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# United States Patent Office

Des. 192,932  
Patented May 29, 1962

192,932

## AMUSEMENT RIDE CAR

Robert H. Gurr, 3206 Montana, Costa Mesa, Calif.

Filed June 29, 1961, Ser. No. 65,761

Term of patent 14 years

(Cl. D34—15)

FIG. 1

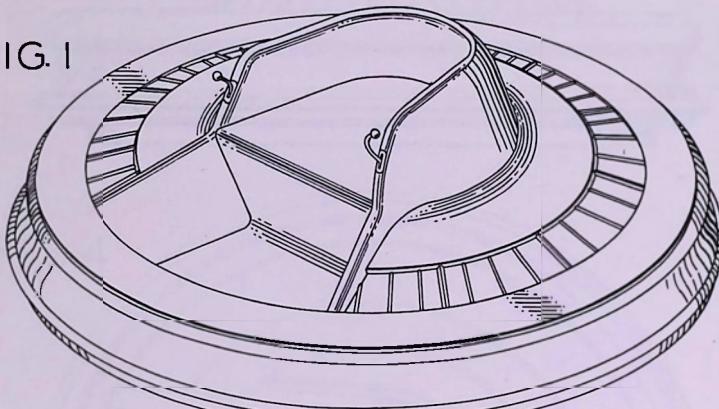


FIG. 2

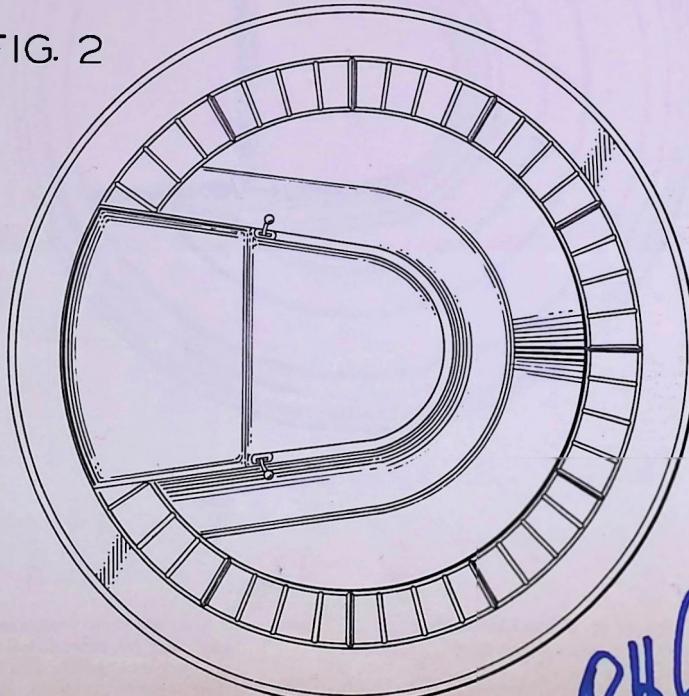


FIG. 3

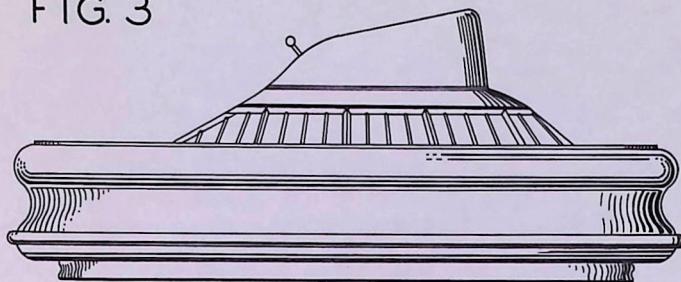


FIG. 4

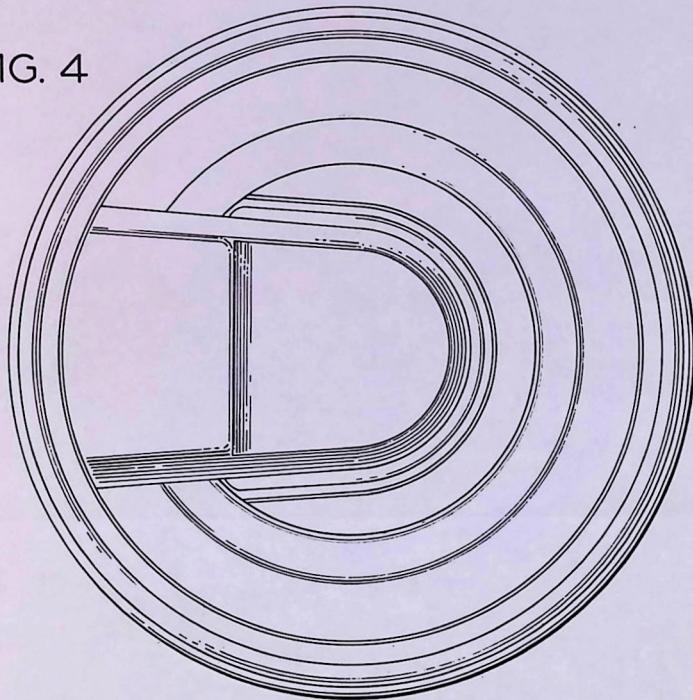


FIGURE 1 is a three-quarter front top perspective view of an amusement ride car showing my new design;

FIGURE 2 is a top plan view of said car;

FIGURE 3 is a side elevational view of said car; and  
FIGURE 4 is a bottom view of said car.

I claim:

The ornamental design for an amusement ride car, substantially as shown.

References Cited in the file of this patent

UNITED STATES PATENTS

- D. 187,823 Gassaway \_\_\_\_\_ May 3, 1960  
D. 189,386 Beardsley et al. \_\_\_\_\_ Nov. 29, 1960

OTHER REFERENCES

Motor Trend, August 1959, page 32, lower illustration.

