

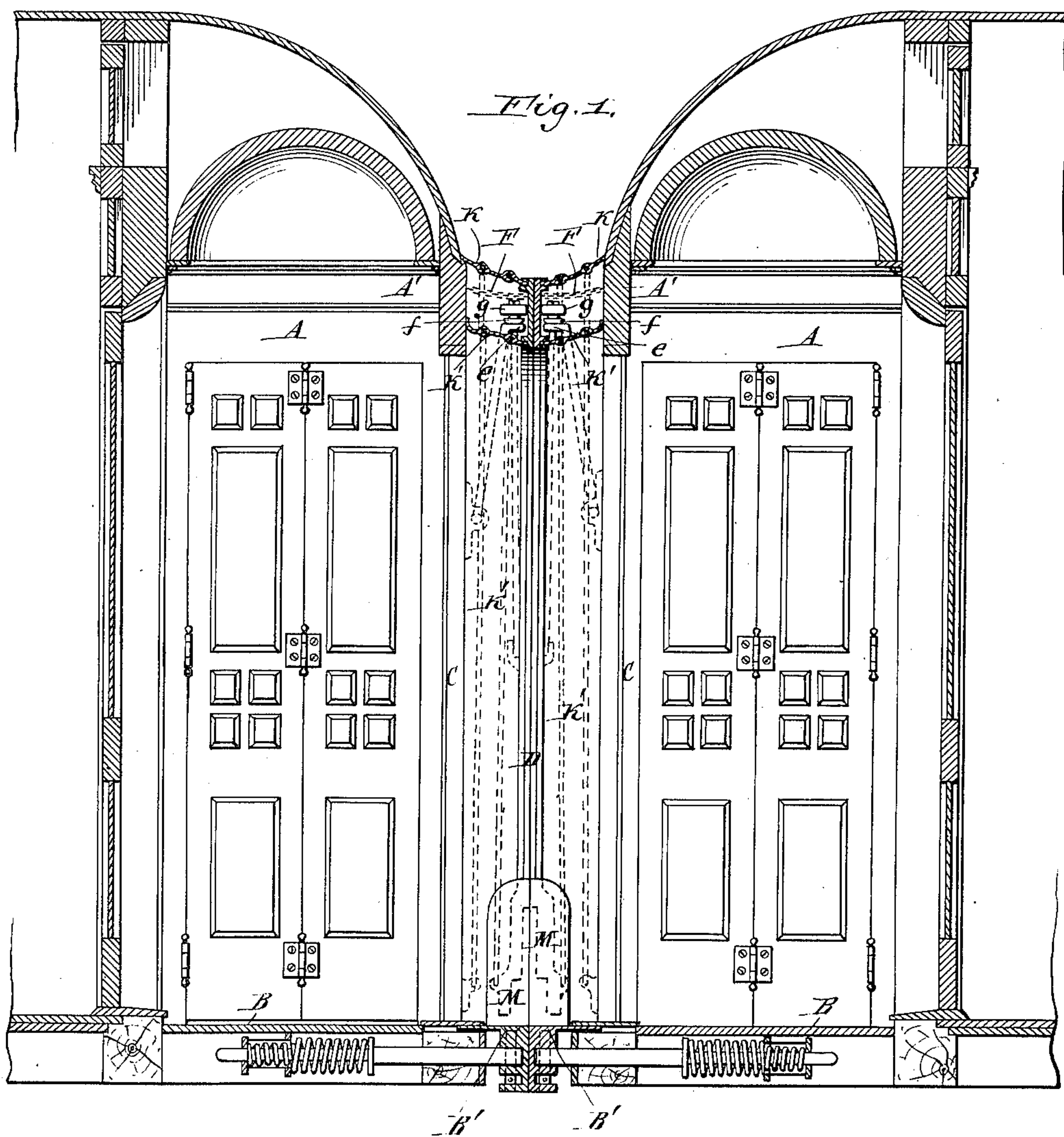
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5 Sheets—Sheet 1.

T. A. BISSELL.
VESTIBULE HOOD FOR CARS.

No. 453,782.

Patented June 9, 1891.



