

No. 855,933.

PATENTED JUNE 4, 1907.

E. S. BUCKNAM.  
CAR WINDOW.

APPLICATION FILED MAY 24, 1906.

3 SHEETS—SHEET 1.

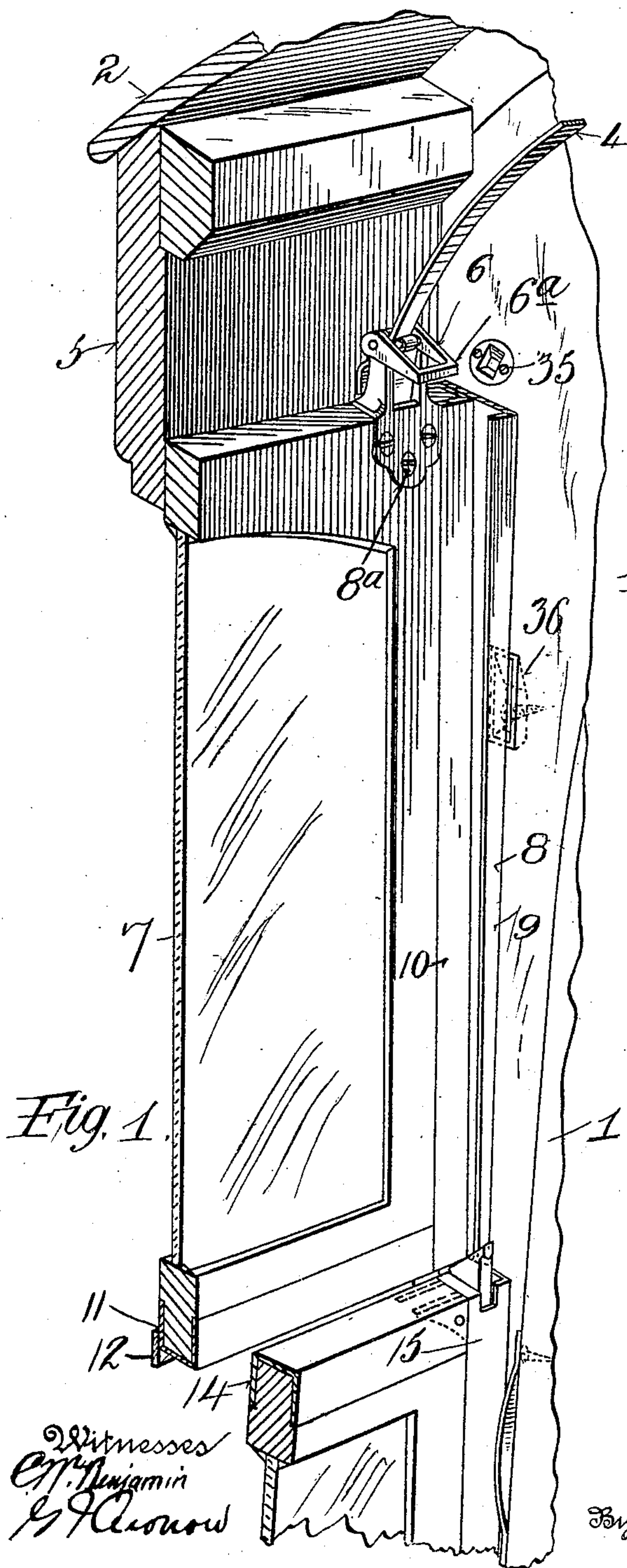


Fig. 1.

