(No Model.) 2 Sheets—Sheet 1.

# M. ZENNIER.

## SLIDE WINDOW.

No. 518,303. Patented Apr. 17, 1894.

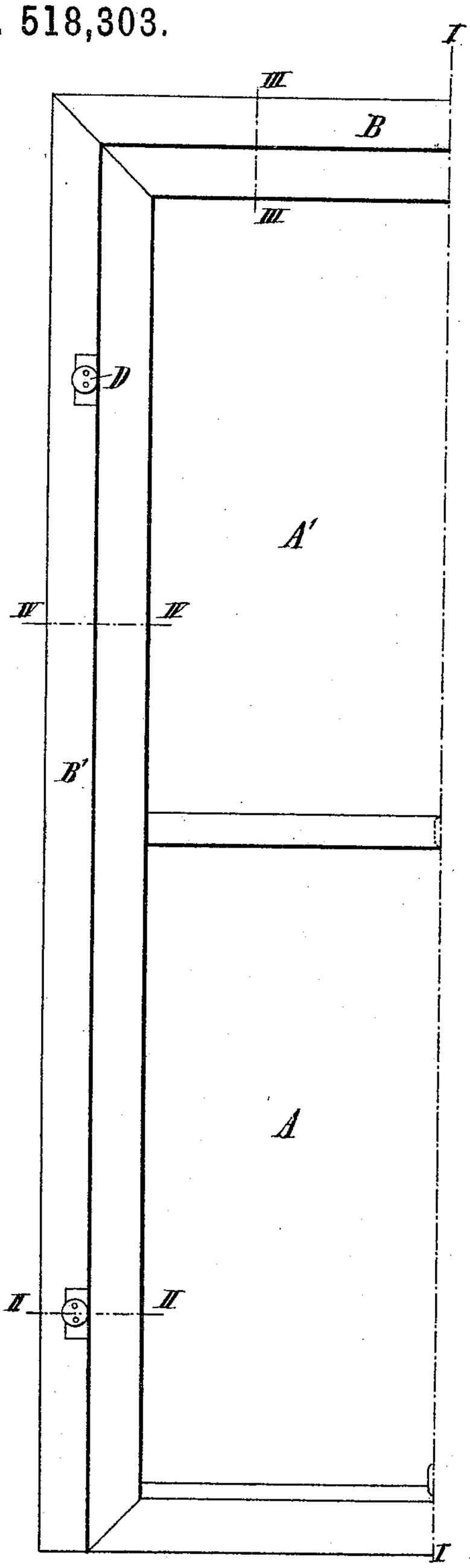


Fig. 1

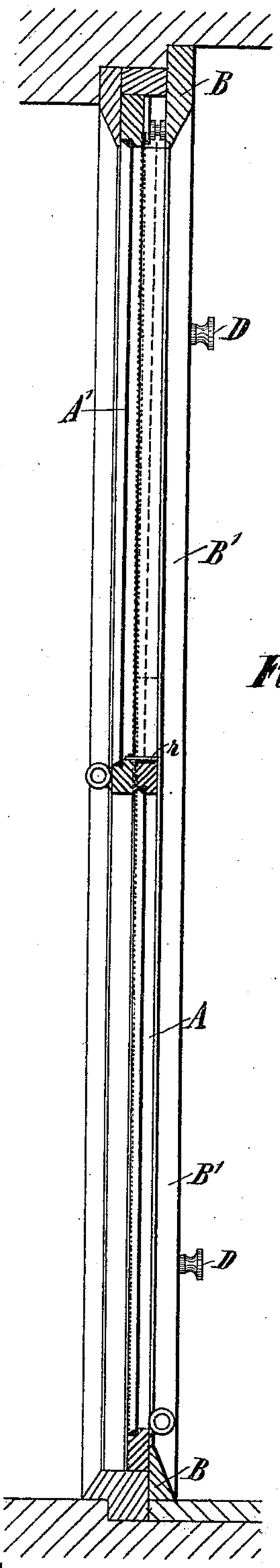


Fig. 2.