Witnesses:
Emil Heubart
Theo. L. Copp

T. A. Bissell Inventor.
By Wilhelm Bonner
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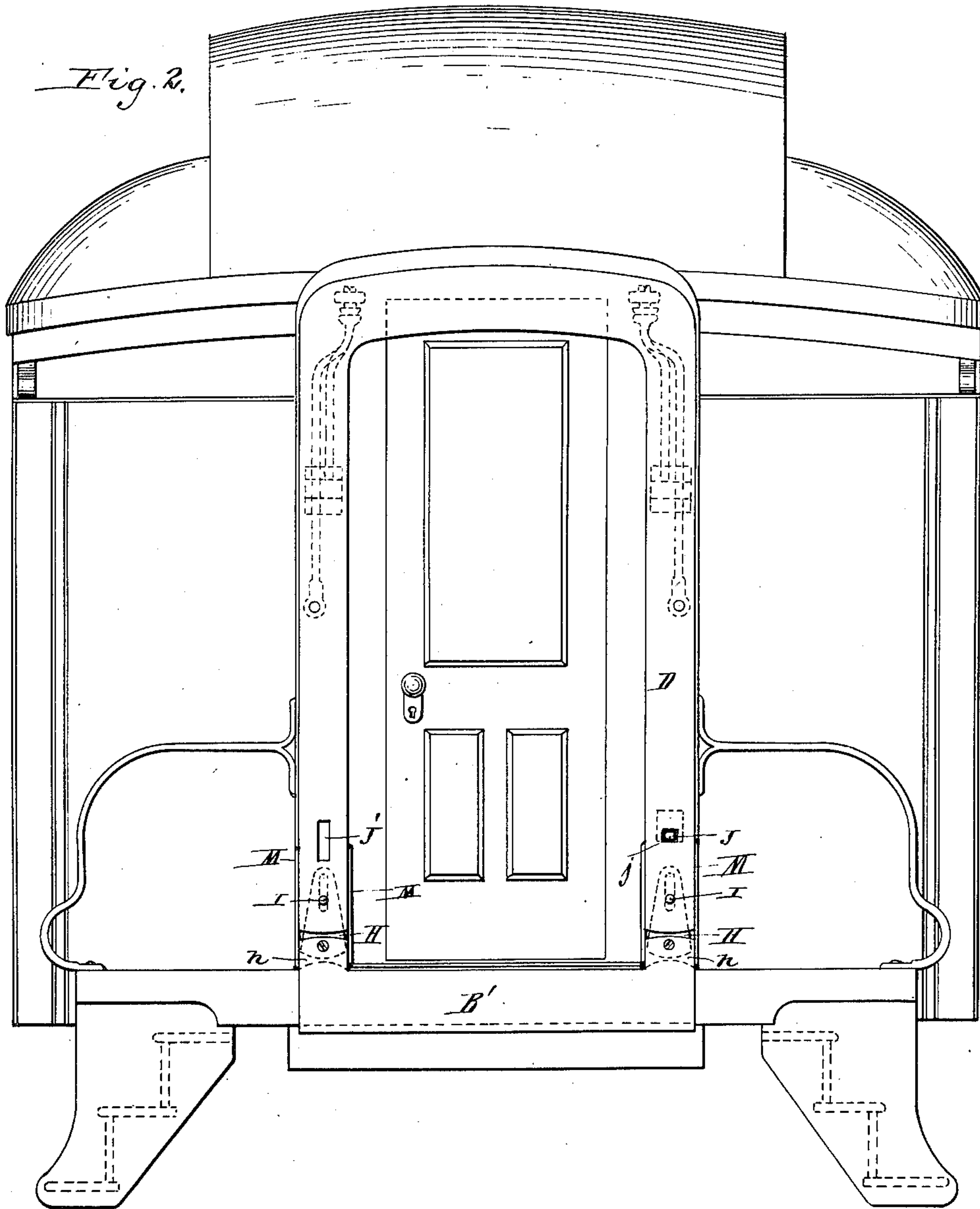
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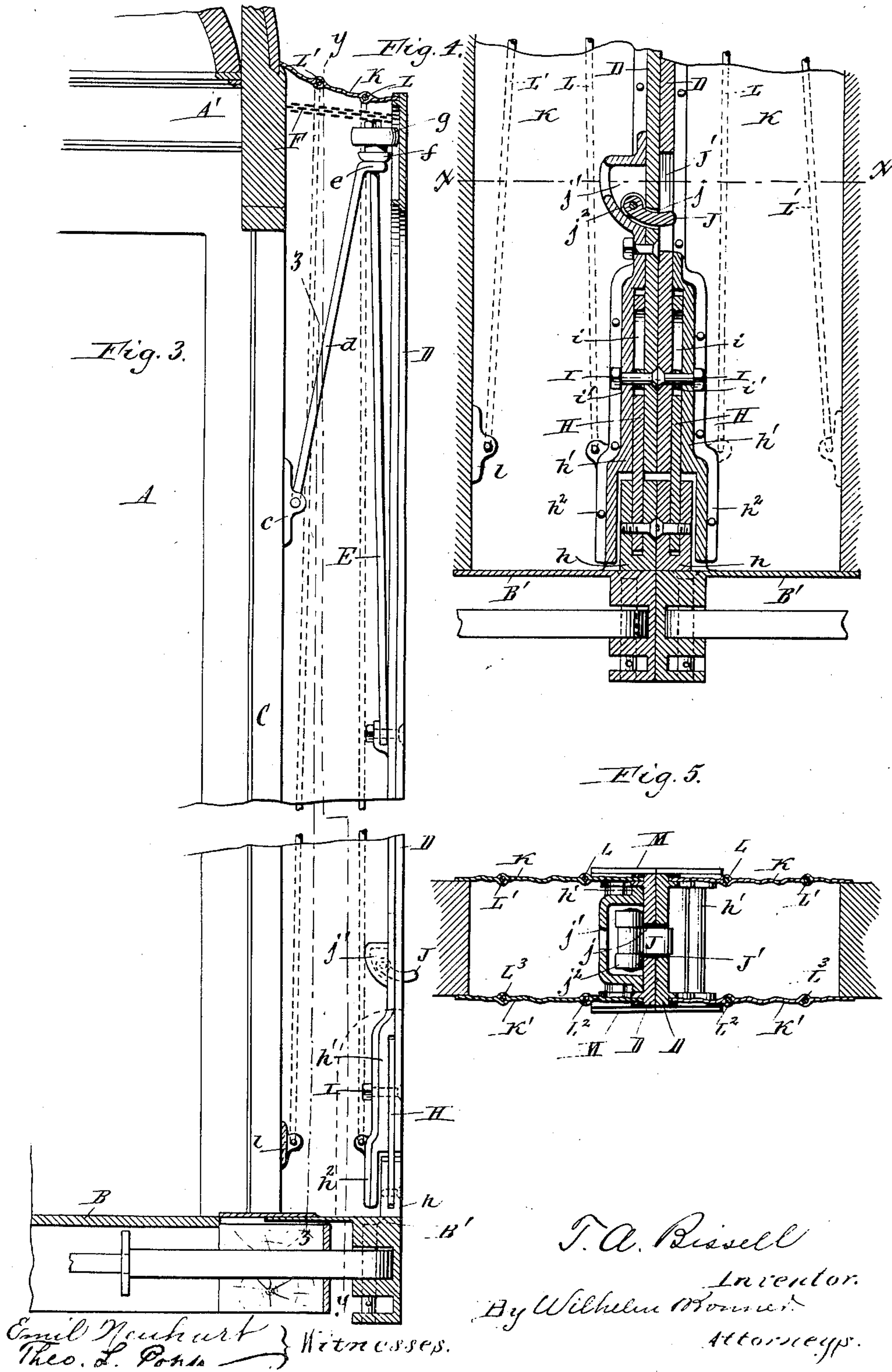
