Feb. 14, 1928. 1,659,108

R. C. ILLIONS

SAFETY BAR LOCK FOR PLEASURE RAILWAYS

Filed May 6, 1927 2 Sheets-Sheet 1

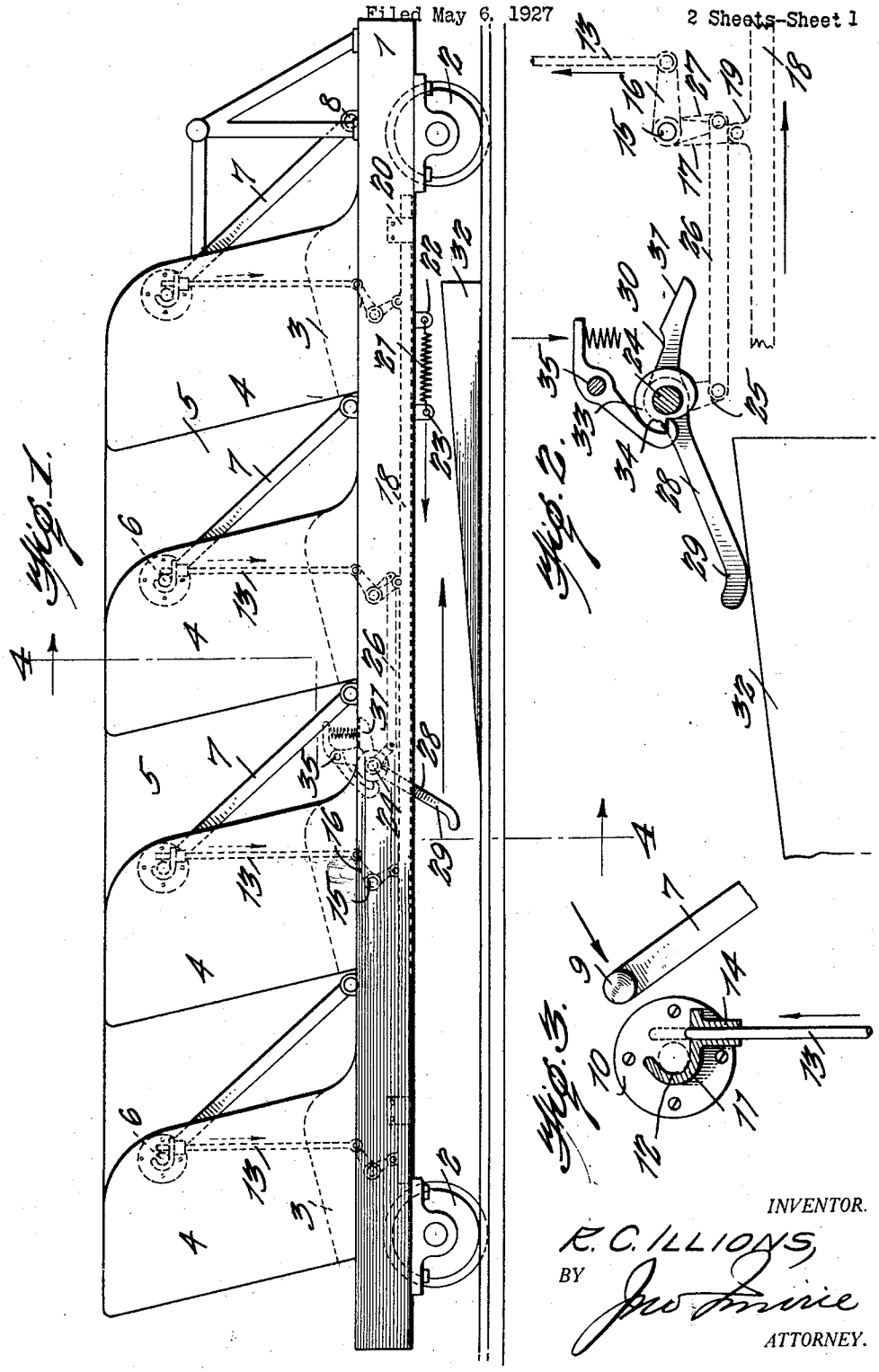


Fig. 1.

