

H. C. PRIEBE.
VEHICLE.

APPLICATION FILED MAY 6, 1909.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.

978,203.

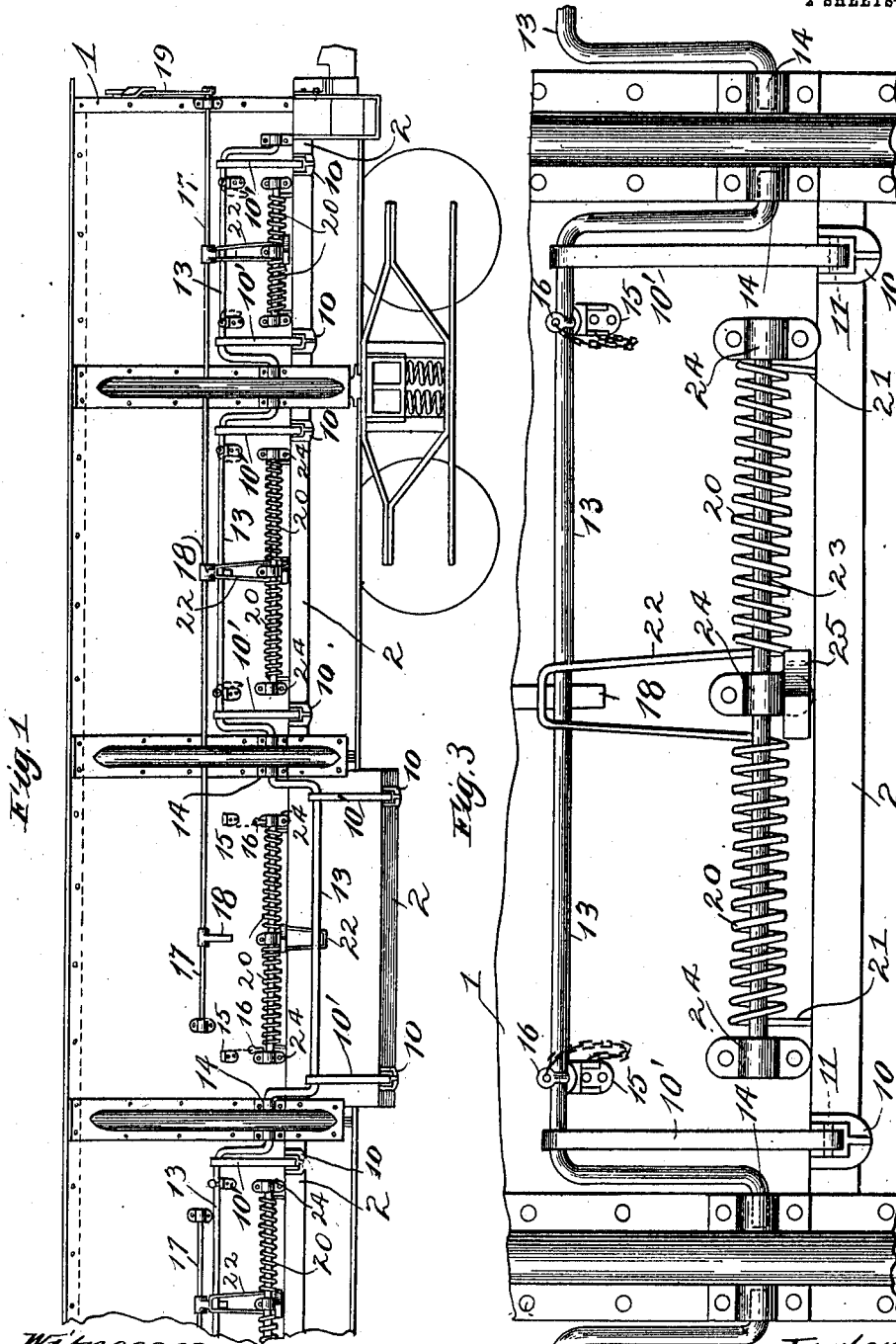


Fig. 1

Fig. 3

Witnesses:

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Inventor:

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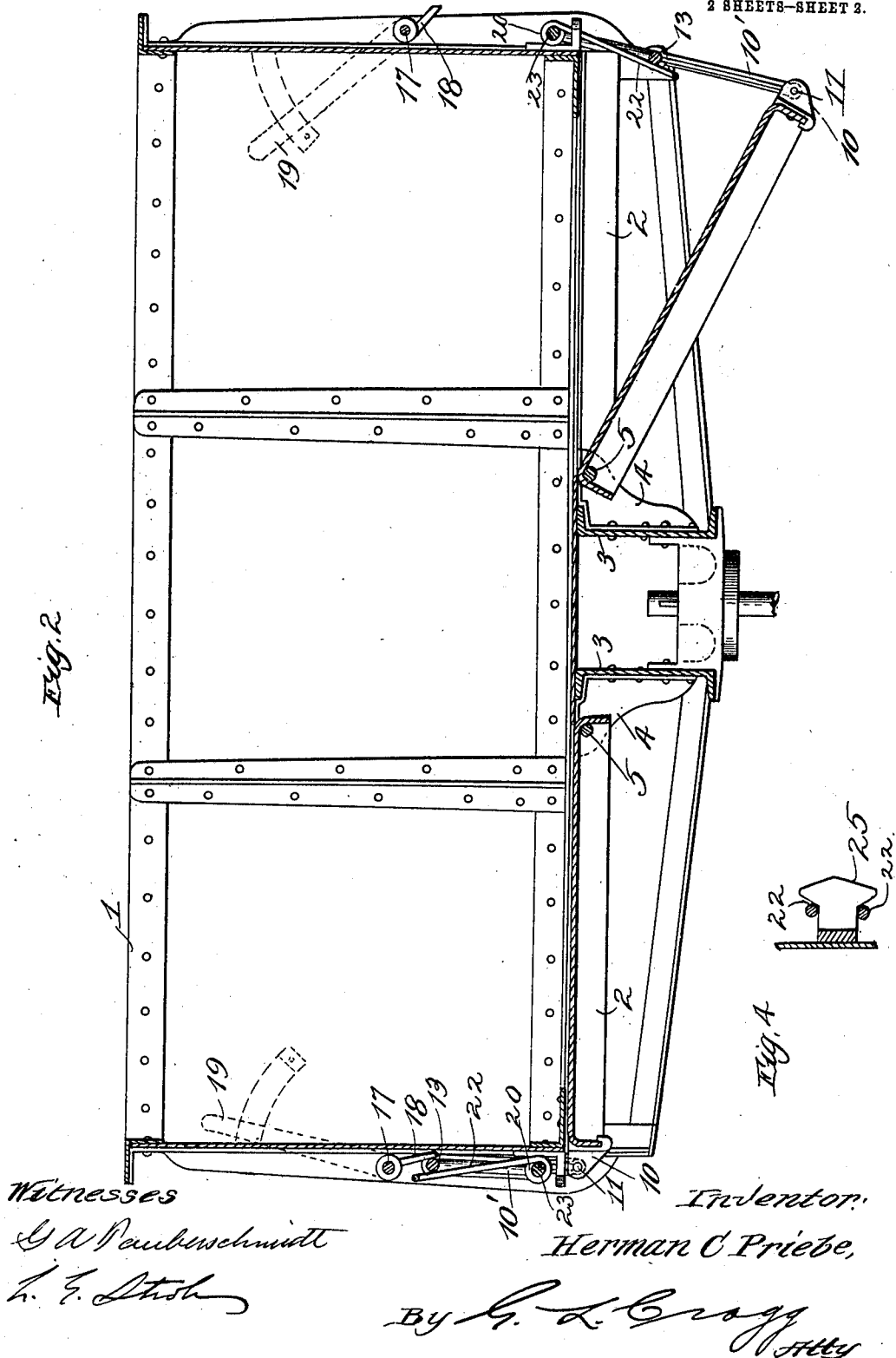
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Witnesses

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UNITED STATES PATENT OFFICE.

HERMAN C. PRIEBE, OF CHICAGO, ILLINOIS.