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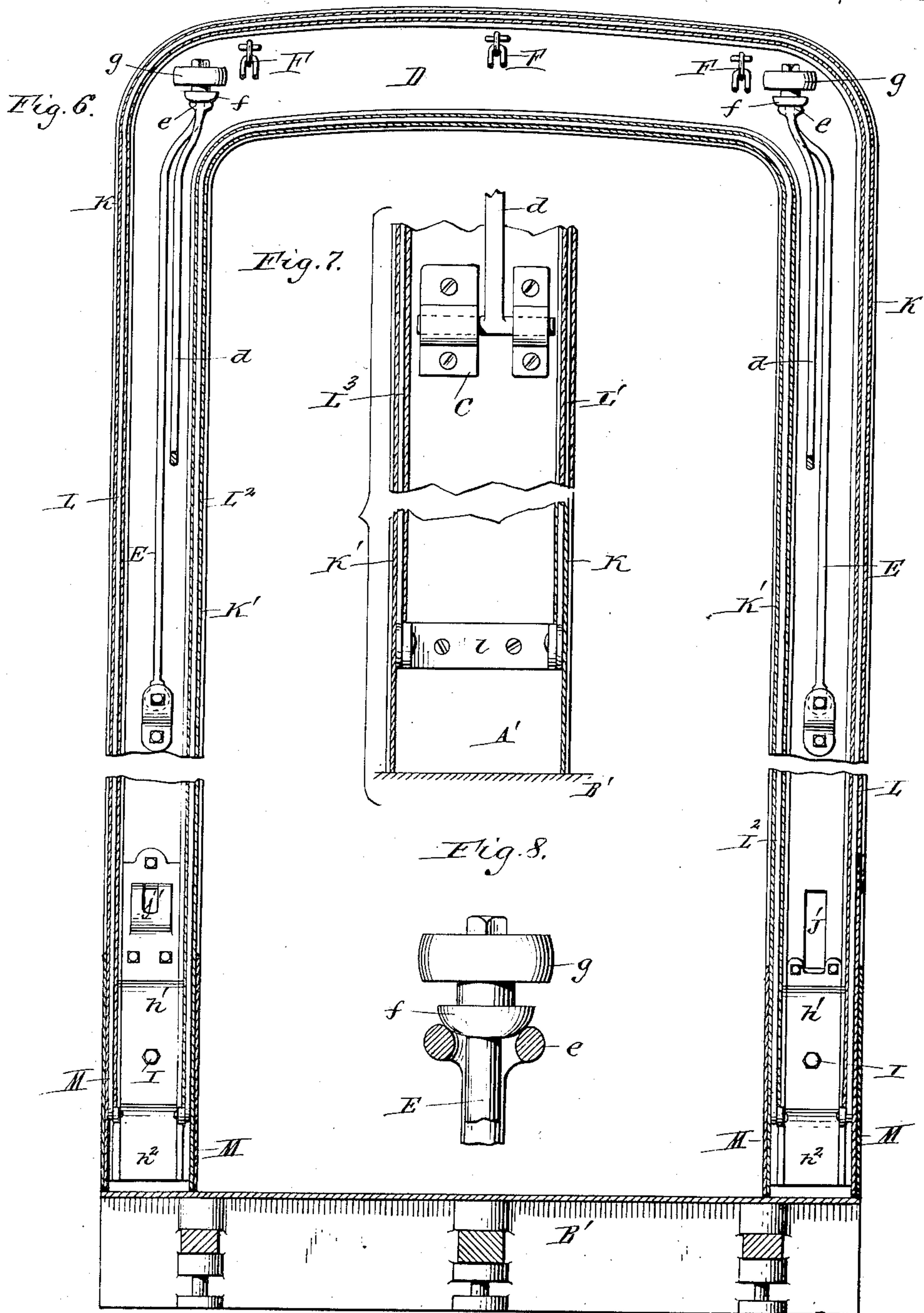
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