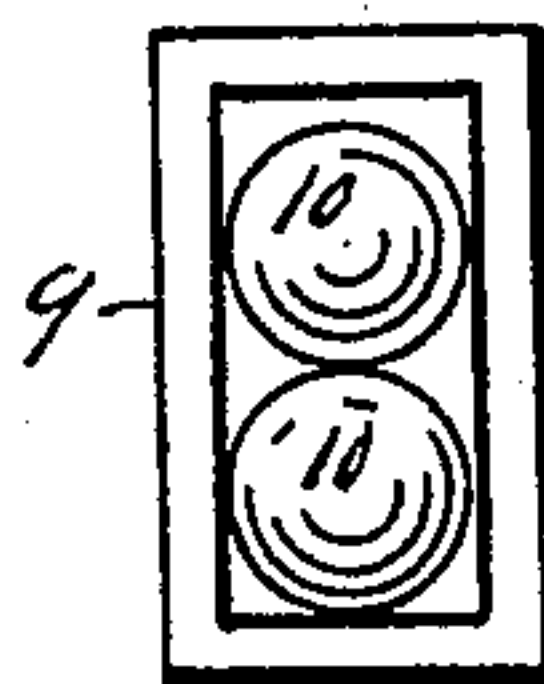
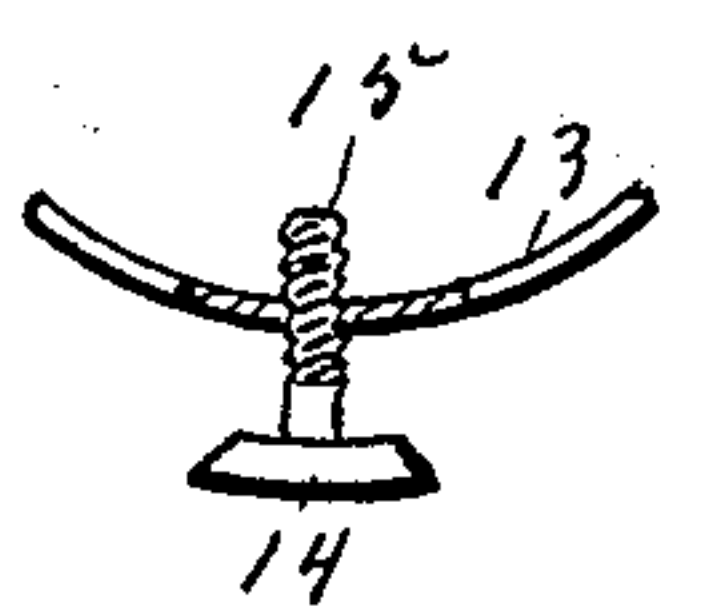
