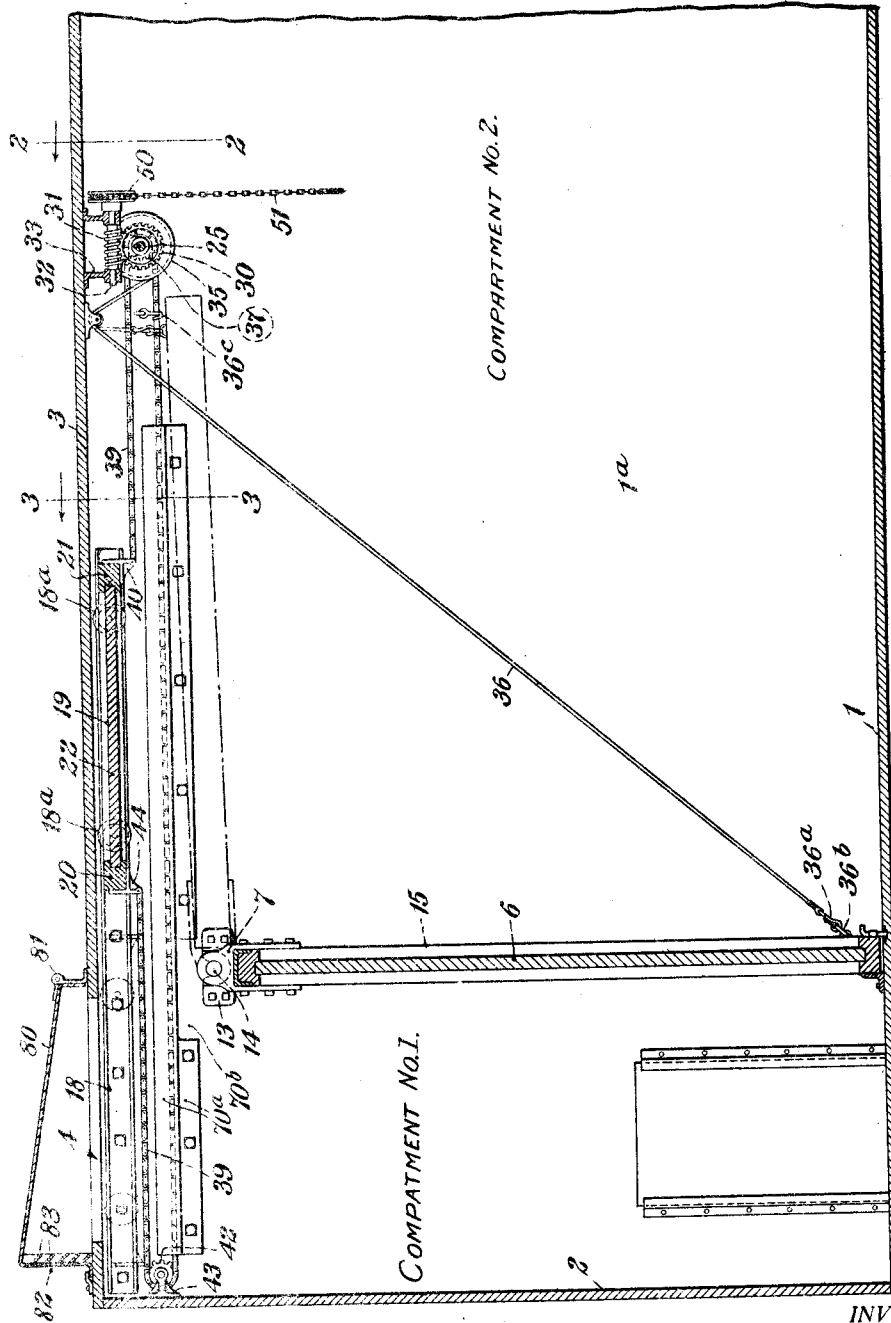


F. H. GIBBS.
 COMPARTMENT RAILWAY CAR.
 APPLICATION FILED NOV. 25, 1914.

Patented Aug. 1, 1916.
 2 SHEETS—SHEET 1.

1,193,254.



WITNESSES:
James H. Stinson
Wm. H. Seaman

Fig. 1.

