

(No Model.)

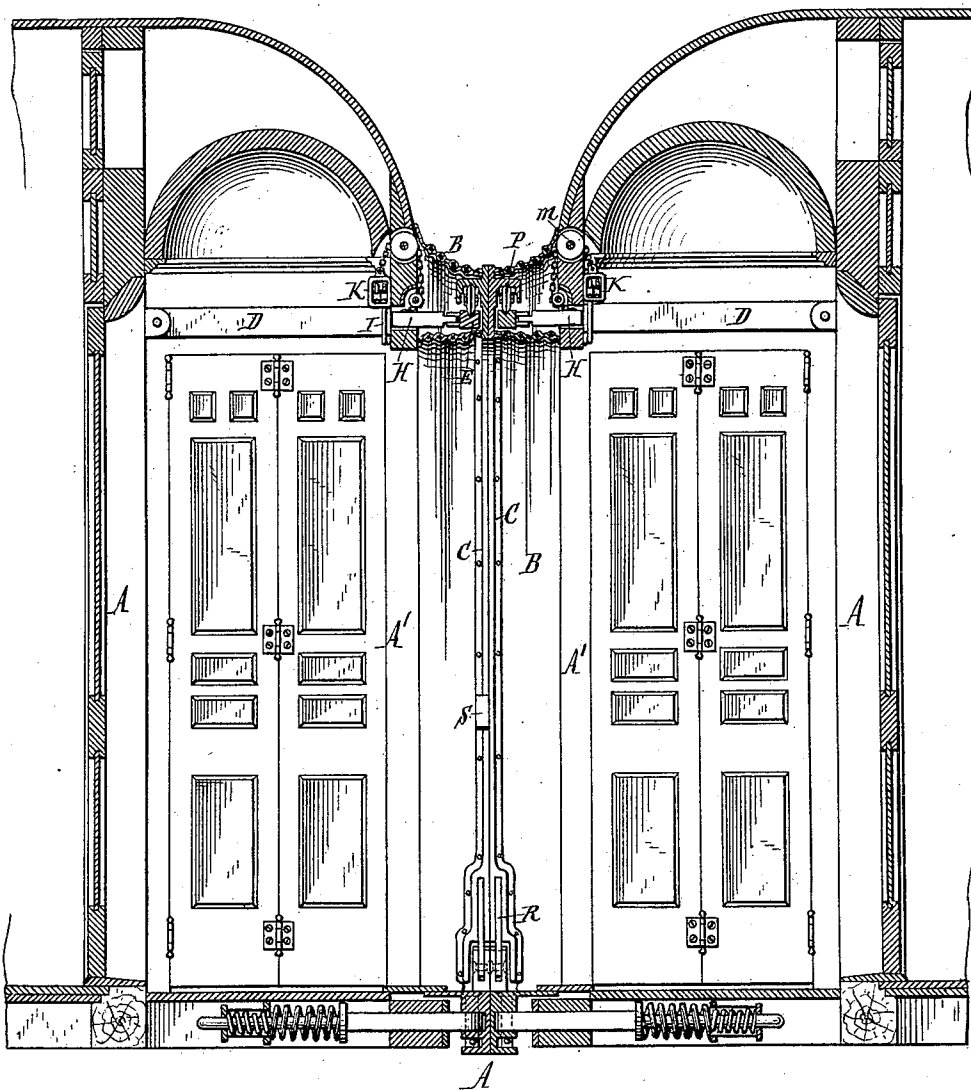
3 Sheets—Sheet 1.

T. A. BISSELL.
RAILWAY CAR.

No. 470,799.

Patented Mar. 15, 1892.

Fig. 1.



Witnesses:

