No. 835,114. PATENTED NOV. 6, 1906.

W. F. RICHARDS.

VESTIBULE FOR RAILWAY CARS.

APPLICATION FILED NOV. 20, 1905.

2 SHEETS-SHEET 1.

Fig. 2.

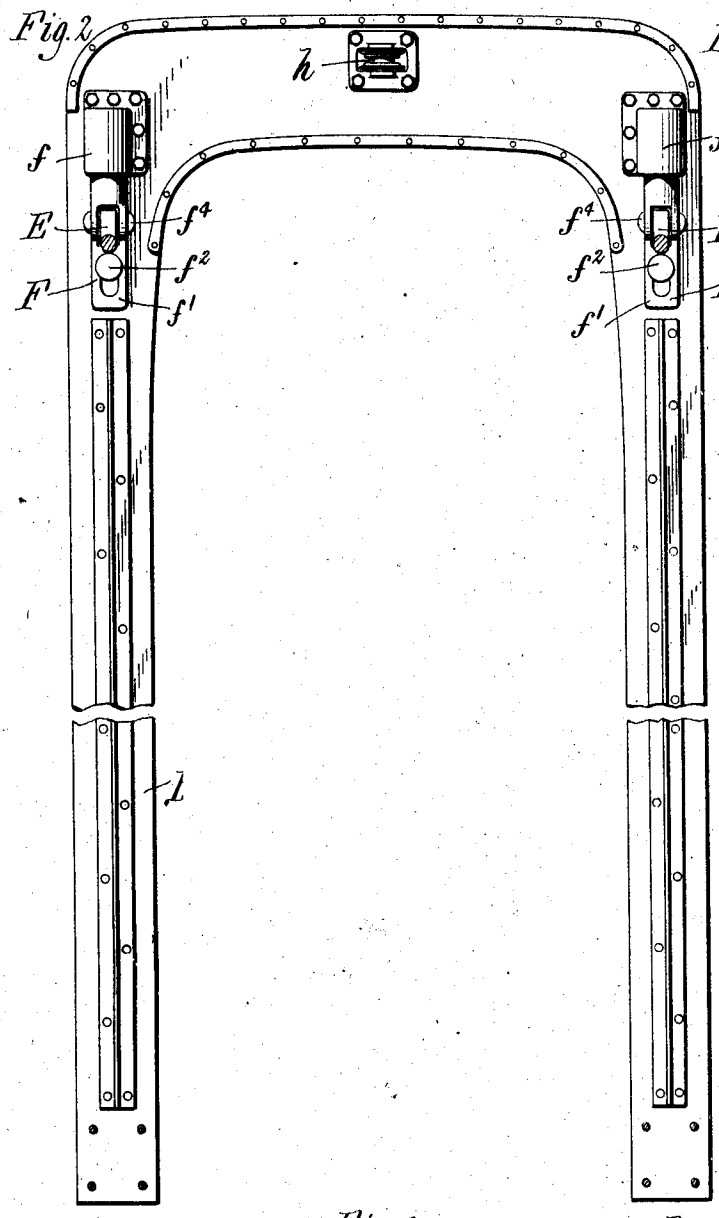


Fig. 1.

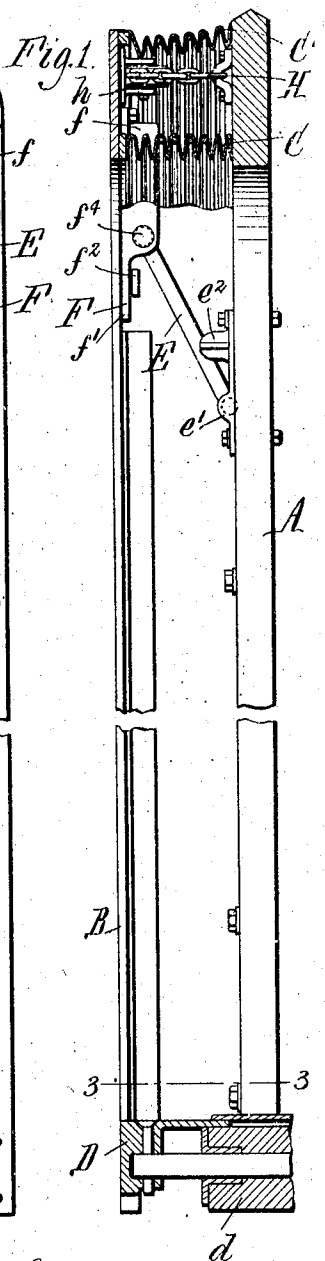
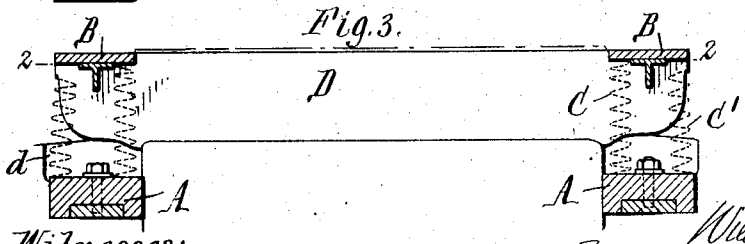


