

No. 645,939.

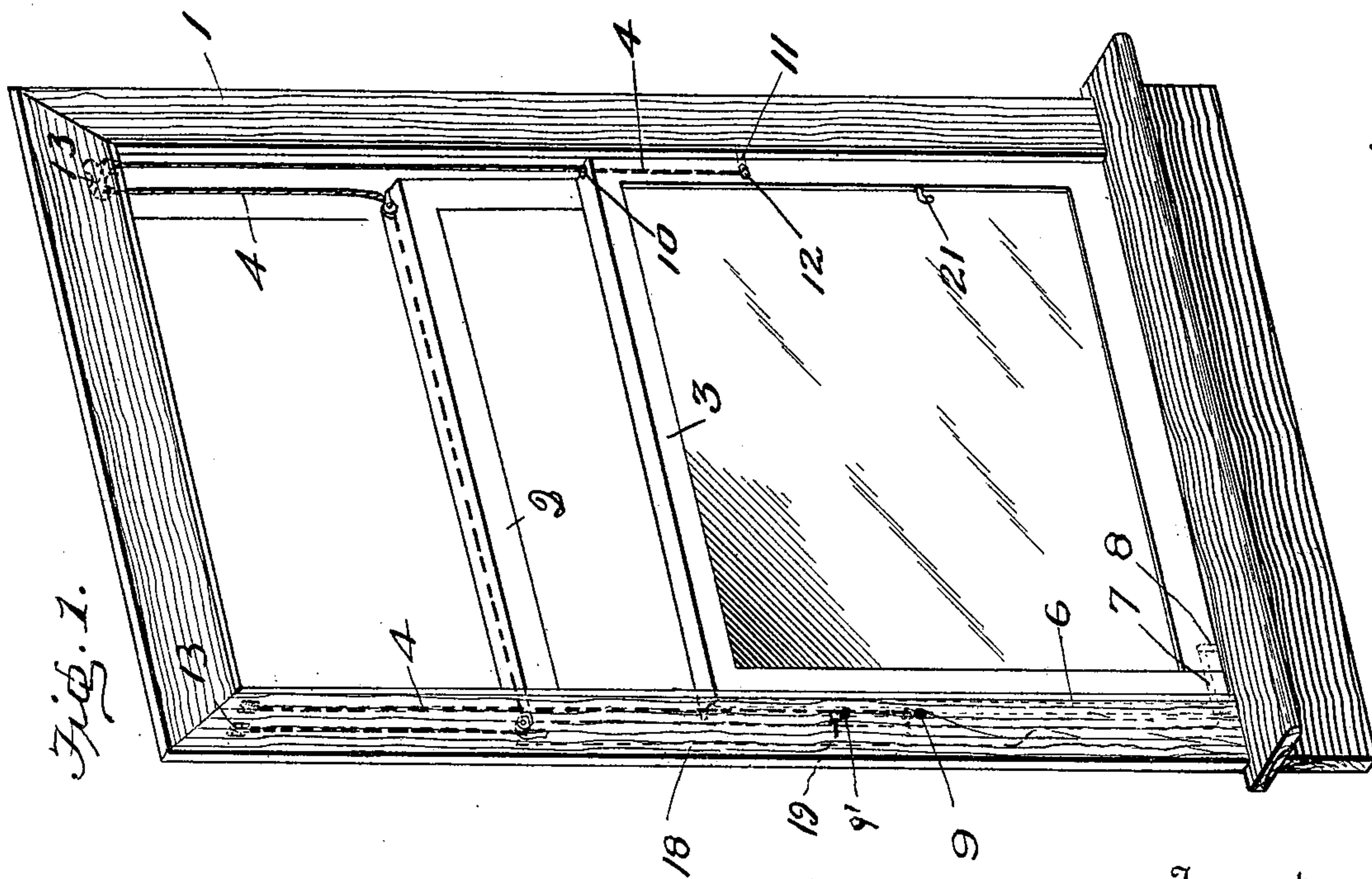
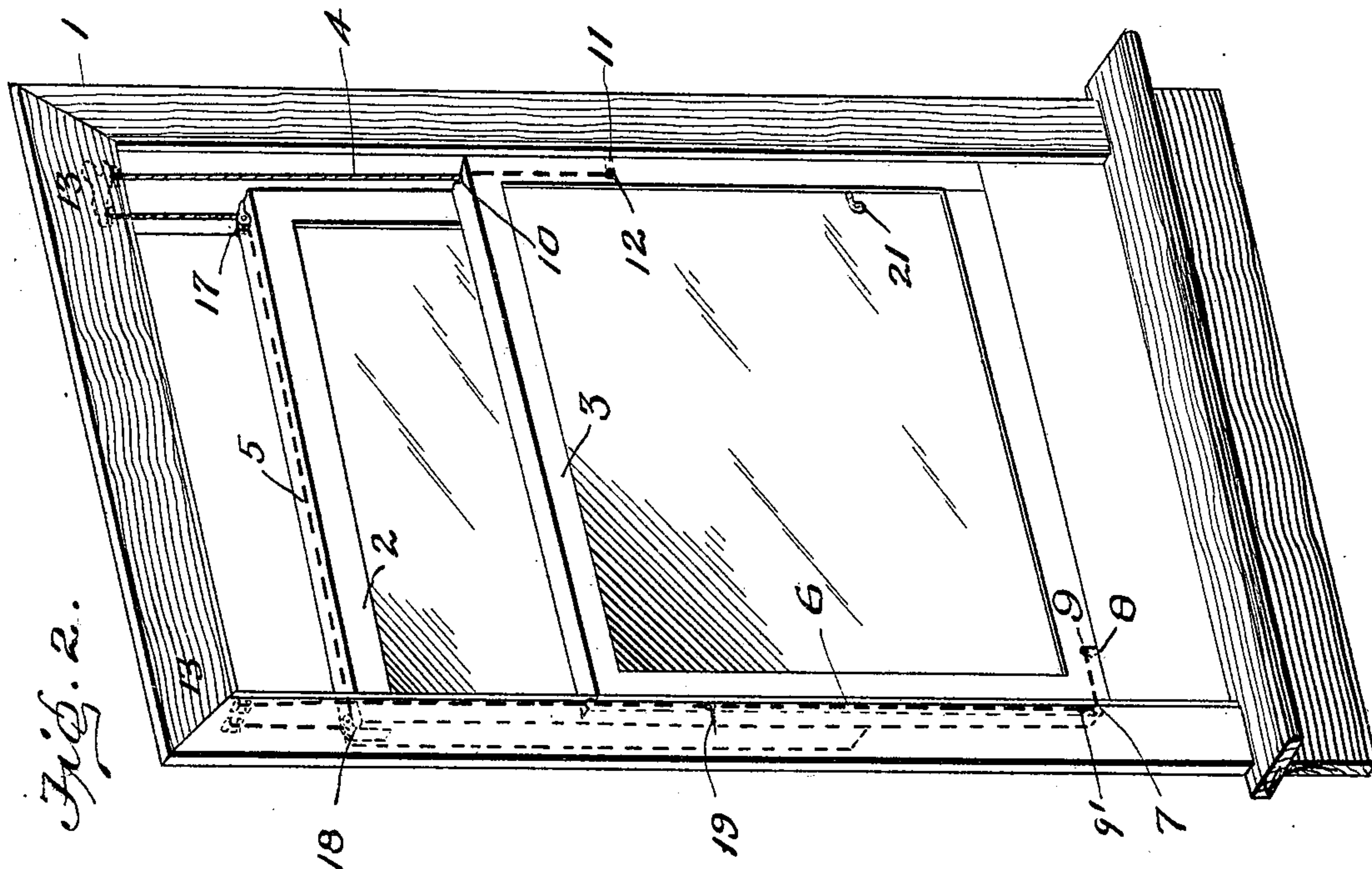
Patented Mar. 27, 1900.

