No. 786,117. PATENTED MAR. 28, 1905.

C. L. HAGEN.

OBSERVATION TRAIN.

APPLICATION FILED OCT. 18, 1904.

4 SHEETS—SHEET 1.

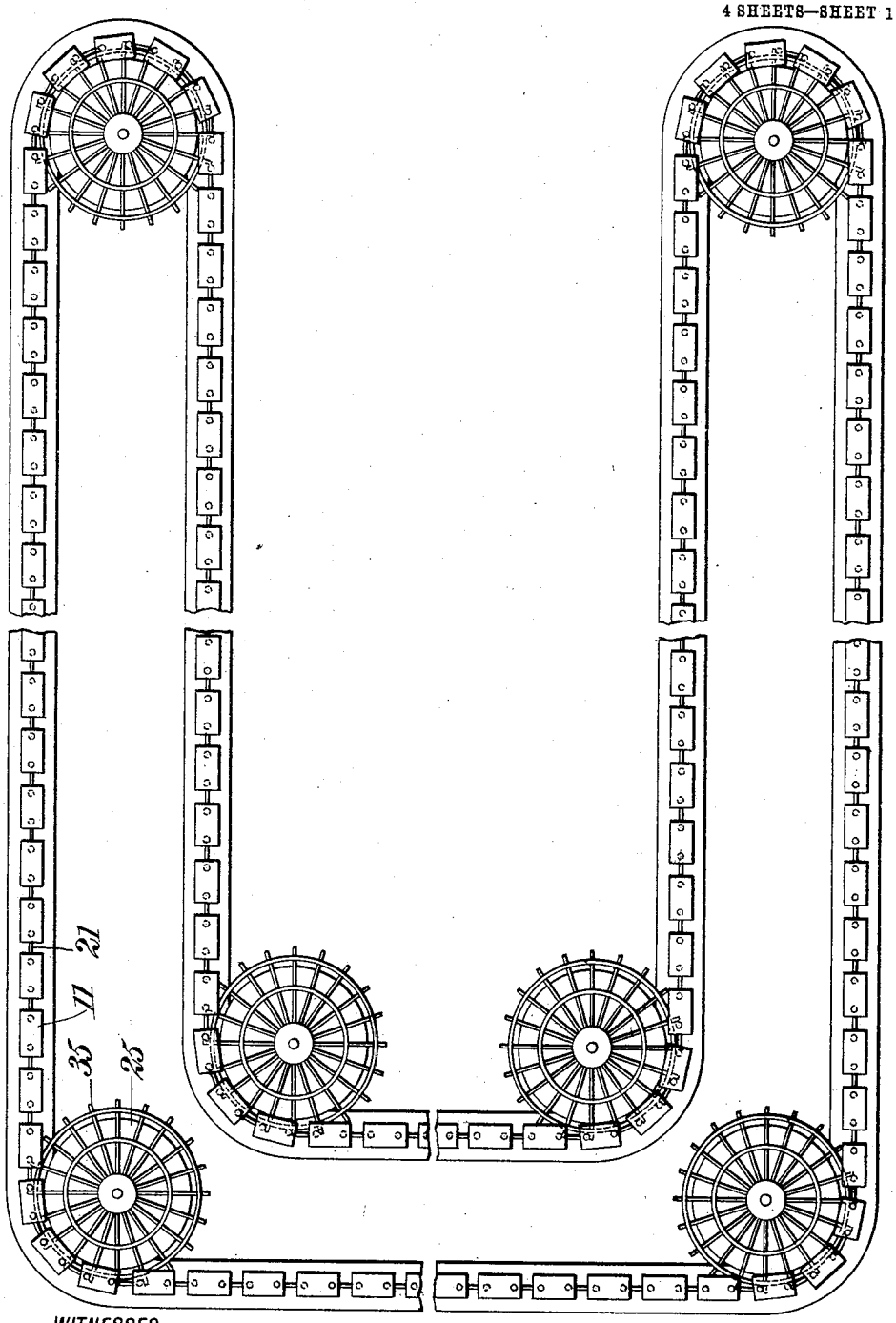


Fig. 1.