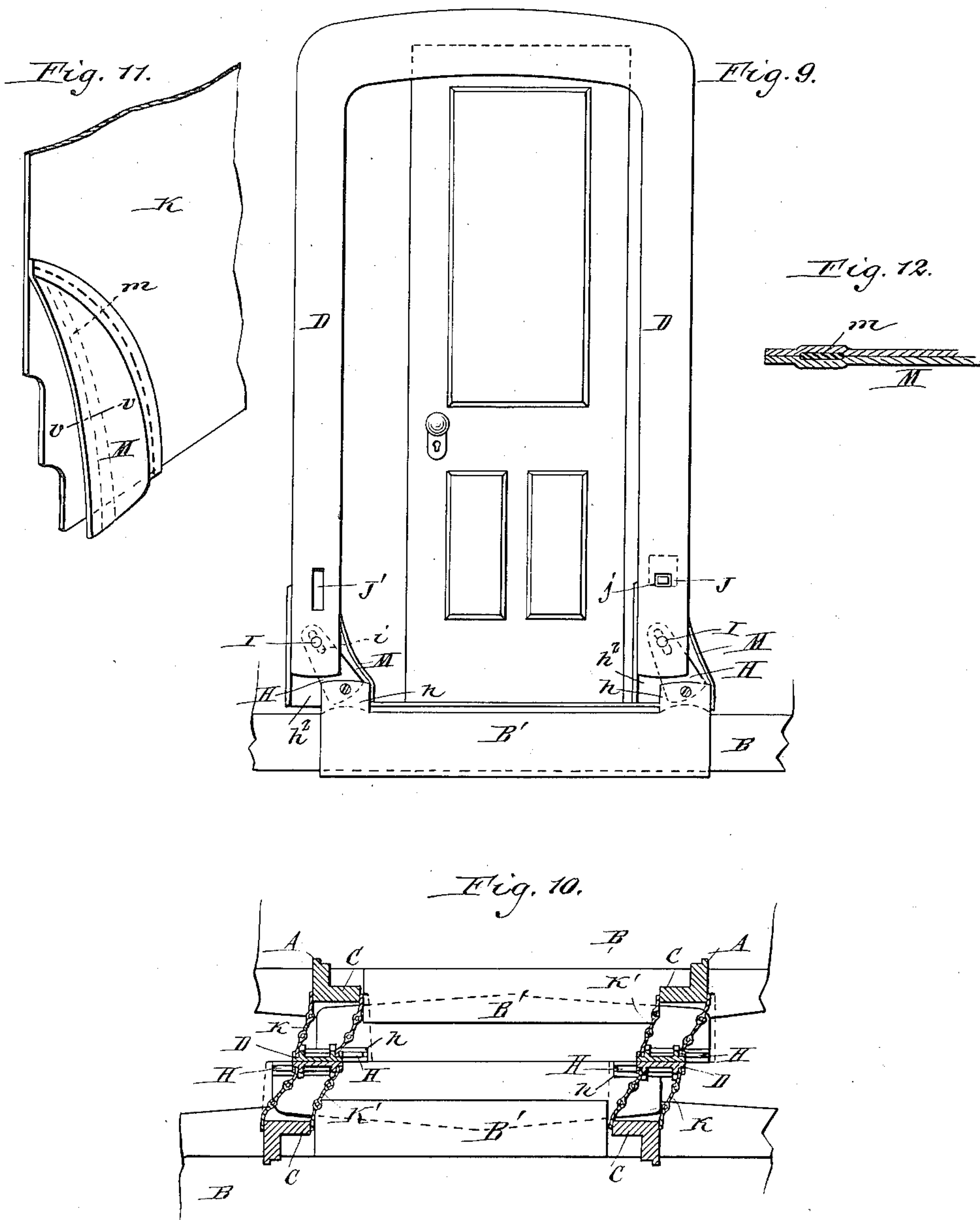
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5 Sheets—Sheet 5.