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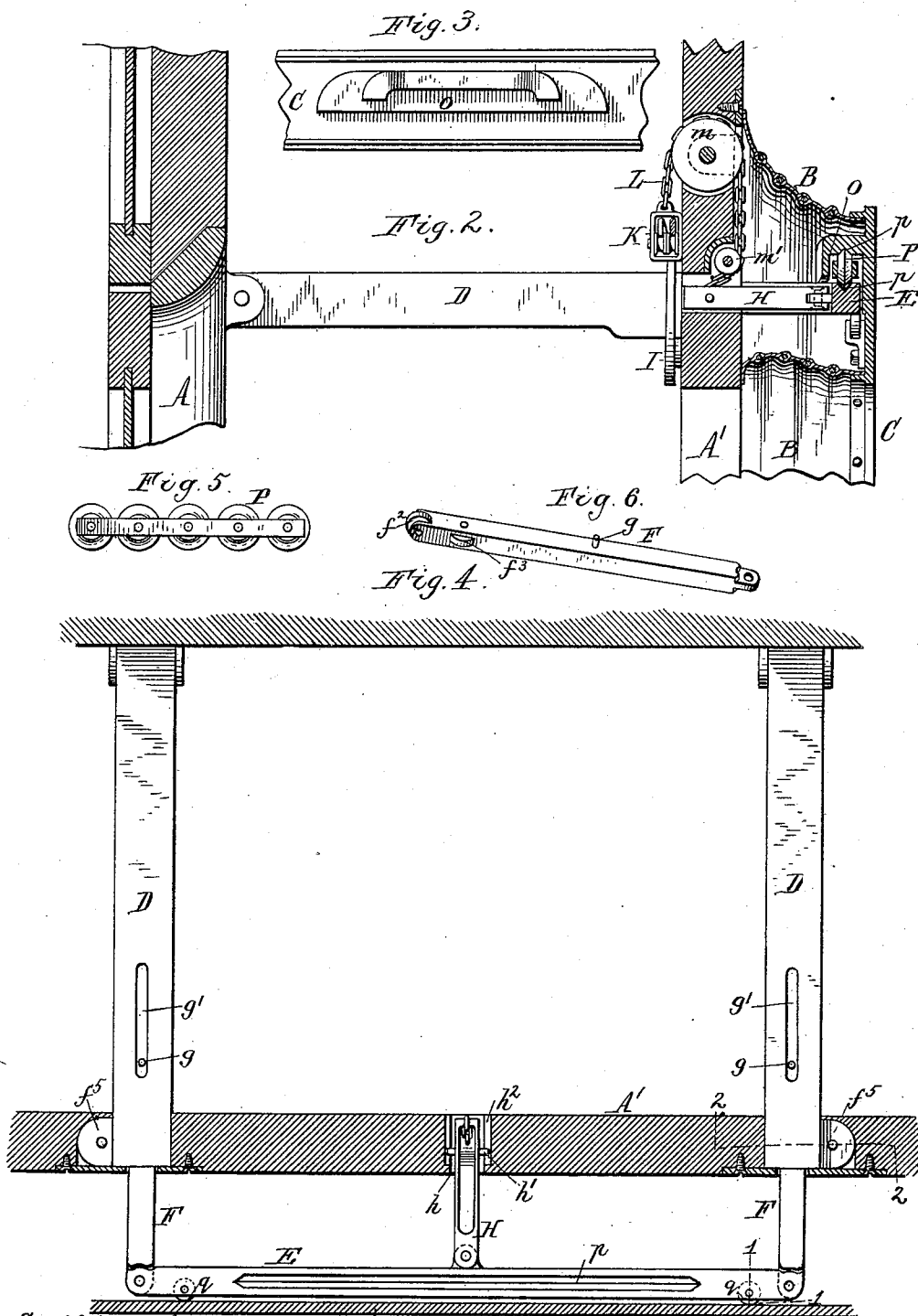
