engaging both of said sprockets, internal gear-teeth formed on the driving-sprocket, a pinion engaging said gear-teeth, a worm and worm-wheel operatively related to said pinion, and a motor for driving said worm.

18. The combination of a framework having elongated parallel sides and rounded ends and provided with one or more tracks, a plurality of chairs or seats mounted in rolling engagement with said track or tracks, means for producing a continuous motion of said chairs or seats around a track, and a counter or counters passed in close proximity by said chairs in their circuit.

19. The combination of an endless track, a plurality of seats or chairs mounted to move on said track, a flexible driving connection for linking together and driving said chairs simultaneously, and means for taking up the slack in said driving connection.

20. The combination of an endless track having relatively long outgoing and return portions arranged parallel to each other and joined by curved end connections, driving and idler wheels arranged with their axes of

rotation in the neighborhood respectively of the centers of curvature of said curved end connections, a flexible driving connection between said wheels, and chairs or seats mounted so as to run on said track and connected to said driving connection.

21. The combination of an endless track having parallel outgoing and return portions connected by curved track-sections, a similar track of substantially the same dimensions arranged in a different but parallel plane, a series of chairs or seats mounted to roll on

and be supported in position by said tracks, a flexible driving member connecting all of said chairs or seats in an endless chain, and a motor geared to produce motion of said flexible driving member.

In witness whereof I have hereunto set my hand this 18th day of August, 1903.

HERBERT I. WASHBURN.

Witnesses:

ALEXANDER D. LUNT,
EDWARD WILLIAMS, Jr.