F. A. CHURCH.

JOINTED COASTER TRAIN.

APPLICATION FILED JAN. 22, 1921.

1,431,567.

Patented Oct. 10, 1922.

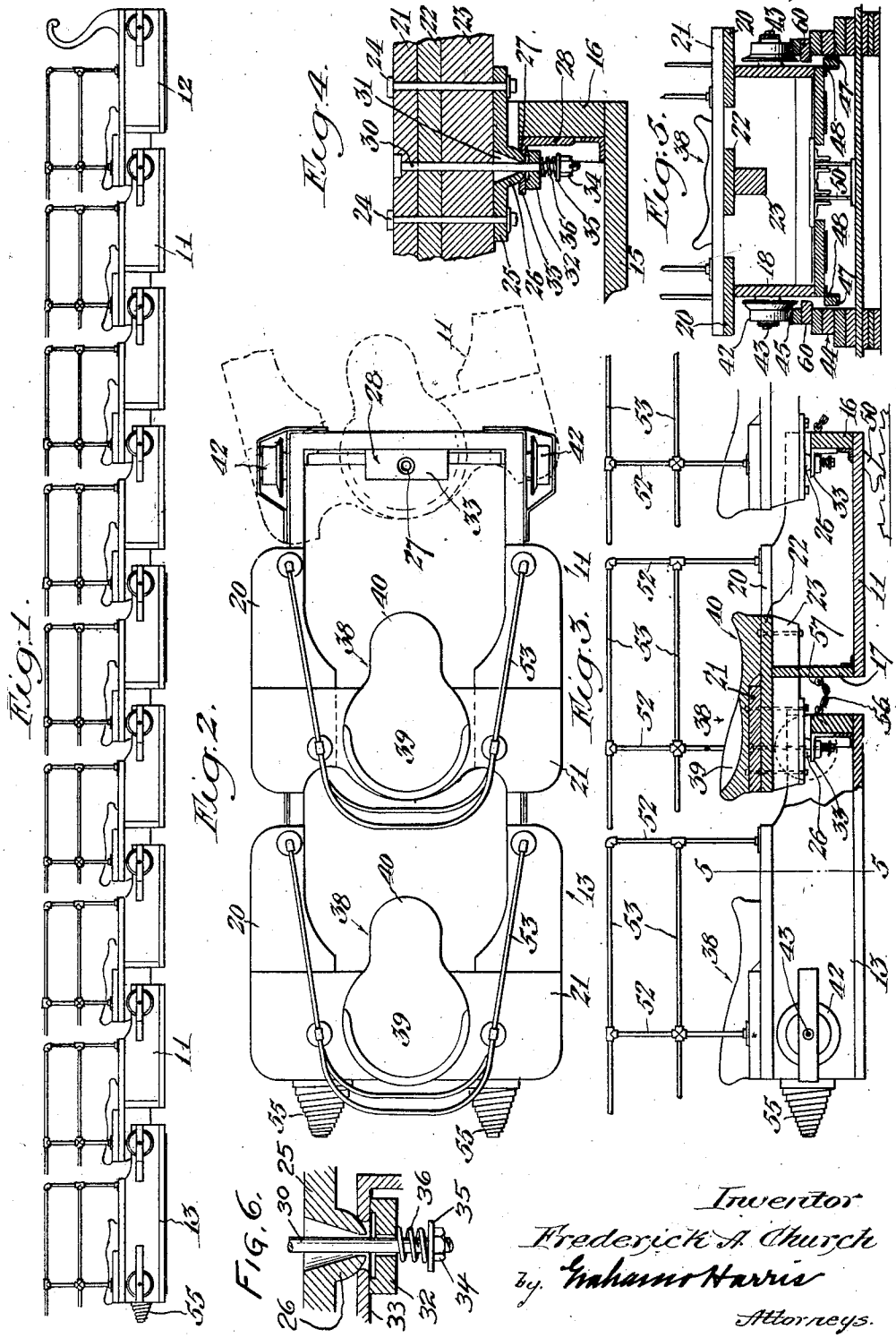

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Inventor

Frederick A. Church

by Graham & Harris

Attorneys.

Patented Oct. 10, 1922. 1,431,567

UNITED STATES PATENT OFFICE.

FREDERICK A. CHURCH, OF VENICE, CALIFORNIA.

JOINTED COASTER TRAIN.

Application filed January 22, 1921. Serial No. 439,102.

To all whom it may concern:

Be it known that I, FREDERICK A. CHURCH, a citizen of the United States, residing at Venice, county of Los Angeles, State of California, have invented a new and useful Jointed Coaster Train, of which the following is a specification.