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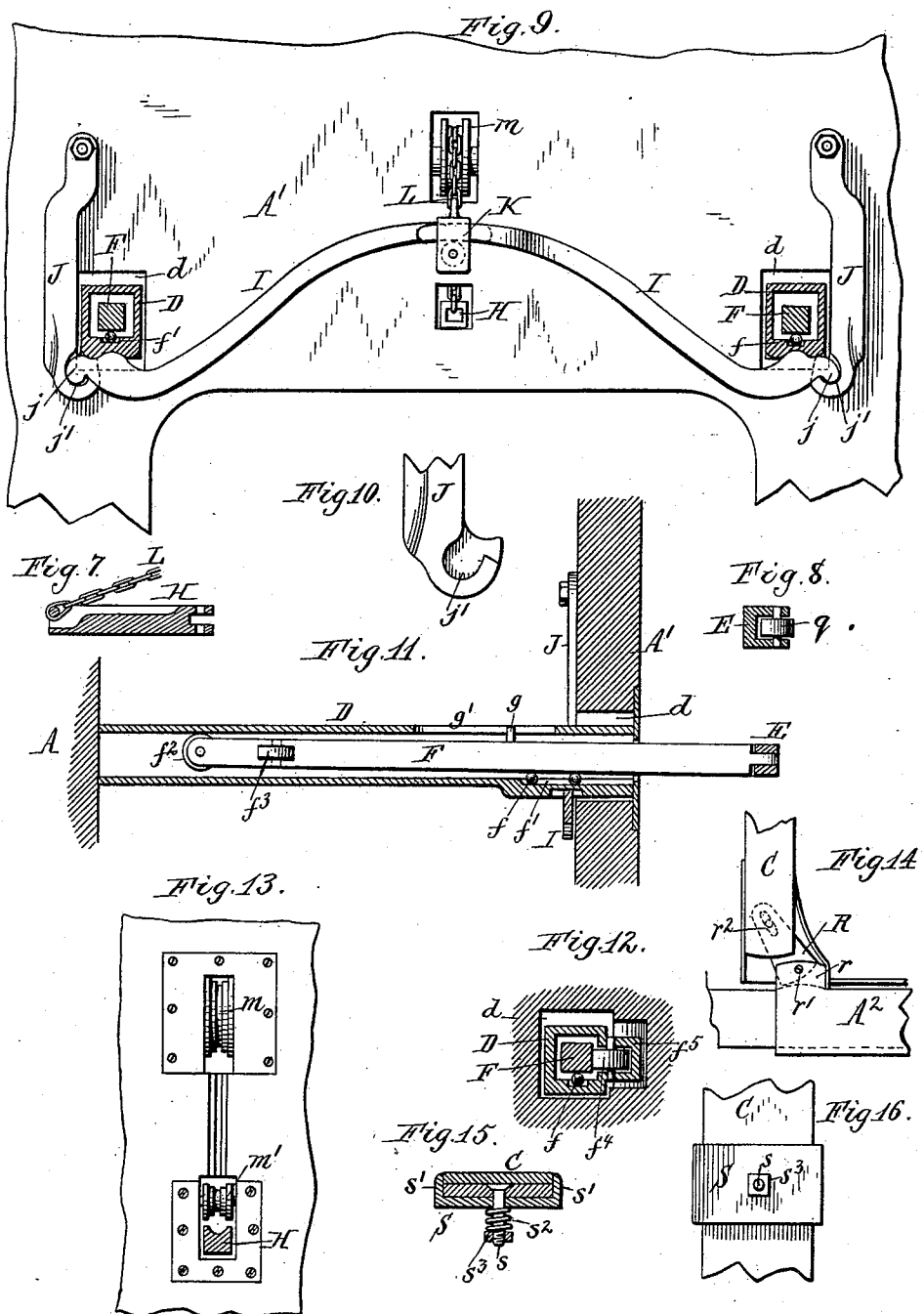