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Fig. 2.

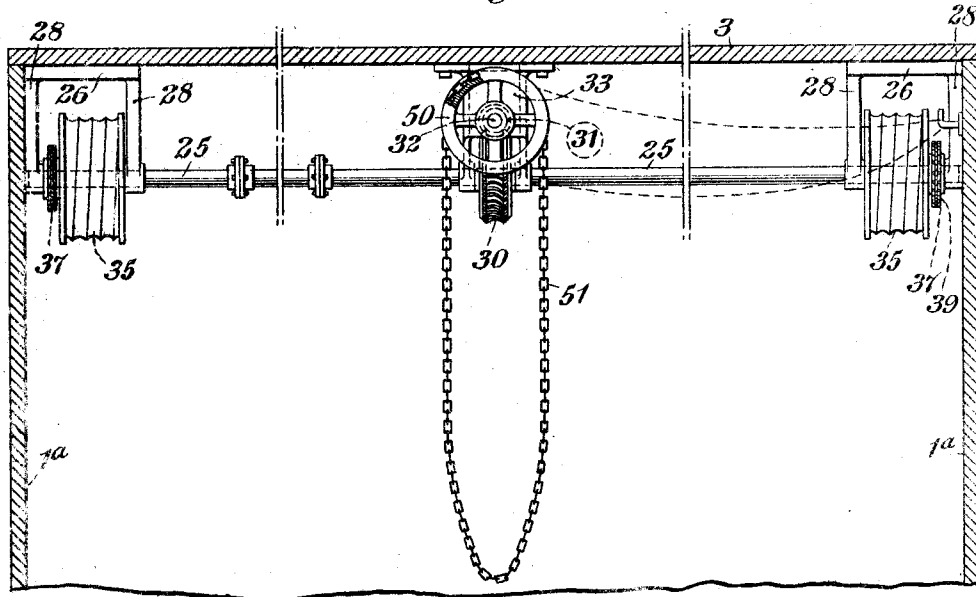


Fig. 4.

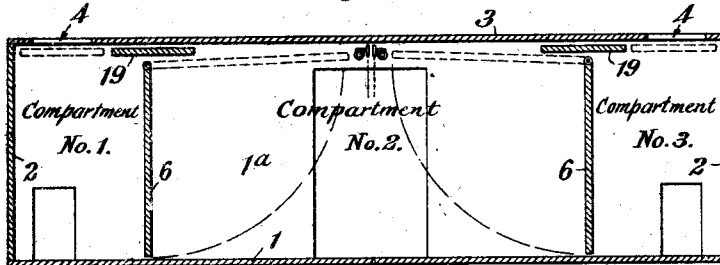


Fig. 5.

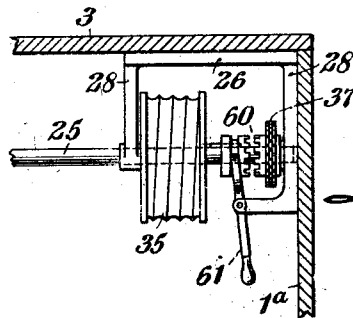
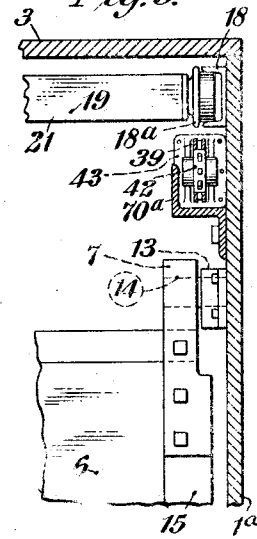


Fig. 3.



WITNESSES:
James H. Lusk
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UNITED STATES PATENT OFFICE.

FREDERICK H. GIBBS, OF NEW YORK, N. Y.

COMPARTMENT RAILWAY-CAR.

1,193,254.

Specification of Letters Patent.

Patented Aug. 1, 1916.

Application filed November 25, 1914. Serial No. 873,993.

To all whom it may concern:

Be it known that I, FREDERICK H. GIBBS, residing at New York city, county, and State, and being a citizen of the United States, have
5 invented certain new and useful Improvements in Compartment Railway-Cars, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and
10 to use the same, reference being had to the accompanying drawings, which illustrate the preferred form of the invention; though it is to be understood that the invention is not limited to the exact details of construction
15 shown and described, as it is obvious that various modifications thereof will occur to persons skilled in the art.