My invention relates to amusement devices, being more particularly a train used for carrying passengers on coaster railways.

The invention consists generally in a train for coaster railways formed of a number of cars, each car, with the exception of the last car in the train, having but a single pair of supporting wheels at its forward end, the rear end or seat portion of each car extending over the forward end of the next succeeding car and being connected at such extended portion to the succeeding car by a form of joint which will allow an undulating movement of the train, both vertically and horizontally or combinations of both.

The principal object of my invention is to provide a train of the character described of simple form and construction having a large seating capacity.

Other objects and advantages will appear hereinafter from the following specification and drawings.

Referring to the drawings which are for illustrative purposes only,

Fig. 1 is a side elevation of a train embodying a form of my invention.

Fig. 2 is a plan view of a portion of a train on an enlarged scale showing several of the cars.

Fig. 3 is a side elevation partly in section of the cars shown in Fig. 2.

Fig. 4 is an enlarged vertical sectional view showing the connection between two of the cars.

Fig. 5 is a cross-sectional view on line 5—5, Fig. 3.

Fig. 6 is an enlarged vertical sectional view of the coupling device shown in Fig. 4.

The train consists of a number of cars 11 which are identical in construction, such cars being the intermediate cars of the train, the forward or first car 12 and the rear car 13 being of a slightly different construction as is hereinafter more fully explained.

Each car 11 consists of a floor 15, a front wall 16 and a rear wall 17, the walls 16 and 17 being firmly secured to the floor and connected to each other by side walls 18. Secured to the side and rear walls and extending rearwardly from the rear wall over the forward end of the next car are top plates or boards 20 which are connected at their rear ends by a transversely disposed board or plate 21. For the purpose of strengthening the rearward extension, just referred to, a longitudinally extending plank or plate 22 and a longitudinally extending timber or rail 23 are firmly secured to the seat board or plate 21.

Secured to the seat board 21, the plank 22 and the timber 23 by means of suitable bolts 24 is a steel plate 25 having formed thereon a downwardly depending semi-circular ball member 26 which is seated in a seat or socket 27 formed in a heavy angle iron 28 mounted on the front wall 16 of the car. A king pin or bolt 30 extends through the board 21, the plate 22 and the timber 23, thence through an opening 31 formed in the ball member and through a timber or plate 32 on the underside of the flange 33 of the angle iron 28, such bolt being provided at its lower end with a nut 34, and a washer 35 a coiled spring 36 being interposed between such washer 35 and the plate 32. This connection just described between the rear of one car and the forward end of the next car is of such character as to permit the cars to accommodate the track upon which the train operates.

Mounted upon the seat board 21 is a saddle indicated at 38, such saddle being designed to accommodate a person seated in the rear portion indicated at 39, the legs of such person extending to the floor on each side of the forward end 40 of the saddle, such forward end 40 then being free to accommodate a person seated directly in front of the person occupying the rear portion 39.

The supporting wheels of each car, indicated at 42 with the exception of the last car, are arranged one on each side of the forward end of the car being journaled on axles indicated at 43 and such wheels being so disposed that they are under the top plates or boards 20 of the next car ahead, such top plates or boards extending outwardly or beyond the side walls of the car. The last car is provided with two sets of wheels 42, one set at the forward end, and one set at the rear end of such car.

The wheels 42 run upon the tracks of the

coaster, indicated at 44, such tracks being formed of timbers, the upper timber being faced with an iron plate indicated at 45. Guard rails are provided for the cars which consist of longitudinally extending boards 47 which are secured to angle irons 48 mounted upon the floor of the car.

Safety devices are provided for the train which consist of pivotally mounted dogs 50 mounted upon the floor of each car, such dogs being arranged to engage racks mounted on the inclined portions of the railway, as is usually done.

For the purpose of insuring safety, a superstructure is provided for each car which consists of vertical rods 52 connected by horizontal rods 53 forming a railing. The passengers enter and leave the car between the forward end of the railing of the car occupied and the rear portion of railing of the car ahead.

The first car in the train, indicated at 12, is substantially identical in construction with the cars indicated at 11 with the exception that no provision is made at the forward end of such car for the connection of any car thereto. However, it is connected to the forward end of the first car 11 in the same manner as the cars 11 are connected to each other. The last car indicated at 13, is connected at its forward end to the next car 11 in the same manner as the other cars 11 are connected to each other. No provision is made the rear end of car 13 for the connection of cars thereto. The car 13 is provided with yielding bumpers indicated at 55 formed of heavy, flat, spiral springs which are provided for the purpose of taking up the shock in the event of rear end collision.