UNITED STATES PATENT OFFICE  
SEARCHED, SERIALIZED, INDEXED, FILED & URGED

# United States Patent Office

Des. 212,766

Patented Nov. 19, 1968

212,766

## AMUSEMENT RIDE CAR

Robert H. Gurr, Newport Beach, Calif., assignor to  
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tion of California

Filed Nov. 6, 1967, Ser. No. 9,283

Term of patent 14 years

(Cl. D34—5)

FIG.1

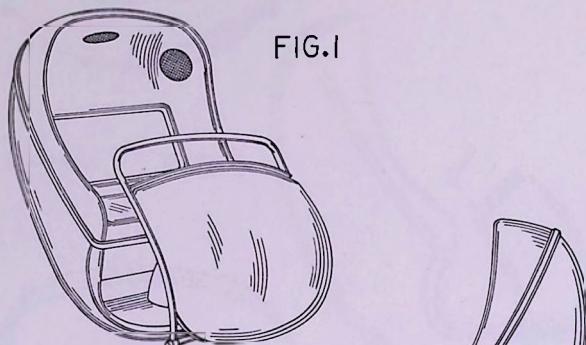


FIG. 2

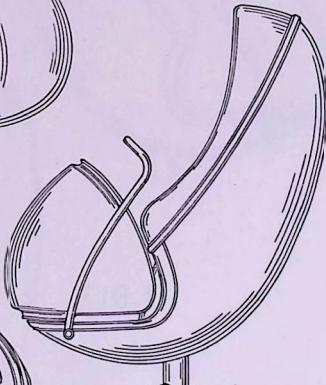
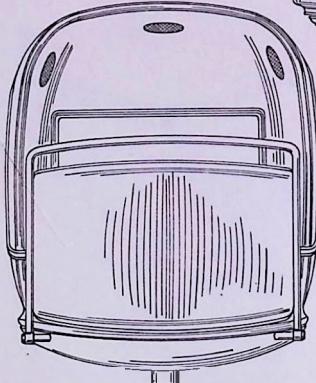


FIG. 3



RH Gurr

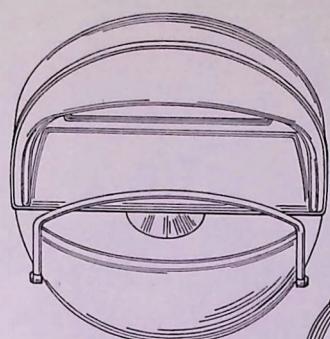


FIG.4

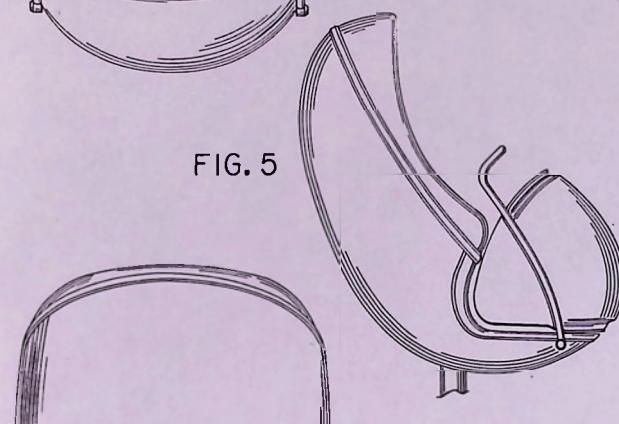


FIG.5

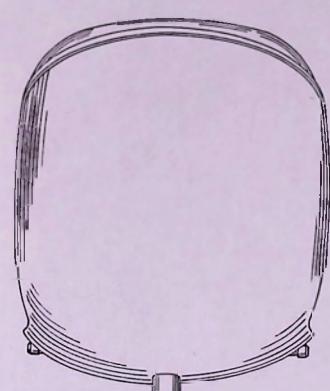


FIG.6

FIG. 1 is a perspective view of an amusement ride car showing my new design;

FIG. 2 is a side elevational view thereof;

FIG. 3 is a front view of said car;

FIG. 4 is a top plan view of said car;  
FIG. 5 is a side elevational view thereof showing the side opposite that shown in FIG. 2; and

FIG. 6 is a rear elevational view of said car.

I claim:

The ornamental design for an amusement ride car, substantially as shown and described.

#### References Cited

#### UNITED STATES PATENTS

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BRUCE W. DUNKINS, Primary Examiner.

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FIG. 1

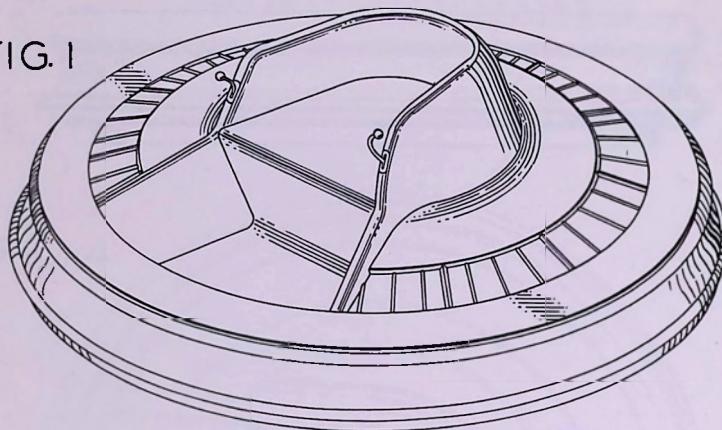
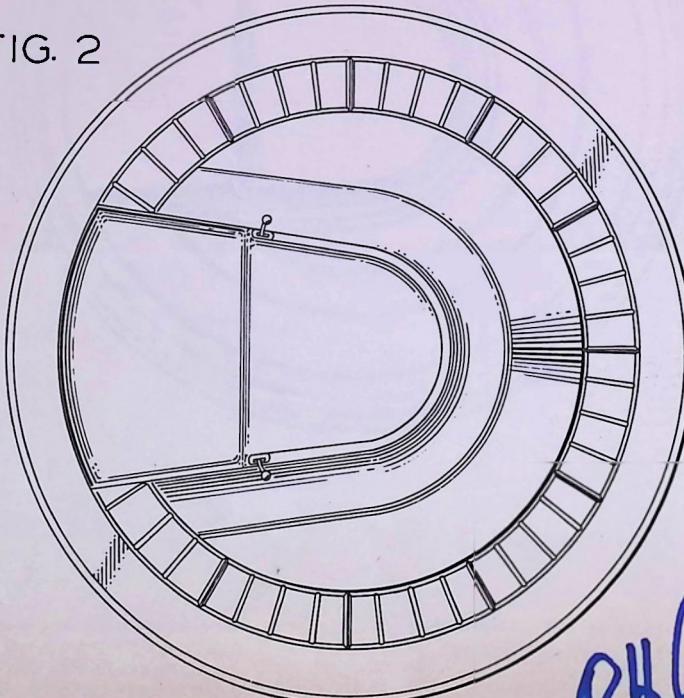


