

L. B. BUCHANAN.
RAILWAY CAR.
APPLICATION FILED AUG. 25, 1914.

1,125,056.

Patented Jan. 19, 1915.

2 SHEETS—SHEET 1.

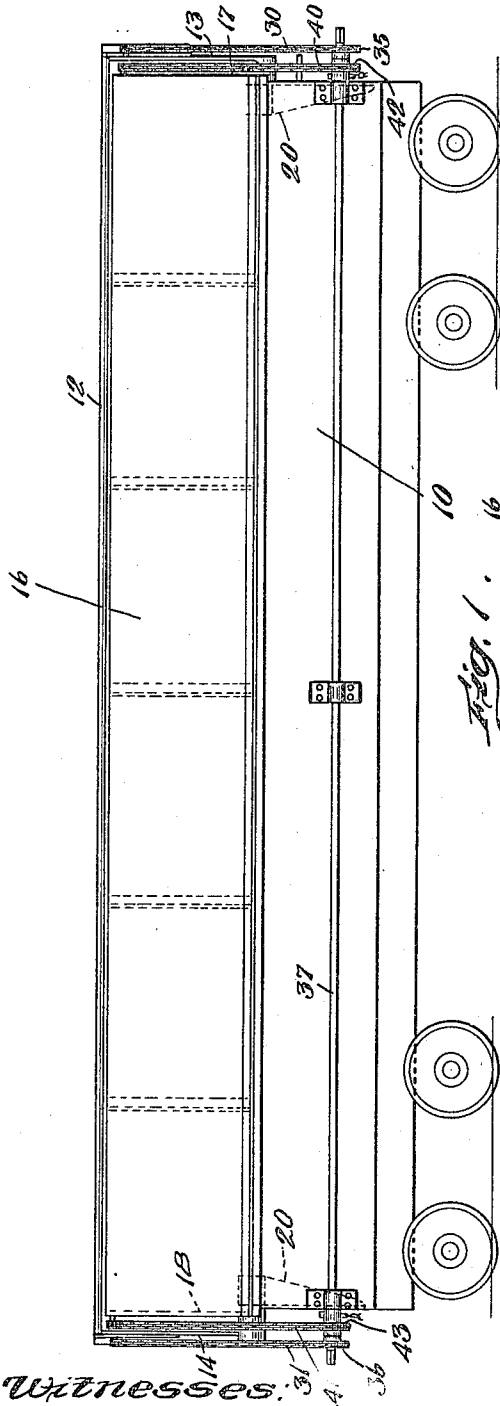


Fig. 1.

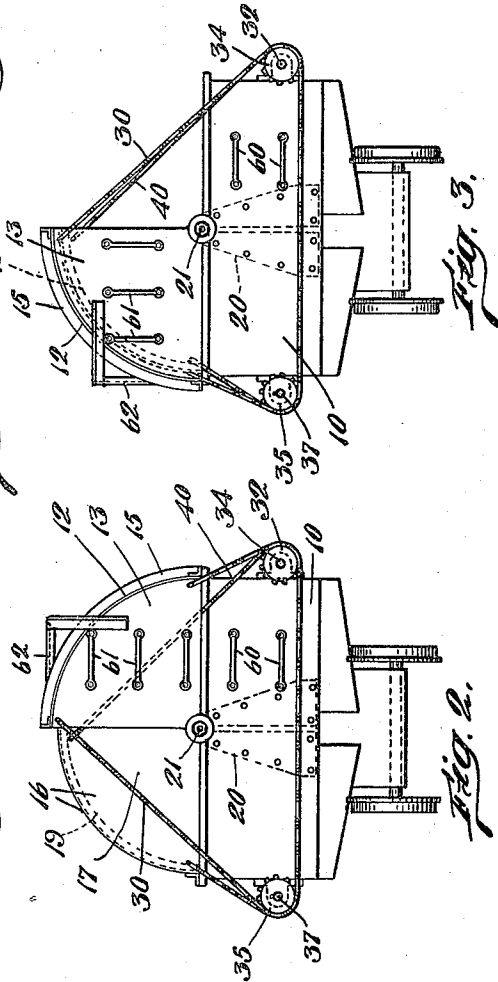


Fig. 3.