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4 SHEETS—SHEET 2.

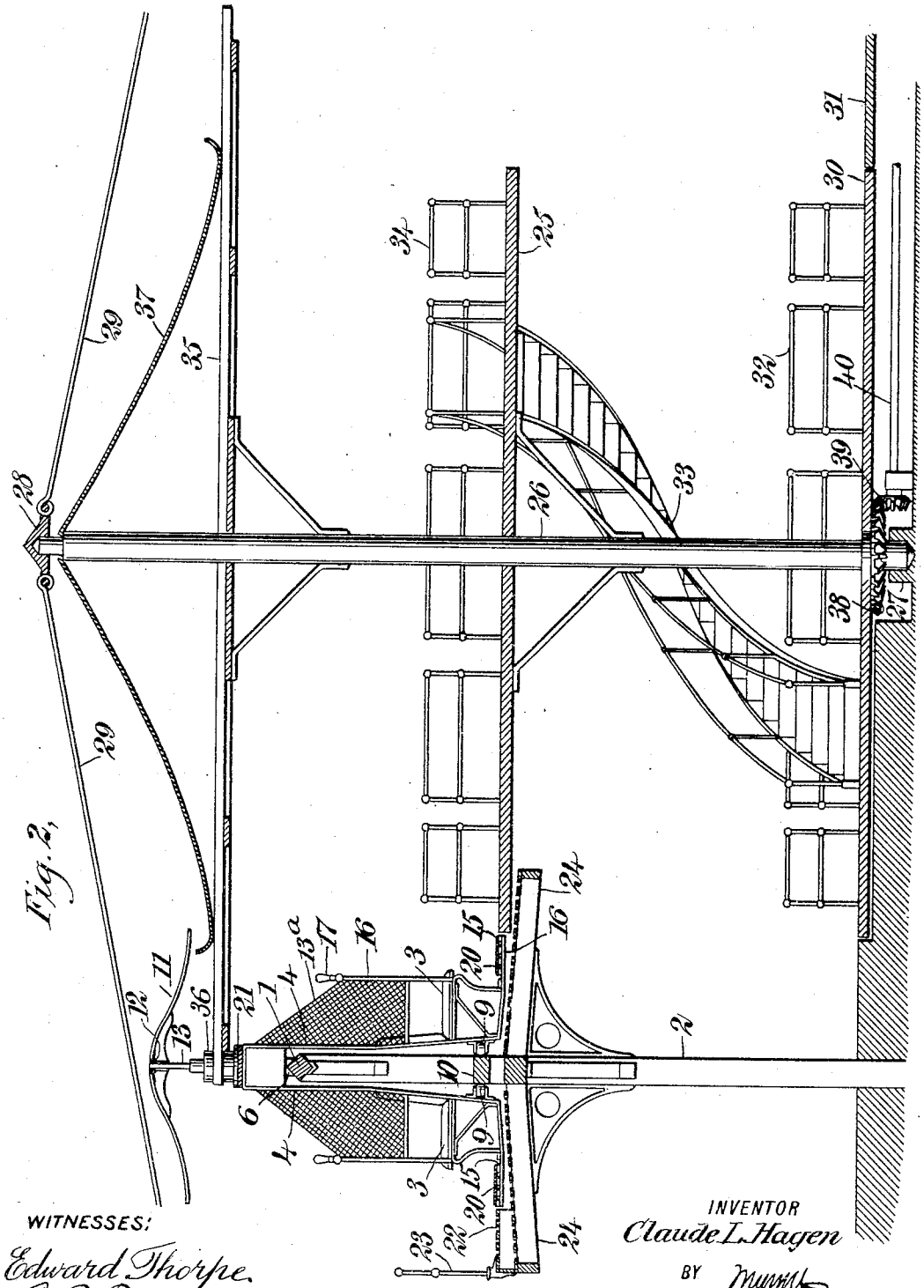


Fig. 2.