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UNITED STATES PATENT OFFICE.

THOMAS A. BISSELL, OF BUFFALO, NEW YORK.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 470,799, dated March 15, 1892.

Application filed October 27, 1891. Serial No. 410,031. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. BISSELL, a citizen of the United States, residing at the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Railway-Cars, of which the following is a specification.

My invention relates to vestibule-cars having extensible hoods, which are provided with face-plates and in which the upper portions of the face-plates of adjoining cars are kept in contact with each other by the action of gravity instead of by springs.

My invention has for its principal object to provide simple and reliable means whereby the face-plate of the hood is pressed outwardly against the face-plate of an opposing car by its own gravity without the use of separate weights and which shall permit of the requisite play of the face-plate to enable it to readily accommodate itself to the various motions of the cars.

The invention has the further object to provide a simple clasp for retaining the contiguous face-plates in line with each other.

In the accompanying drawings, consisting of three sheets, Figure 1 is a sectional elevation of the vestibules and hoods of two adjoining cars. Fig. 2 is an enlarged sectional elevation of the upper part of a vestibule and hood containing my improvements. Fig. 3 is a fragmentary rear view of the top of the face-plate on a reduced scale. Fig. 4 is a horizontal section, partly in top plan view, of the upper part of the vestibule, showing the pivoted supporting-arms, the thrust-bar, and connecting parts. Fig. 5 is a detached elevation of the carriage or set of rollers from which the face-plate is suspended. Fig. 6 is a perspective view of one of the guide-bars of the rail on which the carriage of the face-plate runs. Fig. 7 is a vertical section of the thrust-bar connected with said rail. Fig. 8 is a cross-section of said rail in line 1 1, Fig. 4. Fig. 9 is an interior view of the upper portion of the end wall of the vestibule, showing the levers on which the pivoted supporting-arms rest. Fig. 10 is an enlarged fragmentary view of the hanger of one of said levers. Fig. 11 is a horizontal longitudinal section of one of the pivoted supporting-arms, showing the sliding guide-bar arranged therein. Fig. 12 is a cross-

section in line 2 2, Fig. 4. Fig. 13 is a face view of the end wall of the vestibule, showing the recesses in which are journaled the guide-rollers over which the actuating-chain of the thrust-bar passes. Fig. 14 is a front elevation of the lower portion of one of the side pieces of the face-plate and connecting parts. Fig. 15 is a horizontal section of the clasp whereby the contiguous face-plates of adjoining cars are held in line with each other. Fig. 16 is a rear view of said clasp.

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

A represents the end walls of the cars, A' the vestibules arranged upon the platforms thereof, and A² the extensions of the platforms, which are projected by the spring-buffers of the cars in the ordinary manner.

B are the extensible hoods, secured at their inner ends to the end walls of the vestibules, and C are the face-plates, secured to the outer free ends of the hoods.

D D are longitudinal supporting arms or bars pivoted at their inner ends to the end wall of the car above its entrance and arranged with their outer free ends in vertical slots *d*, formed in the end wall of the vestibule, so as to be capable of rising and falling in said slots.

E represents a transverse bar or rail arranged over the entrance in the end wall of the vestibule and from which the face-plate is suspended. This rail is pivoted at its ends to longitudinal guide-bars F F, which slide lengthwise upon the pivoted supporting-arms D. The latter are preferably made hollow to receive the guide-bars, as shown in Figs. 9, 11, and 12. Each of these guide-bars is supported at its outer portion upon balls *f*, running in a longitudinal groove *f'*, formed in the bottom of the hollow supporting-arm, and each guide-bar is provided at its rear end with an anti-friction roller *f*², which bears against the upper wall of the hollow supporting-arm.

*f*³ are anti-friction rollers journaled in the inner sides of the guide-bars and bearing against the adjacent inner sides of the supporting-arms, and *f*⁴ are similar rollers journaled in lateral pockets or extensions *f*⁵ of the hollow supporting-arms and bearing against the outer sides of the guide-bars. The balls *f* and rollers *f*² *f*³ *f*⁴ reduce the friction be-

tween the sliding guide-bars and the hollow supporting-arms and permit the guide-bars to move in said arms without binding. Withdrawal of the guide-bars is prevented by stop pins or projections *g*, secured to the upper sides of the guide-bars and entering slots *g'*, formed in the adjacent upper sides of the supporting-arms.

H is a horizontal push or thrust bar pivoted at its outer end to the middle of the supporting-rail E and guided in an opening *h*, formed in the end wall of the vestibule. The outward movement of the push-bar H is limited by stops *h'*, secured to opposite sides thereof and projecting into grooves *h''*, formed in the side walls of the opening *h*, as represented in Fig. 4.

I are levers arranged transversely on the inner side of the end wall of the vestibule and fulcrumed at their outer ends upon hangers J, pivoted to the end wall of the vestibule and arranged on the outer sides of the supporting-arms D. The levers I support the outer portions of the supporting-arms D, which latter rest loosely upon the levers near their fulera. The levers I are formed at their outer ends with knuckles *j*, which are loosely seated in sockets or cavities *j'*, formed in the lower ends of the hangers J, as shown in Figs. 9 and 10. The adjacent inner ends of the levers I are embraced by a loop K, which is connected with the inner end of the push-bar H by a chain, rope, or cable L, running upwardly around a guide-wheel *m* and thence downwardly over a similar wheel *m'*. These guide-wheels are journaled in recesses formed in the end wall of the vestibule, as most clearly shown in Figs. 2 and 13. The lower end of the chain L is attached to the push-bar H at a point behind the lower guide-wheel *m'*, so that an upward pull on the front portion of the chain tends to force the push-bar, with the rail E and face-plate C, outwardly. The inner ends of the levers I, preferably rest upon anti-friction rollers mounted in the loop K, as shown in Fig. 2.