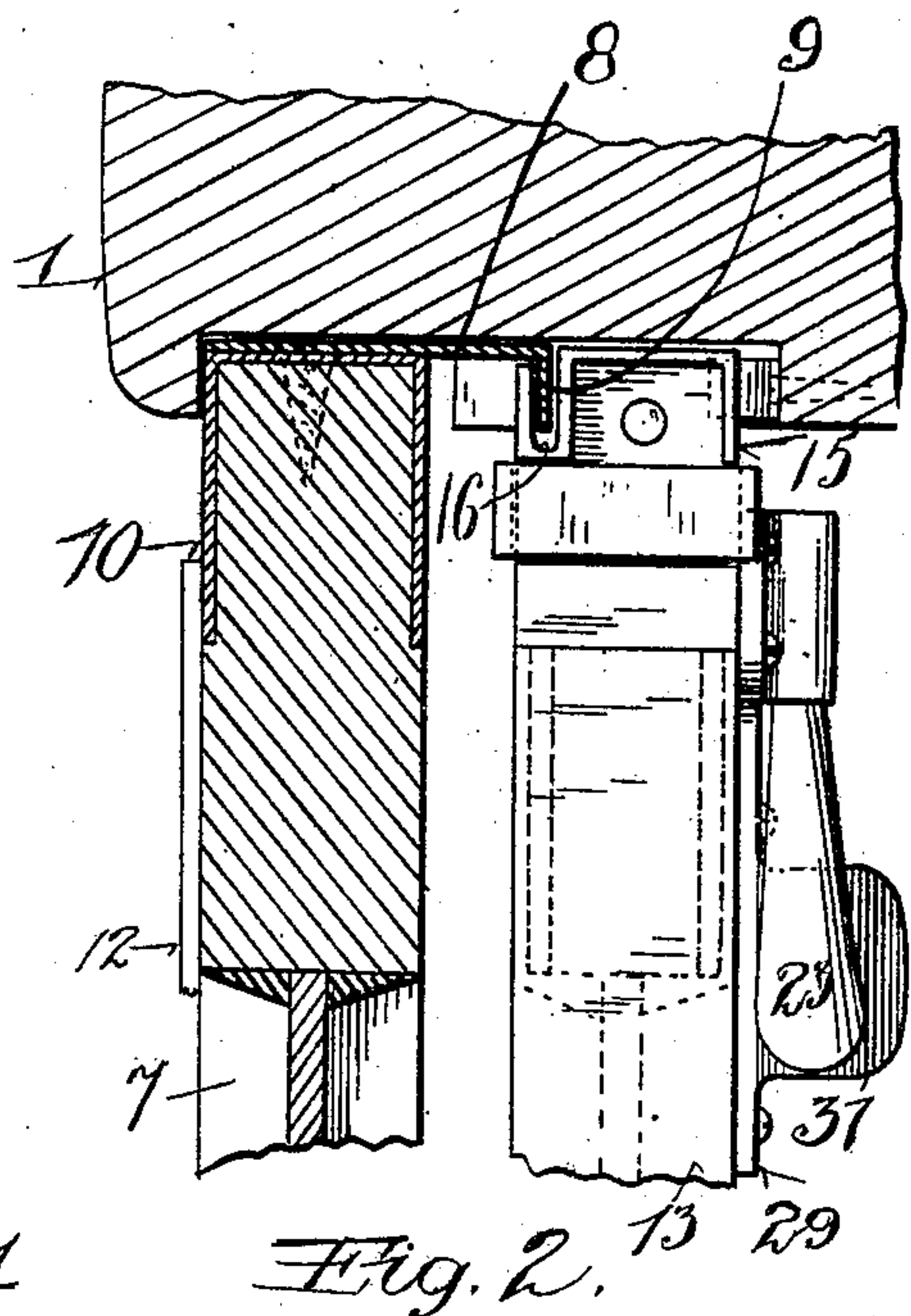


Fig. 2.

