

No. 751,747.

PATENTED FEB. 9, 1904.

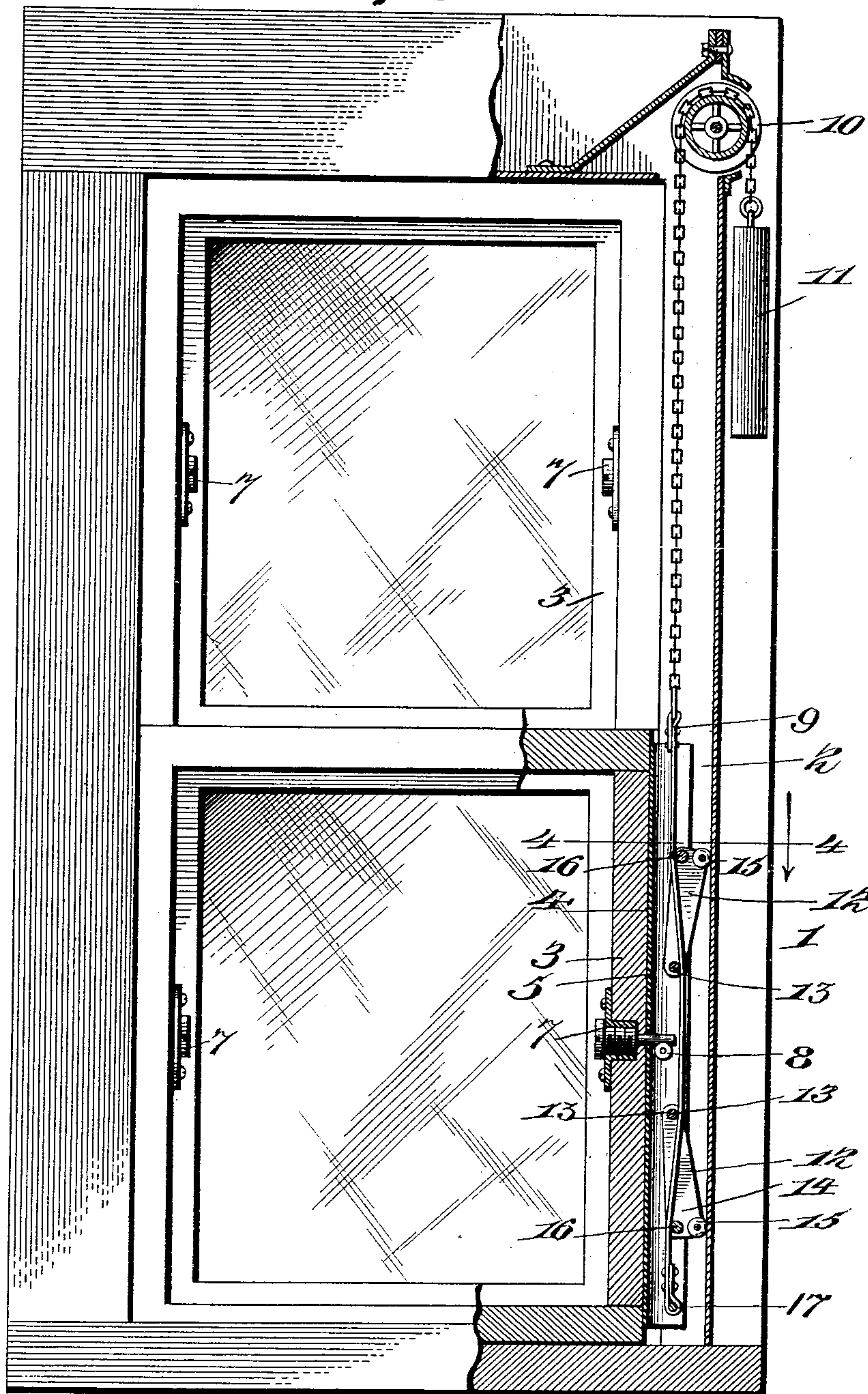
H. C. NELSON.  
WINDOW.