Fig. 2.

Fig. 3.

INVENTOR.

R. C. ILLIONS,

BY

Jno Irvine

ATTORNEY.

Feb. 14, 1928. 1,659,108

R. C. ILLIONS

SAFETY BAR LOCK FOR PLEASURE RAILWAYS

Filed May 6, 1927 2 Sheets-Sheet 2

Fig. 4.

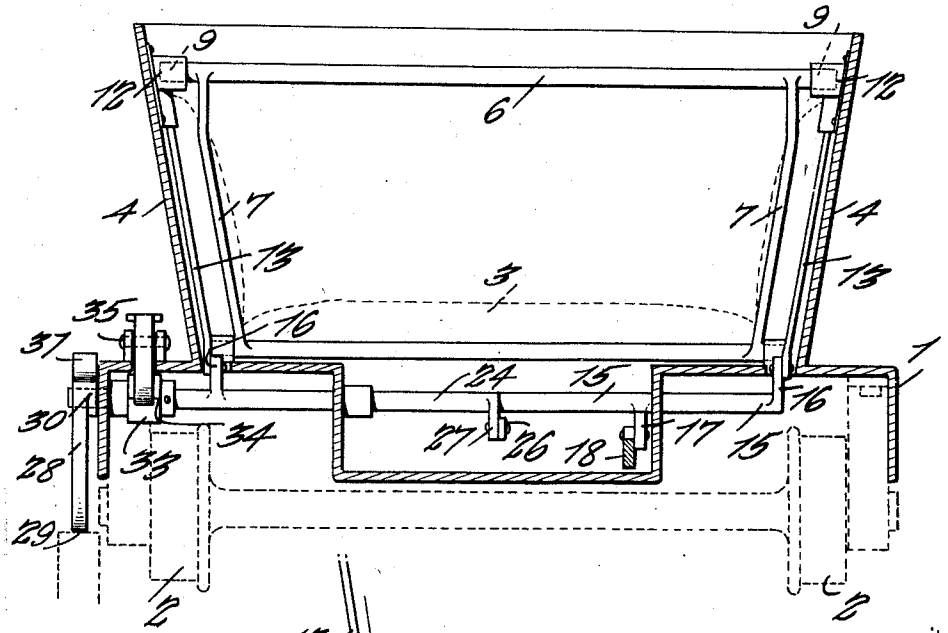


Fig. 5.

