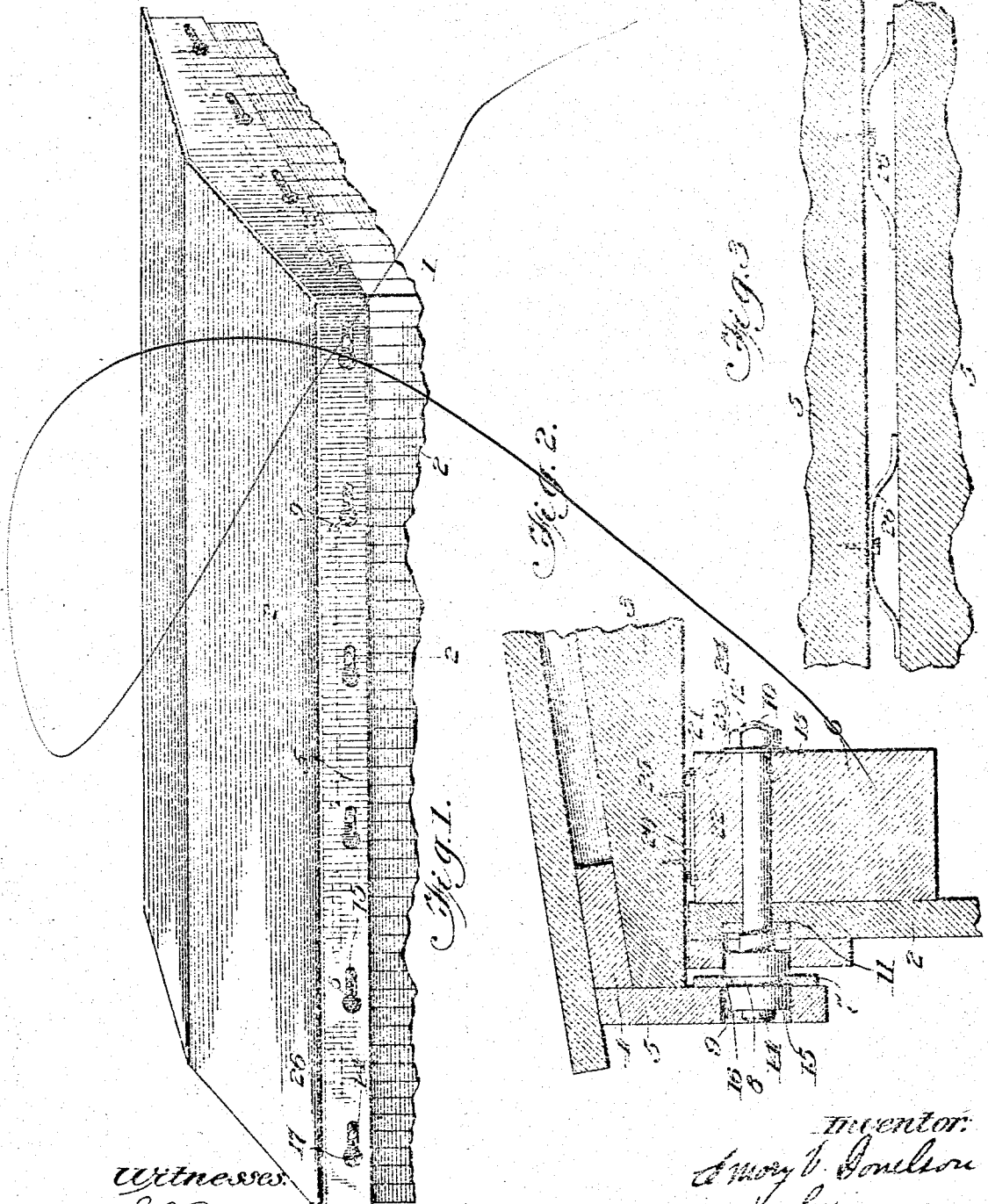


E. V. DONELSON.
CAR ROOF.
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UNITED STATES PATENT OFFICE.

EMORY V. DONELSON, OF BALTIMORE, MARYLAND.

CAR-ROOF.

931,736.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EMORY V. DONELSON, citizen of the United States of America, residing at Baltimore, Maryland, have invented certain new and useful Improvements in Car-Roofs, of which the following is a specification.

This invention relates to freight cars and more particularly to the means for maintaining the roof of such a car in position on the car body, and has as an object to reduce or eliminate the tendency now present in all box cars to give way at the joint between the roof and the side walls.