Fig. 2.

Witnesses:
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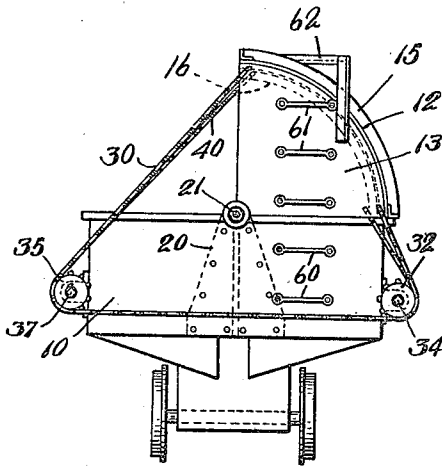


Fig. 4.

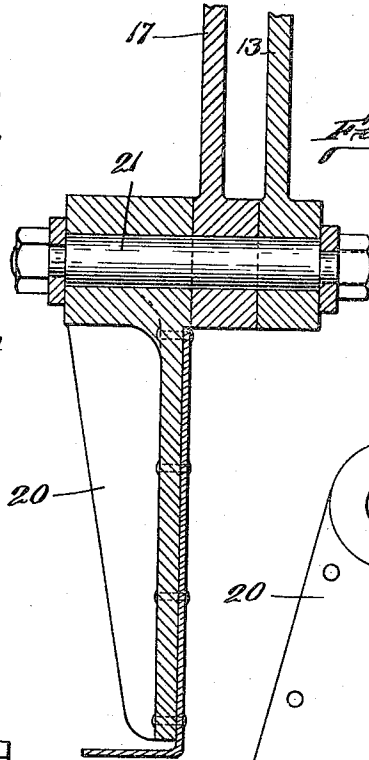


Fig. 5.

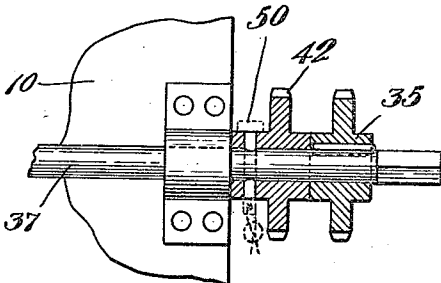


Fig. 7.

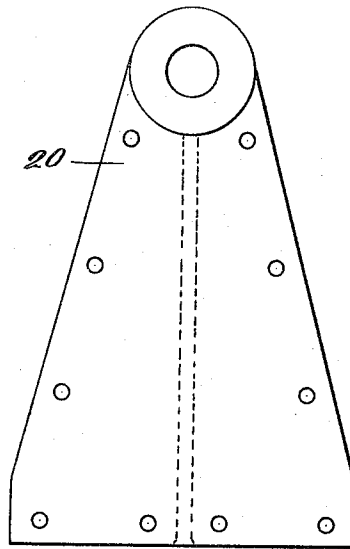


Fig. 6.

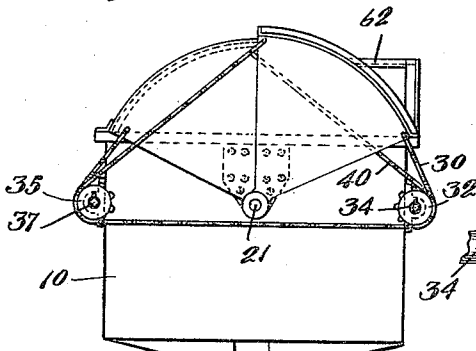


Fig. 9.

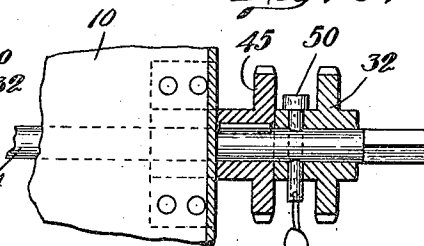


Fig. 8.

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UNITED STATES PATENT OFFICE.

LEONARD B. BUCHANAN, OF WOBURN, MASSACHUSETTS.

RAILWAY-CAR.