Witnesses  
C. W. Benjamin  
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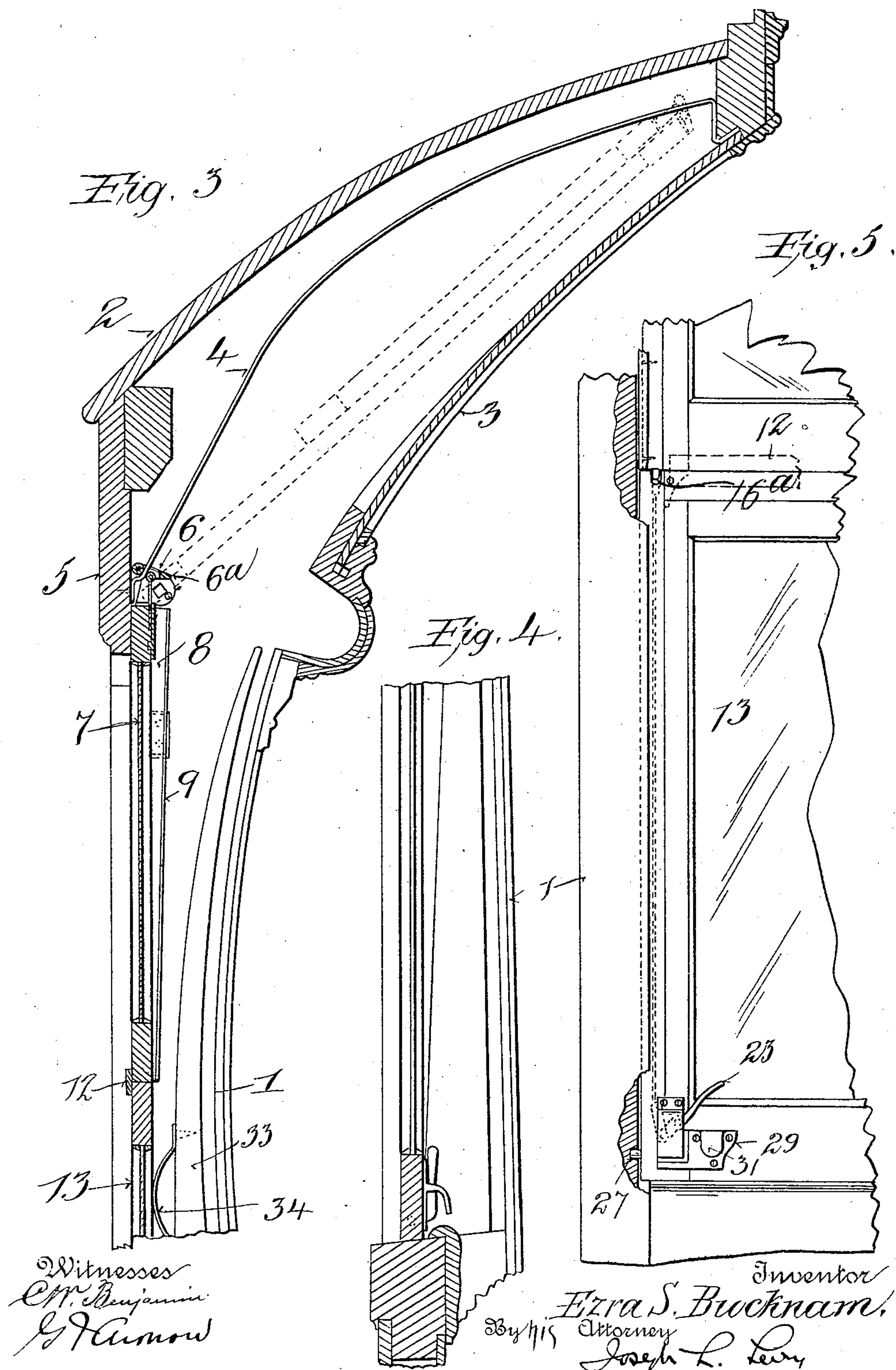
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3 SHEETS—SHEET 2.