VEHICLE.

978,203.

Specification of Letters Patent. Patented Dec. 13, 1910.

Application filed May 6, 1909. Serial No. 494,460.

To all whom it may concern:

Be it known that I, HERMAN C. PRIEBE, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Vehicles, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to vehicles in which swinging floor sections are provided, whereby the vehicle contents may readily be discharged.

The invention finds its most wide application in connection with railway dump cars, though I do not wish to be limited to this application of my invention in all embodiments thereof. Inasmuch as the invention finds its most general application to railway vehicles, I will describe one embodiment thereof by reference to a railway vehicle constructed in accordance therewith.

In practicing my invention, I employ mechanism for opposing the descent of the floor sections, and, in the preferred embodiment of the invention, including a spring portion which is subject to winding action when an associate floor section is being lowered, whereby energy is stored in said spring portion that may be of service in restoring the floor section when the load has been discharged.

I have adapted my invention to the type of vehicle illustrated in my co-pending application Serial No. 439,509, filed June 20, 1908, many of the structural characteristics shown in my present application forming the subject matter of claims in my said co-pending application, the claims in my present application being addressed to my more recently invented mechanism that is associated with the floor sections for the purpose of resisting the opening action of the floor sections, for closing the floor sections, and for other purposes which will appear.

I will explain my invention more fully by reference to the accompanying drawings, showing the preferred embodiment thereof, in which—

Figure 1 is a side elevation of a part of a gondola car constructed in accordance with one embodiment of the invention, some of the structural details of the car being omitted, as they are not essential to an understanding of the invention. Fig. 2 is a

view in cross-section of the structure illustrated in Fig. 1, some of the parts being omitted. Fig. 3 is a view on an enlarged scale of some of the parts illustrated in Figs. 1 and 2. Fig. 4 is a view upon a larger scale, of a locking device as employed to retain a floor section in its depressed position.

Like parts are indicated by similar characters of reference throughout the different figures.

In accordance with American practice, I have shown a gondola car 1 which is of considerable length, as is well known, on which account the floor is subdivided into a plurality of swinging sections 2, a number of these sections being disposed upon each side of the car, though I do not wish to be limited in all embodiments of my invention to a plurality of floor sections. The inner end of each floor section is hinged to a center sill, there being illustrated two center sills 3 3, each of which is provided with hinge pintle-supporting blocks 4 4 that project laterally from the center sills and form a part of the means whereby the swinging sections are hinged to the center sills. Pintle rods 5 5 are provided in association with each center sill 3 and are received within cavities in the pintle-supporting blocks 4. The floor sections are preferably made of sheet metal and are deflected downwardly at their inner and outer ends, the inner marginal side portions of the floor sections thus formed cooperating with the top portions of the floor sections to constitute a seat for the pintle rod 5 which finds lodgment in the corners formed of the top and inner side portions of the floor sections, all as set forth in my said co-pending application. The downturned marginal portions of the sheet metal forming the swinging floor sections serve to counteract the end thrusts that might be imposed upon the floor sections by sudden impact.

Upon the outside marginal portions of each floor section, I provide attachments 10, there being desirably two such attachments to each floor section, one near each transverse edge of each floor section. The attachments 10 include short pintles or shafts about which are journaled the lower ends of links 10¹ that are in the nature of pitman connections, the upper ends of the pitman connections 10¹ being journaled upon the eccentric portions or rods 13 of cranks that are journaled to rotate at 14.

By reference particularly to Fig. 2, it will

be observed that when a floor section is in a closed position, the crank element 13 lies closer to the car body than does the journal 14 for the crank mechanism, while the connection at 11 is included in a line with the element 13 that is interposed between the axis of rotation at 14 and the side of the car, so that there is no tendency for the crank element 13, when properly positioned, to work outwardly, but, on the other hand, there is a tendency for the said shaft element 13 to press against the side of the car, when properly positioned, and a load upon the associate floor section actually forces the element 13 against the side of the car so that said floor section is maintained in a closed position, all as is set forth in my co-pending application. However, in order to guard against accidents, I provide supplemental means for normally preventing the crank elements 13 from moving away from the sides of the car, preferably comprising attachments 15 secured upon the sides of the car and provided with pockets or recesses for receiving locking pins 16 chained to the blocks 15, the crank elements 13 being received between the locking pins 16 and the sides of the car, whereby the crank elements 13 are positively prevented from moving outwardly. The blocks 15 are desirably so constructed that they take part in supporting the swinging floor sections, the construction being such that the crank elements 13 snugly engage the blocks 15. The journals 14 and the blocks 15 thus share between them the performance of the function of maintaining the outer ends of the swinging floor sections elevated.