H. P. CAYCE.  
SASH BALANCE.

(No Model.)

(Application filed Aug. 1, 1899.)

2 Sheets—Sheet 1.



Witnesses  
C. D. Kesler  
T. J. Laffie

A. P. Cayce, Inventor  
By John L. Duffie, Attorney

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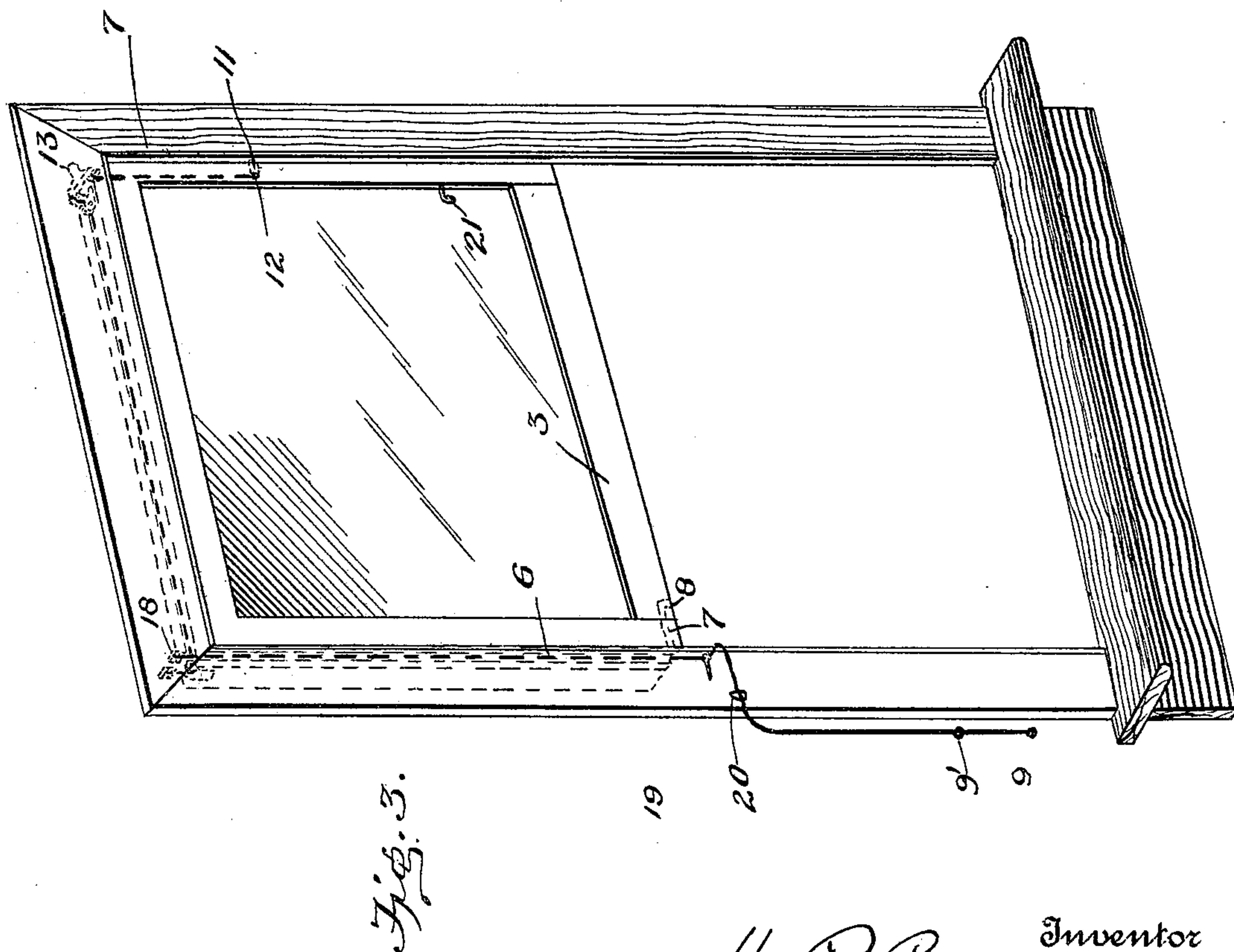
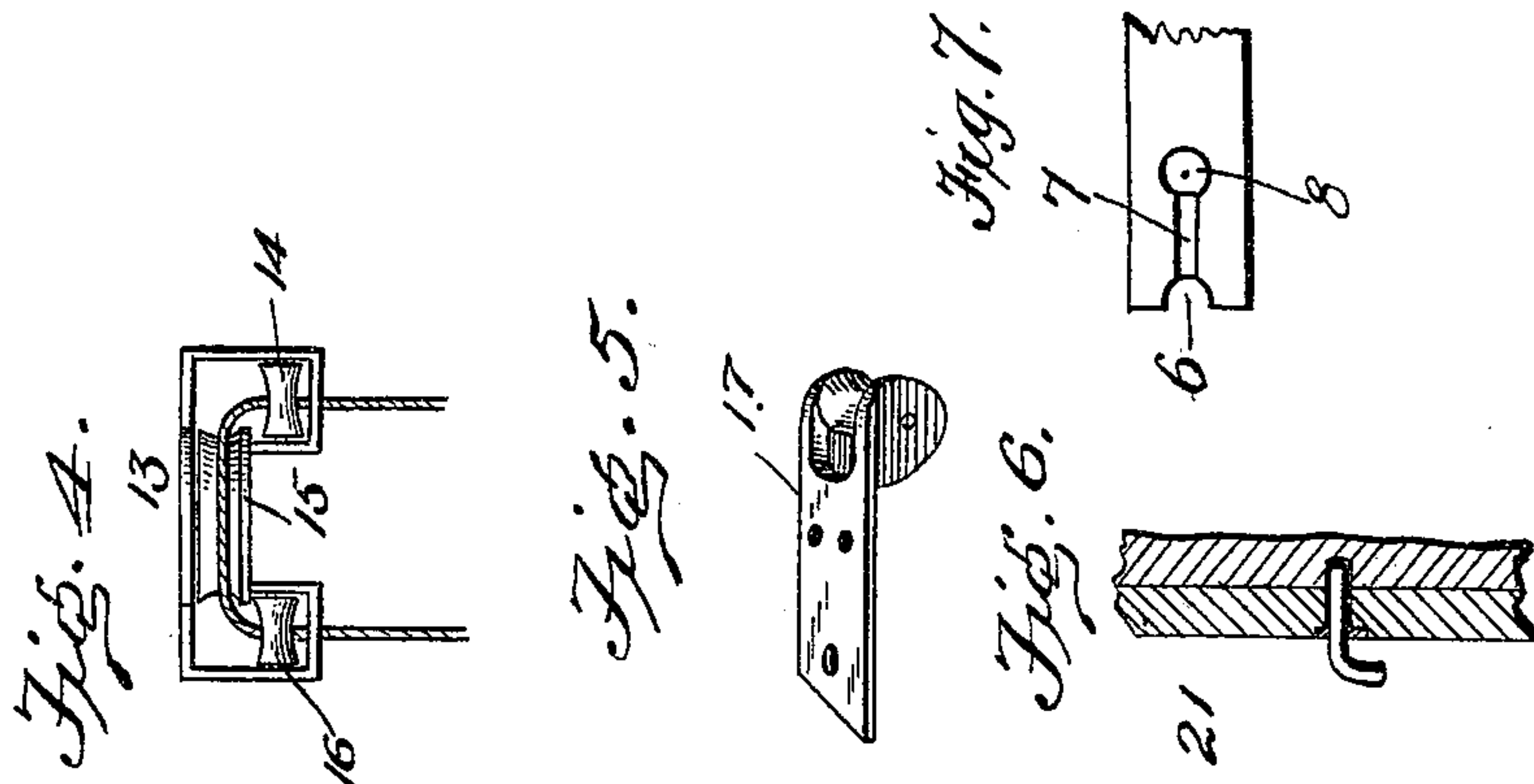
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2 Sheets—Sheet 2.