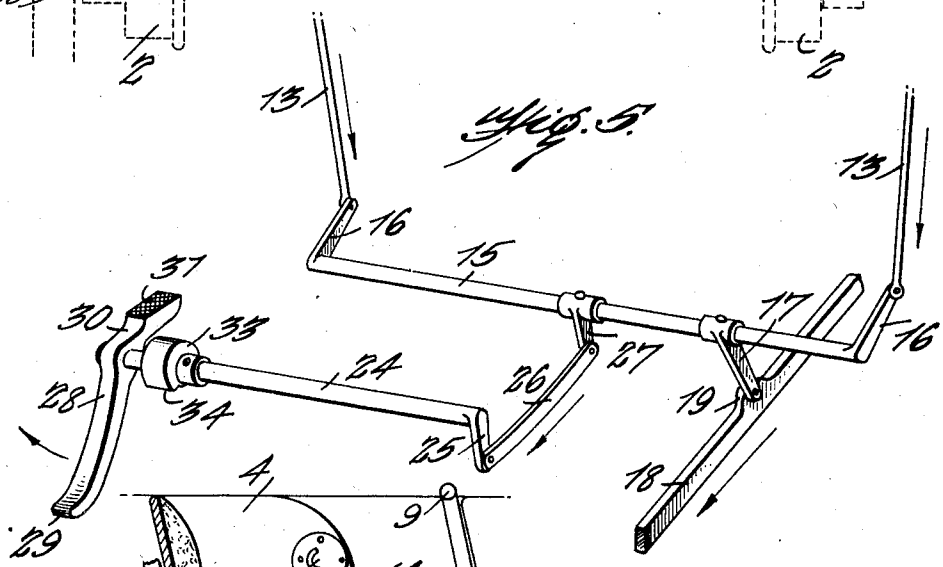
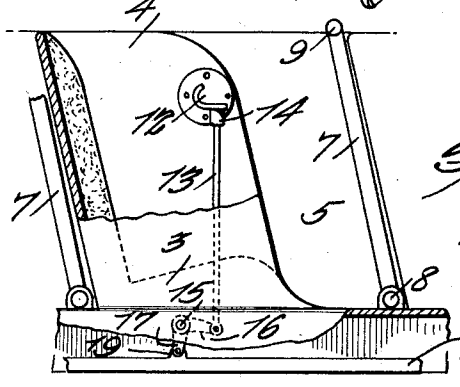


Fig. 6.



INVENTOR.
R. C. ILLIONS
BY Jno Imrie
ATTORNEY.

Patented Feb. 14, 1928. 1,659,108

UNITED STATES PATENT OFFICE.

RUDOLPH C. ILLIONS, OF BROOKLYN, NEW YORK.

SAFETY-BAR LOCK FOR PLEASURE RAILWAYS.

Application filed May 6, 1927. Serial No. 189,428.

This invention relates to an improvement in connection with passenger-carrying cars for use on scenic railways and roller-coasters, more specifically comprehending means by which the usual safety bar provided with the car to prevent the passengers from being thrown from their seats may be locked in safeguarding position and automatically released immediately before the car reaches the platform at which the passengers are presumed to leave the car.

Cars of this type are provided with a safety bar mounted for swinging movement to and from the seat occupied by the passengers with the bar intended to be moved to an operative position across the seat in front of the passengers while the car is in motion to prevent the passengers from being thrown from the seat and to further provide a handhold for the passengers by which they may steady themselves during the travel of the car. As ordinarily provided, this bar, which of course must be capable of being moved to an inoperative position in order to facilitate the passengers leaving the seats at the end of the trip, is not held in operative position in any certain manner, so that under a sudden jar or dip of the car, the bar has but little effect in preventing the passengers from being thrown from the seats.

It is, therefore, the primary object of the present invention to provide a simple means by which the bar may, at the will of the attendant, be locked in proper operative position to thereby not only serve as a handhold for the passengers but also serve as a positive guard against the passengers being thrown from the seats.

In cars of this type as ordinarily constructed, there are several passenger-carrying seats embodied involving the use of several such safety bars, and a further object of the present invention is the provision of means by which all of the bars of the car may be automatically unlocked as the car approaches the point at which the passengers are to be discharged, the locking construction being so arranged that following the placing of the safety bars in operative position by the passengers or by the attendant, all such bars of a car may be automatically locked at the will of the attendant by a simple single movement on his part.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a view in side elevation showing a conventional passenger car of this type equipped with the improved safety bar locking means.

Figure 2 is a detail, partly in elevation and partly in dotted outline, illustrating the means for automatically unlocking the safety bars and for holding the locking means inoperative at the will of the attendant.

Figure 3 is a sectional detail, partly in elevation, illustrating the locking rod in inoperative position in full lines and in operative or locking position in dotted lines.

Figure 4 is a section on line 4—4 of Figure 1.

Figure 5 is a perspective view showing the mechanism for controlling the locking rods.

Figure 6 is a broken sectional view, partly in elevation, illustrating the relation of the locking means and safety bar, the locking means being shown in released position.