It is often desirable to cause all of a group of swinging floor sections upon each side of the car to be lowered simultaneously, to which end I employ rotating a shaft 17 extending lengthwise of the car, this shaft 17 being provided with fingers 18 whose outer ends are adapted to engage the crank elements 13 when said crank elements lie close to the car sides. When it is desired simultaneously to lower all of a group of swinging floor sections upon a side of the car, the shaft 17 is rotated, the locking pin 16 having previously been removed, whereby all of the crank elements 13 belonging to a group of floor sections are moved sufficiently away from the car to permit the portion of the load carried upon the corresponding swinging floor sections to cause said floor sections to descend. I desirably provide an operating handle 19 in fixed relation with the rod 17, whereby said rod 17 may be turned for the purpose stated.

I will now describe the mechanism which may be employed automatically to effect closing movement of a swinging floor section after the lower portion carried thereby has been discharged therefrom, and which

said mechanism properly forms the subject matter of my present application.

Each individual crank element 13 is associated with a spring mechanism individual thereto and having a mounting which is desirably independent of the floor section that is individual to said crank element 13, said spring mechanism being desirably mounted upon the side of the car. The spring mechanism desirably includes a helical spring 20, whose free ends 21¹ bear against the sides of the car and whose intermediate portion is formed into an elongated U 22 that projects toward the associate crank element so as to be within the range of rotation of said crank element. The axis of the spring 20 is desirably coincident with the axis of rotation of the associate crank element 13 which is afforded said crank element by the mountings 14, the spring 20 being maintained in alinement with the journals 14 by means of the rod 23 that is coaxial with the journaled ends of the associate crank element 13, bearings 24 being provided for the rod 23. When a crank element 13 is moved downwardly in order that the associate floor section may be lowered, said crank element works against the U-shaped portion 22 of the spring, so that as the crank 13 is lowered, the spring 20 has its tension increased, the tension being greatest when the crank element 13 is in its lowermost position, that is, when the floor section associated with said crank is in its lowermost position. In this way power is stored up, which is made use of when the load portion carried by the floor section is removed, then to take part in restoring the unloaded floor section, the spring mechanism, in the preferred embodiment of the invention, being sufficiently strong substantially completely to restore the floor section to its closed position, though I do not wish to be limited to this characteristic, the spring preferably pushing upon the floor section to close it.

In order to prevent the premature elevation of the floor section, I provide restraining mechanism that is brought into operative relation with the spring mechanism when the floor section has been lowered, and which serves to prevent the spring mechanism from raising the floor section, it being necessary to dissociate the restraining mechanism from the spring mechanism in order to permit the spring mechanism to elevate the floor section. This restraining mechanism desirably resides in an arrow-headed detent 25, past the lateral projections of which the U-shaped portion 22 of the spring is adapted to pass, the element 25 spreading the sides of the U apart until the sides of the U reach the neck portion of the arrow-headed structure 25, which occurs when the associate floor section has been completely lowered. This arrow-headed detent 25, by

thus engaging the portion 22 of the spring, holds the spring to prevent it from prematurely raising the associate floor section, it being necessary to use manual effort to dis-

engage the U-shaped portion 22 from the restraining device 25, in order that the spring mechanism may perform this function of elevating the floor section when said floor section is unloaded.