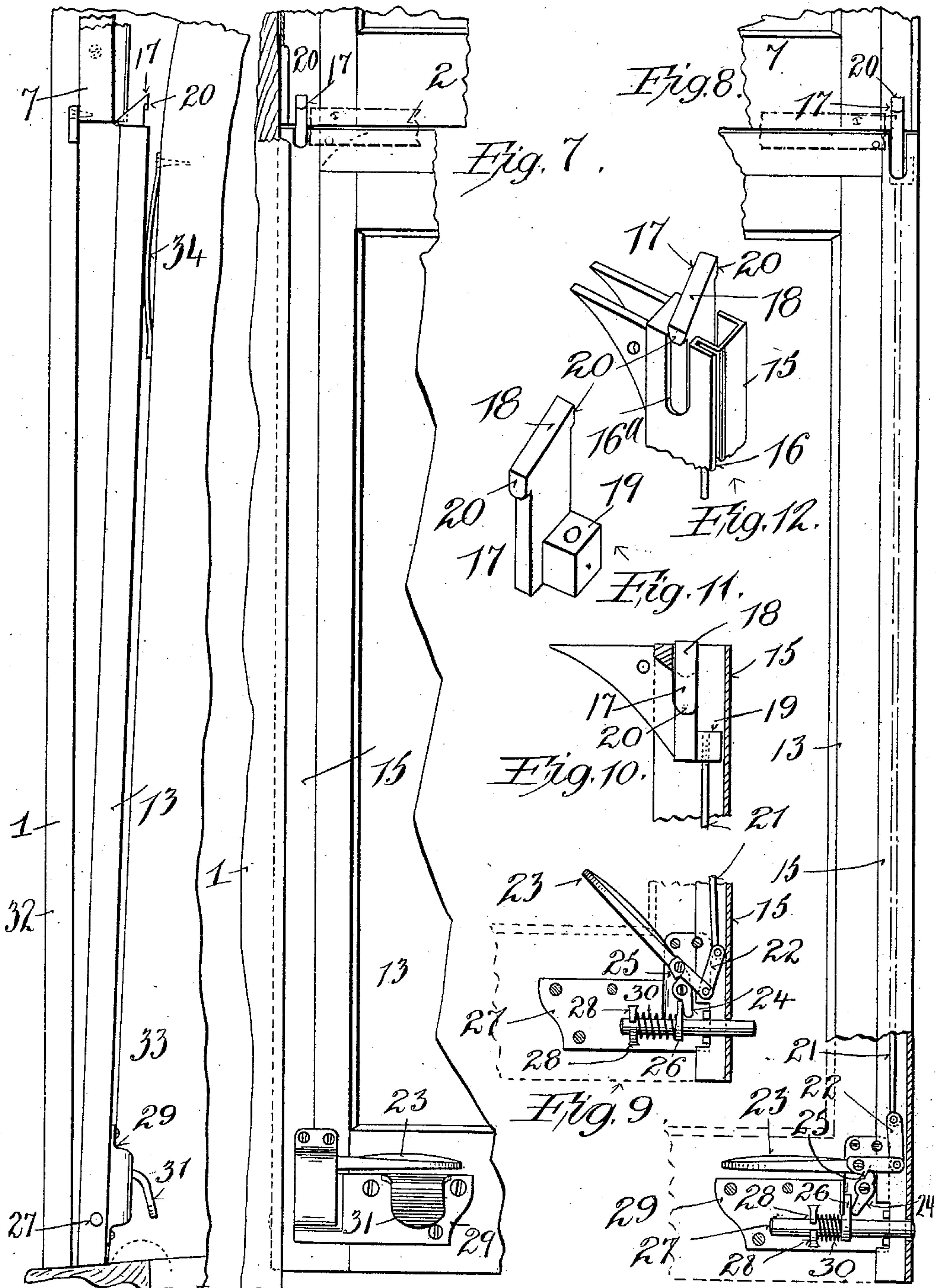
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3 SHEETS—SHEET 3.



Witnesses  
C. W. Benjamin  
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Fig. 6.

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By his Attorney  
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# UNITED STATES PATENT OFFICE.

EZRA S. BUCKNAM, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JOHN A. BRILL, OF PHILADELPHIA, PENNSYLVANIA.

## CAR-WINDOW.

No. 855,933.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed May 24, 1906. Serial No. 318,458.

*To all whom it may concern:*

Be it known that I, EZRA S. BUCKNAM, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Car-Windows, of which the following is a specification.

The object of my invention is to provide a car window which will be closed by two sashes, one resting immediately below the other, and to provide means for causing the lower sash to be moved laterally from under the upper sash, then to be engaged thereby when raised abreast thereof. When the windows are closed the reverse operation takes place. This object is accomplished by means of my invention, one embodiment of which is hereinafter described.