FIG. 2



RH Gurr

FIG. 3

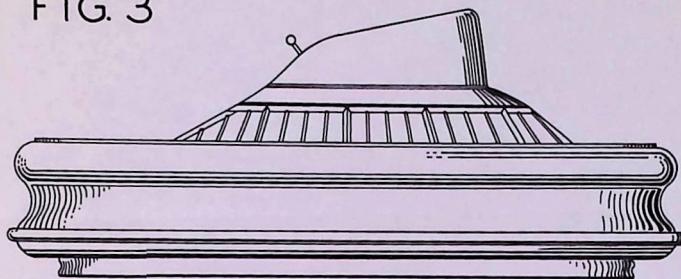


FIG. 4

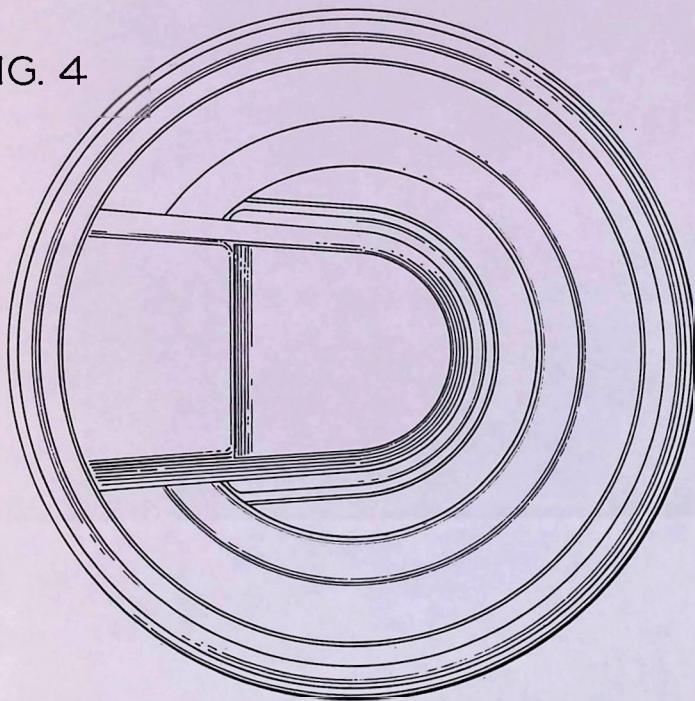


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OTHER REFERENCES

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3,467,026

PASSENGER-CARRYING APPARATUS

Filed June 26, 1967

5 Sheets-Sheet 1

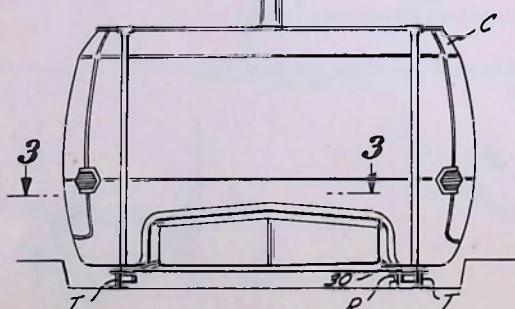
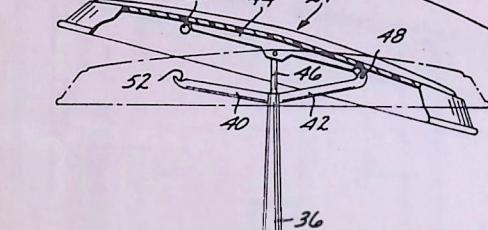
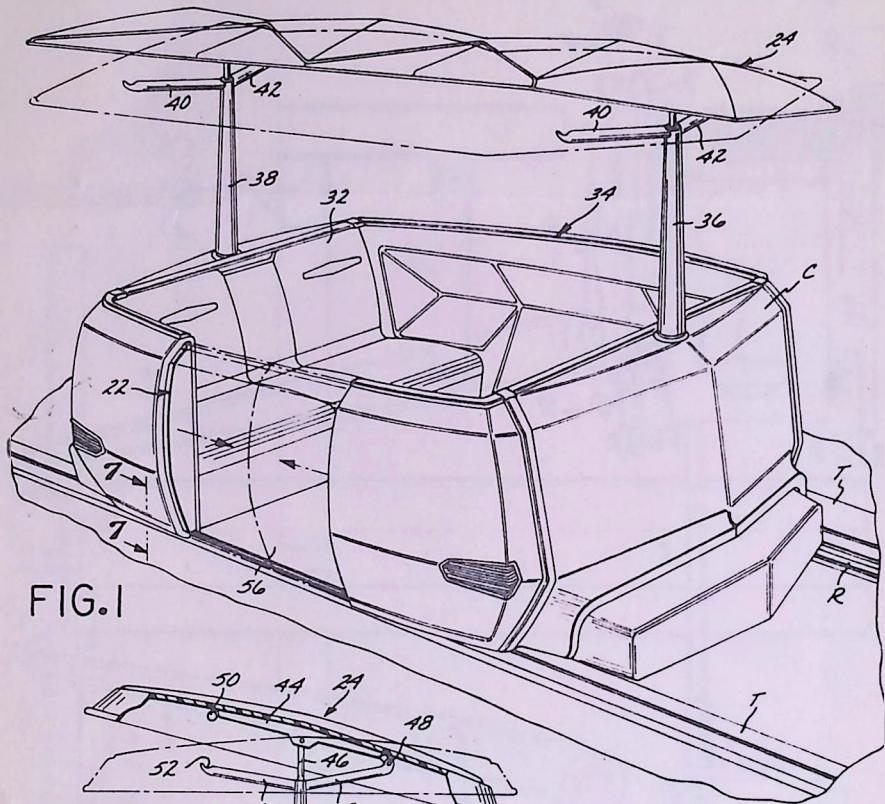