A pleasure car of the type to which the present invention is more particularly adapted is conventionally illustrated in Figure 1 as including a platform 1 supported on track-traveling wheels 2 and provided with seats 3 with backs and sides 4, the seats being spaced apart to provide entrance openings 5 by which the passengers gain access to the seats. As ordinarily constructed, each seat is provided with a safety bar 6 supported on frame bars 7 pivotally supported at 8 in suitable brackets secured to the platform of the car, the arrangement being such that the safety bar may be moved to operative position across and directly in front of the passengers occupying the seats 3 to serve as a handhold for such passengers and prevent them from being dislodged from their seats during the travel of the car. The safety bar is, of course, adapted through its mounting to be turned to an inoperative position, that is away from the seats 3 in order to permit the passengers to enter or leave the car.

In carrying out the present invention, receiving brackets or sockets are secured on the sides 4 of the seat structure to receive the respective ends 9 of the bar 6 which extend beyond the frame bar 7. These brackets or sockets include bases 10 by which they may be secured in place and laterally extending walls 11 of curved formation, as shown more particularly in Figure 3, opening toward the front to provide what will hereinafter be termed sockets 12 into which the ends 9 of the bar 6 are positioned as the bar is moved

to an operative position. So far as the sockets are concerned, the bar 6, when placed therein, is prevented from any further movement toward the passengers but is freely movable from the passengers.

The locking means for each safety bar 6 includes locking rods 13 movable vertically with respect to the seat portions with their free ends movable through openings 14 in the bottoms of the sockets 12. The guide openings in the sockets may be elongated by integral thickening of the appropriate portion of the wall 11 and the locking rods 13 are, when in inoperative position, withdrawn to a point slightly below the bottom wall of the socket to permit free movement of the safety bar, and when in locked position are elevated to project across the socket in advance of the safety bar, as shown in dotted outline in Figure 3. The bar is thus locked against movement in either direction, serving not only as a rigid handhold for the passengers but also as a certain means of preventing them from being thrown from the seats. It is, of course, understood that a locking rod 13 is arranged to cooperate with each socket, that is there are two such locking rods for each seat.

A transverse shaft 15 mounted in or below the platform 1 is arranged beneath each seat for the direct operation of the locking rods of each seat. The shaft 15 of each seat is connected by arms or links 16 with the respective locking rods, the arms being rigid on the shaft and pivotally connected to the lower ends of the locking rods whereby turning of the shaft compels the desired vertical reciprocation of the locking rods. Each shaft 15 is, through the medium of an arm 17 rigidly connected with the shaft, connected with an operating bar 18 through the medium of ears 19 on the bar to which the arms 17 are pivotally connected.

The bar 18 extends longitudinally of the platform and is held against other than a reciprocating movement by guides 20. Obviously, in the reciprocation of the bar 18, all shafts 15 of the particular car are simultaneously and similarly operated, hence all locking rods 13 of a particular car are also simultaneously and similarly operated. The bar 18 is influenced in a direction to operate the shafts 15 for moving the locking rods to operative or locked position by a spring 21 terminally connected to an ear 22 on the fixture and to an ear 23 on the operating bar. This spring, when free to act, moves the operating bar in a direction to force the locking rods to operative position.

It, is, of course, apparent that it is desirable to provide a simple manner of unlocking all of the safety bars of a particular car in order that the passengers may readily leave the car at the end of the trip, and from the standpoint of a speedy discharge of the passengers, it is desirable that this unlocking means be automatic so that all of the safety bars of a car may be simultaneously unlocked to permit the passengers of the respective seats to move the safety bars to the inoperative position to permit their leaving the seats. In pleasure rides of this character, it is customary to have a platform which, for the purposes here will be called the unloading platform, at which the cars are brought at the end of the ride for the convenient discharge of the passengers. As the car approaches this platform, it is, of course, being brought to a stop either by a brake or by loss of momentum and it is desirable that the safety bars be unlocked as the car approaches and immediately before it reaches this unloading platform.

