





# UNITED STATES PATENT OFFICE.

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## WINDOW-SASH.

No. 817,270.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, OTHO M. OTTE, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Window-Sashes, of which improvements the following is a specification.

In the application filed of even date herewith I have described and claimed certain improvements in sashes consisting of a frame with cross-bars and muntins and glazing-strips. This construction I have for the convenience of description termed a "three-piece sash."

The invention described herein relates to certain other and additional improvements in metal sashes for windows, such improvements consisting in forming the sash of two parts or members—*i. e.*, a frame with cross-bars and muntins and a glazing-strip formed integral with the said parts, and a removable glazing strip or strips.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is an elevation of my improved sash, the detachable glazing-strips being removed. Figs. 2 and 3 are section views or planes indicated, respectively, by the lines II II and III III, Fig. 1. Fig. 4 is a detail view of one of the cross-bars, and Fig. 5 is a similar view of one of the muntins.

In the practice of my invention the frame may be U-shaped, as shown in the application referred to, or continuous, as shown in Fig. 1, and consists of a core 1 and a plate portion 4, preferably formed integral with each other. Generally it is preferred to use the ordinary structural T shape. The edges of the plate 4 of this section project on both sides of the frame, forming flanges. The flanges projecting inwardly form glazing-strips, while the outwardly-projecting flanges upon the sides of the frame form one wall of the groove for the reception of the guiding-plate 5, secured in the side wall of the window-opening. The muntins or vertical members 3 are formed of similar T-sections, which may have their parts integral with each other or riveted together. The core 1 extends at the ends of the muntins, forming tongues 7, (shown in Fig. 5,) which overlap the end pieces of the frame, projecting into notches cut in the core of the frame, as shown in Fig. 1. The core

portions of the muntins are cut away at intermediate points to form notches or recesses for the reception of the core on the cross-bar 2, as shown in Fig. 5. The cross-bars are formed of similar structural shapes and have the plate portion at the ends cut away to form tongues 8, which will overlap and can be riveted to the side bars of the frame, the cores of the frame being cut away or recessed for the reception of the tongues. The plates of the cross-bars are also cut away at intermediate points to form notches for the reception of the plate portions of the muntins or vertical bars, as shown in Fig. 4. By this interlocking construction of the cross-bars and muntins they will lie in the same plane in the completed structure with the main frame or skeleton.

It will be observed that the inner plate portions of the frame and the plate portions of the muntins and cross-bars form glazing-strips on one side of the several cores. The removable glazing-strips 6 are secured to the cores by screws or other suitable means, whereby they may be readily removed to replace broken glass. The glazing-strips 6, secured to the core of the frame, project beyond the core and along the sides of the frame and form, in connection with the projecting portions of the plates of the frame, grooves for the reception of the guiding-plates, which, as before stated, are secured to or embedded in the side walls of the window-openings.

It will be observed that the sash is formed of two shapes or sections of metal—*i. e.*, a T shape, forming the frame, cross-bar, muntins, and glazing-strips for one side, and flat plates or strips, forming the removable glazing-strips.

I claim herein as my invention—

1. A window-sash having in combination a frame, muntins and cross-bars formed of T-shaped bars, the flanges on one side of said bars, forming glazing-strips, and glazing-strips detachably secured to the frame, cross-bars and muntins, substantially as set forth.

2. In a window-sash, the combination of a frame, muntins, cross-bars formed of T-shaped bars and interlocked at their points of intersection, and glazing-strips detachably secured to the frame, cross-bars and muntins, substantially as set forth.

3. A window-sash having in combination, a frame, muntins and cross-bars formed of T-shaped bars, the flanges on one side of said



bars forming glazing-strips and glazing-strips detachably secured to the frame, cross-bars and muntins, the glazing-strips on the frame extending beyond the core of the latter and  
5 forming with the outer flanges of the frame, guides for the frame, substantially as set forth.

4. A window-sash having in combination a frame formed of T-shaped bars, cross-bars and muntins secured in said frame and glaz-  
10 ing-strips secured to the frame, cross-bars and

muntins and extending beyond the core of the frame and forming with the outer flanges of the frame, guides for the frame, substantially as set forth.

In testimony whereof I have hereunto set 15 my hand.

OTHO M. OTTE.

Witnesses:

CHARLES BARNETT,  
FRED H. KIRCHNER.