FIG. 2 *RH Gurr*

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Sept. 16, 1969

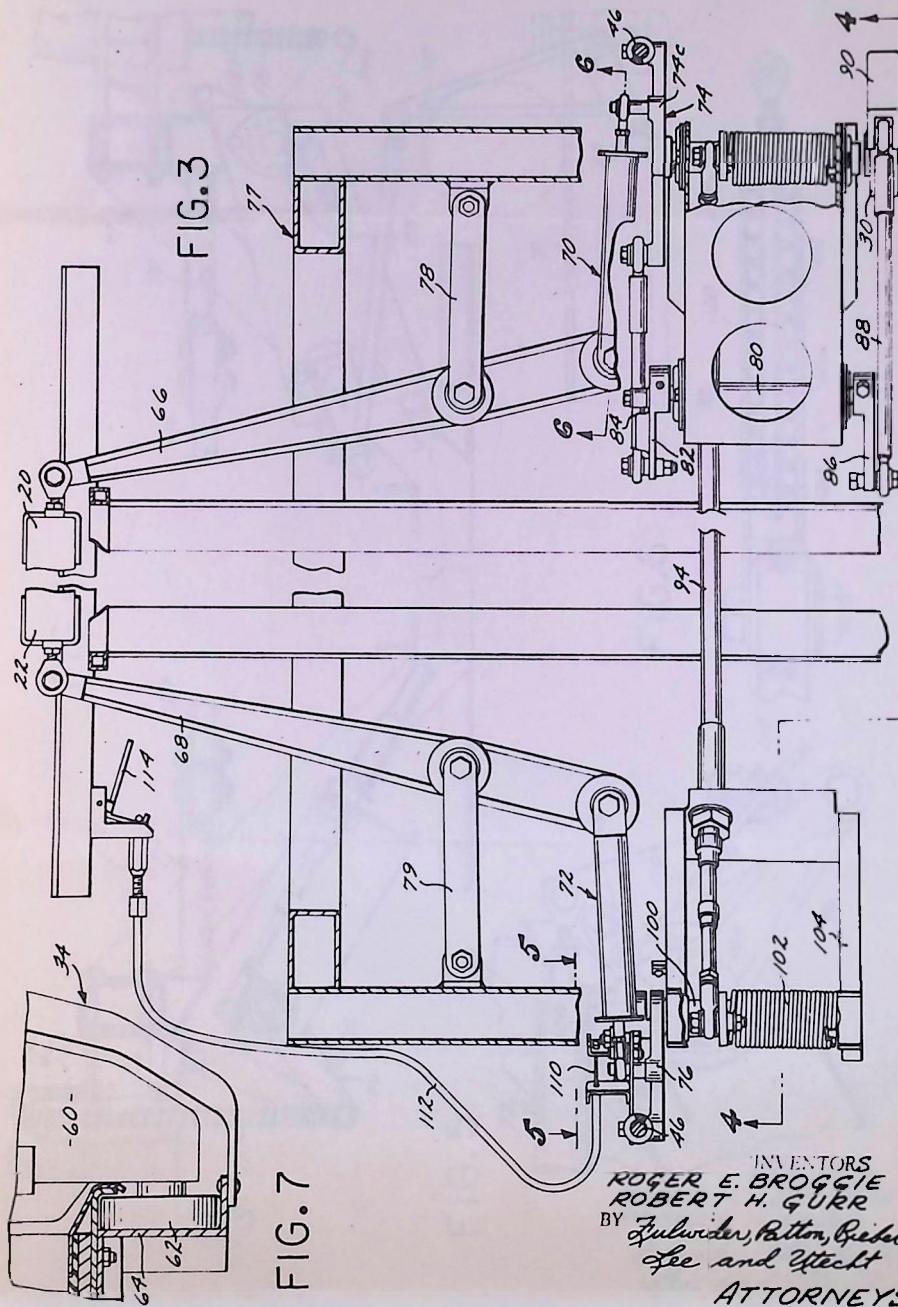
R. E. BROGGIE ET AL

3,467,026

## PASSENGER-CARRYING APPARATUS

Filed June 26, 1967

5 Sheets-Sheet 2



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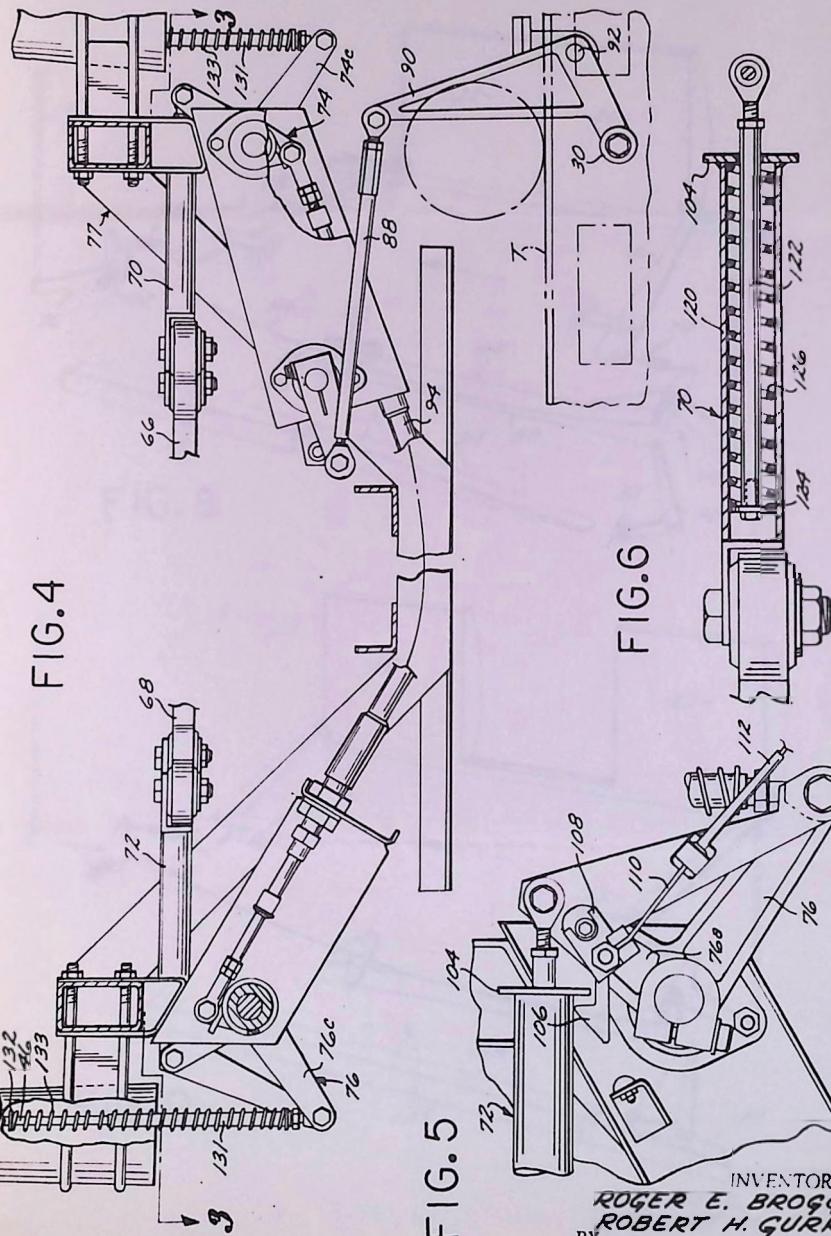
R. E. BROGGIE ET AL

3,467,026

PASSENGER-CARRYING APPARATUS

Filed June 26, 1967

5 Sheets-Sheet 2



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3,467,026

PASSENGER-CARRYING APPARATUS

Filed June 26, 1967

5 Sheets-Sheet 5

FIG. 10

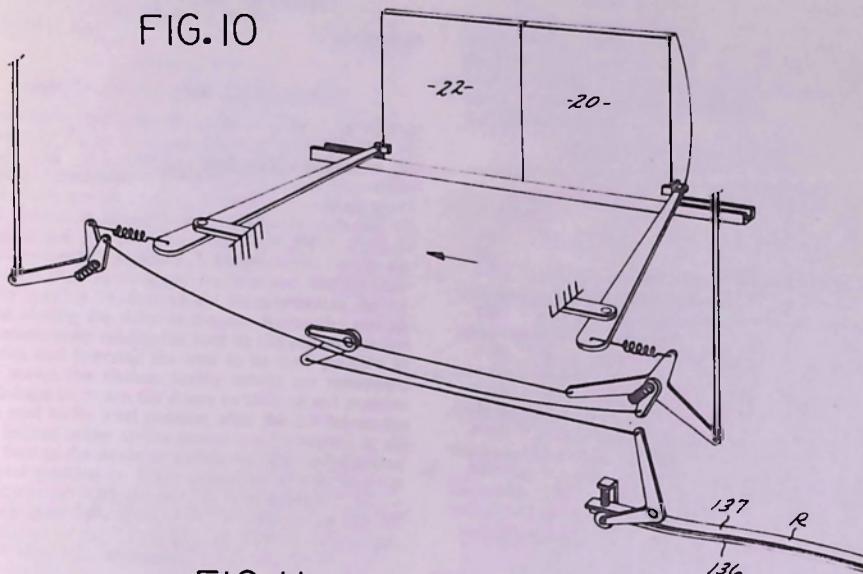


FIG. 11

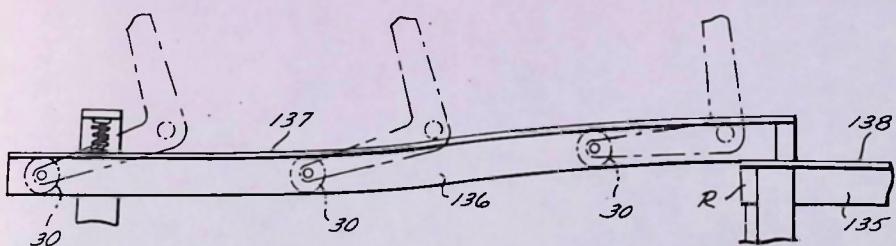
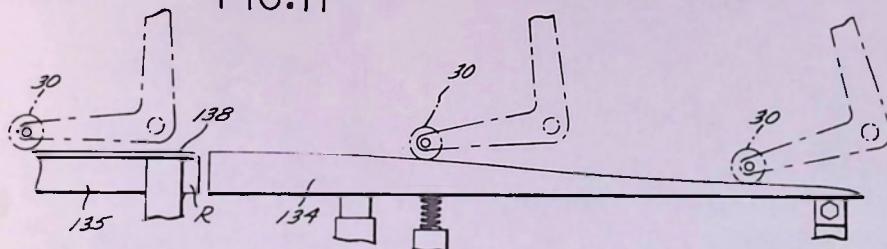


FIG. 12

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# United States Patent Office

3,467,026

Patented Sept. 16, 1969

1

3,467,026

## PASSENGER-CARRYING APPARATUS

Roger E. Broggie, Burbank, and Robert H. Gurr, Newport Beach, Calif., assignors to Wed Enterprises, Inc., Glendale, Calif., a corporation of California

Filed June 26, 1967, Ser. No. 648,587

Int. Cl. B61d 19/00

U.S. Cl. 105—341

10 Claims

### ABSTRACT OF THE DISCLOSURE

A passenger car movable along a track and having ingress-egress doors movable between open and closed positions. The car is also provided with a roof movable between a raised and a level position. The car moves along a track having a portion traversing a loading-unloading station. A longitudinally contoured cam rail extends generally parallel to the track in the vicinity of the loading-unloading station. Linkage means on the car interconnect the cam track and the door and roof for automatically opening the door as the car approaches the station and closing the door as the car leaves the station, while concurrently raising the roof as the car approaches the station and lowering the roof to its level position as the car leaves the station. Spring means are interposed in the linkage to return the doors to their closed position and the roof to its level position after the car leaves the station. Second softer spring means are interposed in the linkage biasing the doors to closed position and the roof to its level position to avoid passenger injury from inadvertent contact with the door or roof as they move towards their closed and level positions, respectively. A lock is provided to retain the doors and roof in their closed and level positions, respectively. An emergency release may be provided for the lock to permit the doors to be manually opened.