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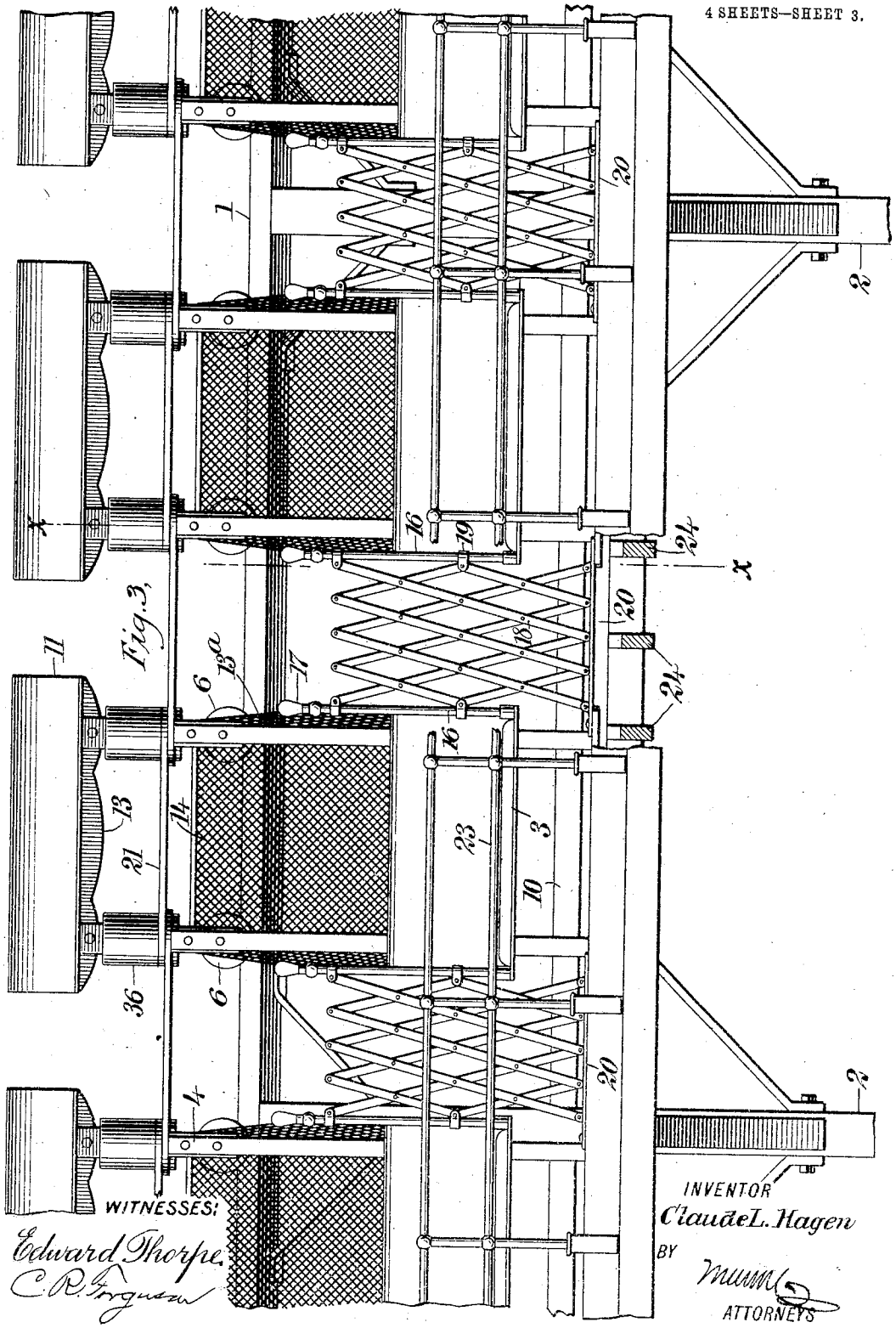
4 SHEETS—SHEET 3.

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4 SHEETS—SHEET 4.