1,125,056.

Specification of Letters Patent.

Patented Jan. 19, 1915.

Application filed August 25, 1914. Serial No. 858,502.

To all whom it may concern:

Be it known that I, LEONARD B. BUCHANAN, a citizen of the United States, residing at Woburn, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Railway-Cars, of which the following is a specification.

Much difficulty is encountered by the railway companies in transporting coal, by reason of the fact that the coal is dislodged from the cars in transportation, and is also stolen, and the transportation company is obliged to make good the shortage. Open-topped cars are employed for this purpose, usually of a special design, to facilitate loading and unloading, and such cars offer a great temptation to thieves, and also when loaded to capacity, the coal is rounded up above the tops of the car-bodies and during transportation many pieces of coal are dislodged and are scattered along the road-bed and about the yard. Heretofore attempts have been made to provide covers for these cars, but, so far as I am aware, no cover has ever been adopted, notwithstanding the great need.

This invention has for its object the provision of a practical form of cover for an open-topped car, having operating-means connected with it at both ends, which operating-means is arranged for actuation at both ends of the car, and is connected with the component parts or sections of the cover at points remote from their axes, being the points of greatest leverage, thereby to admit of easy operation, and may be applied readily to the open cars now commonly used.

Figure 1 is a side elevation of the railway-car embodying this invention. Fig. 2 is an end-elevation of the same, both sections of the cover being in closed position. Figs. 3 and 4 are similar end-elevations, one section of the cover being in open and the other in closed position. Figs. 5 and 6 are enlarged detailed views of one of the pivot-supports for the sections. Figs. 7 and 8 are enlarged detailed views of one of the end-ports of the operating-shafts with sprocket-wheels thereon. Fig. 9 is an end-elevation of a railway car having a modified form of cover. Fig. 10 is a detail of one of the operating shafts bearing sprocket-wheels.

The car-body 10 is of any well-known or suitable construction. The cover for the top of the car-body involving my invention comprises two quarter-sections of similar shape, but of different dimensions, one being made smaller than the other to admit of movement of one within the other. The larger quarter-section, which serves as the outer section when the sections are so moved, consists of the cylindrical body 12, having sector-shaped end-portions 13, 14, and a plurality of reinforcing ribs 15 arranged transversely on the outside of said body. The smaller quarter-section which serves as the inner section, consists of a cylindrical body 16, having sector-shaped end-portions 17, 18, and a plurality of reinforcing ribs 19, see dotted lines Fig. 2 arranged on the inside of said body. The length of the body 16 is less than the length of the body 12 of the larger section, and the radii of the end-portions 17, 18, are less than the corresponding radii of the end-portions 13, 14, of said larger section, permitting movement of the smaller section within said larger section. These quarter-sections are substantially coextensive with the length of the car-body, and the combined radii of the two quarter-sections are substantially equal to the width of the car-body, so that the two quarter-sections may be arranged to entirely cover the open top of the car-body, but will not extend beyond the sides or ends thereof, and such dimensions, it will be observed, enable the quarter-sections to rest upon the upper edge of the car-body, when in either closed or open position.

The quarter-sections are pivotally connected at their ends to the ends of the car-body, and, as here shown, at each end of the car-body a stanchion 20 or other substantial support is arranged, which is secured to the end of the car-body, preferably at the inside, and which extends a short distance above said body, and a pivot-stud 21, is arranged on said extension which projects outward a short distance. Both quarter-sections are loosely mounted on said pivot-studs, and are free to be moved thereon independently of each other.

Separate operating-means are provided for each quarter-section, which, as here shown, is only one of the many forms which may be employed, but is well suited to the