### BACKGROUND OF THE INVENTION

#### Field of invention

The present invention relates generally to passenger-carrying apparatus employing one or more passenger cars movable along a track between one or more loading-unloading stations.

#### Description of prior art

Most presently known passenger-carrying cars have doors which must be opened either by the occupants or by a crewman to admit and discharge passengers.

#### SUMMARY OF THE INVENTION

It is a particular object of the present invention to provide a passenger-carrying apparatus utilizing one or more passenger cars, with each car having doors movable between an open and closed position. The cars may also each employ a roof which is normally arranged in a level position when the doors are closed but which is movable to a raised position to facilitate the ingress and egress of passengers. The car moves along a track between one or more passenger loading-unloading stations. A cam rail is provided in the vicinity of each such station. Linkage carried by the car interconnects the cam means and the doors and the roof so that as the car approaches a passenger loading-unloading station the doors will automatically open and the roof will automatically be raised. Conversely, as the car leaves such station, the doors will automatically close and the roof will automatically return to its original level position.

It is another object of the present invention to provide apparatus of the aforescribed nature wherein the door

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means and/or the roof are held in their closed and level positions, respectively, by resilient means so as to preclude passenger injury from inadvertent contact with the door means or the roof as the latter return to their closed and level positions, respectively.

A further object of the present invention is to provide apparatus of the aforescribed nature provided with lock means that normally maintain the door means closed and the roof level after a car leaves a passenger loading-unloading station. In order to permit emergency exit from the car between stations an emergency release is provided for the lock means.

#### DESCRIPTION OF DRAWING

FIG. 1 is a perspective view showing a preferred form of passenger-carrying apparatus embodying the present invention;

FIG. 2 is a front view of said apparatus in reduced scale;

FIG. 3 is a broken horizontal sectional view taken in enlarged scale along line 3—3 of FIG. 2;

FIG. 4 is a broken, fragmentary side elevational view taken along line 4—4 of FIG. 3;

FIG. 5 is a broken vertical sectional view taken on line 5—5 of FIG. 3;

FIG. 6 is a vertical sectional view taken in enlarged scale along line 6—6 of FIG. 3;

FIG. 7 is a vertical sectional view taken in enlarged scale along line 7—7 of FIG. 1; and

FIGS. 8 through 12 are diagrammatic views showing the operation of the door and roof actuating elements of said passenger-carrying apparatus.

#### DESCRIPTION OF PREFERRED EMBODIMENT

Referring to the drawing, a preferred form of passenger-carrying apparatus embodying the present invention includes a passenger-carrying car C movable along a two-rail track T between one or more passenger loading-unloading stations (not shown). The car C is provided with a pair of sliding doors, generally designated 20 and 22, such doors being shown in an open position in dotted outline in FIG. 1 and in closed position in solid outline in this figure. The car C is also provided with a roof, generally designated 24, which is normally maintained in a level position when the doors 20 and 22 are in a closed position, with such roof 24 being movable to a raised position shown in solid outline in FIG. 1 and FIG. 2 when the doors 20 and 22 are moved to their open position. A longitudinally contoured cam rail R extends generally parallel to the track T adjacent one rail thereof in the vicinity of the passenger loading-unloading stations. A cam roller 30 rides along the cam rail following the contours thereof. The cam roller 30 is part of a mechanical linkage carried by car C and shown and described in detail hereinafter which effects movement of the doors 20 and 22 between their open and closed positions and concurrent movement of the roof 24 between its raised and its level positions.

More particularly, the car C is provided with an open body 34 having one or more seats 35. The upper edge of car body 34 terminates adjacent the upper portion of the seats 35. A pair of like upstanding front and rear pillars 36 support the roof 24, such pillars being rigidly affixed to the car body 34. The upper end of each pillar 36 is provided with upwardly and outwardly extending arms 40 and 42. The mid-portion of the roof 24 is provided with a pair of like mounting brackets 44, only one of which is visible in FIG. 2. The mid-portion of each bracket 44 is pivotally connected to the upper end of an actuating rod 46 that is telescopically disposed within pillars 36. The end of each mounting bracket 44 proximates support arm 42 is pivotally affixed to such support

arm by a horizontal pivot pin 48. The opposite end of each mounting bracket 44 carries a pad 50 which is disposed within a complementary groove 52 when the roof 24 is in its level position. As indicated particularly in FIGS. 1 and 2, upward movement of the roof actuating rod 46 will cause the roof 24 to pivot in a clockwise direction from its level position to a raised position so as to provide added head room for passengers entering and leaving the car C.

With continued reference to FIG. 1 and referring additionally to FIG. 7, the car body 34 is provided at the side adjacent roof support arms 40 with a doorway 56 adapted to be closed when the doors 20 and 22 move to their closed position. Each door 20 and 22 is of like hollow construction and as indicated in FIG. 7 includes a shell 60 provided at its lower end with mounting rollers 62. The mounting rollers 62 are disposed within a suitable channel member 64 affixed to the car body 34. The car body 34 is hollow so as to receive the doors 20 and 22.

Referring now to FIGS. 3 and 4, the doors 20 and 22 are actuated by the linkage depicted in these figures. Such linkage in the interest of clarity has been shown spaced closer together in FIGS. 3 and 4 than would be the actual case. The doors 20 and 22 are directly pivotally connected to the outer ends of a pair of rigid actuating arms 66 and 68, respectively. The opposite ends of these actuating arms are pivotally connected to a pair of force-transfer plungers 70 and 72. The opposite end of the force-transfer plungers 70 and 72 are pivotally connected to legs 74a and 76a of cranks 74 and 76, with the cranks being pivotally connected to the car frame, generally designated 77. The intermediate portion of door-actuating arms 66 and 68 are pivotally connected to pivot arms 78 and 79, with the latter being pivotally secured to frame 77.