Fig. 5,

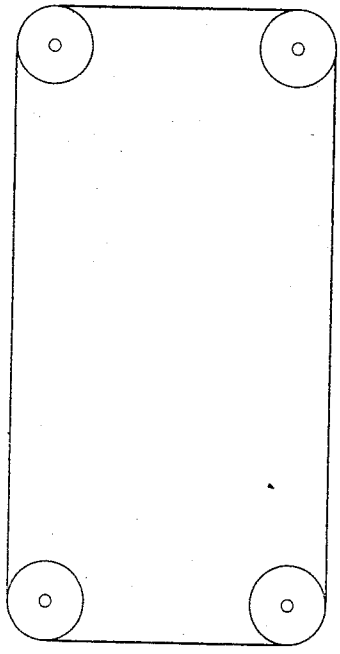
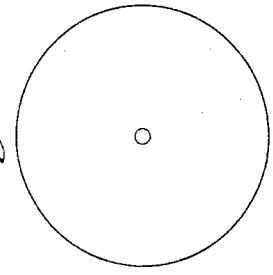


Fig. 6,

Fig. 7.



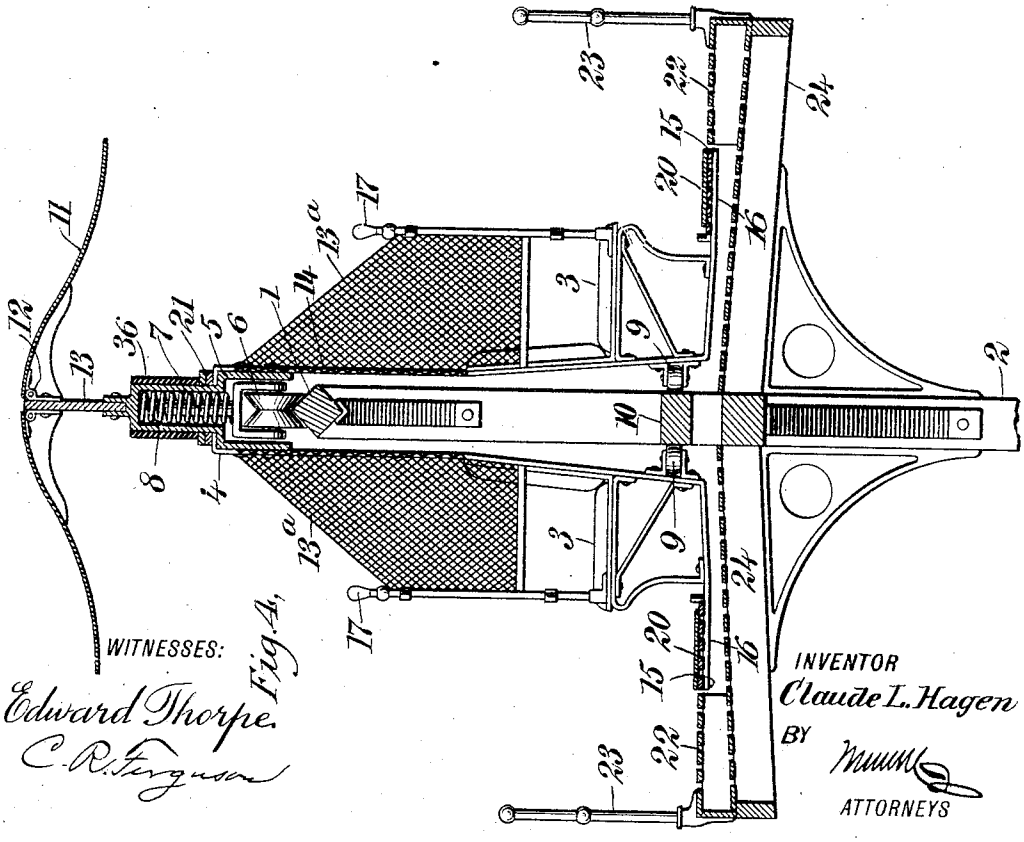



Fig. 4,

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No. 786,117. Patented March 28, 1905.

# UNITED STATES PATENT OFFICE.

CLAUDE LAVRAIN HAGEN, OF NEW YORK, N. Y.