In said drawings: Figure 1 is a vertical longitudinal sectional view of one end of
20 a car body equipped with the invention; Fig. 2 is a transverse view of Fig. 1, taken on line 2—2 of Fig. 1; Fig. 3 is a fragmentary enlarged detail view of parts which would be shown in a sectional view, the section taken
25 on line 3—3 of Fig. 1; Fig. 4 is a diagrammatical illustration of a car body showing position of the bulkhead and closure herein-after described; Fig. 5 illustrates a detail modification.

30 The invention comprises a car body primarily adapted to carry lading which may be of different kinds, such as package goods and grain, or any kinds of commodities which owing to their nature are best separated to
35 a greater or less extent during shipment.

The invention contemplates a structure in which the interior of the car body, preferably between the end walls, is separated, by means of a movable bulkhead or bulkheads, into a
40 plurality of compartments of which that near the middle of the car body shall be adapted to receive lading through the side door or doors which are usually near the middle of the length of the car and that
45 compartment, or the pair of compartments, near the ends shall receive lading through other openings, as for example, through the roof of the car body.

While it may be an advantage to divide
50 freight for better preservation during shipment it is also advantageous to adapt the car to receive a full load in a single compartment extending from end wall to end wall.

55 The end compartment interior will be practically inaccessible from the interior

middle compartment after the movable bulkheads hereinafter referred to are in vertical position, hence it is preferred that the openings leading to such end compartments shall
60 be automatically uncovered while the bulkheads dividing the end and middle compartments are being moved to vertical positions so as to leave unguarded from the interior such roof openings so that grain, coal, or any
65 suitable material may be passed through the roof openings to the interior of the end compartments, after which, if desired, any suitable outer roof covering (not shown) may be placed in position to close the ingress
70 openings to such end compartments, or the closure herein referred to may be caused to register with the roof opening.

If desired, the lading in the middle compartment of the car may be first removed
75 and the bulkheads lifted so as to afford ready access to the lading in the end compartments, or such lading may be removed in any other suitable manner, as through bottom drop doors (not shown) or through side
80 doors.

The roof openings being preferably automatically uncovered from the interior while the bulkheads are being placed in vertical positions, it becomes desirable to close such
85 openings when the bulkheads are being elevated to merge the interior compartments into a single compartment extending from end wall to end wall, and to this end means are provided for swinging the bulkheads
90 from their vertical positions to relatively horizontal positions near the roof and above the ordinary load line, and associated means are provided for moving the closures for the
95 roof openings into registry with such roof openings preferably during the time the bulkheads are being swung from such vertical positions to other positions above the load line, or near the roof of the car.

It is to be understood that the invention
100 contemplates broadly a swinging bulkhead or partition and a closure connected therewith in such manner that swinging the bulkhead from vertical to horizontal position will automatically actuate the closure in a
105 suitable direction to place the closure in proper position with relation to the opening leading to the end compartment, and while I have illustrated convenient means for automatically actuating a closure by means
110 adapted to actuate a bulkhead, it is to be understood that the closure may be actuated

in either direction independently of the bulkhead by merely disconnecting the cables, shown, from such bulkhead before rotating the driving shaft by the means hereinafter described.

Thus the bulkhead may be lifted and the closure subsequently opened and closed independently of the movement of the bulkhead while the bulkhead is locked in elevated position by suitable engaging means, or the closure may be closed and opened while the bulkhead is in vertical position.

The bulkhead may be raised and lowered, if desired, without causing movement of the closure.

The closure for the roof opening may be perforate and positioned, as indicated in the accompanying drawings, below the level of the roof proper and be associated with an outer roof or cover to shed rain, or it may be arranged to slide in any convenient position and be itself imperforate. As illustrated, it is adapted to travel longitudinally of the car body and under the normal car roof, diagrammatically shown, and means are provided to hold the closure in operative position.