To secure this result, there is provided a short trip shaft 24 suitably mounted in the car platform and extending parallel to the shafts 15. This shaft 24 is provided with a fixed radial arm 25 connected by a link 26 to a radial arm 27 carried by one of the shafts 15. Obviously, in the rotation of the shaft 24 the particular shaft 15 will be operated and through the connection of such shaft 15 and the remaining shafts 15 with the operating bar 18, all shafts 15 will be simultaneously and similarly operated in the movement of the shaft 24. The shaft 24 is provided with a trip lever 28 rigidly connected thereto, one arm 29 of which has a rounded terminal and the other arm 30 of which has a flat or foot-bearing portion 31.

Arranged alongside of the track somewhat in advance of the loading platform is a ramp 32 and the arm 29 of the lever 28 is arranged to engage this ramp as the car advances. The ramp is in such proportions that in this engagement it will rock the shaft 24, correspondingly rock all shafts 15 of the car and withdraw the locking rods 13 from operative positions. Thus, as the car reaches the unloading platform and is brought to a stop, all safety bars are free and may be swung over to inoperative positions by the passengers in order to permit them to leave the car.

To secure the locking rods 13 in inoperative positions after the automatic operation described, the shaft 24 is provided with a fixed disk 33 having a shoulder 34 adapted to be engaged by a spring-pressed pawl 35 when the shaft 24 has been operated by the ramp to a position to withdraw the locking rods from operative positions. Thus, as the car approaches the unloading platform, the ramp acts to automatically withdraw all locking rods from locking or operative positions, and the parts are held in such positions in order to permit the discharge of the passengers and while other passengers are again entering the car. When the car is ready to start on the next trip, the attendant

will see that all safety bars are moved to operative positions, that is the projecting ends 9 of such bars are seated in the sockets 12. Just before the car is started on its trip, the attendant, by pressing upon the free end of the pawl 35, releases the disk 33, that is releases the shaft 24, and permits the spring 21 to move the operating bar 18 longitudinally with the effect to elevate all locking rods simultaneously, thus locking all safety bars in position to protect the passengers.

It is, of course, understood that after moving the locking rods to inoperative positions, the car proceeds beyond the ramp 32 to the unloading platform, so that the ramp does not interfere with the operative movement of the parts for the locking function. It may be that for some reason it is desired to unlock the safety bars other than through the automatic cooperation of the ramp. This unlocking operation may be effected by the attendant at any point in the travel of the car by simply exerting pressure on the foot portion 31 of the lever 28, moving such lever and shaft 24 until the pawl 35 functions to lock the parts. This causes an exactly identical operation with that of the ramp and simply provides an emergency means by which the safety bars may be unlocked at any point in the travel of the car should occasion arise for such release.

Ordinarily, in cars of this type, one side of the car is closed against the admission or exit of the passengers, leaving but one side open for the passengers. Under these circumstances, the attendant-operating means will be arranged on the blind side of the car where the attendant is usually stationed. Ordinarily, the sides 4 of the car flare slightly in order to conveniently accommodate the passengers and under these circumstances the locking rods 13 will follow the form of the sides. Furthermore, where, as is usually the case, the sides and back of the seats are upholstered, the rods 13 will be arranged between the upholstery and the material of the sides so that, except for the projecting ends, such rods will be concealed.

What I claim to be new is:

1. A pleasure railway car having a passenger seat, a swinging safety bar to cooperate therewith, locking rods to be positioned in advance of said bar when the latter is in operative position, a shaft for operating the rods, a trip shaft connected to the first mentioned shaft, a lever for operating the trip shaft, means arranged adjacent the track for operating the lever, and means to automatically lock the trip shaft in operative position.