Witnesses  
C. D. Heder  
P. J. Duffie

H. P. Cayce Inventor  
By John J. Duffie Attorney



# UNITED STATES PATENT OFFICE.

HENRY P. CAYCE, OF OSAGE, TEXAS.

## SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 645,939, dated March 27, 1900.

Application filed August 1, 1899. Serial No. 725,777. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY P. CAYCE, a citizen of the United States, residing at Osage, in the county of Coryell and State of Texas, have invented certain new and useful Improvements in Sash-Balancing, of which the following is a specification.

My invention relates to sash-balancing operated by cords and pulleys.

10 In the accompanying drawings, Figure 1 is a perspective view of a window-frame, showing the front sash down to the bottom, giving one-fourth the ventilation from the top and showing the means for operating the sash.

15 Fig. 2 is a perspective view showing the sash in position to give ventilation both from the top and the bottom. Fig. 3 is a perspective view showing both sashes at the top, giving all the ventilation from the bottom. Figs. 4, 20 5, 6, and 7 are detail views.

My invention is described as follows: 1 represents the window-frame; 2, the upper sash; 3, the lower sash, and 4 the cord. The cord is hidden behind the parting-strips and in the 25 grooves.

The top sash 2 is provided with a top groove 5, three-fourths of an inch deep, in its top face and along its entire length. The bottom sash 3 is provided with a side groove 6 down on the 30 left side to the bottom of the sash, and the bottom rail is provided at the bottom of its left-hand end with a short groove 7 and a hole 8, bored up in the bottom rail near the left-hand corner at the end of groove 7. (See 35 Fig. 2 and detail Fig. 7, showing the lower end of the groove 6, which is made with a five-eighths-inch bit, auger-hole 8, about one inch deep and made with a three-quarter-inch auger, and a small groove 7, uniting the 40 groove 6 and the auger-hole 8.) The knot 9 on the cord 4 can be pushed into said hole and taken out with ease.