Fig. 3.



Witnesses:
E. A. Tock.
R. W. Rinser.

Inventor.
Willard F. Richards,
By Wilhelm Parker & Hard,
Attorneys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

No. 835,114. PATENTED NOV. 6, 1906.

W. F. RICHARDS.

VESTIBULE FOR RAILWAY CARS.

APPLICATION FILED NOV. 20, 1905.

2 SHEETS—SHEET 2.

Fig. 4.

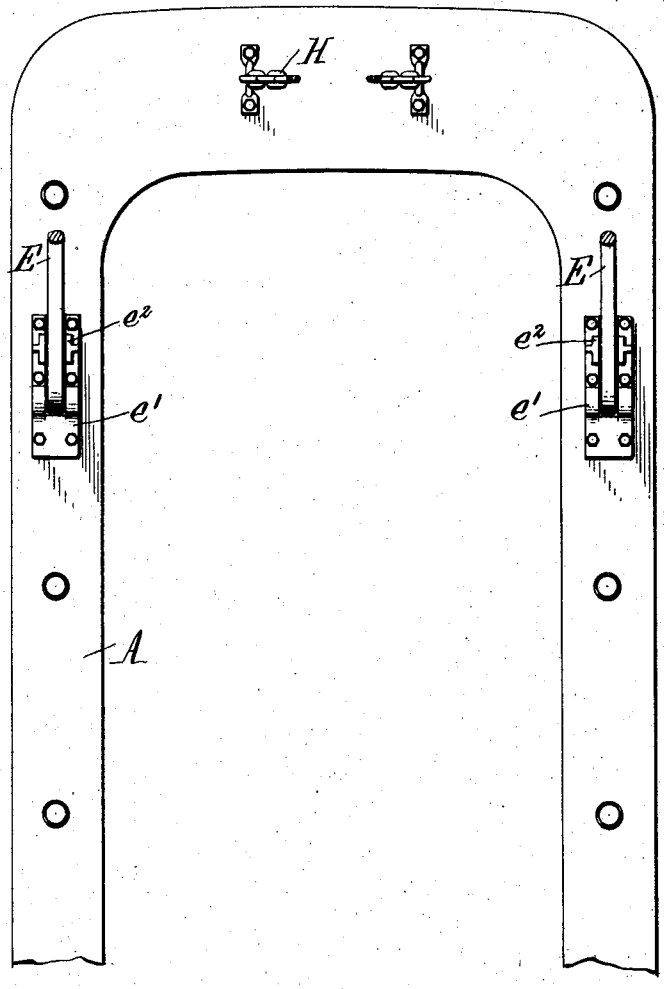
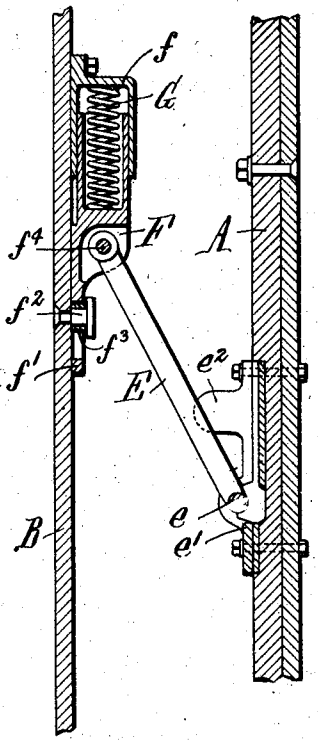


Fig. 5.



Witnesses:
E. A. Volk.
P. W. Rinser

Inventor.
Willard F. Richards,
By Wilkelbut Parker & Hard,
Attorneys.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLARD F. RICHARDS, OF BUFFALO, NEW YORK, ASSIGNOR TO GOULD COUPLER COMPANY, OF NEW YORK, N. Y.