For a more particular description reference is to be had to the accompanying drawings forming a part hereof, in which,

Figure 1 is a perspective view of that portion of a car provided with my improvement, a portion of two sashes being shown therein. Fig. 2 is a sectional view showing the sashes when the lower one is moved from under the upper and is partially abreast thereof. Fig. 3 is a sectional view of a portion of a car showing the sashes in their closed position. Fig. 4 is a sectional view of the structure below what is shown in Fig. 3. Fig. 5 is an end elevation showing portions of the structures shown in Figs. 3 & 4. Fig. 6 is an enlarged sectional view showing the lower sash forced from under the upper. Fig. 7 is a front elevation of the view shown in Fig. 6. Fig. 8 shows the same structure as Fig. 7, except that the parts are broken away to show the shifting mechanism, the outside of the window being shown. Figs. 9, 10, 11 & 12 show various details of this shifting mechanism.

Throughout the various views of the drawing, similar reference characters designate similar parts.

While my invention may be applied to any window, it is particularly adapted to car windows used in what are known as semi-convertible cars.

In the embodiment hereinafter described, the car is provided with the usual posts or stanchions 1, which support the roof 2, which is preferably a decked roof, and the head-lining 3, all of which may be of the conventional form. A guiding strap 4 is fastened at its

lower end to a sign-plank 5 immediately below the roof, and at its upper end to the vertical support of the decked part of the roof. As many of these straps 4 are employed as desired, but preferably two for each window. The upper sash is suspended from this strap 4 by means of a standard 6 which is secured to this upper sash 7 by any suitable means, as by screws 8<sup>a</sup>. The standard 6 has a projection 6<sup>a</sup> adapted to be engaged by the lower sash.

The side edges of the sash 7 are provided with flanges 8 having an inturned edge 9 which runs nearly, but not quite, parallel with the plane of the sash 7, the edge 9 being closer at the lower than at the upper edge of the sash. The side edges of the sash 7 are preferably re-inforced by metal angle-plates 10, and similar plates 11 are placed on the lower edge of this sash. Secured to the re-inforce 11 of the upper sash 7 is a downwardly depending plate or weather strip 12 which covers the point between the upper sash 7 and the lower sash 13.

The lower sash 13, when the window is closed, rests immediately under the upper sash 7 as shown in Fig. 3. This sash 13 is preferably, but not necessarily, provided with an angle metal re-inforce 14 on its upper edge which is similar to the re-inforce 11 and its side edges are provided with similar metal re-inforces 15 which are so shaped as to have a groove 16 adapted to receive the edge 9 of the flange 8, and this metal re-inforce 15 is sufficiently large so as not to be filled by the glass holding portion of the sash, but to leave a space for a purpose which will appear below.

The upper inner and outer faces of the sashes 13 are provided with U shaped recesses 16<sup>a</sup> near each corner, which recesses receive the outer lugs of a slide 17. This slide 17 is provided with a diagonally extending face 18 and a laterally extending lug 19. Two small lugs 20 extend into the recesses 16<sup>a</sup> and guide the slide 17 during its movement, or hold it when at rest.

The lug 19 is preferably perforated with a screw threaded perforation to receive a small shaft or bar 21 which runs vertically to near the bottom of the sash and in the space between the wooden filling and the inner wall of the metal stile 15 as is apparent in Fig. 8. The lower end of the rod 21 is pivotally con-



connected to the link 22 which is in turn pivotally connected with the end of the lever 23 which is the hand lever for operating the bolt of the sash. This bolt is controlled by a  
 5 small lever 24, the upper end of which impinges against a projection 25 on the lever 23, and the lower end against a projection 26 on the bolt 27 which slides in guides 28 fixed in the lower edge of the sash and integral  
 10 with a plate 29 which is secured to the sash in the usual manner.

A coiled spring 30 tends to force the bolt outwardly, and the action of the lever 23 is such that the bolt 27 is withdrawn against  
 15 the tension of this spring 30 and at the same time the rod 21 is raised vertically so that the slide 17 is raised. The hand hold 31 is made integral with the plate 29 and is conveniently located immediately below the lever 23.