APPLICATION FILED MAR. 25, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

*Fig. 1.*



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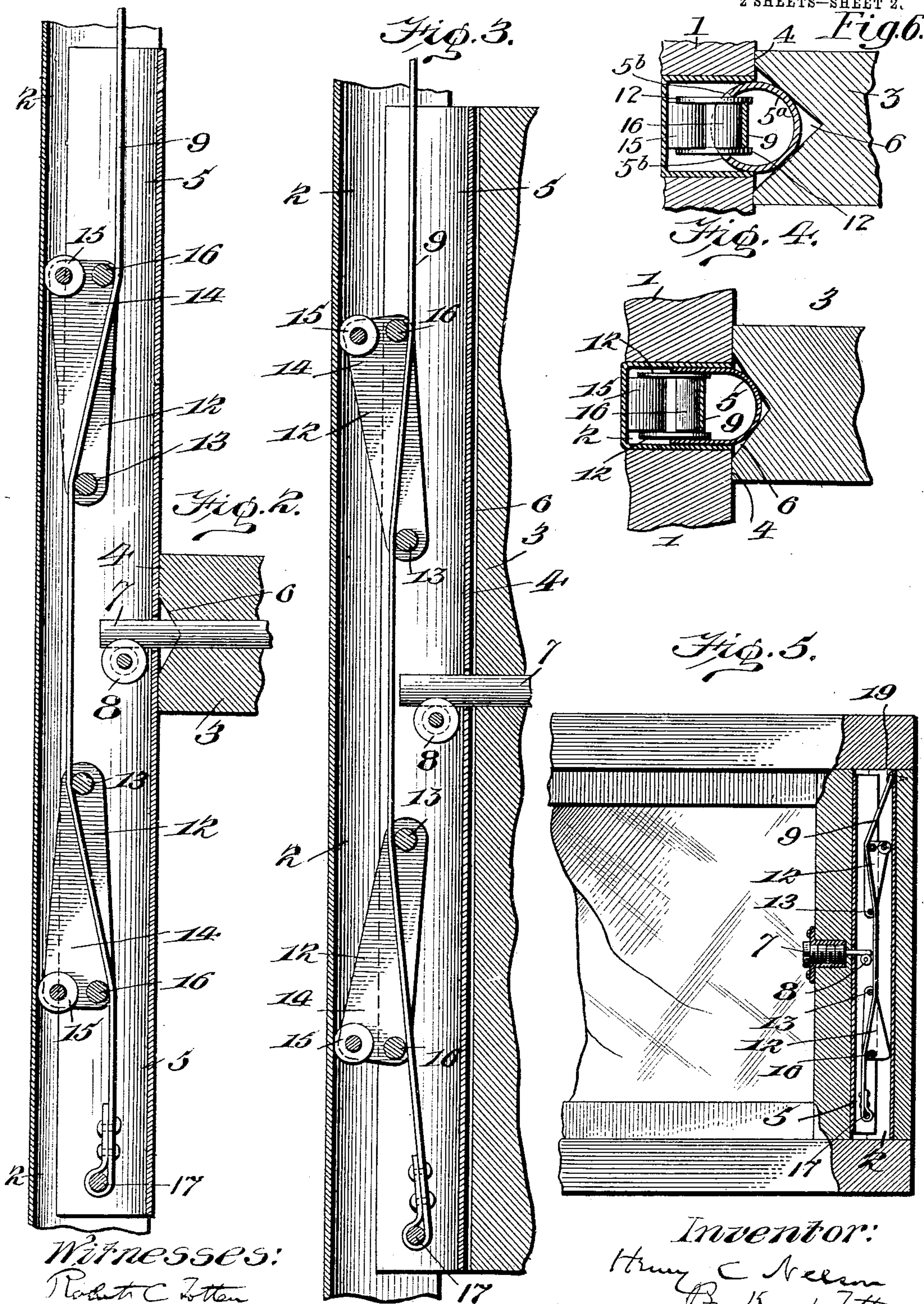
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

HENRY C. NELSON, OF SALEM, OHIO.

## WINDOW.

SPECIFICATION forming part of Letters Patent No. 751,747, dated February 9, 1904.

Application filed March 25, 1903. Serial No. 149,517. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. NELSON, a resident of Salem, in the county of Columbiana and State of Ohio, have invented a new and useful Improvement in Windows; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to improvements in windows, transom-lights, and the like, and more particularly relates to windows which both slide and also revolve, so that they are capable of being turned over for cleaning and other purposes.

The object of my invention is to provide simple and efficient means whereby the window or transom sashes are pivotally supported, so as to be capable of being turned over for cleaning and other purposes, and at the same time so mounting the same that the space between the sash and the casing is effectually closed and by means which are simple in construction and not liable to get out of order.