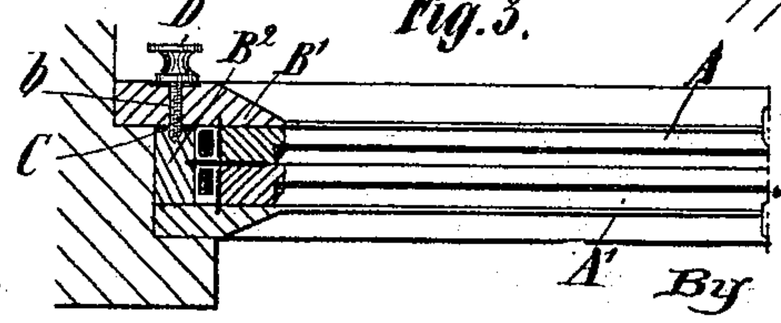


Fig. 3.

Witnesses:
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(No Model.) 2 Sheets—Sheet 2.

# M. ZENNIER.

## SLIDE WINDOW.

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*Fig. 4.*

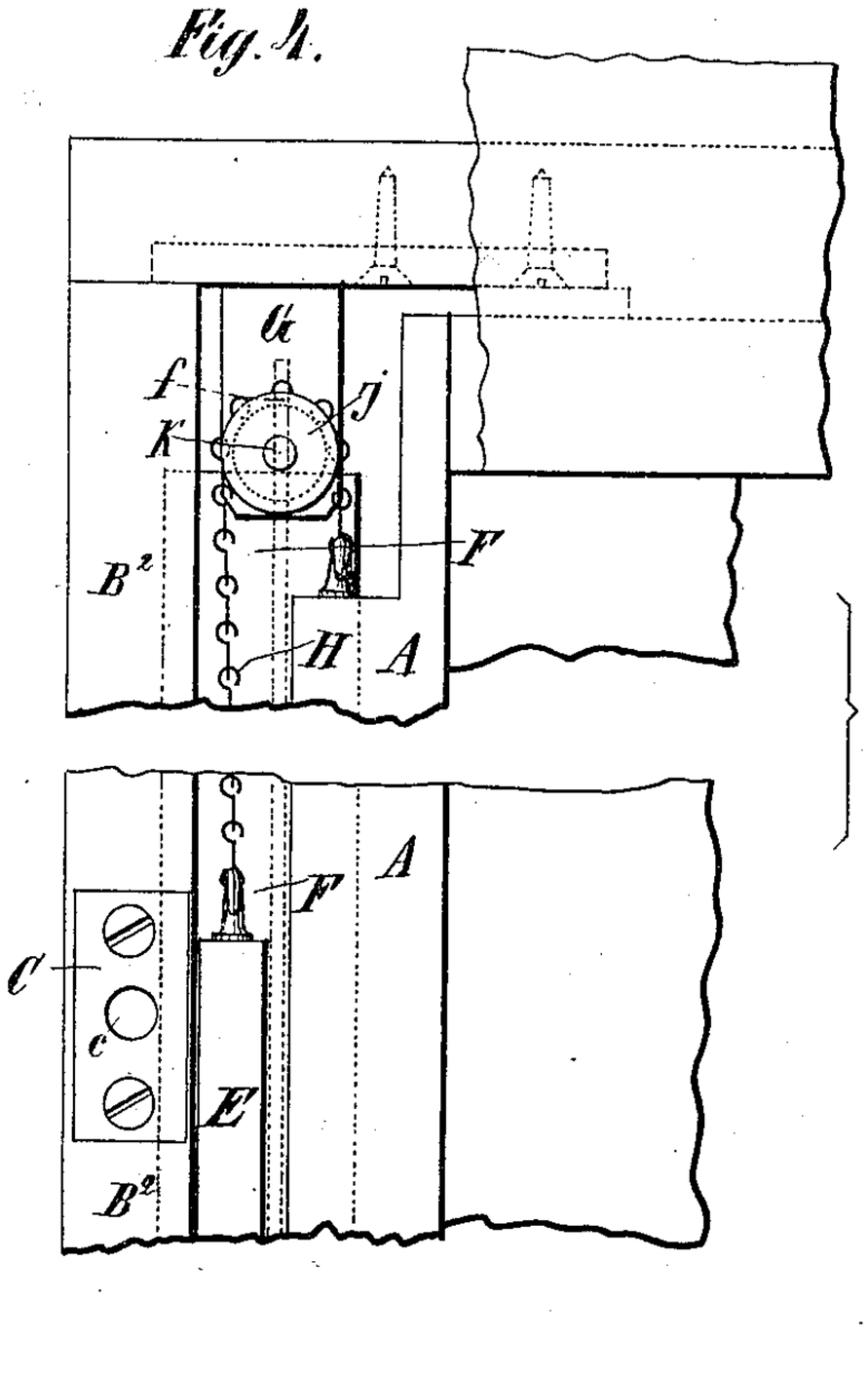



*Fig. 5.*

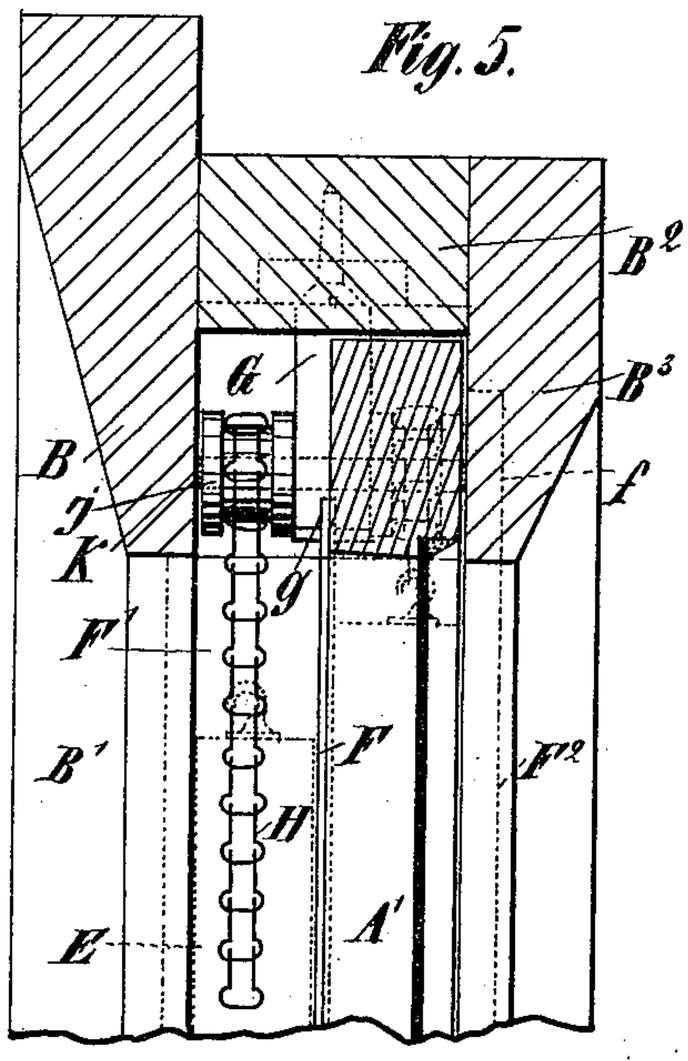



*Fig. 6.*

*Fig. 7.*

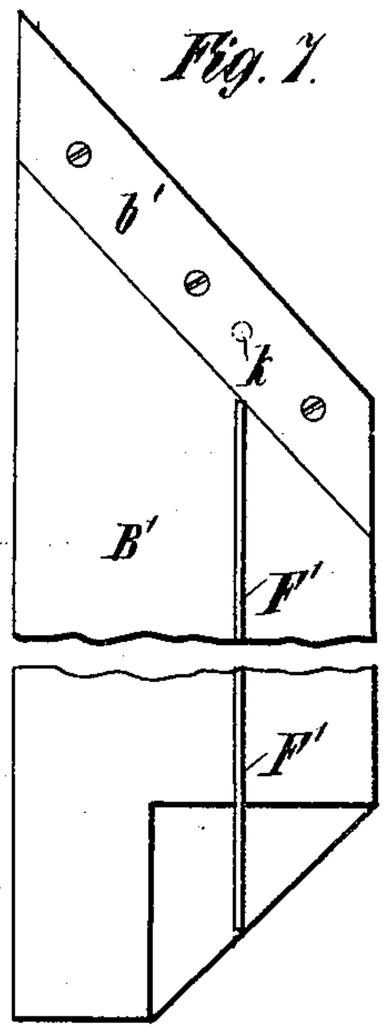
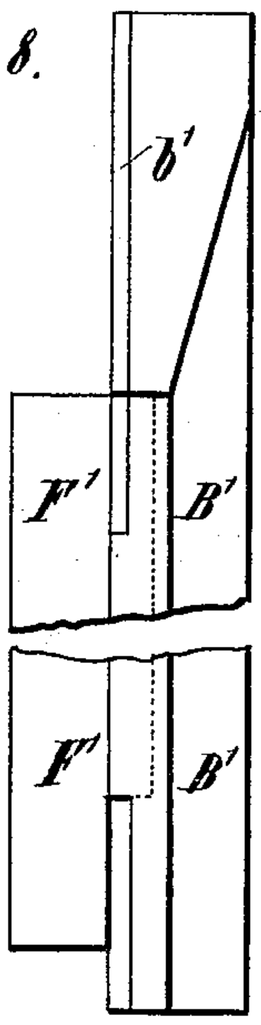