Rotation of the crank 74 is effected by rotation of a horizontal shaft 80 pivotally carried by the frame 77 through a crank arm 82 keyed to the inner end of such shaft 80 and a push rod 84 pivotally connected to the free end of crank arm 82 at one end and pivotally connected at its opposite end to a leg 74b of the crank 74. Rotation of the shaft 80 in turn is effected by an outer crank arm 86 that is keyed to the outer end of the shaft 80, with the free end of the outer crank arm 86 being pivotally connected to the front end of push rod 88. As indicated particularly in FIG. 4, the rear end of the push rod 88 is pivotally connected to the upper end of a generally triangular cam crank 90. The intermediate portion of the cam crank 90 is pivotally connected to the car frame 77 by a pivot pin 92, while the lower front portion of the crank arm 90 carries the aforementioned cam roller 30.

Forward and rearward movement of the force-transfer plunger 72 is effected concurrently with similar movement of the plunger 70 by means of a longitudinally extending push-pull rod 94. The rear end of the push-pull rod 94 is pivotally connected to a leg 94b of the aforementioned crank 74, while the front end thereof is pivotally connected to a leg 76b of the aforementioned crank 76. The crank 76 is carried by a horizontal shaft 100 supported by the frame 77. A torsion spring 102 disposed upon the shaft 100 has its outer end secured to frame 77. The opposite end of torsion spring 102 is engaged with the crank arm leg 76b so as to constantly bias the force-transfer plunger 72 rearwardly. A similar torsion spring 103 is provided for rear crank 74 to constantly bias force-transfer plunger 70 rearwardly.

With continued reference to FIGS. 3 and 4 and with additional reference to FIG. 5, the front portion of force-transfer plunger 72 is formed with an enlarged cover 104. This cover 104 is adapted to be engaged by a latch 106 that is pivotally carried upon the crank 76 by means of a pivot element 108. With the latch 106 in its position of FIG. 5, rearward movement of the force-transfer plunger 72 is restrained. The latch 106 may be pivoted

out of the path of the cover 104 by means of an emergency release cable 110 disposed within a suitable protective housing 112. The end of the cable 110 opposite the pivot element 108 is connected to an actuating handle 114 secured to a portion of the car frame 77 at a position below the car C generally inaccessible to passengers disposed within the car.

Referring now to FIG. 6, the force-transfer plungers 70 and 72 are of like construction and include a cylinder 120. Slidably disposed within the cylinder 120 is a rod 122 provided with a head 124 at its inner end. The cover 104 described hereinabove is secured to one end of cylinder 120. A coil compression spring 126 is interposed between the head 124 and the cover 104. The plunger 122 extends through the cover 104 so as to be pivotally attached to the aforementioned leg 74a or crank 74. The front end of the cylinder 120 is pivotally connected to the inner end of the aforesaid door-actuating arm 66.

Referring again to FIGS. 3 and 4, the front and rear legs 76c and 74c are drivingly connected to the roof-actuating rod 46. This connection is not direct, however, but instead is resilient so as to preclude passenger injury from inadvertent contact with the roof 24 as the latter moves towards its level position. Thus, as seen best at the left-hand portion of FIG. 4, the free ends of legs 76c and 74c are pivotally affixed to the lower end of a cylinder 131. This cylinder 131 telescopically slidably supports the lower portion of roof-actuating rod 46. A retainer 132 is secured to rod 46 above the upper end of cylinder 131 and a coil spring 133 is interposed between this retainer 132 and the lower end of cylinder 131, the ends of the spring being secured to the retainer and the lower end of the cylinder. With this arrangement, downward movement of the roof 24 is effected through the springs 133.

Referring now to FIGS. 8 through 12, the cam rail R includes an upwardly sloping nose portion 134 which is first engaged by the cam roller 30 as the car C passes over the cam rail, as indicated particularly in FIGS. 9 and 11. Upon continued forward movement of the car C the cam roller 30 then passes onto a main section 135 of the cam rail. The main section 135 is generally level and is T-shaped. Referring now to FIGS. 11 and 12, the cam rail R also includes a T-shaped exit section 136. The exit section 136 is downwardly and forwardly curved and includes an upper flange 127. The front end of exit section 135 is spaced above the corresponding top flange 138 of the main section 135 a distance slightly greater than the diameter of the cam roller 30.

The operation of the aforescribed apparatus will be clearly apparent from FIGS. 8-12. Thus, in FIG. 8 the doors 20 and 22 are shown in their closed position. At this time the cam wheel 30 is in its lowermost position. The cam wheel 30 is maintained in this position and the parts of the aforescribed linkage are similarly maintained in this position by the torsion springs 102 and 103. Referring now to FIG. 9, as the car C approaches the cam rail R the cam roller 30 will ride upwardly along the rail's nose portion 134 so as to pivot the cam crank 90 and rear crank 74 in a counter-clockwise direction. The push-pull rod 94 will cause the front crank 76 to be concurrently rotated in a clockwise direction. Such movement of the cranks 74 and 76 will cause the force-transfer plungers 70 and 72, respectively, to urge the free ends of the door-actuating arms 66 and 68 apart so as to move the doors 20 and 22 to their open position of FIG. 9.

It should be noted that with the elements of the linkage in their position of FIG. 8, the roof-actuating rods 46 will be disposed in their lowermost position. Accordingly, the roof will be maintained in its level position shown in dotted outline in FIGS. 1 and 2. When, however, the cranks 74 and 76 undergo concurrent counter-clockwise and clockwise rotation as indicated in FIG. 9, the roof actuating rods 46 will be raised so as to thereby tilt the roof 24 to its solid outline position of FIGS. 1 and 2.

As the car C continues its movement over cam rail R, the cam wheel 30 will eventually pass off of the rear end of the main cam track section 135 and below the flange 137 of the exit section 136. The cam wheel will be caused to follow the descending contour of the exit section 136 so as to again lower the cam wheel 30 and thereby cause the aforescribed linkage to return to its original position shown in FIG. 8. The torsion springs 102 and 103 maintain the parts of the linkage in this position.

