C. S. COTTON.

PASSENGER CAR CONSTRUCTION.

APPLICATION FILED APR. 23, 1920.

1,381,284. Patented June 14, 1921.

2 SHEETS—SHEET 1.

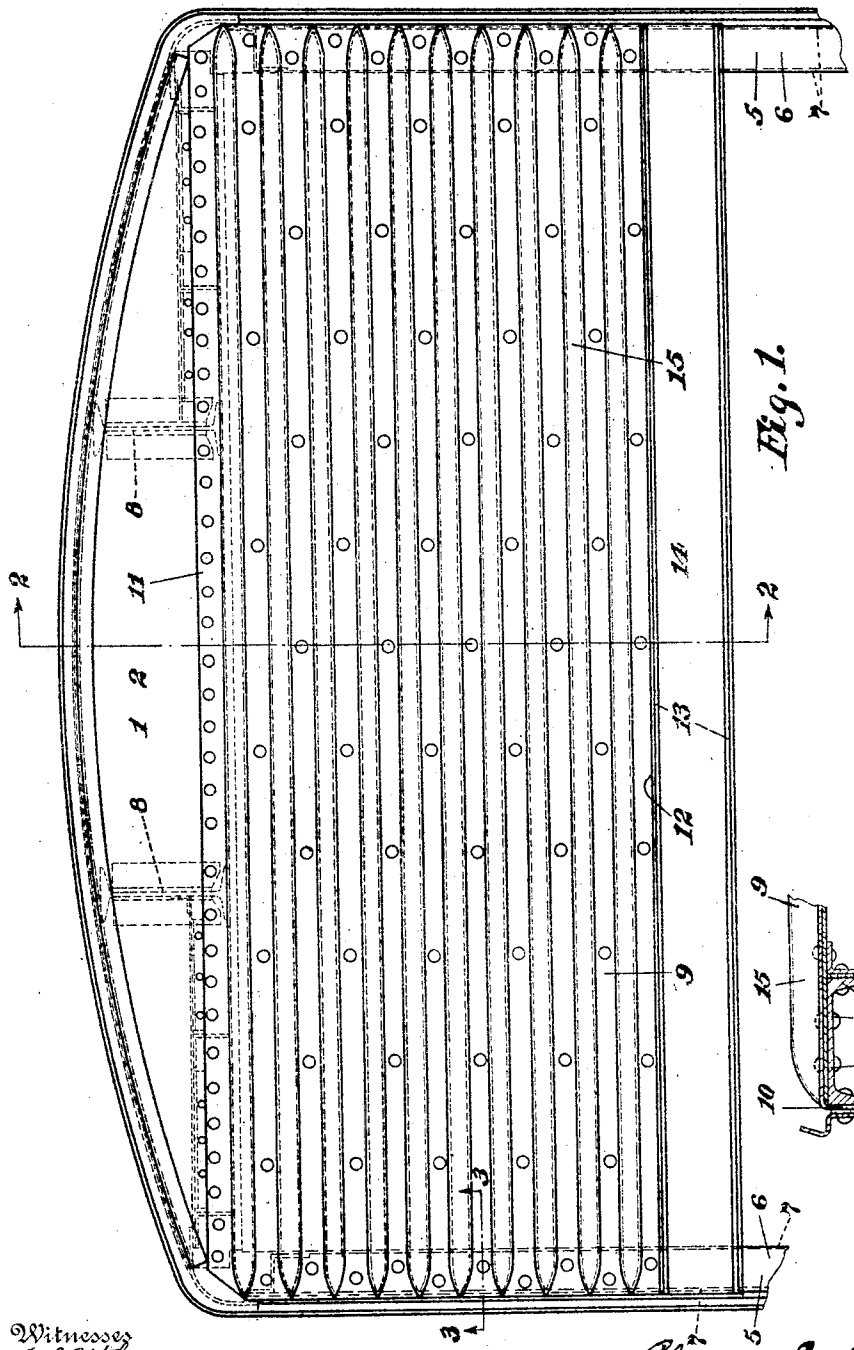


Fig. 1.

Fig. 3.