T. A. BISSELL.
VESTIBULE HOOD FOR CARS.

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Patented June 9, 1891.



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UNITED STATES PATENT OFFICE.

THOMAS A. BISSELL, OF BUFFALO, NEW YORK.

VESTIBULE-HOOD FOR CARS.

SPECIFICATION forming part of Letters Patent No. 453,782, dated June 9, 1891.

Application filed March 16, 1891. Serial No. 385,145. (No model.)

To all whom it may concern:

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

This invention relates to that class of railway-cars which are provided with end vestibules having hoods and face-plates, which form a closed passage between the vestibules of two adjoining cars. Heretofore the face-plates of these hoods have been yieldingly attached to the vestibule, but in such manner that they were compelled to move laterally with the buffer-plate. The friction caused between the face-plates by the lateral vibrations of the cars produces excessive wear of these plates and interferes with the proper working of the car-coupling mechanism.

The object of my invention is to produce a hood having a face-plate capable of movement both laterally and lengthwise of the car and having a locking mechanism, by which the face-plates of two opposing hoods are automatically locked together, thereby enabling the face-plates to move laterally independent of the car and avoiding friction between the face-plates.

In the accompanying drawings, consisting of five sheets, Figure 1 is a longitudinal sectional elevation of the end portions of two adjoining cars provided with my improvements. Fig. 2 is an end elevation of the car and its vestibule. Fig. 3 is a fragmentary longitudinal section of one of the vestibules and its hood on an enlarged scale and with the inner curtain removed. Fig. 4 is a fragmentary sectional elevation of two adjoining face-plates, showing the devices for locking them together and guiding their lower ends. Fig. 5 is a horizontal section in line *xx*, Fig. 4. Fig. 6 is a vertical transverse section in line *yy*, Fig. 3, looking outward. Fig. 7 is a transverse section of the lower portion of one side of the hood in line *zz*, Fig. 3, looking inward. Fig. 8 is an enlarged view, partly in section, of the oscillating support of the face-plate. Fig. 9 is an end elevation of the vestibule, showing its hood and face-plate moved later-

ally. Fig. 10 is a fragmentary horizontal section of two opposing vestibules, showing the position of the hoods and face-plates when the cars are out of line with each other. Fig. 11 is a fragmentary perspective view of the lower portion of the curtain, showing the flap. Fig. 12 is a horizontal section in line *vv*, Fig. 11.

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

A represents the side walls of the vestibules, and A' the end walls thereof.

B represents the stationary platforms of the cars, and B' the movable platforms or buffer-plates, which are yieldingly supported at the front ends of the stationary platforms.

C represents the open frames, which are secured in the opening or passage-way in the end walls of the vestibules.

D represents the arch-shaped face-plates arranged in front of the end walls of the vestibules.

d represents forwardly-inclined arms whereby the face-plates are supported. The lower ends of these arms are pivotally secured to the vestibule-frames on opposite sides of the end opening thereof by means of brackets *c*.

e represents horizontal eyes or sockets formed at the upper ends of the supporting arms *d*.

E represents suspension-rods whereby the face-plates are attached to the supporting-arms. These rods are pivoted with their lower ends to the rearsides of the face-plates at about one-half the height of the latter and arranged with their upper ends in the eyes of the supporting-arms. The upper portions of the suspension-rods are provided with knuckles or collars *f*, having semi-spherical lower sides, which rest upon the upper sides of the eyes of the arms *d*, thereby supporting the face-plates. The eyes of the supporting-arms are sufficiently large to permit the suspension-rods to oscillate freely both laterally and lengthwise, and the face-plates, being attached to the lower ends of these rods, partake of this swinging movement.

The face-plates move backwardly and forwardly with the buffer-plates. When the face-

plate recedes as the buffer-plate is pushed back in coupling two cars together, the upper ends of the supporting-arms d swing backwardly and the face-plate rises slightly.

5 When the buffer-plate is moved forward by its spring, the upper ends of the arms d swing forwardly and the face-plate descends slightly. The forward movement of the upper portion of the face-plate is limited by chains F , 10 which are secured to the upper portions of the face-plate and the vestibule. Lateral movement of the face-plate is permitted by the suspension-rods, which latter are free to oscillate transversely, owing to the swiveling connection between their upper ends and the 15 upper ends of the supporting-arms d . The upper ends of the suspension-rods are provided with anti-friction rollers g , which bear against the upper rear sides of the face-plates and separate the face-plates from the 20 upper ends of the supporting-arms and suspension-rods, so as to avoid friction and permit the face-plates to move with perfect freedom. Each face-plate is provided with two 25 supporting-arms and suspension-rods, which are arranged on opposite sides of the passage-way in the face-plate.

The upper ends of the supporting-arms and suspension-rods are preferably bent inwardly, 30 as shown in Fig. 6, so that the anti-friction rollers bear against the upper transverse portion or arch of the face-plate.

H represents links whereby the lower end of the face-plate is guided upon the movable 35 buffer-plate. The lower ends of the links are pivoted to upwardly-projecting bifurcated lugs h , formed on the ends of the buffer-plate, as represented in Figs. 2, 3, 4, and 9. The 40 upper ends of the guide-links are arranged between the rear side of the face-plate and guide-plates h' , secured to the rear side of the face-plate. The lower ends of the face-plate terminate at a short distance above the lugs 45 h of the buffer-plate and do not rest upon said lugs. The guide-plates h' , secured to the rear side of the face-plate, are provided with offset portions h^2 , which extend below the ends of the face-plate and are arranged in rear of the lugs of the buffer-plate.

