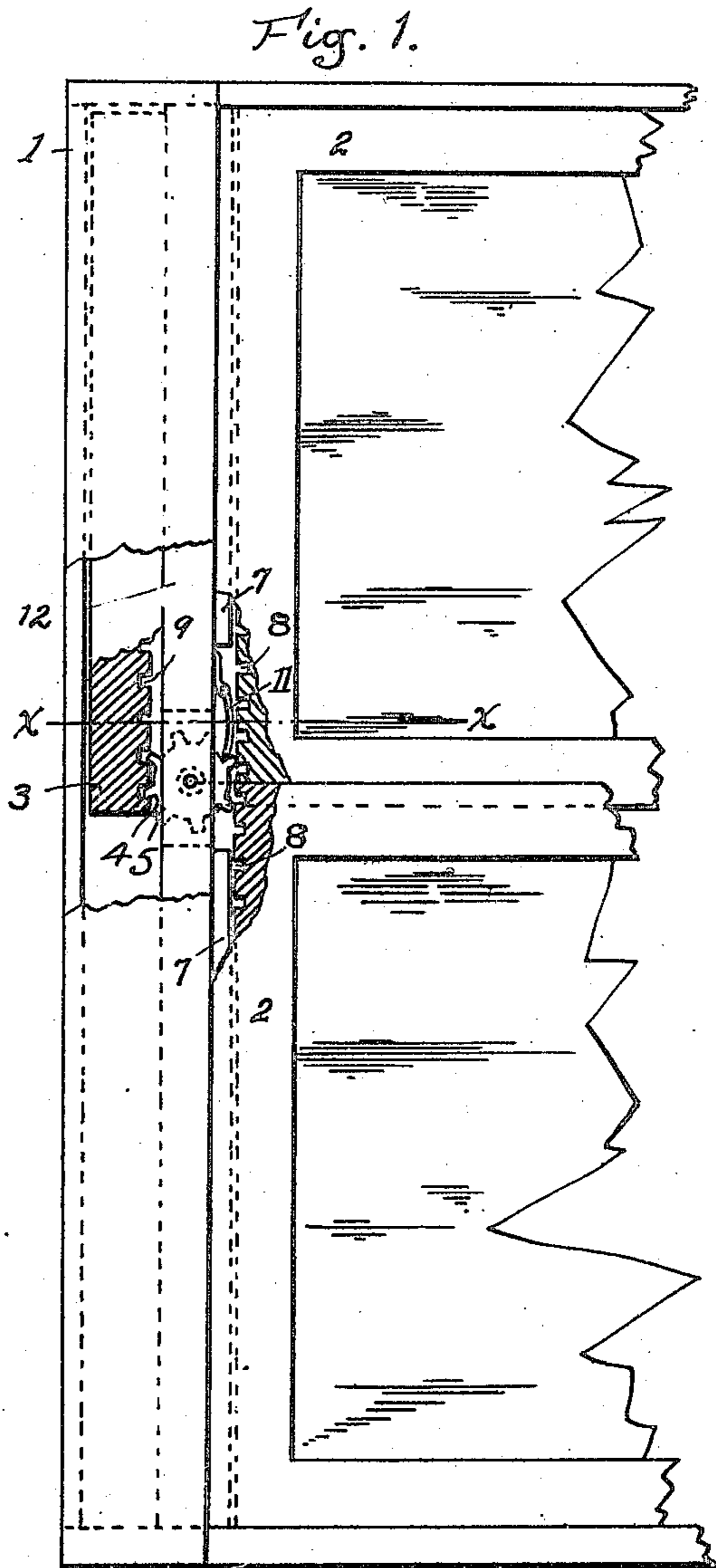
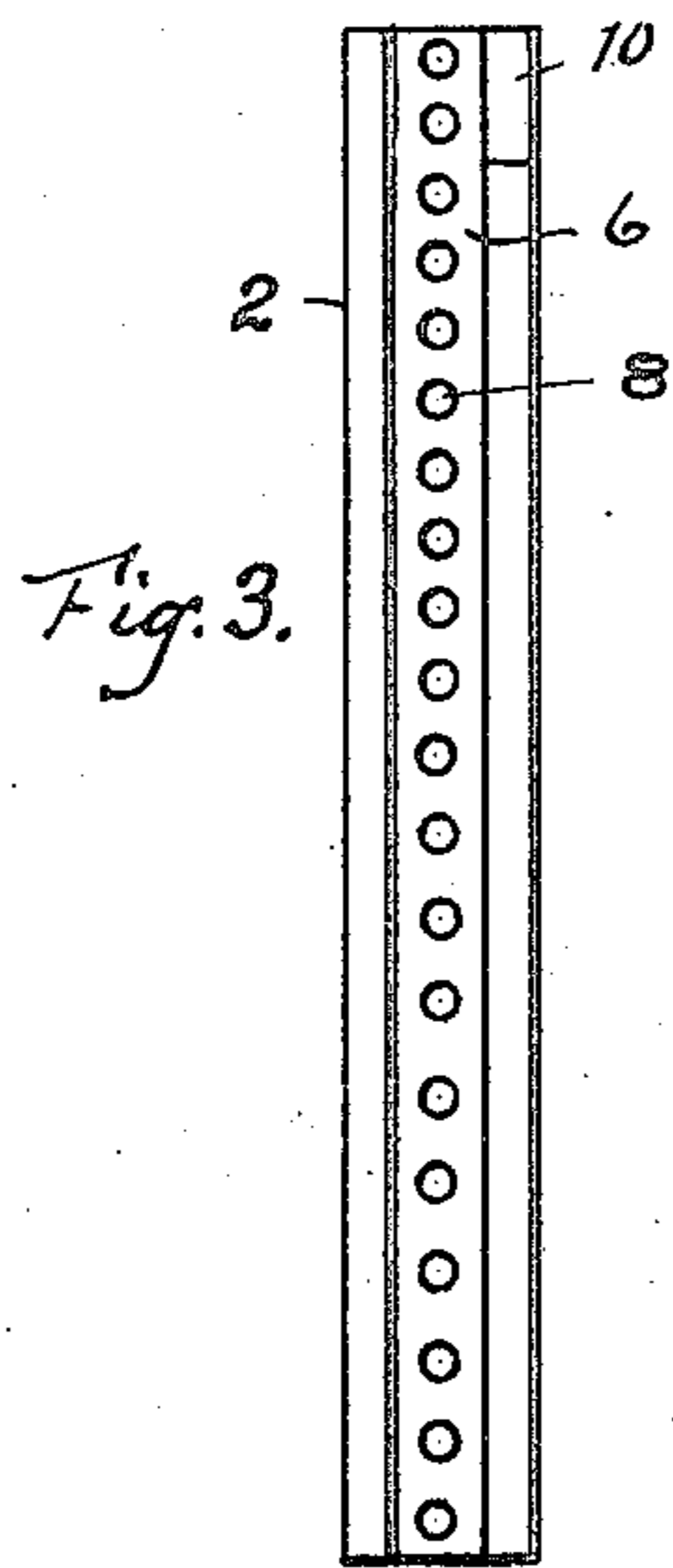