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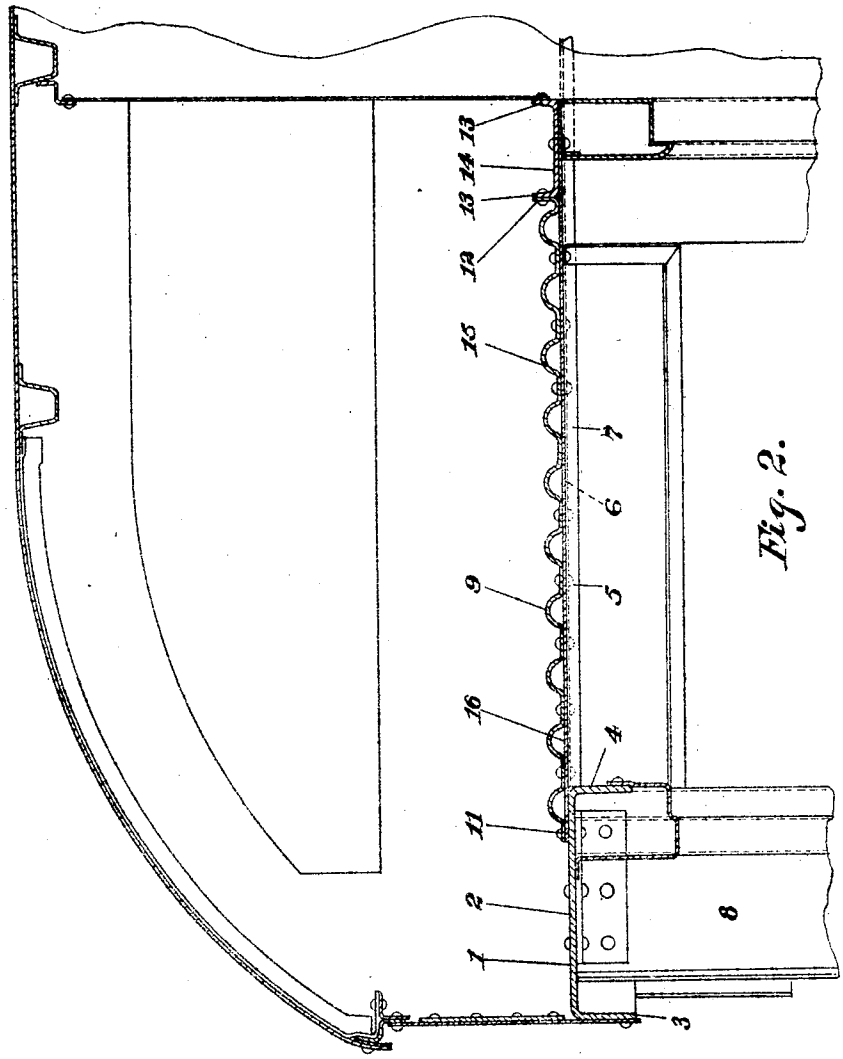


Fig. 2.

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UNITED STATES PATENT OFFICE.

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PASSENGER-CAR CONSTRUCTION.

1,381,284. Specification of Letters Patent. **Patented June 14, 1921.**

Application filed April 23, 1920. Serial No. 376,020.

To all whom it may concern:

Be it known that I, CHARLES S. COTTON, a citizen of the United States, residing in Crafton, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Passenger-Car Construction, of which the following is a specification.

It has been observed that in the event of a collision between cars or trains traveling at great speed, adjacent cars will mount and telescope each other and the heavy and strong underframe of one car will shear off and destroy the relatively light and weak posts and braces forming the superstructure or body portion proper of the adjacent car, thus causing great damage to the cars and, if the cars are carrying passengers, will consequently cause a great loss of life.

An object of the present invention is to provide a passenger car in which the body portion proper of the car is given greater protection against damage due to telescoping by an adjacent car.

Another object of the invention is to provide the end portion of a railway passenger car with a construction which will, when the underframe of one car rises above the underframe of an adjacent car, absorb or cushion the shock due to the impact of the cars thus reducing the momentum of one underframe before it reaches the posts and braces of the body portion proper of the other car.

A further object of the invention is to provide the end portion of a railway passenger car with shock absorbing means which extends transversely of the car and is connected with the side plates thereof.

These and other objects will be apparent from the following description:

Referring now to the drawings in which like reference characters refer to like parts: Figure 1, is a plan view of a portion of a railway car embodying the invention, the roof being omitted to more clearly illustrate the invention: Fig. 2, is an enlarged longitudinal sectional view taken on the line 2—2 of Fig. 1 and Fig. 3, is an enlarged sectional view taken on the line 3—3 of Fig. 1.