The face-plate is provided on the rear side of its lintel or arched top with an overhanging flange or rail *o*, which runs upon a carriage or set of anti-friction rollers P, which in turn run upon the supporting-rail E, thus permitting the face-plate to move transversely of the car. The face of the rollers P is preferably V-shaped, and the treads of the supporting-rail E and the rail *o* of the face-plate are provided with corresponding longitudinal guide-grooves *p*, whereby the rollers are prevented from leaving the rail E and the rail of the face-plate is retained upon the rollers. The supporting-rail E is provided at its front side with projecting anti-friction rollers *q*, against which the adjacent rear side of the face-plate bears, and whereby the latter has a rolling contact with said rail, which considerably reduces the friction.

The lower ends of the face-plates are connected to the platform-extensions *A*² in such

manner that the face-plate can oscillate transversely and also move vertically within certain limits. This connection is preferably made, as described and shown in Letters Patent No. 453,782, granted to me June 9, 1891, by links R, which are connected at their respective ends to the face-plate, and upwardly-projecting ears *r* of the platform-extension by pins *r'*, arranged lengthwise of the car. The upper pivot-pins of these links are arranged in upright slots *r''* in the links, as shown in Fig. 14, so as to permit the face-plate to rise and fall to a limited extent.

The supporting-arms D, the rail E, and the guide-bars F together form a pivoted frame, which carries the face-plate and which is capable of swinging vertically upon the supporting-rail E, from which the face-plate is suspended, is at the same time capable of moving toward and from the end wall of the vestibule by means of its guide-bars, which slide lengthwise upon the supporting-arms D. The weight of the depending face-plate depresses the supporting-rail E and the pivoted supporting-arms D, and the latter in turn depress the levers I, thereby causing the levers to force the push-bar H and the face-plate outwardly through the medium of the loop K and chain L. When the face-plate is pressed inwardly by an opposing face-plate, the push-bar is also forced inwardly, thereby pulling the front portion of the chain L downwardly over its guide-rollers and raising the inner ends of the levers I and causing the latter to lift the supporting-arms D with the rail E and face-plate carried thereby. The face-plate thus acts to force itself outwardly against an opposing face-plate by its own weight without the employment of a separate weight for that purpose and resists the pressure exerted against it by a contiguous face-plate, but recedes and rises when the pressure of a contiguous face-plate exceeds its own resisting power.

As the face-plate is suspended from the rail E by rollers, it is free to roll sidewise upon said rail to a limited extent in accommodating itself to the oscillation of the car. As the supporting-rail of the face-plate is pivoted to its guide-bars F and the latter are free to slide in the supporting-arms D, the face-plate can assume a position at an angle to the end wall of the vestibule in rounding curves without causing binding of the parts.

By employing the levers I the face-plate receives a greater range of movement toward and from the vestibule of the car than is imparted to the pivoted supporting-arms. This relative movement of the supporting-arms and the face-plate is proportionate to the lever-arms and may be varied by causing the supporting-arms to bear upon the levers at a greater or less distance from the fulera of the levers.

One of the jambs or upright side pieces of each face-plate is provided with a clasp or

coupling which engages with the jamb of the contiguous face-plate, so as to keep the face-plates in line with each other. As shown in Figs. 15 and 16, this clasp consists of a flat plate S, attached to the rear side of one of the jambs of the face-plate by a bolt s and having upright marginal lips or flanges s' , which extend outwardly beyond the face-plate and embrace the opposing jamb of the contiguous face-plate. s^2 is a spiral spring surrounding the bolt s and interposed between the rear side of the plate S and the screw-nut s^3 of the bolt. This spring forces the flanged plate outwardly and retains its flanges in engagement with the opposing face-plate. The outer edges of the flanges s' are rounded or beveled, as shown in Fig. 14, so that the face-plates in coming into alignment ride up on the beveled or rounded edges of the flanges of the plates S, and as soon as the plates are in proper alignment the spring-plate S of each face-plate springs outwardly and automatically interlocks with the opposing jamb of the other plate. Each of the opposing face-plates is provided with but one clasp, and the clasp of one plate is arranged on its right-hand jamb, while the opposing face-plate has its clasp on its left-hand jamb. These clasps compel the contiguous face-plates to sway or oscillate laterally with each other and reliably hold the same in line with each other, while automatically disengaging themselves from the opposite face-plate upon separating the cars.