The structure embodying this invention consists of a car body and a roof, each being separate and integral, the roof mounted on the body to move relatively thereto, and means for limiting the motion of the roof. As shown, the latter device consists of a depending flange, or fascia board, on the roof fitting loosely over the side walls, but the same function may be accomplished by other means. The roof may be attached to the body where any attaching means, in addition to gravity, is deemed necessary by projections on the body which engage slots in the roof flange. Friction is reduced or eliminated by means of rollers on such projections which engage the sides of the slots and support either the whole or a part of the weight of the roof. The motion of the roof relatively to the car body is dampened by friction devices, in this instance in the form of friction plates on the body and cooperating friction plates on the roof. The resulting friction may be varied by adjusting the position of the plates. Bumping of the roof at the end of its traverse is prevented by yielding members shown in the form of springs introduced between the roof and the body. These elements and features may be used separately or in various combinations as hereinafter described in the specification and defined in the claims.

Referring to the accompanying drawings,—Figure 1 is a perspective of a portion of a car embodying the invention, Fig. 2 is a vertical section on the line 2—2, and Fig. 3 is a horizontal section on the line 3—3.

The car body 1, with the side walls 2, is of the usual construction and need not be described in detail. The roof resembles the car roof in common use except that instead of being built with the car it is an integral structure separate therefrom. It consists

of bridge pieces 3 placed transversely of the car and extending beyond the side walls, and purlins 4 at right angles to the bridge pieces secured thereto and placed on top of the same. Any suitable type of roofing, as planks or metal, is secured to the purlins. Fascia boards 5 depending from the under side of the roofing are attached to the bridge pieces and extend around the side of the car, forming what will be termed a depending flange on the roof. This flange overlaps the upper edge of the car walls by several inches and is spaced therefrom; in this instance, the space is equal in extent to the distance the roof is to be permitted to move from its normal position. It is apparent that if the roof, as thus constructed, be laid on top of the car with the bridge beams 3 resting on the plate beams 6, the sides may be strained and twisted and no damage will occur, as they merely move relatively to the roof, i. e., if any shock to the car occurs, as a sudden change of speed, or in bumping, if the shock is sufficient, the roof will move relatively to the walls and, as previously stated, no damage will result.

As it may be found desirable to attach the roof to the car by some means in addition to the force of gravity, the plates 7 are attached to the fascia boards on the inner faces thereof and these plates are provided with key-hole slots 8 horizontally disposed, and the fascia boards proper are cut away about the slots at 9. Bolts 10, shouldered at 11, are passed through the side walls and plate beams; the shoulder rests against a plate embedded in the outside of the wall and the inner end is secured by means of a suitable nut 12. The outer portion of each bolt is provided with a journal bearing surface 14. A roller 15, grooved circumferentially at 16, is mounted on the journal bearing to rotate thereon and slide axially. Friction plates 20 are secured to the plate beams 6 at suitable intervals. These plates are provided with lugs 21 pierced with tapped holes 22. Bolts 23 resting in sockets 24 in the plate beams are threaded to engage the tapped holes. By turning the bolts, the elevation of the plates 20 may be varied at will. Cooperating plates 25 are secured to the bridge beams 3. Heavy plate springs 26 are secured to the side walls and bear against the inside of the fascia boards. These springs serve to take up the shock due to sudden displacement of the roof, and further

serve to return the roof to normal position when displaced.

In the operation of the device, the roof is placed in position with the friction plates 25 of the bridge pieces resting on the friction plates 20 of the car body. It is then moved into position at the extreme end of its traverse with the enlarged portions 17 of the key-hole slots in registration with the bolt holes 18. The bolts 10 and the rollers 15 are adjusted and secured by means of the nuts 12. The roof is now moved to its normal position, the grooved rollers engaging the edges of the slots. The springs 26 are chosen preferably of sufficient strength and number to return the roof to normal position when displaced. Some of these springs must be set up after the roof is in place; the rest may be secured to the car at any convenient time before the roof is put on.

During the bumping and in response to other shocks due to change of velocity, the roof moves back and forth longitudinally and its motion is arrested by the springs without resulting damage. The friction plates 20 and 25 prevent constant movement of the roof due to the necessary vibration of running and may be adjusted by means of the screws 23 to offer the resistance desired. Side motion on the part of the roof is permitted as the rollers 15 slide freely on the journals 14. This motion is taken up by the springs at the sides of the car in the same manner as the longitudinal motion is taken up by the end springs.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A car body and a roof, the latter in the form of a single continuous structure separate from the car body and mounted thereon to move freely in a horizontal direction relatively to the car body.