To this end the invention consists of the usual casing and sash, together with weather-bars to which said sash is pivoted and which may or may not be capable of sliding, and means whereby said weather-bars are pressed against the sash by the weight of the sash alone, thus dispensing with springs or other means which are liable to get out of order.

The invention also comprises certain details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation, partly in section, of a double-sash window constructed according to my invention. Figs. 2 and 3 are vertical sections, on an enlarged scale, showing the principle of my invention. Fig. 4 is a horizontal section on the line 4-4, Fig. 1. Fig. 5 is a front elevation, partly in section, showing the invention applied to a transom-light; and Fig. 6 is a cross-section showing a modified form of bar.

In the drawings my invention has been illustrated in connection with windows and casings of sheet-metal construction which are fire-proof; but the invention is not limited thereto, as it can advantageously be applied to ordinary wooden window and transom light constructions.

In the drawings the window-casing is shown at 1, and this may be of the usual or any desired construction and will be provided with the usual grooves or channels 2, as is now common in all window constructions.

3 represents the window-sash. In order that the latter may revolve, it cannot fit into the grooves or channels 2 in the casing, but is merely flush with the inner faces 4 of said casing.

In the channels 2 are slidably mounted the weather-bars 5, which preferably will be of trough form, as shown, having their open sides facing inwardly or toward the channels 2 and being provided with rounded outer faces which fit in depressions 6 in the sash 3. The latter are provided with suitable pivots or trunnions 7, which project through holes in the weather-bars, so that said sashes may be turned over on said trunnions for cleaning and other purposes in the well-understood manner. In the weather-bars 6 are suitable bearings 8 to support the trunnions 7 of the sash, these bearings preferably being small grooved rollers, as shown, so as to form practically frictionless bearings for the trunnions. The holes in the weather-bar through which the trunnions pass are larger than said trunnions, so that there is friction only where the trunnions touch the rollers.

Means must be provided for pressing the weather-bars against the sashes, so as to exclude air, and it is in the means for doing this that the invention principally resides. Heretofore this has been done by securing to the bars spring-pressed rollers which bear against the casing and through the resiliency of the spring press the bars against the sash. Springs, however, are liable to vary considerably in strength and temper and also liable to become lame, so that in practice it has been found that the bars will assume an inclined instead of a true vertical position.

According to my invention the weather-bars are pressed against the sash by means which are controlled entirely by the weight of the sash itself. To this end the suspending means or cord 9 for the sash is connected directly to the bars 5 near their lower ends and passes upwardly and over the usual



sheaves 10 and is provided with the usual weight 11. Interposed between this sash-cord and the bottom of the channel 2 in the casing are suitable tension devices which are of greater width than the distance between the bottom of the channel and the cords 9 when in a straight condition, so that said tension devices force the cords out of line, and therefore produce a tension which has a tendency to force the bars against the sash. These tension devices are shown as swinging frames 12, which are mounted on pivots 13, secured to the bars, and have their free ends 14 interposed between the sash-cord and the channel in the casing. Preferably the free end of the swinging frames will be provided with antifriction-rollers 15, bearing against the casing, and suitable studs or the like, 16, which contact with the sash-cord 9. There will also be provided in the weather-bars suitable studs or other means 17, which, together with the pivots 13, serve as guides for the cord and which determine the position thereof. The pivots 13 of the swinging frames 12 serve as two of such guides. The free ends of the swinging members 12 are always in contact with the casing and are wider than the distance between the casing and the cord when straight, so that they press on the cord and through the latter press the bars against the sash. The tendency of the said sash-cord to straighten tends to force the rollers 15 against the casing; but as the rollers are always in contact with the casing, and hence relatively stationary, the tension of the cords serves to press the bars firmly against the edge of the sash. The degree of this pressure will depend entirely upon the weight of the sash and bars, or what is equivalent thereto, the weight of the window-weight.

In Fig. 5 I have shown the invention applied to an ordinary transom-light which has no sliding movement. In this case the sash-cords 9 are not connected to a weight, as with the sliding windows, but their upper ends are connected to suitable studs 19, secured to the casing, so that the bars 5 and the sash connected thereto are suspended entirely from these studs, and as a consequence the tension of the cords will be directly proportioned to the combined weight of the sash and bars, and this will determine the pressure of the bars against the sash. As the sash in this case does not slide, the antifriction-rollers 15 are omitted.