*Fig. 8.*



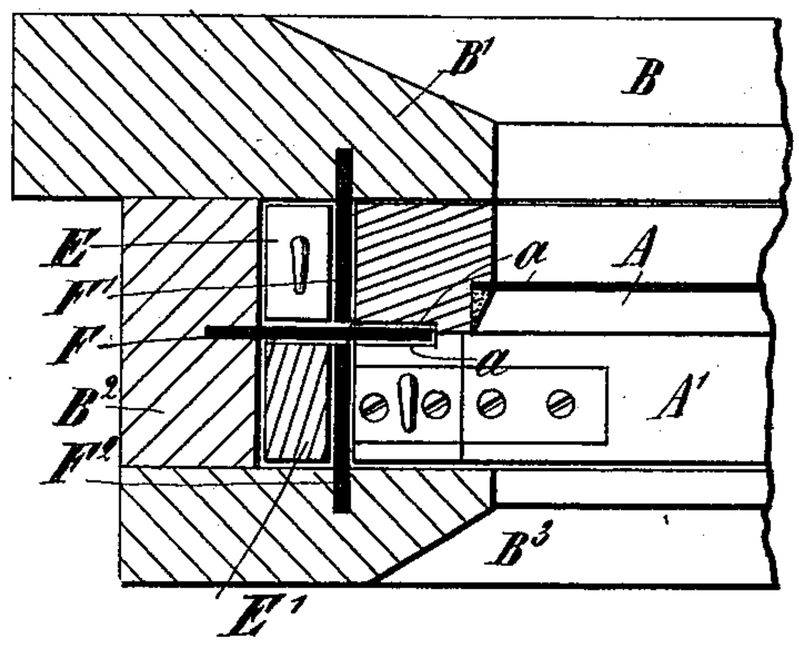




*Fig. 9.*

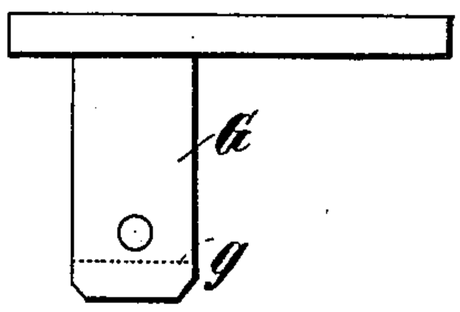
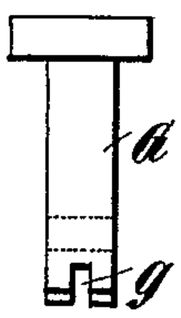



*Fig. 10.*




*Witnesses:*

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*H van Oldenneel*

*Inventor:*

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*By Richards & Co.*

*his Attorneys*

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# UNITED STATES PATENT OFFICE.

MARTIN ZENNIER, OF SÄCKINGEN, GERMANY.

## SLIDE-WINDOW.

SPECIFICATION forming part of Letters Patent No. 518,303, dated April 17, 1894.

Application filed October 10, 1893. Serial No. 487,726. (No model.)

*To all whom it may concern:*

Be it known that I, MARTIN ZENNIER, manufacturer of tinware, a subject of the Emperor of Germany, residing at Säckingen, in the Grand Duchy of Baden, Empire of Germany, have invented certain new and useful Improvements in Slide-Windows, of which the following is a specification.