I claim as my invention—

1. The combination, with a car-vestibule and its face-plate capable of vertical and longitudinal movement with reference to the car, of supports capable of vertical and longitudinal movement and connections extending from the face-plate to said supports, whereby the weight of the face-plate produces a descending and an outward movement of its supports, forcing the face-plate outwardly, while an inward movement of the face-plate produces a receding and an ascending movement of its supports, substantially as set forth.

2. The combination, with a car-vestibule and its face-plate capable of vertical and longitudinal movement with reference to the car, of vertically-movable supporting-arms attached to the vestibule, longitudinally-movable guide-bars mounted on said arms and carrying the face-plate, a push-bar whereby the longitudinal movement of said guide-bars is controlled, and a connection extending to the push-bar from the face-plate, whereby the downward movement of the face-plate forces the push-bar and the face-plate outward, substantially as set forth.

3. The combination, with a car-vestibule and its extensible hood having a face-plate, of a push-bar connected with the face-plate, a supporting-lever connected with the push-bar, and a pivoted arm resting upon said supporting-lever and supporting the face-plate, substantially as set forth.

4. The combination, with a car-vestibule and its extensible hood having a face-plate, of a push-bar connected with the face-plate, a supporting-lever, a cord or chain connecting the supporting-lever with the push-bar, and a pivoted supporting-arm resting upon said lever and supporting the face-plate, substantially as set forth.

5. The combination, with a car-vestibule and its extensible hood having a face-plate, of pivoted supporting-arms, a transverse rail arranged over the entrance in the end wall of the vestibule and supporting the face-plate, longitudinally-movable supporting-bars guided upon the pivoted arms, a push-bar attached to said rail, and supporting-levers connected with the push-bar and supporting the pivoted arms, substantially as set forth.

6. The combination, with a car-vestibule and its extensible hood having a face-plate, of a push-bar connected with the face-plate, transverse supporting-levers pivoted to the vestibule, pivoted arms resting upon said levers, a loop embracing the free ends of the levers, and a cord or chain connecting said loop with the push-bar, substantially as set forth.

7. The combination, with a car-vestibule provided with an extensible hood, of a supporting-rail arranged transversely over the entrance into the end wall of the vestibule and capable of moving toward and from said end wall, and a face-plate attached to the outer end of the hood, suspended from said rail and capable of moving laterally thereon, substantially as set forth.

8. The combination, with a car-vestibule provided with an extensible hood, of a supporting-rail arranged transversely over the entrance in the end wall of the vestibule and capable of moving toward and from said end wall, a face-plate attached to the outer end of the hood and suspended from said supporting-rail, a push-bar connected with said supporting-rail, and pivoted supporting-arms also connected with said rail, substantially as set forth.

9. The combination, with a car-vestibule provided with an extensible hood, of a supporting-rail arranged transversely over the entrance in the end wall of the vestibule and capable of moving toward and from said end wall, a roller-carriage running upon said rail, and a face-plate attached to the outer end of the hood and suspended from said carriage, substantially as set forth.

10. The combination, with a car-vestibule and its extensible hood having a face-plate, of a supporting-rail for the face-plate, extending across the end of the vestibule over its entrance, supporting-bars carrying said rail, pivoted supporting-arms on which said bars can move lengthwise, a push-bar attached to said rail, and mechanism connecting said arms with the push-bar, substantially as set forth.

11. The combination, with a car-vestibule and its extensible hood having a face-plate, of a coupling attached to the face-plate and consisting of a plate having flanges adapted
5 to embrace the jamb of an opposing face-plate, a bolt whereby the flange-plate is attached to the face-plate, and a spring whereby the flanged plate is pressed outwardly, substantially as set forth.

10 12. The combination, with the railway-car and its extensible hood having a face-plate, of a coupling attached to the face-plate and consisting of a plate having flanges adapted

to embrace the jamb of an opposing face-plate and provided with beveled or rounded
15 edges, a bolt whereby the flanged plate is attached to the face-plate, and a spiral spring arranged in said bolt between the flanged plate and the screw-nut of the bolt, substantially as set forth.

Witness my hand this 10th day of October,
1891.

THOMAS A. BISSELL.

Witnesses:

CARL F. GEYER,

FRED. C. GEYER.