2. A car body and a roof, the latter mounted on the body to move relatively thereto in any horizontal direction.

3. In a car, a body having upright sides, a roof for the car body mounted thereon to move relatively thereto in any horizontal direction, a flange on the roof fitting loosely about the sides to allow motion of the roof horizontally in all directions and limit such motion.

4. In a car, a body having side walls, a roof mounted thereon to move relatively to the car body, and a pin and slot connection between the car body and roof.

5. A car body having side walls, a roof mounted thereon to move relatively thereto, and a pin and slot connection between the car body and roof whereby the motion of the roof relatively to the car body is limited and the direction thereof determined.

6. In a car, a body and a roof, the latter in the form of an integral substantially rigid

structure mounted on the car body to move relatively thereto in a horizontal direction.

7. A car body and a roof, each being an integral structure, the roof mounted on the car body to move relatively thereto, one slotted horizontally, a member on the other engaging the slot to limit the motion of the roof relative to the car.

8. A car body and a roof, each being an integral structure, the roof mounted on the car body to move relatively thereto, one being provided with key-hole slots, a projection on the other engaging the slots to limit the motion of the roof relative to the car.

9. A car body and a roof, each being a separate integral structure, the roof mounted on the car body to move relatively thereto and provided with substantially horizontal slots, and members on the car body engaging the slots to limit the motion of the roof.

10. A car body and a roof, each being in the form of a separate integral structure, one slotted horizontally, the other provided with a roller engaging the sides of the slot to support the roof.

11. A car body and a roof, each being in the form of a separate integral structure, one slotted horizontally, the other provided with rollers engaging the sides of the slots to support the roof.

12. A car body and a roof, each being a separate integral structure, a depending flange on the roof outside the car body, slotted horizontally, and members on the car body engaging the slots to permit and limit motion of the roof relatively to the car body.

13. A car body and a roof, each being a separate integral structure, a depending flange on the roof outside the car body fitting loosely over the latter, and a slot and pin connection between the flange and the car body.

14. A car body and a roof, each being a separate integral structure, a depending flange on the roof outside the car body fitting loosely over the latter, the flange slotted horizontally, rollers mounted on the car body engaging the slots to permit and limit the motion of the roof relatively to the car and support a portion of the weight of the roof.

15. A car body and a roof, each being an integral structure, the roof mounted on the body to move relatively thereto, means to limit the traverse of the roof relatively to the car, anti-friction means for supporting the roof, and means for causing a predetermined amount of friction between the roof and the car body.

16. A car body and a roof, each being a separate integral structure, the roof mounted on the body to move relatively thereto, and friction means for checking the relative motion of the two members.

17. A car body and a roof, each being a separate integral structure, the roof mounted on the body to move relatively thereto, and

means for preventing motion of the roof in response to slight shocks or straining of the car.

18. A car body and a roof, the latter
5 mounted on the former to move relatively thereto, and yielding means for checking the motion of the roof.

19. A car body, a roof mounted on the body to move relatively thereto, means for
10 limiting the motion, and yielding means for checking motion of the roof.

20. A car body, a roof mounted thereon to move relatively thereto, means for limiting the motion of the roof, means for checking
15 the side motion, means for creating a predetermined amount of friction between the roof and the car body, whereby motion of the roof relatively to the car is prevented when the car is subjected to slight shocks, but per-
20 mitted when the shocks increase in violence to a predetermined limit.

21. A car body, a roof separate therefrom mounted on the car body to move relatively

thereto, a flange on the roof fitting loosely over the car body to permit motion of the
25 roof relative to the car, the flange slotted horizontally, members on the car engaging the slots, and yielding members between the flange and the car body to take up the rela-
30 tive motion.

22. A car body, a roof separate therefrom mounted on the body to move relatively thereto, a flange on the roof fitting loosely over the car body to permit motion of the
35 roof relative to the car, the flange slotted horizontally, rollers on the car engaging the slots, leaf springs between the flange and the car body to limit the relative motion, and friction plates on the car body, and coöperat-
40 ing friction plates on the roof.

Signed by me at Baltimore, Maryland, this
8th day of September, 1908.

EMORY V. DONELSON.

Witnesses:

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T. A. LEE.