Reference may be had to my co-pending application Serial No. 439,509, filed June 20, 1908.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not wish to be limited to the precise construction shown, as changes may readily be made without departing from the spirit of my invention, but,

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:—

1. A vehicle having a swinging floor section, crank mechanism provided upon the vehicle, link mechanism intervening between the crank mechanism and the swinging floor section, whereby the crank mechanism serves to swing the floor section, and spring mechanism engaged by the crank portion of the mechanism when said crank mechanism is operated to permit the floor section to descend, and pushing upon the crank mechanism to exert elevating action upon the floor section.

2. A vehicle having a swinging floor section, crank mechanism provided upon the vehicle, link mechanism intervening between the crank mechanism and the swinging floor section, whereby the crank mechanism serves to swing the floor section, spring mechanism engaged by the crank portion of the mechanism when said crank mechanism is operated to permit the floor section to descend, and operating upon the crank mechanism to exert elevating action upon the floor section, and restraining means brought into restraining engagement with the spring mechanism when the floor section is lowered to prevent the spring mechanism from prematurely exerting elevating action upon the floor section.

3. A vehicle having a swinging floor section, crank mechanism provided upon the vehicle, link mechanism intervening between the crank mechanism and the swinging floor section, whereby the crank mechanism serves to swing the floor section, and spring mechanism mounted upon the car body independently of the swinging floor section and engaged by the crank portion of the mechanism when said crank mechanism is operated to permit the floor section to descend, and operating upon the crank mechanism to exert elevating action upon the floor section, said spring mechanism including a spring whose ends are held against rotation and

whose central portion is extended to be within the range of movement of the crank.

4. A vehicle having a swinging floor section, crank mechanism provided upon the vehicle, link mechanism intervening between the crank mechanism and the swinging floor section, whereby the crank mechanism serves to swing the floor section, spring mechanism mounted upon the car body independently of the swinging floor section and engaged by the crank portion of the mechanism when said crank mechanism is operated to permit the floor section to descend, and operating upon the crank mechanism to exert elevating action upon the floor section, and restraining means brought into restraining engagement with the spring mechanism when the floor section is lowered to prevent the spring mechanism from prematurely exerting elevating action upon the floor section, said spring mechanism including a spring whose ends are held against rotation and whose central portion is extended to be within the range of movement of the crank.

5. A vehicle having a swinging floor section, crank mechanism provided upon the vehicle, link mechanism intervening between the crank mechanism and the swinging floor section, whereby the crank mechanism serves to swing the floor section, spring mechanism mounted upon the car body independently of the swinging floor section and engaged by the crank portion of the mechanism when said crank mechanism is operated to permit the floor section to descend, and operating upon the crank mechanism to exert elevating action upon the floor section, said spring mechanism including a spring whose ends are held against rotation and whose central portion is extended to be within the range of movement of the crank, and a detent engaged by the spring portion that is projected to lie within the path of movement of the crank when said crank has operated the said projected portion in lowering the associate floor section, whereby the spring mechanism is restrained from elevating the floor section until the projected portion of the spring mechanism is disengaged from the detent.

6. A vehicle having a swinging floor section, spring mechanism operated upon by the floor section when descending to have power stored therein, whereby said spring mechanism may take part in elevating the floor section, and restraining means adapted to engage the spring mechanism when the floor section is lowered to prevent the spring mechanism from prematurely exerting elevating action upon the floor section.

7. A vehicle having a swinging floor section, spring mechanism operated upon by the floor section when descending to have power stored therein, whereby said spring mechanism may take part in elevating the

floor section, and restraining means adapted to prevent the spring mechanism from prematurely exerting elevating action upon the floor section.

- 5 8. A vehicle having a swinging floor section, and spring mechanism operated upon by the floor section when descending to have power stored therein, said spring mechanism, when released, pushing upon said floor section to exert elevating influence thereupon.

- 10 9. A vehicle having a swinging floor section, spring mechanism operated upon by the floor section when descending to have

power stored therein, said spring mechanism, when released, operating upon said floor section to exert elevating influence thereupon, and means for holding the floor section when lowered to prevent the spring mechanism from prematurely raising said floor section.

In witness whereof, I hereunto subscribe my name this 4th day of May, A. D. 1909.

HERMAN C. PRIEBE.

Witnesses:

L. G. STROH,
G. L. CRAGG.