purpose, and, therefore, forms an important feature of my invention. The operating-means for each quarter-section is arranged for connection with both ends of the section which it is designed to operate, and on account of the great length of the sections this is of importance. The operating-means for both sections are, however, substantially alike. Referring to the operating-means for the larger quarter-section two sprocket-chains 30, 31, are provided, one at each end of the section, and said chains are attached at their ends to the ends of the sections, respectively, at points remote from their axes, being the points of greatest leverage, and said chains pass over idle sprocket-wheels 32, 33, loosely mounted upon a shaft 34, which is supported along one side of the car-body in suitable bearings, and said chains also pass over sprocket-wheels 35, 36, secured to a shaft 37, which is supported along the other side of the car-body, in suitable bearings, and said shaft 37 has squared end-portions to receive a crank or other tool by which it may be turned, thereby to rotate the sprocket-wheels 35, 36, and thus to move the sprocket-chains to correspondingly move the quarter-section on its pivot-studs. By placing the fixed sprocket-wheel for the sprocket-chain of the larger quarter-section on shaft on that side of the car where such larger section normally rests when the car is closed, and its idle sprocket-wheel on the other shaft. It will follow that the larger section may be opened by the shaft on the side of the car which is to be uncovered, which in some cases may be a convenience, but the arrangement first above suggested is deemed preferable. In Fig. 2 said larger quarter-section is shown in closed position and when moved a quarter of a circle into the position shown in Fig. 3, is brought into its open position, and a half-portion of the top of the car-body is uncovered. However, the entire top of the car-body is at such time accessible, as the other quarter-section merely extends over the other half-portion of car-body, like unto a hood.

Referring to the operating-means for the smaller quarter-section two sprocket-chains 40, 41, are provided one at each end of the section, and said chains are attached at their ends to the ends of the section, respectively, at points remote from their axes, being the points of greatest leverage, and said chains pass over idle sprocket-wheels 42, 43, loosely mounted upon the shaft 37, and also over sprocket-wheels 45, 46, secured to the shaft 34, and said shaft 34, has squared end-portions to receive a crank or other tool by which it may be turned, thereby to rotate the sprocket-wheels 45, 46, and thus move the sprocket-chains to correspondingly rotate the quarter-section on its pivot studs. In Fig. 2 said quarter-section is shown in

closed position, but when moved through an arc of say 90°, as represented in Fig. 4, is brought in its open position, and at such time uncovers the other half-portion of the top of the car-body.

One of the great advantages of the form of operating-means here shown is the connection with the sections at points remote from their axes, which are the points of greatest leverage, thereby facilitating the movement of the sections in both directions, but the particular construction of the operating-means may be varied, yet still comprehending this feature, without departing from my invention.

A simple means for locking the quarter-sections in closed position is here shown, consisting in forming holes transversely through the hubs of the idle sprocket-wheels and the shafts on which they are mounted, which holes receive pins 50, see dotted lines Fig. 7, and said pins may be sealed in any well-known manner.

In Fig. 9, wherein a modification of my invention is shown, the pivot-studs for the quarter-sections are arranged at the ends of the car-body, but some distance below the top thereof, and in such case the sector-shaped end-portions of the quarter-sections are made of longer radius to provide for mounting them upon said pivot-studs.

On one or both ends of the car-body a plurality of rounds 60 may be arranged, one above the other, and equally spaced apart, and upon the end-portions of the larger quarter-section like rounds 61 may be arranged, one above the other, and all said rounds will be in vertical alinement, and on top of said larger quarter-section a platform 62 may be arranged which may be co-extensive with the length of the section. This provision enables a person to mount the top of the car and walk along therein.

In addition to the advantages hereinbefore set forth, it will be observed that owing to the close proximity of the smooth curved walls of the quarter-sections no spaces are afforded for pieces of coal to enter and become lodged between them, thereby clogging or restraining relative movements of the sections. Furthermore, the car may be loaded from an ordinary tipple spout at either side, and may be unloaded by any of the usual methods without interference. Furthermore, in no position of the quarter-sections do they extend beyond the vertical planes of the sides of the car, so that in case either section should accidentally become unlocked and displaced in transit, no danger to a car on an adjacent track would result.

I claim:—

1. In a railway car, the combination with a car-body of two quarter-sections arranged at the top and extended lengthwise of the

car-body and pivotally connected to the ends of said body to form a cover, the outer side of each section being arranged to occupy a position substantially flush with the edge of the car-body when in closed position, one of the sections being made smaller than the other and separate operating-means connected with said sections at points remote from their axes and arranged for actuation at both ends of the car-body, substantially as described.