The bulkhead may be elevated by any convenient means, or manually if desired, and the closure may be of any desired form though for convenience it is preferred that the closure shall consist of a slide adapted to travel over the top of the bulkhead during movement of the latter and be capable of operative connection with the bulkhead so that lifting the bulkhead to position above the normal load line will automatically cause the proper movement of the closure.

Referring to the parts 1, 3, 1^a and 2 indicate, respectively, the car floor, roof, side walls and end walls. Preferably at each end of the car the roof is provided with an opening 4 of sufficient area to permit the insertion therethrough of a grain conduit, or of large pieces of coal, ore, or any suitable material.

Secured to the side walls 1^a are channel-shaped trackways 18 having their flanges projected inwardly, and mounted in position to travel on said trackways are rollers 18^a, which carry relatively rectangular carriages, slides or closures 19, which are of an area sufficiently larger than said openings to insure complete registration of the slides or closures with such openings when desired to thus close the openings.

The closures preferably ride below the top flanges of the channels and extend between the top and bottom channel flanges, thereby utilizing the channels as supports and guides for the closures, as well as providing means to prevent vertical displacement of such closures.

Suitably supported in the car body is a bulkhead or partition 6 which may be dupli-

cated at opposite ends of the car, if desired, or one or more bulkheads may be positioned near the middle door so as to divide the interior of the car body into two or more equal or unequal compartments, as may be desired.

To support the bulkhead 6 castings 13 are provided, said castings having recesses in their upper side in which are seated the trunnions 14, extending from the castings 7, embracing the upper end of and bolted to the bulkhead. Said trunnions serve as supporting pivots on which the bulkhead or bulkheads are adapted to swing from the vertical position shown in Figs. 1 and 4 to the approximately horizontal positions indicated by dotted lines in such figures.

The bulkhead may be of any preferred construction and is shown as comprising vertical posts 15 with an intermediate wall or filler which, it will be noted, terminates intermediate the floor and the operating mechanism hereinafter described, so that the slide or closure may pass above the top of the bulkhead in its movement fore and aft.

Extending longitudinally of the car body, one at each side, are the channel-shaped trackways 18, on which slides the carriage 19, which comprises transverse end members 20 and 21, in which are seated the panel member 22 of said carriage. Extending transversely of the car is a shaft 25, which is supported near its opposite ends in brackets 26, preferably secured to the roof lining or inner roof.

The brackets 26 comprise the depending leg portions 28, which are in alinement and are provided with suitable bearings for supporting said shafts 25.

Secured on the shaft 25 are suitable drums 35, on which may be wound the cable 36, which is connected by snap hooks 36^a with rings 36^b secured to the lower portion of said bulkheads 6 so that rotation of the shaft may rotate the drums, wind the cables thereon and elevate the lower ends of the bulkheads.

Carried on the shaft 25 near each end thereof is a sprocket wheel 37, preferably fast on said shaft and rotatable therewith. Adapted to be actuated by the sprocket wheels 37 are sprocket chains 39, which are each connected at one end with a depending bracket 40 on said carriage, said chains passing around the sprockets 37, thence toward the end of the car around the idler sprockets 42, which may be, as shown, supported by bracket 43, attached to the end wall, or in any suitable manner, so that the sprocket chains may pass over said sprockets 42 and thence to the brackets 44 attached to and depending from the end of said carriage or closure.

The shaft may be actuated in any suitable manner, but, for convenience, I have shown a chain-driven worm and worm-wheel which

is attached to the shaft 25, as indicated in Figs. 1 and 2, in which a chain-wheel 50 is adapted to be rotated by means of the links of the chain 51 nesting into pockets in the periphery of said wheel to cause rotation thereof. The chain-wheel is adapted to drive the worm 31, meshing with the worm-wheel 30, and said worm is formed on the short shaft 32, which is supported in a suitable bracket 33, connected to the roof or inner lining of the car in any suitable manner, said brackets also supporting the middle portion of shaft 25. Pull on the chain 51 in either direction will cause rotation of the wheel 50 in a corresponding direction, thereby rotating the worm and worm-wheel, before indicated.

Assuming the parts are in the position indicated in full lines, rotation of the wheel 50 in the proper direction will, through the worm and worm-wheel, cause rotation of the shaft 25, whereupon the cable 36 will normally wind on the drum 37, lifting the bulkhead to the dot and dash position indicated in Fig. 1, at the same time rotating the sprockets 37 and driving the sprocket-chain in proper direction to automatically propel the carriage or closure to position in registration with the opening 4, indicated in the roof.