20 The post 1 is provided with the usual weather strip 32 which is continuous from the window sill to the top of the window, and against which both the upper and the lower sashes rest. This strip 32 forms the outer  
 25 wall of the slideway for the sashes 13 & 7, and the inner wall is formed by the usual parting strip 33 which flares inwardly to enable the lower sash 13 to get from under the sash 7, as indicated in the drawings. This  
 30 parting-strip 33 is provided with a leaf spring 34 which normally tends to force the upper end of the sash 13 immediately under the sash 7, and when this sash moves from under the upper sash it is against the tension of  
 35 this spring 34.

From the foregoing the operation of my improved window will be readily understood. Assuming the parts to be in the position indicated in Figs. 3 & 4 the windows are opened  
 40 as follows: The lever 23 is depressed, thereby withdrawing the bolt 27 and elevating the slide 17. The elevation of the slide 17 forces the upper end of the sash 13 inwardly against the action of the spring 34 until the  
 45 edge 9 of the flange 8 is immediately over the groove 16 in the re-inforce or stile 15. The lower sash is then raised until its upper edge strikes the standard 6, when, if the movement be continued, both upper and  
 50 lower sashes move together as a unit, the movement being guided by the strap 4 and this is continued until the sashes rest in the position indicated by dotted lines in Fig. 3, when the lever 23 is released and the bolt  
 55 27 enters a suitable hole 35. Should the window be less than fully opened it may be held by a suitable bolt receiving recess 36 located at any convenient point or points below the socket 35. When the sashes are  
 60 lowered the reverse operation is carried out; the sashes move as a unit until the upper sash 7 is in place, when the lower sash moves on guided by the flanges 8 with their edges 9 until the sash 13 is entirely below

the sash 7. At this time, when the bolt 65 is released, the slide 17 is immediately lowered and then the spring 34 forces the lower sash immediately under the upper sash where it impinges against the weather strip 12.

While I have shown one embodiment of 70 my invention, it is obvious that many others may be made, so that I do not regard it as limited to the precise disclosure herein made, but as broad enough to cover all structures that come within the scope of the annexed 75 claims.

Having described my invention, what I claim is:

1. In a car, stanchions, guiding-straps secured near said stanchions, a sash suspended 80 from said strap, flanges on said sash, a lower sash below said upper sash means on said lower sash for causing the same to move inwardly before it is raised and means on said lower sash to cause it to engage said flanges. 85

2. In a car, upper and lower sashes, stanchions and a window sill supporting said sashes so that one is immediately below the other, means for causing the lower sash to move laterally of the upper before being 90 raised and means for causing the engagement of the sashes when the lower sash is raised.

3. In a car, upper and lower sashes and stanchions supporting the same so that one is below the other and the upper rests on the 95 lower, a spring which normally holds the lower sash in this position, means for forcing the lower sash to move laterally of the upper sash against the tension of this spring before being raised and interengaging means on 100 said sashes for holding them in fixed relationship when moving together.

4. In a car, upper and lower sashes and means for supporting the same, one below the other flanges on the upper sash adapted 105 to receive and guide the lower sash, grooved sides on said lower sash and means for moving the grooves in said sides of the lower sash into alinement with the flanges on the upper sash before the window is opened. 110

5. In a car, upper and lower sashes and means for supporting the same, a spring for holding the lower sash immediately under the upper sash, a slide with an inclined face in the upper edge of said lower sash, and 115 means for forcing said slide upwardly so that the lower sash is moved from under the upper sash against the tension of said spring before the window is opened.

6. In a car, sashes and means for supporting the same so that one is under the other, slides on said lower sash adapted to move it from under the upper sash, bolts on said lower sash and means for withdrawing the bolts and simultaneously, raising the slides 125 so that when the bolt is withdrawn the lower sash is moved from under the upper sash.

7. In a car, upper and lower sashes and

means for supporting the same so that one  
is immediately under the other, a spring  
which normally holds the lower sash imme-  
diately under the upper, a slide with an in-  
5 clined face which is adapted to move the up-  
per end of the lower sash from under the  
lower end of the upper sash when the slide  
is raised, a bolt for securing the lower sash,

and means for simultaneously forcing the  
slide upward and withdrawing the bolt. 10  
Signed this 21 day of May, 1906.

EZRA S. BUCKNAM.

Witnesses:

MATTA M. KING,  
WILLIAM H. DUNKERLEY.