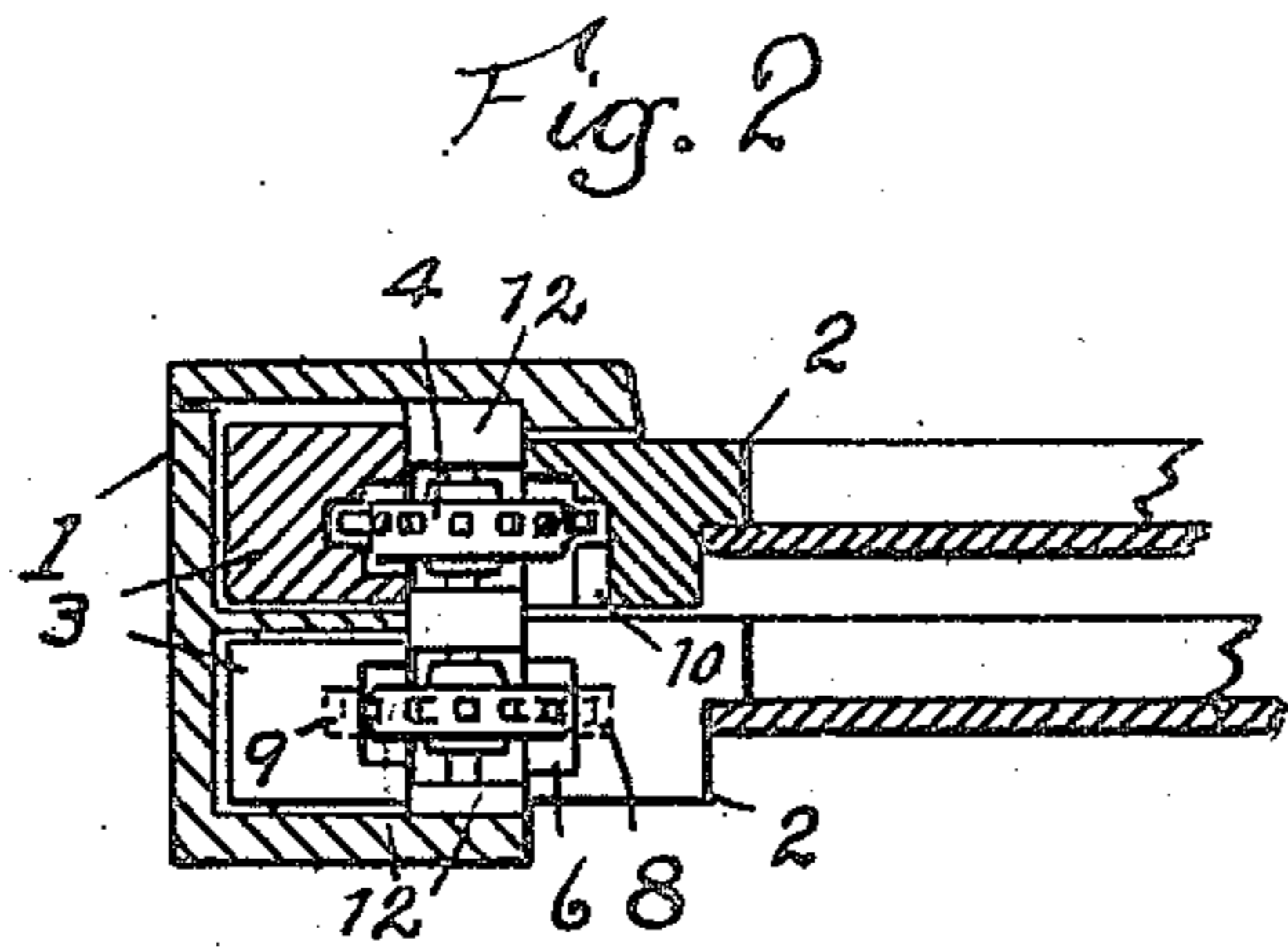