Under normal conditions, assuming the pitch of the worm and worm-wheel teeth is correct, there will be sufficient friction therebetween to prevent the bulkhead again falling to vertical position and no bulkhead supporting latch near the middle of the car will be required, but for convenience of independent operation of the closure, means are provided for locking the bulkhead in its elevated position, said means consisting of a hook 36^c, suitably supported and adapted to engage the ring 36^b, before mentioned.

When the bulkhead is locked in its elevated position and when it occupies a vertical position, the carriage or closure may be actuated independently of the bulkhead by merely disengaging the snap hooks 36^a from the rings 36^b, so that the shaft 25 may rotate without pulling on the bulkhead through cable 36.

To support and guide the sprocket chains intermediate the idler 43 and the shaft 25, a Z-shaped section 70^a either rolled or pressed, is secured to each side wall of the car and, as shown in Fig. 1, this guideway extends preferably unbroken from end to end except that at 70^b the lower attaching flange is cut away to permit clearance for the trunnions supporting the bulkheads in case it may be desirable to remove such bulkheads for any purpose.

If desired, clutches as 60, or of any suitable type, may be provided on the shaft 25 in proximity to the sprocket wheels 37, so that the sprockets may be permitted to ro-

tate idly on shaft 25 and permit manipulation of the bulkhead through the lifting means described without causing movement of the closures. Fig. 5 illustrates such modification, in which 60 indicates a two-part clutch on shaft 25, one part of the clutch being connected to a sprocket wheel 37 and the other part being movable under control of the lever 61, which may be supported from the bracket, or in any suitable manner.

Thus the device may operate to automatically actuate the closure during swinging movement of the bulkhead or, by the same shaft and shaft driving means, the bulkhead and the closure may be independently actuated as may be desired.

In Fig. 1 is illustrated a ventilator 80 connected to the car roof by suitable hinges 81 so that it may be thrown, on its hinges, over toward the middle portion of the roof and thereby afford access to the roof opening 4 when desired. No claim is made to the details of construction of the ventilator, which includes a screen 82 and slats 83, shown merely to illustrate one of the uses of the roof opening 4. In this connection it may be well to note the fact that the increase in metal car construction has increased the need of suitable means for ventilating the interior of such cars, and the combination of a fixed ventilator structure and a movable damper—as the closure 19—affords convenient means for regulating the ventilation of the car body of this application, there being ample space for circulation of air over the bulkhead after entering the car-body through the ventilator.

The construction of the car body walls, floor and roof may be of any suitable design, and it is to be understood that the present illustration thereof is merely diagrammatical, the invention residing in means adapted for use in any suitable type of the car, no matter for what purpose it may be used or what may be its details of construction.

It is obvious that the slide or closure may be used in a structure in which there are no bulkheads, and it is equally obvious that the bulkhead may be used in a structure from which the slide or closure is omitted and either or both may be operated by the specific actuating means herein described and claimed so far as such means relates to the bulkhead or closure operation.

The motor employed for lifting the bulkhead in the present instance comprises the worm-gearing and shaft 25, hereinbefore described. This is supported in position near the roof of the car and above the normal load line, so as to leave the entire interior portion at the floor and sides of the car, as high as lading is carried, free from all obstructions. An added advantage in placing

the motor in the middle compartment, above the load line, is that the motor is accessible though the bulkheads occupy vertical positions, and the closures for the ventilator openings 4 may be manipulated from such middle compartment.