It should be noted that the torsion springs 102 and 103 are considerably stronger than the coil springs 133 and 126. Since these softer springs 126 are interposed between the heavy torsion springs 102 and 103 and the doors 20 and 22, injury will be prevented should a passenger inadvertently extend a portion of his body between the doors as they close. Similarly, the interposition of the springs 133 between the heavy torsion springs 102 and 103 and the roof-actuating rods 46 will cause the roof 24 to be resiliently moved towards its closed position thereby preventing any passenger injury.

Should the passenger-carrying car C be stopped at a point along the track T remote from a passenger loading-unloading station, it may become desirable to be able to open the doors 20 and 22 to thereby permit the passengers to be discharged from the car. To effect such opening of the doors, it is only necessary for a workman to actuate the emergency handle 114 and thereby effect release of the latch 106. The doors may then be readily manually spread apart.

We claim:

1. Passenger-carrying apparatus, comprising:

a track;  
a passenger car movable along said track, said car having ingress-egress door means movable between a first open position and a second closed position, 35 said car also having a roof movable between a first raised position and a second level position;  
cam means disposed generally parallel with a portion of said track;  
linkage means on said car connecting said cam means and said door means and roof for automatically concurrently moving said door means and said roof between their first and second positions as said car moves along said track portion; and resilient means biasing said door means into its closed position, 45 said resilient means including a heavy spring and a softer spring, said softer spring being interposed between said door means and said heavy spring to avoid passenger injury as said door means move to said closed position.

2. Passenger-carrying apparatus, comprising:

a track having a portion traversing a loading-unloading station;  
a passenger car movable along said track, said car having ingress-egress door means that are movable between an open and a closed position;  
cam means disposed generally parallel with said track alongside said loading-unloading station;  
linkage means on said car interconnecting said cam means and said door means for automatically opening said door means as said car approaches said loading-unloading station and closing said door means as said car leaves said station;  
resilient means disposed in said linkage means to maintain said door means in a closed position, said resilient means biasing said door means into its closed position, said resilient means including a heavy spring and a softer spring, said softer spring being interposed between said door means and said heavy spring to avoid passenger injury as said door means move to said closed position;  
lock means on said car that normally positively maintains said door means in said closed position after said car departs from said station;

and emergency manual release means to permit said 75

door means to be manually moved to an open position after said car has departed from said station.

3. Passenger-carrying apparatus, comprising:  
a track having a portion traversing a loading-unloading station;

a passenger car movable along said track, said car having ingress-egress door means that are movable between an open and a closed position, said car also having a roof movable between a raised position and a level position;

cam means disposed generally parallel with said track alongside said loading-unloading station;

linkage means on said car interconnecting said cam means and said door means and roof for automatically opening said door means and concurrently raising said roof as said car approaches said loading-unloading station and closing said door means and lowering said roof to its level position as said car leaves said station;

and resilient means disposed in said linkage means to maintain said door means in closed position and said roof in said level position, said resilient means including a heavy spring and softer springs, said softer springs being interposed between said heavy spring and said door means and roof to prevent passenger injury as said door means returns to said closed position and said roof returns to said level position.

4. Apparatus as set forth in claim 3 wherein said car is provided with lock means that normally positively maintain said door means in closed position after said car leaves said station, and with an emergency manual release for said lock means.

5. Passenger-carrying apparatus, comprising:  
a track having a portion traversing a loading-unloading station;

a passenger car movable along said track, said car having ingress-egress door means that are movable between an open and a closed position;  
cam means disposed generally parallel with said track alongside said loading-unloading station;

linkage means on said car interconnecting said cam means and said door means for automatically opening said door means as said car approaches said loading-unloading station and closing said door means as said car leaves said station;

resilient means disposed in said linkage means to maintain said door means in a closed position;

lock means on said car that normally positively maintain said door means in said closed position after said car departs from said station;

and emergency manual release means for said lock means on said car generally inaccessible to passengers disposed within said car to permit said door means to be manually moved to an open position by other than said passengers after car has departed from said station.

6. Apparatus as set forth in claim 5 wherein said resilient means includes a heavy spring and a softer spring, said softer spring being interposed between said door means and said heavy spring to avoid passenger injury as the door means move to said closed position.

7. Passenger-carrying apparatus, comprising:  
a track having a portion traversing a loading-unloading station;

a passenger car movable along said track, said passenger car being provided with an open body having seat means, with the upper edge of said body terminating adjacent the upper portion of said seat means; ingress-egress door means on one side of said body movable between an open and a closed position; front and rear pillar means extending upwardly from said car body, with the upper end of said pillar means being provided with upwardly and outwardly extending arms;

- a roof for said body, said roof having mounting brackets which overlie said arms, the ends of said mounting brackets and arms opposite said doors being pivotally connected and the ends of said arms and brackets proximate said doors being engageable when said roof is in a level position; actuating rod means telescopically disposed within said pillars, the upper ends of said rods means being pivotally connected to the mid-portion of said mounting brackets; cam means disposed generally parallel with said track alongside said loading-unloading station; linkage means on said car interconnecting said cam means and said door means and said rod means for automatically opening said door means and concurrently raising said rod means and hence the side of said roof proximate said door means as said car approaches said loading-unloading station; and resilient means disposed in said linkage means to maintain said door means in closed position and said roof in said level position.
8. Apparatus as set forth in claim 7 wherein said resilient means includes a heavy spring and softer springs, said softer springs being interposed between said heavy springs and said door and rod means to prevent passenger injury as said door means returns to said closed position and said roof returns to said level position.

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9. Apparatus as set forth in claim 8 wherein said car is provided with emergency manual release means for said lock means disposed on said car in a position generally inaccessible to passengers disposed within said car to permit said door means to be manually moved to an open position by a person other than said passengers after said car has departed from said station.

10. Apparatus as set forth in claim 9 wherein said resilient means includes a heavy spring and softer springs, said softer springs being interposed between said heavy spring and said door means and rod means to prevent passenger injury as said door means returns to said closed position and said roof returns to said level position.

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