For the purpose of insuring that the cars will not become detached from each other in the case of accidents to the coupling between the cars, I have provided short chains, indicated at 56, connected to eyes, indicated at 57, mounted in the rear and in the forward end of the respective cars, it being understood that such chains are loose enough to permit free movement of the cars with relation to each other and do not effect in any manner the operation of the train under normal conditions.

It is to be understood that the train heretofore described travels of its own momentum after the initial start, commonly provided in coaster railways, and that such train travels over an undulating track having various curves formed therein. The connection between the cars, above described, permits the train to accommodate itself to the track, and, due to the fact that each car except the last has but one set of wheels, the friction is greatly reduced over that type of car in which a double set or more of wheels are used.

Further, by the arrangement of the seats or saddles shown and described the cars may be made of very narrow width with a maximum seating capacity.

For the purpose of insuring against the coaster train leaving the track, I extend one of the timbers of the track, indicated at 60, inwardly under the flange of the wheels 42 which timber extends over the board 47 on the side of the car so that should the car jump, the boards 47 on the car engage under the timbers 60 thereby preventing the car leaving the track.

I claim as my invention:

1. A coaster train comprising a series of cars, supporting wheels at one end of each car, and means for supporting the other end of each car on the wheel supported end of the next car, said supporting means consisting of a socket mounted on the wheel supported end of one car, a ball member on the rear end of the next car mounted above and seated in said socket, and means for movably retaining said ball member in said socket.

2. A series of cars for a coaster train each having wheels at their forward end, and a ball and socket connection between the rear end of one car and the front end of the next car whereby the rear end of one car extends over and is movably supported by said ball and socket connection on the front end of the next car.

3. A series of cars for a coaster train each having supporting wheels at their forward end, a seat portion extending rearwardly from each car over the forward end of the next car and ball and socket means for connecting and supporting the seat portion of one car on the forward end of the next car.

4. A series of cars for a coaster train each having supporting wheels at their forward end, a seat portion extending rearwardly from each car over the forward end of the next car, a supporting socket member mounted on the forward end of each car, and a ball member on the seat member of each car seated and supported in the socket member of the next car, and means for connecting the associated ball and socket members.

5. A series of cars for a coaster train each having supporting wheels at their forward end, a seat portion extending rearwardly from each car over the forward end of the next car, a supporting socket member mounted on the forward end of each car, a ball member on the seat member supported and seated in the socket member, said ball member and socket member each having an opening therethrough, a bolt mounted in the seat member extending through the openings in the ball and socket members, a nut on the lower end of the bolt and a spring interposed between the nut and socket member.

6. A series of cars for a coaster train each

having supporting wheels at one end, a load receiving portion at the other end, and means for connecting said cars to support the load receiving portion of each car on the wheeled end of the next car.

7. A coaster train comprising a series of cars each provided with supporting wheels at one end, a load carrying portion on each car overhanging the next car, and means for pivotally connecting the overhanging portion of each car to the next car substantially on the axis of the supporting wheels on such next car, the car on one end of said train having a set of supporting wheels at both ends thereof.

8. A series of cars for a coaster train, each car having a seat portion extending beyond the body of the car, supporting wheels at the other end of the car, and means for connecting the seat portion of one car to the wheeled portion of the next car.

9. A coaster train comprising a series of cars each provided with supporting wheels at one end, a load carrying portion on each car overhanging the next car, and means for pivotally connecting the overhanging portion of each car to the next car substantially in the axis of the supporting wheels on said next car, such connecting means consisting of a ball member on such overhanging portion, a socket member on the wheeled end of the car arranged to receive the ball member, and a bolt extending through said ball member and socket member, the car on one end of said train having a set of supporting wheels at both ends thereof.

10. A series of cars for a coaster train each having a pair of supporting wheels, and means for connecting and distributing the load of one car on the next car consisting of a supporting cup member on one car and a ball member on the other car above said cup member and supported therein.

11. A series of cars for a coaster train each having a pair of supporting wheels, and means for connecting and distributing the load of one car on the next car consisting of a ball member on one car and a cup member on the other car, one of said members being below and supporting the other member.

12. A series of cars for a coaster train each having a pair of supporting wheels, and means for connecting and distributing the load of one car on the next car consisting of a supporting cup member on one car and a ball member on the other car above said cup member and supported therein, and a king bolt on one car extending through said ball and cup members.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 13th day of January, 1921.

FREDERICK A. CHURCH.