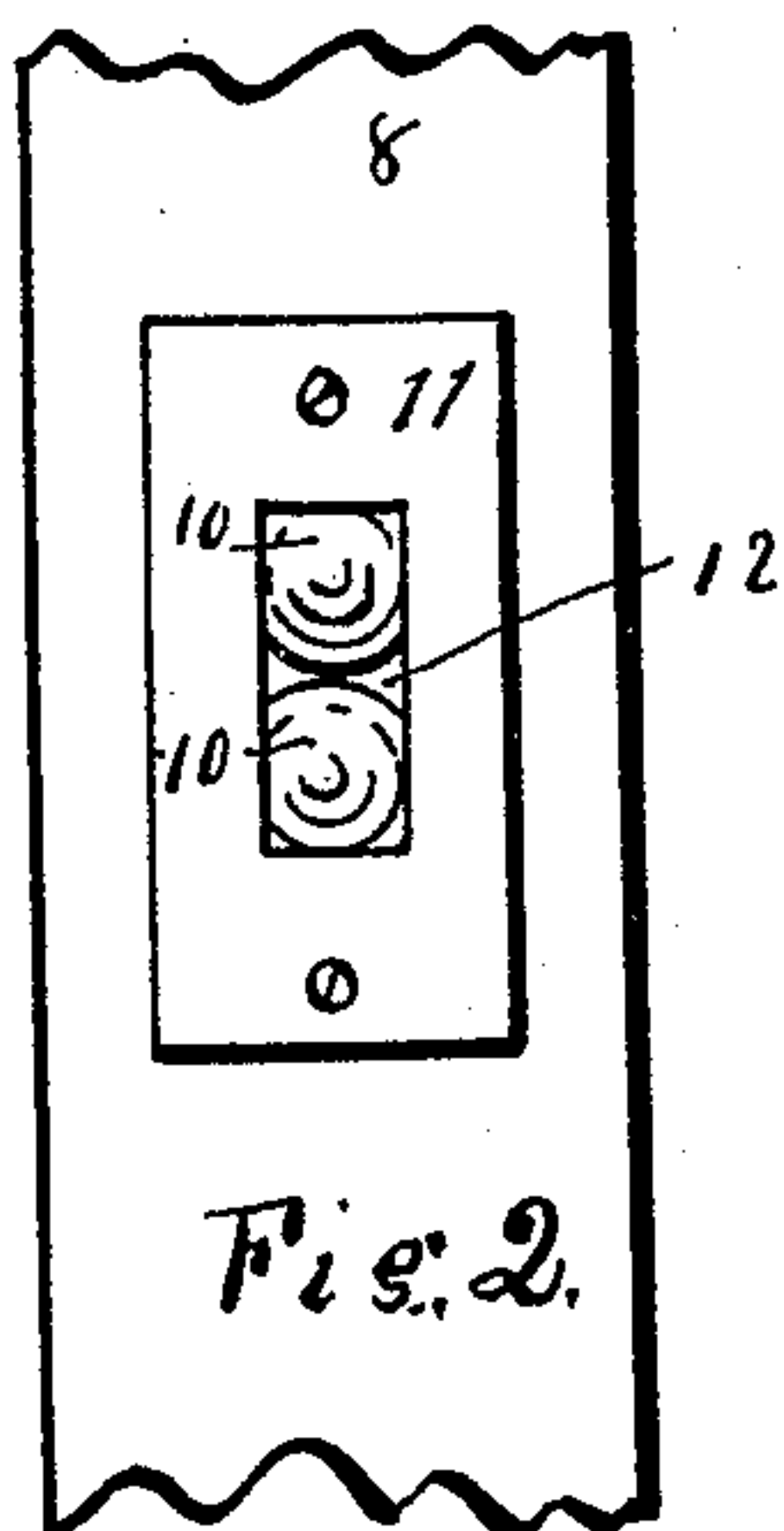
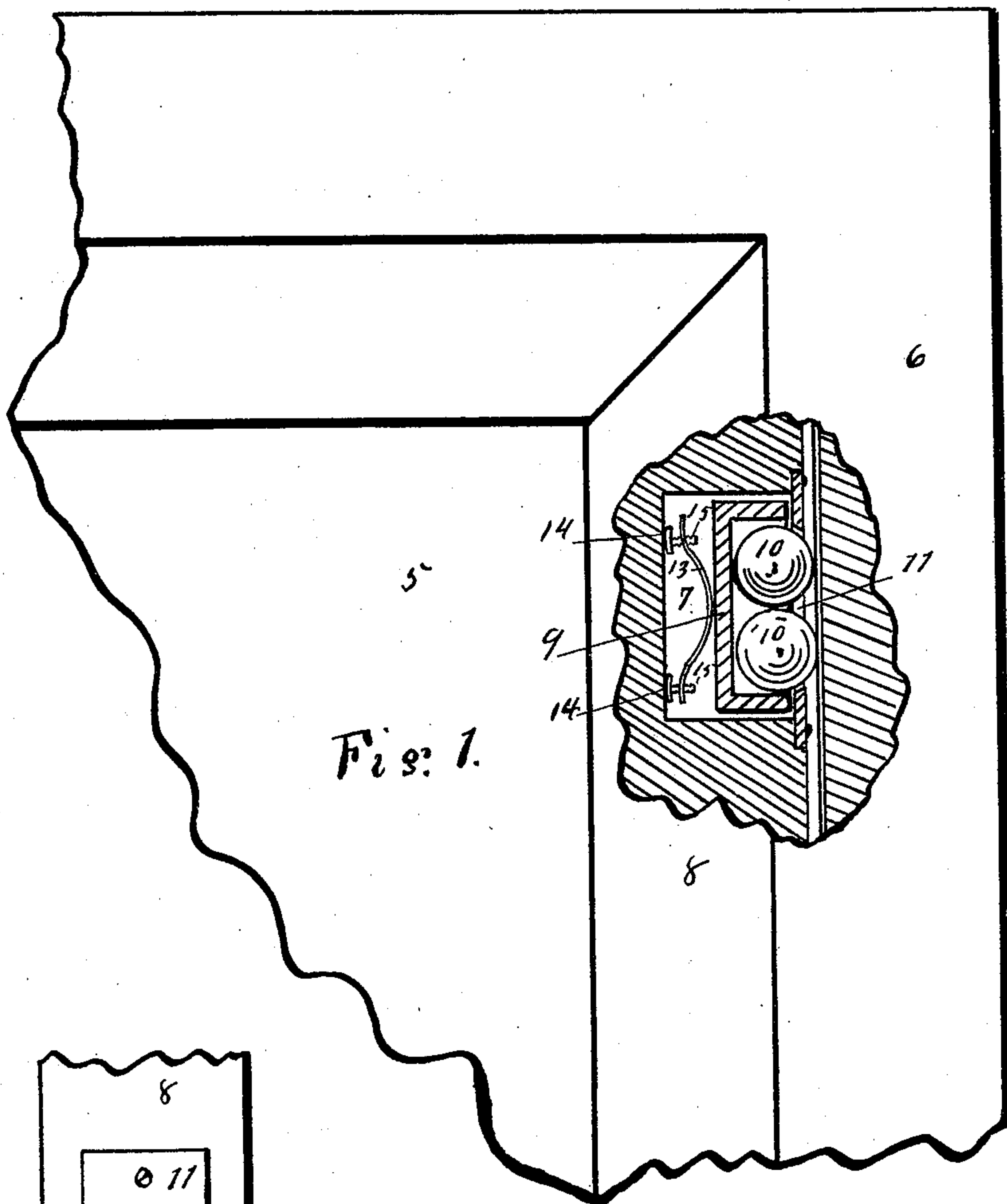