The improvements in sliding sash windows that constitute the subject matter of the present application are illustrated as follows in the annexed drawings:

Figure 1, shows a front inside view of the sliding sash window. Fig. 2, is a vertical sectional view of the same on the line I, I of Fig. 1. Fig. 3, is a horizontal sectional view of the window on the line II, II of Fig. 1, wherein the two parts of the window are in the lowest position. Fig. 4, is a front view of the counter-weight device and of the guiding rail for the sash. Fig. 5, is a vertical sectional view on the line III, III of Fig. 1, on a slightly enlarged scale. Fig. 6, is a horizontal sectional view on the line IV, IV of Fig. 1 on a slightly larger scale. Figs. 7 and 8 represent a front and side view of one of the two removable frame bands B′ and Figs. 9 and 10 represent a front and side view of the chain pulley carrier G.

The present invention relates to an improved sliding sash window and has for its object to furnish guiding means for the window sash and for the counterweight so that the shocks of the window sash when lifted or lowered will be avoided. The two side frames or bands B′ of the window frame B are removable so that the window can be taken to pieces easily when a pane breaks. In the frame parts $B^2$, Figs. 3 and 4 two or more metal plates C are screwed into which the screw shank C of the press screw D engages. The screws D pass through opening *b*, Fig. 3, of the frames or bands B′ and keep the latter fixed against the frame part $B^2$ when screwed in. If it is desired to take the window to pieces it will simply be necessary to unscrew the screws D and to remove the side band B′.

The guiding of the window sash heretofore was effected by a laterally projecting band engaging a groove disposed upon the window frame. In my construction I dispose at each side of the window three guiding rails preferably made of nickel plated band iron which when applied to the window frame, constitute four guiding channels for the frame and counter weights. The guiding rail F, Figs. 3, 4, 5 and 6, that separates the two frames A and A′ and the counterweights E and E′ is removably located in a groove of the frame part $B^2$ and engages with its upper extremity in a slit *g* of the pulley carrier G, Figs. 5, 9 and 10, in order to be held against bending. The side bands of the frames A A′, Fig. 6, are grooved at *a* so that they run partly upon the rail F, and partly one upon the other. The guiding rail F must be removable so that it may be possible to take out the outer sash A′. In the removable inner frames B′ as well as in the fixed outer standing frame $B^3$ similar guiding rails F′ $F^2$ are rigidly fixed which stand at a right angle with the middle rail F.

The window sash A and A′ and the counterweights E and E′ are so guided in the channels formed by the rails F F′ $F^2$ and the frame parts B′ $B^2$ $B^3$ that they cannot make any noise when moved up or down. As a consequence of this effectual separating and guiding of the movable parts all accidents or disturbances in the working are avoided and no noticeable noise is to be heard. A compound of lead and antimony is preferably used for counterweights. As a connecting medium for the window sash and the counterweight a chain H is used which is very solid and runs smoothly over the pulleys J. The pulleys J are loose upon the pivot K which itself bears loosely in the bearing G and can be taken out after removal of the frame or band B′. One end of the pivot K bears against the sheet metal plate *b*′, at the point K, Fig. 7, the other end of the same bears upon the prolongation *f* (Figs. 4 and 5) of the rail $F^2$ arranged in the frame $B^3$ so that the extremities of the pivot cannot enter the wood of the frame. The window fastener and the window holder can be constructed in whatsoever manner desired.

I have shown an ordinary sliding bolt *r* as a fastening.

I claim—

1. In combination, the window frame comprising the fixed portions $B^2$, $B^3$ and the removable portion B′, the guiding rails F F′ $F^2$ arranged at right angles to each other to divide the space into four guide ways for the

sash and counterweights, one of said rails (F) being held removably by the rigid frame section while the rails F′ and F² are fixed to the removable and fixed frame parts B′ and B³ respectively, substantially as described.

2. In combination, the window frame, the sash guided therein, the guide rail F extending between the sash, the counter weight, the connection therefrom to the sash, the pulley and the carrier G therefor having a notch *g* for receiving the upper edge of the guide rail, substantially as described.

3. In combination, the frame, having rail F² forming part of the weight box, the sash movable in the frame, the counterweight, the connection therefrom to the sash, the pulley for said connection, the carrier G for the pulley, the pivot pin passing loosely through the carrier and bearing at one end against the rail F² of the frame, and the removable frame or band B′ bearing at the other end against the other end of the pin, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

MARTIN ZENNIER.

Witnesses:

HERMANN KIRCHHOFER,

H. LABHARD.