2. In a railway car, the combination with a car-body, of two quarter-sections arranged at the top and extended lengthwise of the car-body and pivotally connected to the ends of said body to form a cover, each section comprising a cylindrical body and sector-shaped end-portions, one of said sections being made smaller than the other and the smaller section having reinforcements on the inside of its cylindrical body and the larger section having reinforcements on the outside of its cylindrical body, whereby said sections are permitted to move one within the other in close relation, and operating-means for said sections, substantially as described.

3. In a railway car, the combination with a car-body, of two quarter-sections arranged at the top and extended lengthwise of the car-body and pivotally connected to the ends of said body to form a cover, one of said sections being made smaller than the other, permitting movement thereof one within the other, and separate operating-means for each section which is connected with both ends thereof, at points remote from their axes, substantially as described.

4. In a railway car, the combination with a car-body, of two quarter-sections arranged at the top and extended lengthwise of the car-body and pivotally connected to the ends of said body to form a cover, one of said sections being made smaller than the other, permitting movement thereof one within the other, and separate operating-means connected with said sections at both ends thereof at points remote from their axes, and arranged for actuation at both ends thereof, substantially as described.

5. In a railway-car, the combination with a car-body, of two quarter-sections arranged at the top and extended lengthwise of the car-body, and pivotally connected to the ends of said body to form a cover, one of said sections being movable within the other, shafts arranged along the sides of the car-body bearing fixed and idle sprocket-wheels, and sprocket-chains passing over said sprocket-wheels which are attached to said sections, at points remote from their axes, whereby said sections are movable on their pivots upon rotation of said shafts, substantially as described.

6. In a railway car, the combination with

a car-body, of two quarter-sections arranged at the top and extended lengthwise of the car-body and pivotally connected to the ends of said body to form a cover, and movable one within the other, operating-means for said sections, and locking-means associated with said operating-means for locking the sections in closed position, substantially as described.

7. In a railway car, the combination with a car-body, of two quarter-sections arranged at the top and extended lengthwise of the car-body and pivotally connected to the ends of said body to form a cover, and movable one within the other, rungs arranged on the end of the car-body and rungs arranged on the end of one of the quarter sections, in alinement with the rungs on the car-body, substantially as described.

8. In a railway car, the combination with a car-body, of two quarter-sections arranged at the top and extended lengthwise of the car-body and pivotally connected to the ends of said body to form a cover, rungs arranged on the ends of the car-body, rungs arranged on the end of one of the quarter-sections in alinement with the rungs on the car-body, and a platform arranged on one of the quarter-sections and extended throughout its length, and operating-means for the sections, substantially as described.

9. In a freight car, a semi-cylindrical top with closed ends composed of two concentric quarter-sections, one of slightly less radius and length than the other, adapted to be turned to rest within the larger, that of larger radius being adapted to be turned and rest outside of that of smaller radius, means adapted to exert a turning pull at the circumference of each section to turn such section a quarter circle to nest with the other and open the car or return it to its normal position to close the car, such means being adapted to permit the speed of movement to be controlled, substantially as described.

10. In a freight car, a semi-cylindrical top with closed ends composed of two concentric quarter-sections, one of slightly less radius and length than the other, adapted to be turned to rest within the larger, that of larger radius being adapted to be turned and rest outside of that of smaller radius, two shafts, one running lengthwise of each side of the car, each shaft being adapted to be turned by a turning device applied at either end thereof and bearing fixed and loose sprocket-wheels, a sprocket-chain attached near each end of each section at the circumference thereof, the chains of one section passing over the fixed sprocket-wheels of one shaft and the idle sprocket-wheels on the other shaft, while the sprocket-chain connected with the other section passes over the idle sprocket-wheel of the first-named

shaft and the fixed sprocket-wheel of the
other shaft, so that the section to be opened
may be opened by a turning force applied
at either end of the shaft to which the fixed
5 sprocket-wheel bearing its sprocket-chain is
attached, substantially as described.

In testimony whereof, I have signed my

name to this specification, in the presence of
two subscribing witnesses.

LEONARD B. BUCHANAN.

Witnesses:

B. J. NOYES,

H. B. DAVIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."