(No Model.)

J. ADAMS.  
CAR WINDOW.

No. 587,030.

Patented July 27, 1897.



Witnesses  
Levi F. Boy  
Lewis Kimble

Inventor  
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By his Attorney Lucien C. West.

# UNITED STATES PATENT OFFICE.

JOSEPH ADAMS, OF KALAMAZOO, MICHIGAN.

## CAR-WINDOW.

SPECIFICATION forming part of Letters Patent No. 587,030, dated July 27, 1897.

Application filed January 20, 1897. Serial No. 619,857. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH ADAMS, a citizen of the United States, residing at Kalamazoo, in the county of Kalamazoo, State of Michigan, have invented a new and useful Car-Window, of which the following is a specification.

This invention relates to that class of car and other windows which employ antifriction balls or rollers between the edges of the sash and the window-casing to make them slide up and down easier, and in some cases to hold them at a given height as well; and it has for its object certain improvements below described and claimed, one of which pertains to the spring for adjusting the ball case or pocket.

In the drawings forming a part of this specification, Figure 1 is an elevation of a window with parts broken away, showing the use of the antifriction-balls; Fig. 2, a view looking against the ball-case and its plate over it from a point at right in Fig. 1; Fig. 3, enlarged broken detail of one end of spring in Fig. 1, and Fig. 4 is a top view of ball-case with balls therein.

Referring to the parts of the drawings pointed out by numerals, 5 is the window, and 6 the casing, which may serve to illustrate a car-window or other window, as my invention is designed for any window to which it can be adapted, although especially designed for car-windows.

At 7 is a mortise in the edge of the sash 8 of the window 5. In this mortise is a ball case or pocket 9. This case is like a box with one open side, Figs. 1 and 4, and is loosely and detachably inserted in the mortise, as in Fig. 1. I prefer to use two antifriction-balls 10 in the case 9. I attach a slotted plate 11 to the sash over the mortise and ball-case 9, as in Figs. 1 and 2, in the usual manner of holding the balls from coming out of the case. The slot 12 of this plate 11 is smaller than the largest diameter of the balls 10, and hence allows them to project part way out to contact with the window-casing, as in Fig. 1.

Some windows fit tighter than others, and in many cases the window sash or case shrink or swell, as the case may be, after the antifriction-balls have been attached. I place a loose bowed spring between the back or bottom of the mortise 7 and the ball case or pocket 9 to hold said case out to place and

allow it to yield under spring-resistance as the balls come in contact with the casing 6, thus permitting the window to play freely.

To provide for the shrinking and swelling and the difference of space between some sashes and casing and others, I make the bowed spring adjustable, so as to change its position to hold the ball-case out farther, or the reverse, as the needs demand. In each end of the spring 13 are screws having large heads 14 for contacting with the bottom of the mortise and having threaded stems 15 for adjustably screwing into holes in the ends of the spring, as in Figs. 1 and 3. If I find the spring will not occupy sufficient space in the mortise, I adjust the screws by turning them out a little, and the reverse if the spring will occupy too much space. This can be quickly done, as the spring being detachable and loose in the mortise it can be readily picked out and adjusted by turning the screws in the desired direction with the fingers and thumbs and then replaced.

The broad heads of the screws rest against the bottom of the mortise and slip thereon as the spring acts, and thus form good bearing-surfaces.

As many ball-cases with their balls may be placed at each side of a window as desired, but two for each sash at each side above and below seems to best serve the purpose.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, of a window sash and casing, the open mortise, the ball-case having open side loose in said mortise, the retaining-plate, balls in the case, and the loose spring having the adjusting-screws in the ends, and being between the bottom of the mortise and the ball-case, substantially as set forth.

2. The combination of the mortise, the ball-case, and the bowed spring loose in the mortise between the bottom thereof and the ball-case, and the headed adjusting-screws in the ends of the spring, substantially as set forth.

In testimony of the foregoing I have hereunto set my hand in the presence of two witnesses.

JOSEPH ADAMS.

Witnesses:

LEVI F. COX,  
L. C. FIELD.