On the right of the bottom sash, near the top corner, is a groove 10, and at the lower 45 end of this groove is a hole 11 in the sash, and the knot 12 on the cord is drawn into said hole and secured therein. The cord runs thence up and through triple pulley 13 (shown in Fig. 4) and secured crosswise in the lower 50 face of the top sill of the window-frame—that is, the cord runs over pulley 4, up and against pulley 15, down and against pulley

16, (see Fig. 4,) thence down to small pulley 17 in the upper right-hand corner of the top sash, thence along top sash to the left, through 55 top groove 5 to the left-hand corner of said sash and under pulley 18, thence up through pulley exactly similar to pulley 13 (shown in Fig. 4) and secured crosswise in the lower 60 face and left-hand end of the upper sill of the window-frame, thence down and through a screw-eye 19, secured in the inner face of the left-hand side piece of the window-frame near the top left-hand corner of the bottom sash on a line with groove 6. 65

The groove 6 in the bottom sash is deep and wide enough for the screw-eye and the knots 9 and 9' on the cord to pass in and along the same without binding. When knot 9 is put 70 into the hole 8 at the bottom of the sash, the cord then connects the two sashes together on both sides, and they will balance easily without binding.

The cord 4 will run through the screw-eye 19 until the bottom sash gets up near the top 75 of the frame and then the screw-eye will stop the cord at 9' and then the knot 9 will come out of the hole 8 easily. Then by pulling the bottom sash back to the bottom you will have top ventilation. Then you can lock the bot- 80 tom sash by means of lock 21 and both sashes will be locked, or, in other words, the top sash cannot come down until the bottom sash is moved. Now when the sashes are placed in position, as shown in the drawings, Fig. 2, in 85 order to close them or to push them both up to the top and to have all the ventilation from the bottom, take hold of the bottom sash and push it up to the top and lock it. Then 90 you can take the cord from the screw-eye 19 and have double power to pull the top sash up, and then you can fasten the cord to a hook 20 on the side of the frame. Again, to close both sashes take the cord by the knot 9 and push it (the knot) into the hole 8 at the bot- 95 tom of the bottom sash, and then you will see that by pulling the bottom sash down the operation will close both sashes, (the top sash up to the top and the bottom sash down to the bottom.) Then lock the bottom sash and 100 both sashes are locked. You can see that by using both sashes together one will balance the other. After you get the bottom sash above the center the screw-eye 19, fastened



in the frame, will detach the cord from the sash on that side, and still the two sashes will balance; but the bottom sash will gain and the top sash will lose time. Therefore the bottom sash will be at the bottom sill when the top sash will be about one-fourth of the way down, giving all the ventilation from the top.

I have made three figures of the window-frame and sash. The first will show the knot 9' on the cord under the screw-eye and detached from the sash on that side, giving one-fourth top ventilation and none at the bottom. The second shows the cord pushed up into the hole in the bottom sash and both sashes in position to close, giving ventilation both at the top and the bottom. The third shows the sashes both at the top, giving full ventilation at the bottom, with the cord fastened on the hook 20 on the side of the frame. From these three drawings and the accompanying specification we can fully understand the invention.

I claim—

In a self-balancing window, the combination of the frame 1, having triple pulleys 13, secured in each end of the upper rail, a sash 2, provided with a groove 5 in its upper rail, pulley 17, secured to the right-hand corner of the said sash and in the right-hand end of said groove; pulley 18, secured to the left-

hand corner of said sash and in the left-hand end of said groove; sash 3, provided with a groove 10, in its upper right-hand corner and entering into the lower end of said groove a rope-hole 11, a groove 6, running the entire length of the left-hand rail of said sash, a short groove 7 in the left-hand end of the lower rail, and a knot-hole 8, entering into the end of said groove 7; a screw-eye 19, secured in the face of the window-frame and in a line with groove 6; a cord 4 secured to sash 3 at the hole 11 running thence up over pulley 14 against pulley 15, and down over pulley 16, in the right-hand end of the upper piece of the frame, thence down under pulley 17, thence along groove 5 and under pulley 18, thence up through pulley 13, thence down the left-hand side of the frame and through eye 19, along grooves 6 and 7 in sash 3, and its lower end having knots 9 and 9'; said cord detachably secured in knot-hole 8; substantially as shown and described and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY P. CAYCE.

Witnesses:

WM. DAVIS,  
WM. P. CAYCE.