Referring now in detail to the drawings, the reference character 1 indicates the end plate which extends from side to side of the car. This end plate may be of any suitable construction but as illustrated in the drawings is preferably of channel form having its web 2 disposed horizontally and its flanges 3 and 4 disposed downwardly. The side plates 5 of the car extend from end to end plate and are connected therewith in any suitable manner. These side plates may be of any preferred construction but as illustrated in the drawings are preferably of channel form in cross-section, having their webs 6 disposed horizontally and their flanges 7 disposed downwardly. The end plate 1 is connected with the usual vestibule end post 8 and the side plates 5 are connected with the superstructure framing (not shown) in the usual manner.

The reference character 9 indicates a shock absorbing member which comprises a plate which extends from side plate to side plate and rests on and is secured to such side plates by rivets or any other suitable means. The edge portions of the plate 9, adjacent the sides of the car, are each provided with a downwardly depending flange 10 which is preferably secured to the outer downwardly depending flange 7 of one of the side plates. The edge portion of the plate 9, adjacent the end of the car, is provided with a flat portion 11 which is preferably secured to the web 2 of the end plate while the opposite edge portion of the plate is preferably provided with an upwardly extending flange 12 which is secured to one of the flanges 13 of a channel shaped member 14 which extends from side to side of the car and which at its ends is secured to the side plates 5. This plate 9 may be of any desired thickness and is provided with corrugations 15 which preferably extend transversely of the car and are preferably continuous from side plate to side plate. To the underside of this plate a finish ceiling plate 16 may be secured.

It will be noted that when a car equipped with the corrugated plate 9 is in a wreck or collision and an adjacent car mounts it that the corrugations 15 of the plate will fold and will at the same time tend to draw the side plates 5 and parts connected therewith, in a direction toward the longitudinal center line of the car and will thus form a cushion which will absorb the shock of the oncoming car. It will be further noted that each corrugation as it is folded increases the resistance to the oncoming car and gradually decreases the momentum of the car and finally stops the one car from telescoping the body portion of the other car.

Heretofore instead of making the plate 9 crushable, a flat plate has been used which, when one car mounts another, would tear and offer only a slight resistance to the oncoming car and would therefore permit the one car to telescope the other. In the present invention the plate 9 is, by reason of the corrugations 15, initially crushed to some degree and thus prevents any tearing of the plate.

It will be understood that changes may be made in the construction described without departing from the spirit and scope of the appended claims.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:—

1. In a passenger car, side framing, a roof structure connected with said framing, and a horizontally disposed corrugated plate below said roof structure extending between and secured to said side framing.

2. In a passenger car, side framing, a roof connected with said framing, and a horizontally disposed corrugated plate below said roof extending between and secured to said side framing the corrugations in said plate extending transversely of the car.

3. In a passenger car end construction, side framing, a roof connected with said framing, a horizontally disposed plate arranged below said roof and connected with said framing, and corrugations in said plate.

4. In a passenger car end construction, side plates, a roof connected with said side plates, and a horizontally disposed corrugated plate extending between and secured to said side plates below said roof, said corrugated plate being adapted to gradually decrease the momentum of an adjacent car.

5. In a passenger car end construction, side plates, a roof connected with said side plates and horizontally disposed means extending between and connected with said side plates below said roof adapted to cushion the shock of an adjacent car.

6. In a passenger car end construction, side plates, a roof connected with said side plates, and a horizontally disposed corrugated plate below said roof secured to said side plates, said corrugated plate being adapted to gradually absorb the shock due to the impact thereon of an adjacent car.

7. In a passenger car end construction, side plates, a roof connected with said side plates, and a horizontally disposed corrugated plate below said roof secured to said side plates, said corrugated plate being adapted to act as a cushion and gradually absorb the shock due to the impact of an adjacent car.

8. A car structure comprising side wall structures and a roof structure and horizontally disposed means arranged below said roof structure and secured to said side wall structure, said means comprising a plurality of transverse parts adapted to coöperate to intercept a telescoping body.

9. A car structure comprising side wall structures and a roof structure, a horizontally disposed corrugated means below said roof structure connected with said side wall structures adapted to intercept a telescoping body.

10. A car structure comprising side plates a roof above said plates, a horizontally disposed plate arranged below said roof structure extending between and secured to said side plates adapted to intercept a telescoping body.

11. A car structure comprising an end plate, side plates, a transverse member extending between and secured to said side plates and horizontally disposed means secured to said end and side plates and to said transverse member adapted to intercept a telescoping body.

12. A car structure comprising an end plate, side plates, a transverse member engaging said side plates and a horizontally disposed corrugated plate secured to said side and end plates and to said transverse member adapted to intercept a telescoping body.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES S. COTTON.

Witnesses:
E. S. Utzler,
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