## OBSERVATION-TRAIN.

SPECIFICATION forming part of Letters Patent No. 786,117, dated March 28, 1905.

Application filed October 18, 1904. Serial No. 228,961.

*To all whom it may concern:*

Be it known that I, CLAUDE LAVRAIN HAGEN, a citizen of the United States, and a resident of the city of New York, Coney Island, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Observation-Train, of which the following is a full, clear, and exact description.

This invention relates to improvements in devices of the character in which a series of passenger-carrying cars or seats are movable along an endless track, a particular feature of the invention being the erection of the same in and around pleasure resorts or parks, so that the passengers may conveniently observe the various attractions.

I will describe an observation-train embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a diagrammatic plan illustrating an observation-train embodying my invention. Fig. 2 is a sectional elevation of the device through one of the turns. Fig. 3 is a side elevation. Fig. 4 is a section on the line *x x* of Fig. 3, and Figs. 5, 6, and 7 are diagrams showing various plans of arrangement.

Referring to the drawings, 1 designates an endless track consisting of a single rail of wood or similar material and supported in an elevated position on posts 2. This endless track may extend in any desired direction or directions, such as that shown in Figs. 1, 5, 6, or 7. Movable along the endless track and at opposite sides thereof are cars, which are here indicated as seats 3, the cars at the opposite sides being supported on metal hangers 4, attached to sleeves 5, which are supported by rollers 6 engaging with the track-rail, and these rollers have rods 7 extended upward from their frames, and surrounding the rods within the sleeves 5 are buffer-springs 8, which will permit of a slight up-and-down yielding movement of the cars.

At the lower portion of the car-frames are rollers 9, which engage on the outer sides of rails 10, attached to the posts 2, thus preventing any lateral swinging motion of the cars. Each car of a pair is supported by two hangers, as clearly indicated in Fig. 3, and there are two upper rollers for each pair of cars engaging with the rail or track 1, and each car has two rollers 9.

Arranged over each pair of cars is a roof to protect passengers from the sun or from rain. The roof preferably consists of swinging members 11, so that should they be engaged by a high-wind pressure they may swing upward. As here shown, the roof members have hinge connections 12 with a plate 13, connected to the upper ends of the two sleeves 5.

The alined pairs of cars are spaced apart, as clearly indicated in Fig. 3, and at the end of each car-seat I place netting $13^a$, and netting 14 may extend up the back. These nettings will obviate the danger of passengers falling off the ends of the seat or moving too far inward.

Carried by each car is a platform 15. As here indicated, these platforms consist of strips of wood secured to metal plates 16, extended outward from the bottom of the frame of the seats, these platforms serving as footrests for the passengers. At the ends of the seat and at the outer ends of the arms thereof are posts 16, which may support electric lamps 17.

Connected to adjacent posts of alined cars are protecting devices, preferably consisting of pivotally-connected bars 18. The outer ones of these bars are connected, by means of clips 19, to the posts 16, and the lower ends of two of the bars are pivotally connected to a plate 20, connected to slide on the upper side of one of the platforms 15 and slidable on the next platform. By employing these pivotally-connected bars and by reason of the sliding arrangement with relation to the platforms it is obvious that the several cars may readily pass around curves. These plates 20 are of the same width as the platforms 15 and will prevent the possibility of persons falling between the platforms.

The several sleeves 5 are connected by link-plates 21, which serve to hold the several cars

in their proper relation to each other, and the cars so connected form practically an endless chain.

The platforms carried by the cars at certain points of the route pass along stationary platforms 22, at the outer edges of which are guard-rails 23. These stationary platforms are supported on arms 24, extended outward from the posts 2. At each turning-point of the endless track are circular rotary platforms 25, the upper surfaces of which are on a plane with the platforms 15. The platforms 25 are supported on masts 26, which are mounted to rotate in step-bearings 27 and at their upper ends engage in cup-bearings 28, held by guy-rods 29, which extend to any suitable anchorage.