VESTIBULE FOR RAILWAY-CARS.

No. 835,114. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed November 20, 1905. Serial No. 288,143.

To all whom it may concern:

Be it known that I, WILLARD F. RICHARDS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Vestibules for Railway-Cars, of which the following is a specification.

This invention relates to vestibules for railway-cars.

The ordinary railway-car vestibule is provided at the outer end of the stationary frame structure with an extensible and compressible hood formed by an open rectangular frame or face-plate and flexible diaphragms or extensible walls of other construction, which connect the face-plate to the end of the stationary part of the vestibule and allow the face-plate to move toward and from the end of the vestibule. When the cars are coupled in a train, the abutting hoods of the adjacent vestibules are compressed somewhat and the face-plates are yieldingly pressed out toward each other and constantly held in contact by springs or pressure means, which allow of the compression and extension of the hoods due to the movements of the cars toward and from each other permitted by the draft devices.

The primary object of the invention is to produce very simple, compact, and desirable pressure means for holding the upper parts of the face-plates in contact, so constructed that the face-plates can be rigidly secured to the vestibule-buffers and the pressure means located wholly in the hood outside of the stationary vestibule.

Other objects of the invention are to improve the pressure means for the face-plates of car-vestibules in the respects hereinafter specified, and set forth in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a longitudinal sectional elevation of a portion of the stationary structure and extensible hood of a car-vestibule embodying the invention. Fig. 2 is a rear elevation of the face-plate, partly in section in line 2 2, Fig. 3, omitting the diaphragms. Fig. 3 is a horizontal sectional plan of the vestibule in line 3 3, Fig. 1. Fig. 4 is a fragmentary elevation, partly in section, of the end of the vestibule and pressure devices for the face-plate. Fig. 5 is a sectional elevation, on an enlarged scale, of one of the pressure devices for the face-plate.

Like letters of reference refer to like parts in the several figures.

A represents the outer passage-way frame or outer end of a car-vestibule; B, the movable face-plate or frame which is similar in shape to the outer end of the vestibule and is connected at its sides and top to the end of the vestibule by the flexible or extensible diaphragms or walls forming the top and sides of the extensible and compressible hood. These parts may be of any usual or suitable construction.

In the construction shown in the drawings the metal face-plate is reinforced by upright T-bars riveted to the sides thereof, and the walls of the hood are preferably formed by inner and outer diaphragms C C'; but such construction is not an essential of the invention.

The face-plate B is riveted or otherwise rigidly attached at its lower end to the vestibule-buffer D, which is pressed yieldingly out in front of the end sill *d* of the vestibule by the usual buffer-springs. (Not shown.) The buffers of cars coupled together are held in contact by their springs irrespective of the movements of the cars toward and from each other, and so hold the lower portions of the face-plates of adjoining hoods in contact, and the buffers are usually capable of pivoting or swinging horizontally somewhat, so that they and the lower ends of the face-plates are held flat against each other throughout their width when the cars are rounding curves. As the face-plates are of considerable height, the buffers cannot be relied upon to maintain the proper contact between the upper portions thereof, and upper pressure means are ordinarily employed.

The upper pressure means in a vestibule according to this invention are constructed as follows: E represents upright links or rods arranged between the upper portions of the end of the vestibule and face-plate at the opposite sides of the passage-ways therethrough and pivoted at opposite ends to the face-plate and end of the vestibule. The links swing on their pivotal connections with the end of the vestibule in the movements of the face-plate toward and from the latter, and as the face-plate is rigidly attached to the vestibule-buffer, and so held from vertical movement, one end of each link has a sliding connection with the part to which it is

connected. By opposing this relative sliding movement between the links and the part connected thereto, by springs or equivalent pressure means, the links tend to retain an inclined position, and thereby press the face-plate outwardly from the end of the vestibule. Preferably the links are pivoted at their lower ends to the end of the vestibule and their upper ends are pivoted to slides F, which are movable vertically on the rear side of the face-plate, and the upward movement of the slides is opposed by suitable springs G. The construction of the links, slides, and pressure devices may be varied. In the construction shown in the drawings the lower end of each link is provided with a cross-head or pivot e, which bears in the seat of a fulcrum-box e', secured on the end of the vestibule. The fulcrum-box has a removable cap-plate, which is slotted vertically to allow of the movements of the link and to enable the link to be placed in and removed from its seat, and the cap-plate is provided at opposite sides of its slot with projecting lugs e^2, between which the link is guided and is held from lateral deflection. Each slide F, to which the upper end of the link is pivoted, has a hollow cylindrical upper portion, which is confined and guided in a hollow cylindrical pocket f, secured to the rear side of the face-plate, and a depending slotted extension f'. A headed stud f^2, passing through the slot of said extension and secured to the face-plate, assists in guiding the slide and prevents the detachment thereof from the face-plate. An antifriction-roller f^3 surrounds the stud f^2 in the slot to reduce the friction between the slide and the stud. The link E can be pivoted to the slide F by a pin f^4 or in any other suitable manner. The coil-springs G, which oppose the upward movement of the slides F, are inclosed and protected in the hollow portions of the slides and the guide-pockets therefor.