No. 875,072.

PATENTED DEC. 31, 1907.

F. HARBACH.
SASH BALANCE.

APPLICATION FILED NOV. 17, 1905.



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SASH-BALANCE.

No. 875,072.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed November 17, 1905. Serial No. 287,764.

To all whom it may concern:

Be it known that I, FLORIN HARBACH, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented new and useful Improvements in Sash-Balances, of which the following is a specification.

This invention relates to improvements in windows and the object is to provide a window in which either sash may be conveniently removed without interfering with any other portion of the window.

The device consists of two pairs of revolving sprocket wheels two of which wheels are located on either side of the frame and adapted to engage both the upper and lower sash and also the weights in such manner that the weights will be raised when the sash is lowered and lowered when the sash is raised.

The invention is fully described in the following specification and clearly shown in the accompanying drawing, in which:—

Figure 1 shows a portion of a window, partly in section, with my invention applied. Fig. 2 is a sectional view through $x-x$ of Fig. 1. Fig. 3 is an edge view of the sash.

The numeral 1 designates a window frame and 2 the sash. There is as usual an upper and lower sash.

3 designates a weight located in the frame, one on either side for each sash.

At a point near the center of the frame I provide wheels 4 having teeth 5; these wheels are mounted in the frame and project partly into the box portion of the frame in which the weights travel and partly into the space inside the frame in the path of the sash.

The vertical edges of each sash are grooved at 6, and said sash is adapted to travel in these grooves on guides 7 located along the inner walls of the frame within said grooves. These grooved edges are formed with a series of holes 8 at the base, adapted to be engaged by the teeth of the wheels 4. The weights are also formed with a corresponding series of holes 9 adapted to engage the teeth 5.

One of the guides 7 on which the lower

sash travels extends only half the height of the frame, that is, from the bottom to the middle thereof, as also one of the guides for the upper sash extends only from the top to the middle of the frame.

Either sash may be readily raised and lowered as the toothed wheel 4 will always be in engagement both with the weight and the sash.

When it is desired to remove one of the sash, for instance the upper one, it is lowered to the bottom of the frame, exposing the toothed wheel 4. This exposure is accomplished by cutting away the one corner of the sash on the inside, as shown at 10. A pawl 11 is arranged above the wheel 4 and this pawl is thrown into engagement with the toothed wheel, thus preventing the weight engaged by it from descending in the frame. The sash may then be easily removed as it is held by only one guide 7 on one side of the frame. The lower sash may be as easily removed but in this case it is merely raised until it has passed above the edge of the short guide on one side of the frame and removed. In this case it is not necessary to provide a pawl to lock the wheel 4 as the weight is at the bottom of the frame.

In my device I have overcome the use of all cords, springs or other tension devices.

The wheel 4 may be mounted in ball bearings if desired to still further reduce resistance and make a more easily operated sash.

The strips 12, 12 are arranged vertically within the frame 1 and are spaced apart. The said strips separate the weights 3 from the sashes 2 and serve as guides for both. Also the wheels 4 are journaled between the said strip.

Having thus fully described my invention what I claim and desire to secure by Letters Patent is:—

A window comprising a frame, guides located upon the inner side of the frame, vertically arranged strips located within the frame, wheels journaled between the strips, sashes arranged to move vertically along the frame and having their edges in engagement

with said strips and being provided at their edges with longitudinally disposed grooves having indentations at their inner sides said grooves receiving the peripheries of said
5 wheels and also receiving and housing the guides, and weights arranged to move vertically within the frame and having their edges in engagement with said strips, said

wheels having contact with the sashes and the weights. 10

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

FLORIN HARBACH.

Witnesses:

J. A. KELLY,

GEO. M. MILLER.