Connected to the lower end of each mast 26, so as to rotate therewith, is a flooring-platform 30 on a level with the fixed flooring 31, and around this flooring 30 are guard-rails 32. From the flooring-platform 30 a stairway 33 leads to the platforms 25. These platforms 25 are also provided with guard-rails 34, which are spaced apart, so that passengers may pass between them in passing from the rotary platforms to the platforms 15.

Extended from the upper portion of each mast 26 are radial arms 35, the ends of which are designed to engage with metal casings or cylindrical wear-plates 36, mounted to rotate on the upward extensions of the sleeves 5. These arms, therefore, are practically sprocket-teeth, and the sleeves may be considered as the teeth of a sprocket-chain. Arranged over the arms of each mast is a roof 37, the edges of the roof being connected to the arms, and the central portion is provided with an opening through which the upper end of the mast extends.

While I have indicated but one stairway, it is to be understood that two or more rotary platform devices may carry stairways, so that passengers from one platform may enter the inner line of cars, while the passengers on another platform may enter the outer line or row of cars.

A driving mechanism is designed to be connected with one or more of the masts 26. In Fig. 2 I have indicated the mast 26 as provided with a bevel-gear 38, engaged by a pinion 39 on a shaft 40.

In the operation as the masts 26 rotate the several cars will be kept in constant motion, and as the speed of the moving cars is substantially the same as the speed of the rotary platforms 25 it is obvious that passengers may pass without danger from the car-platforms to the platforms 25 or from said platforms 25 to the car-platforms.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An observation-train structure comprising an elevated endless track, cars movable along the track, a rotary platform arranged at a curve in the track and a part rotating with the platform for moving the cars.

2. An observation-train comprising an elevated endless track, an endless chain of cars movable along the track, the said cars being arranged in pairs at opposite sides of the track, and link connections between adjacent pairs of cars.

3. An observation-train comprising an elevated endless track, fixed platforms extending along portions of said track, an endless chain of cars movable along the track, the said track having curved portions, rotary platforms at said curved portions, and parts carried by said rotary platforms for engaging the parts carried by the cars for imparting movement to said cars along the track.

4. An observation-train comprising an endless track having curves or turns, an endless chain of cars movable along the track, rotary masts arranged at the curves or turns, platforms carried by said masts, means for imparting rotary motion to the masts, and arms extended from the masts for engaging with parts attached to the cars.

5. An observation-train comprising posts, a track-rail supported on the upper ends of said posts, a lower rail attached to said posts, rollers engaging with the upper rail, hangers depending from said rollers, cars attached to said hangers, rollers on said cars for engaging the outer sides of the lower rail, and means for moving the cars along the track.

6. An observation-train comprising an elevated endless track, cars arranged in pairs, rollers for supporting the cars of a pair and engaging with said track, link connections between pairs of cars, holding-guards connected to the adjacent ends of pairs of cars, platform-sections carried by the cars, platform-sections carried by the guards, and engaging with the first-named sections, and means for moving the cars along the track.

7. An observation-train comprising an endless elevated track-rail having curves, an endless chain of cars movable along the track-rail, masts arranged to rotate at the curves, flooring-platforms carried by said masts, landing-platforms carried by the masts, stairway connections between the platforms, platforms carried by the cars and substantially on a plane with said landing-platforms, and radial arms on the masts for engaging with parts attached to the cars.

8. An observation-train comprising an elevated endless track, an endless chain of cars movable along said track, the said cars being arranged in pairs back to back, and yielding roof members over each pair of cars.

9. An observation-train comprising an elevated endless track, an endless chain of cars, sleeves to which said cars are connected, a pair

of rollers for each pair of cars having stem portions extending from their frames into said sleeves, springs arranged between the frames and sleeves, platform-sections carried by the cars, fixed platform-sections arranged along the track, and means for moving the sections along the track.

10. An observation-train comprising an elevated endless track, cars arranged in pairs and having roller connections with said track, the cars of one pair having link connection with the cars of another pair, a lower endless track, rollers carried by the cars for engaging with the said lower track, guard-nettings at the ends and back of each car, and means for moving the cars along the track.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLAUDE LAVRAIN HAGEN.

Witnesses:
E. C. NIELSON,
C. R. FERGUSON.