In the drawings is shown a flexible metallic ribbon extending up as far as the upper ends of the weather-bars and there connected to the usual sash cord or chain; but it is obvious that the ordinary window cord or chain can be secured directly to the lower end of the weather-bars, if desired. By the term "sash-cord" as used in the claims I intend to cover any suitable flexible suspending means, such as the ordinary cord used or a chain or a flexible metallic ribbon or other means. The

weather-bar has been shown as practically trough or U shaped in cross-section; but it is obvious that a tubular or semitubular weather-bar, such as shown at 5<sup>a</sup> in Fig. 6, will serve my purpose just as well. In case of the tubular bar it will be necessary to provide on the inner side thereof suitable openings or slots 5<sup>b</sup>, through which the tension devices can project. The U-shaped bar shown, however, is much simpler and preferable. Instead of the swinging tension device described I may use any other means for securing the same result, such as a block or roller mounted to move transversely of the bar.

It will be observed that there are no springs or similar means in my device, but that all parts thereof are such as to need no attention after being put in place and cannot easily break or get out of order. Furthermore, the construction is such that uniform pressure will be applied to both ends of the weather-bar, thus insuring the bar being always in a true vertical position and effectually closing the space between the revolving sash and casing. The arrangement also admits of the employment of comparatively large rollers 15, bearing against the casing, so that friction is largely reduced.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a window-casing and inclosed sash, of weather-bars interposed between said casing and sash and connected to the latter, cords or the like attached to said bars for suspending the sash, and means arranged to contact with the casing and with said cords and acting by the tension of the cords to press the bars against the sash.

2. The combination with a window-casing and inclosed sash, of weather-bars interposed between said casing and connected to the latter, cords or the like attached directly to said bars and serving to suspend the sash, and means actuated by the tension of said cords for pressing the bars against the sash.

3. The combination with a window-casing and inclosed sash, of interposed weather-bars to which the window is pivoted, cords secured to said bars for suspending the sash, and tension devices in said bars arranged to contact with the casing and with said cords, the arrangement being such that the straightening of the cords by the weight of the sash forces said devices against the casing and presses the bars against the sash.

4. The combination with a window-casing and inclosed sash, of interposed weather-bars to which said sash is pivotally secured, suspending-cords or the like connected to said bars, guides over which said cords pass, and means mounted in said bars so as to be movable transversely thereof, said means being interposed between the cords and casing and being of greater width than the distance between said guides and the casing, whereby



the straightening of the cords forces said devices against the casing and presses the bars against the sash.

5 5. The combination with a window-casing and inclosed sash, of interposed weather-bars to which said sash is pivotally secured, suspending-cords connected to said bars, tension devices hinged to said bars and having their free ends interposed between the cord and casing and being of greater width than the distance between the casing and the normal position of the cords, whereby the straightening of the cords forces said devices against the casing and presses the bars against the sash.

15 6. The combination with a window-casing and inclosed sash, of interposed weather-bars to which said sash is pivotally secured, suspending-cords secured to said bars, guides in said bars over which said cord passes, swinging tension devices hinged to the bars and having their free ends interposed between the cords and casing and being of greater width than the distance between the cord-guides in the bars and the casing.

25 7. The combination with a window-casing and inclosed sash, of interposed weather-bars to which said sash is pivotally connected, said bars being trough-shaped in cross-section, suspending-cords secured to said weather-bars, guides in said bars over which said cords pass, and tension devices mounted in said bars so

as to be movable transversely thereof, said devices being of greater width than the distance between the cord-guides in the bars and the window-sash, whereby the straightening of the cords forces said tension devices against the casing and presses the bars against the sash. 35

8. The combination with a window-casing and inclosed sash, of interposed hollow weather-bars to which said sash is pivotally connected, bearing-blocks in said bars on which the sash-pivots rest, suspending-cords secured directly to said sash and means for pressing said bars against the sash. 40

9. The combination with a window-casing and inclosed sash, of interposed hollow weather-bars to which said sash is pivotally connected, bearing-rollers in said bars on which the sash-pivots rest, suspending-cords secured to said bars, and tension devices in said bars arranged to contact with the casing and with the cords, the arrangement being such that the straightening of the cords by the weight of the sash forces said devices against the casing and presses the bars against the sash. 55

In testimony whereof I, the said HENRY C. NELSON, have hereunto set my hand.

HENRY C. NELSON.

Witnesses:

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K. L. COBURN.