50 I represents longitudinal bolts connecting the guide-plates and the face-plate and passing through upright slots i , formed in the links, whereby the links are held between the guide and face plates, and the latter is permitted to move freely laterally and to rise 55 and fall slightly. That portion of each bolt I which is arranged in the slot of the guide-link is surrounded by a ferrule or stay-collar i' , which prevents the guide and face plates 60 from being drawn together too tightly, and whereby binding of these parts is prevented.

J represents a sliding bolt arranged in one side portion or leg of each face-plate, and J' 65 is a recess formed in the opposite side portion or leg of said face-plate in line with the sliding bolt. This sliding bolt projects with

its front end through an opening j in the face-plate, and is adapted to engage in the recess J' in the face-plate of the opposing vestibule. The rear end of the sliding bolt is arranged 70 to slide in a pocket j' , formed in one of the guide-plates h' , secured to the rear side of the face-plate, as represented in Fig. 4. The sliding bolt is preferably curved upwardly with its rear end and provided with anti-friction 75 rollers j^2 , which ride upon the curved inner side of the pocket, so that the bolt slides out of the pocket by gravity and projects from the face-plate in the normal position of the parts. When the face-plates of two opposing 80 vestibules are in line and bear against each other, the sliding bolt of each face-plate engages in the recess of the opposing face-plate, thereby locking the face-plates against transverse movement on each other and compelling 85 them to move together laterally. When, however, the face-plates are out of line, the face-plate of one vestibule strikes the sliding bolt of the opposing face-plate and forces said bolt into its pocket. The sliding bolts remain in their retracted position until the face-plates have been brought in line by the vibration of the cars. When the face-plates 90 are in line, their recesses are likewise brought into line with the opposing sliding bolts, which permits the latter to slide outward and engage in said recesses, thereby effecting an automatic coupling in the face-plates. 95

K represents an outer flexible curtain or hood secured with its front edge to the outer 100 edge of the face-plate and with its rear edge to the end frame of the vestibule. K' represents a similar inner curtain or hood secured with its front edge to the inner edge of the face-plate and with its rear edge to the end 105 frame of the vestibule, thereby forming a double flexible connection between each face-plate and vestibule, which incloses the mechanism for supporting the face-plates.

L L' L² L³ represent bows conforming to the 110 arch shape of the face-plates, and whereby the flexible curtains are supported between the vestibules and the face-plates. The outer curtain of each face-plate is supported by an outer front bow L and an outer rear bow L'. 115 The outer front bow is pivoted with its lower ends to the outer sides of the guide-plates h' on the rear side of the face-plate, and the lower ends of the outer rear bow are pivoted to the outer ends of the brackets l , secured to 120 the end frames of the vestibules. The inner front bow L² of the inner curtain is pivoted with its lower ends to the inner sides of the guide-plates h' , and the inner rear bow is pivoted with its lower ends to the inner ends of 125 the brackets l . The supporting-bows may be secured to the curtains in any suitable manner, but preferably by securing the same between the layers of each curtain, as shown.

M represents flaps which cover the links H 130 and the guide-plates h' , so that they are concealed from view on the inside of the hood

and avoid exposure to rain and dust on the outside of the hood. These flaps are secured along their rear edges to the curtains in any suitable manner, but preferably by a row of
 5 stitches, as represented in Fig. 11. The free ends of the flaps overlap the links and guide-plates and are firmly held in contact therewith during the lateral movement of the face-plate by springs *m*, secured upright between
 10 the layers of the flaps, as represented in Fig. 12.

The face-plates and their supporting devices are so balanced that the face-plates have a tendency to drop forward or toward
 15 each other by gravity, which causes the face-plates to bear firmly against each other and form a tight connection between the vestibules. When the face-plates of two vestibules are coupled, they move together trans-
 20 versely independent of their vestibules, thereby avoiding the friction and wear between two face-plates which move laterally with reference to each other.

I claim as my invention—

25 1. The combination, with a railway-car, its vestibule, and movable buffer-plate, of a flexible hood attached to the vestibule, a face-plate attached to the hood, and a laterally-movable connection attaching the face-plate
 30 to the buffer-plate, whereby the face-plate can shift its position laterally on the buffer-plate while remaining parallel with the buffer-plate, substantially as set forth.