What I claim is:

1. In a railway car body, a swinging bulkhead adapted to divide said body into a plurality of compartments, a closure adapted to register with an opening leading to one of such compartments, and operating means adapted to synchronize movement of said bulkhead and closure.
2. In a railway car body, a swinging bulkhead, a closure adapted to register with an opening in the roof of said car body, and synchronically operated means adapted to lift said bulkhead and to actuate said closure.
3. In a railway car body, a swinging bulkhead, a closure synchronically operable therewith, and a motor adapted for individual operation of said bulkhead or said closure.
4. In a railway car body, a swinging bulkhead, a synchronically slidable closure, and means adapted to operate either one of them without causing movement of the other.
5. In a railway car body, a bulkhead adapted to divide said car body into a plurality of compartments, a closure for an opening in one of said compartments, and worm-driven means adapted to actuate either said bulkhead or said closure independently of the other.
6. In a railway car body, a bulkhead adapted to divide said body into a plurality of compartments, a closure adapted to register with an opening in the roof of said car body, and worm-driven means adapted to actuate said closure, said means also being adapted to lift said bulkhead to a position near said roof.
7. In a railway car body, a swinging bulkhead adapted to divide said car body into a plurality of compartments, a closure for an opening in a roof of said car body, a shaft, and means operably connected with said shaft adapted to cause differential movement of said bulkhead and closure.
8. In combination, a car body, means adapted to divide it into a plurality of compartments, means adapted to register with an opening in the roof of the car body, and means adapted to synchronically actuate said first mentioned means in one direction and the second mentioned means in another direction.
9. In combination, a bulkhead adapted to occupy a vertical position and to occupy a horizontal position, a member adapted to traverse a path relatively above said bulkhead and to register with an opening in the roof of a car, and a motor operatively connected with said bulkhead and member and

adapted to lift said bulkhead from vertical to horizontal position and to cause said member to register with said opening.

10. In a railway car, a suitably supported motor including a worm and worm wheel, a chain driven wheel operatively connected with said worm, and a bulkhead with which said motor is operatively connected.

11. In a car body, a bulkhead adapted to occupy a position near the top of said body, a member adapted to traverse a path above said bulkhead, a motor supported in position above the space in said body to be occupied by lading, and means operatively connecting said bulkhead and said member.

12. In a railway car, a bulkhead adapted to occupy both vertical and relatively horizontal positions therein, a closure for an opening in said car, a worm driven motor, and flexible means connecting said bulkhead and closure with said motor to permit operation thereof by said motor.

13. In a railway car body, a partition adapted to separate said body into different compartments, a motor in one compartment, and a closure adapted to be actuated by said motor to traverse a predetermined path in another compartment.

14. In a car body, a roof with openings therein, end walls, a pair of bulkheads adapted to divide said body into three compartments intermediate said end walls, means adapted to lift said bulkheads to positions near the roof, thereby producing a single compartment extending from end wall to end wall, and closures for said roof openings operatively connected with the means adapted to lift said bulkheads.

15. In a railway car, side and end walls and a roof with an opening therein, a bulkhead adapted to divide said car into a plurality of compartments intermediate said end walls, a slidable closure for said roof opening, a shaft operatively connected with said bulkhead and with said closure, and a worm-gear operatively connected with said shaft.

16. In a car body, a vertically disposed bulkhead adapted to divide said body into a plurality of compartments, a closure for an opening in one compartment, and means operable in another compartment adapted to move said closure while said bulkhead is fixedly held in position.

17. A car body divisible into end compartments and a middle compartment, bulkheads adapted to so divide said car body, closures for openings leading to said end compartments, and means in said middle compartment adapted to move said closures relatively to said openings while the bulkheads are held in fixed positions.

18. In combination in a railway car, spaced side walls having a door opening, a shaft extending transversely of said car and

positioned vertically above said opening, a worm-wheel on said shaft, a worm in mesh with said worm-wheel, a driving wheel on said worm shaft, a partition extending between said side walls, and means connecting the partition with said shaft whereby the partition can be lifted upon rotation of the driving wheel.

19. In combination in a railway car, spaced side walls and a roof, a bracket depending from said roof, a worm and a worm-wheel rotatably supported in said bracket, a driving wheel connected with and adapted to drive the worm, a shaft extending transversely of the car through said worm-wheel, a partition extending trans-

versely of the car and means connecting the shaft and partition.

20. In combination in a railway car, side and end walls, and a roof having an opening for ventilation, a ventilated cover for said opening above said roof, a closure for said opening within the car, a bulkhead pivotally supported between said side walls and lifting means adapted to lift said bulkhead to position near said roof.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

FREDERICK H. GIBBS.

Witnesses:

S. W. TUTTLE,
H. C. WICK.