When the face-plates are forced rearwardly or toward the ends of the vestibules by the bumping of the cars, the links E swing rearwardly with the face-plates, and as their upper ends move upwardly in the arcs of circles the slides F, connected to the links, are moved upwardly on the face-plates and compress the springs G in the spring-pockets. The pressure of the springs on the slides constantly tends to force the latter downwardly, and such downward movement of the slides forces the links outwardly and through them presses the upper portion of the face-plate outwardly. The vertical movement of the slides is slight and short springs can be employed. As the springs are arranged vertically, they occupy the least possible horizontal space and will allow the maximum movement of the face-plate toward the end of the vestibule. If the springs were arranged horizontally, they would have to be several times the length of the springs shown to obtain an equal movement of the face-plate and would consequently have to be let into the vestibule structure, thereby making it necessary to cut into the vestibule to apply the pressure devices and greatly increasing the cost of application of the hood to the vestibule. The links are independently movable and enable the upper part of the face-plate to assume an oblique position, so that the upper as well as the lower part of the face-plate will maintain a proper contact from side to side when the cars are rounding curves.

In a hood such as shown, having inner and outer diaphragms or flexible walls, the pressure devices are preferably located between upright side portions of the two diaphragms.

Some means, such as a chain H, attached at opposite ends to the upper part of the end of the vestibule and passing around a sheave h, secured to the upper part of the face-plate B, are employed for limiting the outward movement of the face. Any other suitable stop device could be used.

I claim as my invention—

1. The combination with a car-vestibule, of an extensible hood therefor, and means for extending said hood comprising a swinging link which connects the outer portion of said hood to the vestibule and is pivoted at one end to one of said parts and has a sliding connection at the other end with the other part, and means exerting force on said link in a vertical direction to swing the link away from the part to which it is pivoted, substantially as set forth.

2. The combination with a car-vestibule, of a face-plate which is connected to the vestibule by an extensible wall and is movable toward and from the vestibule, and means for pressing said face-plate outwardly away from the vestibule, comprising links each pivoted at one end to said vestibule and having sliding and pivotal connection at the other end with said face-plate, and means exerting force on said links in a vertical direction to swing them away from the vestibule, substantially as set forth.

3. The combination with a car-vestibule, of a face-plate which is connected to the vestibule by an extensible wall and is movable toward and from the vestibule, and means for pressing said face-plate outwardly away from the vestibule, comprising links pivoted at their lower ends to the sides of the vestibule and having pivotal and sliding connections at their upper ends with the upper side portions of said face-plate, and springs carried on said face-plate for exerting a downward pressure on the upper ends of said links, substantially as set forth.

4. The combination with a car-vestibule, of a face-plate which is connected to the vestibule by an extensible wall and is movable toward and from the vestibule but is held

from vertical movement, and means for pressing said face-plate outwardly away from the vestibule, comprising links pivoted at one end to the vestibule, slides pivoted to the other ends of said links, hollow spring-pockets on said face-plate in which said slides are movable vertically, and vertically-disposed coil-springs in said pockets for opposing the movement of said slides in one direction, substantially as set forth.

5. The combination with a car-vestibule, and a horizontally-movable vestibule-buffer, of a face-plate which is rigidly attached at its lower end to said buffer and is connected to the vestibule by an extensible wall and is movable horizontally toward and from the vestibule, and means for pressing said face-plate outwardly away from the vestibule, comprising links pivoted at opposite ends to the side portions of said face-plate and vestibule and also having sliding connections with said face-plate, and means for yieldingly resisting the movement of said links toward the vestibule, substantially as set forth.

Witness my hand this 11th day of November, 1905.

WILLARD F. RICHARDS.

Witnesses:
EDWARD C. HARD,
A. L. MCGEE.