35 2. The combination, with a vestibule-car and its buffer-plate, of a face-plate arranged above the buffer-plate, and links connecting the lower ends of the face-plate with the buffer-plate by pivots arranged lengthwise of the
 40 car, whereby the face-plate is enabled to move with its lower ends transversely on the buffer-plate, substantially as set forth.

45 3. The combination, with a railway-car provided with a vestibule, of a hood attached to the vestibule, a face-plate attached to the hood, and swiveling suspension-rods whereby the face-plate is suspended on the car and
 enabled to move lengthwise and transversely of the car, substantially as set forth.

50 4. The combination, with a railway-car provided with a vestibule and a yielding buffer-plate, of a hood attached to the vestibule, a face-plate attached to the hood, swiveling suspension-rods supporting the face-plate on the
 55 vestibule, and transversely oscillating links connecting the lower ends of the face-plate with the buffer-plate, substantially as set forth.

60 5. The combination, with a railway-car provided on its platform with a vestibule, of a hood attached to the vestibule, a face-plate attached to the hood, a suspension-rod attached with its lower end to the face-plate,
 and a supporting-arm pivoted to the vestibule and connected with the upper end of the sus-
 65 pension-rod, substantially as set forth.

6. The combination, with a railway-car provided on its platform with a vestibule, of a hood attached to the vestibule, a face-plate attached to the hood, a supporting-arm pivoted with its lower end to the vestibule and
 70 provided at its upper end with an eye, and a suspension-rod attached with its lower end to the face-plate and provided at its upper end with a semi-spherical knuckle resting upon said eye, substantially as set forth. 75

7. The combination, with a railway-car provided on its platform with a vestibule, of a face-plate, a hood connecting the face-plate with the vestibule, a suspension-rod attached with its lower end to the face-plate, a sup-
 80 porting-arm pivoted with its lower end to the vestibule and supporting the suspension-rod at its upper end, and a roller mounted on the upper end of the suspension-rod and bearing against the rear side of the face-plate, sub-
 85 stantially as set forth.

8. The combination, with a railway-car provided on its platform with a vestibule, of a face-plate, a hood connecting the face-plate with the vestibule, a suspension-rod pivoted
 90 with its lower end to the face-plate, a supporting-arm pivoted with its lower end to the vestibule and having a swiveling connection at its upper end with the upper end of the suspension-rod, and a stop-chain connecting
 95 the vestibule with the face-plate, substantially as set forth.

9. The combination, with the railway-car provided on its platform with a vestibule and a movable buffer-plate, of a face-plate, a hood
 100 connecting said face-plate with the vestibule, swiveling supports connecting the upper portion of the face-plate with the vestibule, links pivoted with their lower ends to the buffer-plate and provided with slots, and pins or
 105 bolts secured to the lower portion of the face-plate and engaging in said slots, substantially as set forth.

10. The combination, with a vestibule-car, of a movable face-plate and an automatic
 110 locking-bolt projecting from the face-plate and adapted to engage in a recess in the face-plate of the adjoining car, whereby the bolt is pressed back when the face-plates are out of line and is automatically projected and
 115 interlocked with the opposing face-plate when the face-plates register with each other, substantially as set forth.

11. The combination, with a railway-car provided on its platform with a vestibule, of
 120 a face-plate capable of transverse movement and provided with a recess on one side, a rearwardly-ascending pocket formed in the opposite side of the face-plate, and a retractible bolt arranged in said pocket, whereby the bolt
 125 is projected by gravity, substantially as set forth.

12. The combination, with a railway-car, its vestibule, and the face-plate, of a flexible
 hood connecting the vestibule with the face- 130

plate, and a bow pivoted with its lower ends to the vestibule and supporting the hood between the vestibule and the face-plate, substantially as set forth.

- 5 13. The combination, with a railway-car, its vestibule, and the face-plate, of a flexible hood connecting the vestibule with the face-plate, and a bow pivoted with its lower ends to the face-plate and supporting the hood be-

tween the vestibule and the face-plate, substantially as set forth.

Witness my hand this 14th day of March, 1891.

THOMAS A. BISSELL.

Witnesses:

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FRED. C. GEYER.