2. A pleasure car having a plurality of seats, a safety bar for each seat movable to an operative or inoperative position relative to the seat, sockets carried by the seat to receive the ends of the safety bar, locking rods movable relative to the sockets to confine the safety bars therein or permit such bars to move therefrom, a shaft connected to the locking rods of each seat, an operating bar common to and adapted to simultaneously actuate all shafts, means to be operated by a ramp carried by the trackway to directly operate one of said shafts and through the operating bar simultaneously operate all of said shafts, a locking means for holding the operating means in a predetermined position, and automatic means for reversely operating the parts on the release of the locking means.

3. A pleasure car having a plurality of passenger-carrying seats, a safety bar for each seat, locking means to hold the safety bars in operative positions relative to the seats and including vertically reciprocating rods, a shaft for operating the rods of each seat, a bar movable longitudinally of the car and connected to all of said shafts for simultaneously and similarly operating the shafts, a spring for operating the bar in one direction, a trip shaft connected to one of the first mentioned shafts for operating the latter and through the said bar operating all of said shafts, a track-carried ramp for operating the trip shaft, and means for locking the trip shaft in a position resulting from the cooperation of the ramp.

4. A pleasure car having a plurality of passenger-carrying seats, a safety bar for each seat, locking means to hold the safety bars in operative positions relative to the seats and including vertically reciprocating rods, a shaft for operating the rods of each seat, a bar movable longitudinally of the car and connected to all of said shafts for simultaneously and similarly operating the shafts, a spring for operating the bar in one direction, a trip shaft connected to one of the first mentioned shafts for operating the latter and through the said bar operating all of said shafts, a lever fixed to the trip shaft, a track-carried ramp adapted to engage and actuate the lever, and means for locking the trip shaft in operated position.

5. A pleasure car having a plurality of passenger-carrying seats, a safety bar for each seat, locking means to hold the safety bars in operative positions relative to the seats and including vertically reciprocating rods, a shaft for operating the rods of each seat, a bar movable longitudinally of the car and connected to all of said shafts for simultaneously and similarly operating the shafts, a spring for operating the bar in one direction, a trip shaft connected to one of the first mentioned shafts for operating the latter and through the said bar operating all of said shafts, a lever fixed to the trip shaft, a track-carried ramp adapted to engage and actuate the lever, and means for

locking the trip shaft in operated position, said lever having a foot portion to permit it to be operated independently of the ramp.

6. A pleasure car having a plurality of passenger-carrying seats, a safety bar for each seat, locking means to hold the safety bars in operative positions relative to the seats and including vertically reciprocating rods, a shaft for operating the rods of each seat, a bar movable longitudinally of the car and connected to all of said shafts for simultaneously and similarly operating the shafts, a spring for operating the bar in one direction, a trip shaft connected to one of the first mentioned shafts for operating the latter and through the said bar operating all of said shafts, a lever carried by said trip shaft, a track-carried ramp to engage and operate the lever in the movement of the car, a shouldered disk secured on the trip shaft, and a pawl for engaging the shoulder in said disk to lock the trip shaft in operated position.

7. A pleasure car having a plurality of passenger-carrying seats, a safety bar for each seat, locking means to hold the safety bars in operative positions relative to the seats and including vertically reciprocating rods, a shaft for operating the rods of each seat, a bar movable longitudinally of the car and connected to all of said shafts for simultaneously and similarly operating the shafts, a spring for operating the bar in one direction, a trip shaft connected to one of the first mentioned shafts for operating the latter and through the said bar operating all of said shafts, a lever carried by said trip shaft, a track-carried ramp to engage and operate the lever in the movement of the car, a shouldered disk secured on the trip shaft, and a pawl for engaging the shoulder in said disk to lock the trip shaft in operated position, said pawl being manually releasable to permit said spring to actuate the operating bar and thereby all of the locking rod carrying shafts.

In testimony whereof I affix my signature.

RUDOLPH C. ILLIONS. [L. S.]