

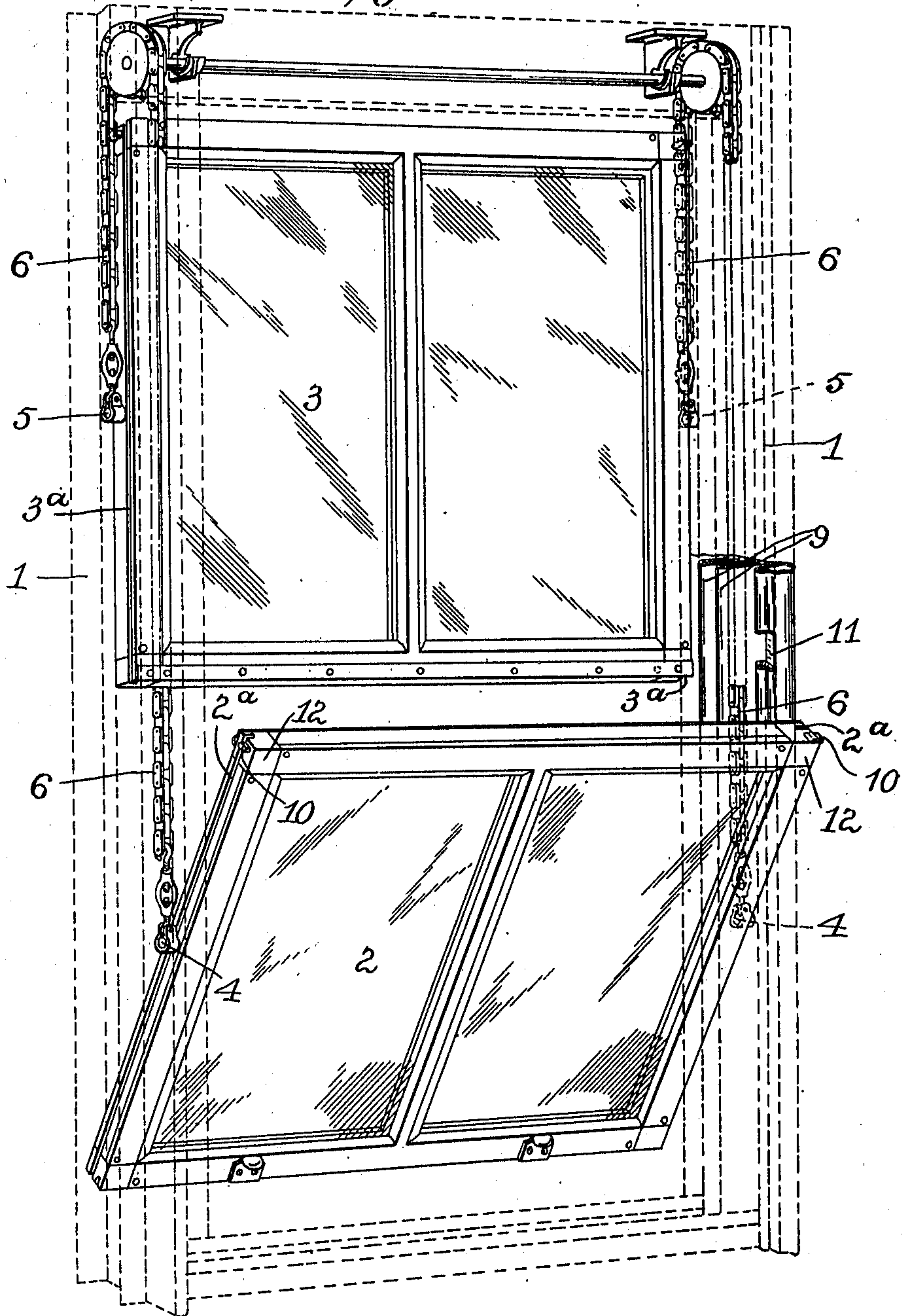
E. H. LUNKEN.  
WINDOW CONSTRUCTION.  
APPLICATION FILED APR. 22, 1910.

993,853.

Patented May 30, 1911.

2 SHEETS-SHEET 1.

Fig. 1.



Attest:

Edw. L. Tolson.

Bent. M. Stahl

Inventor:

Edmund H. Lunken,

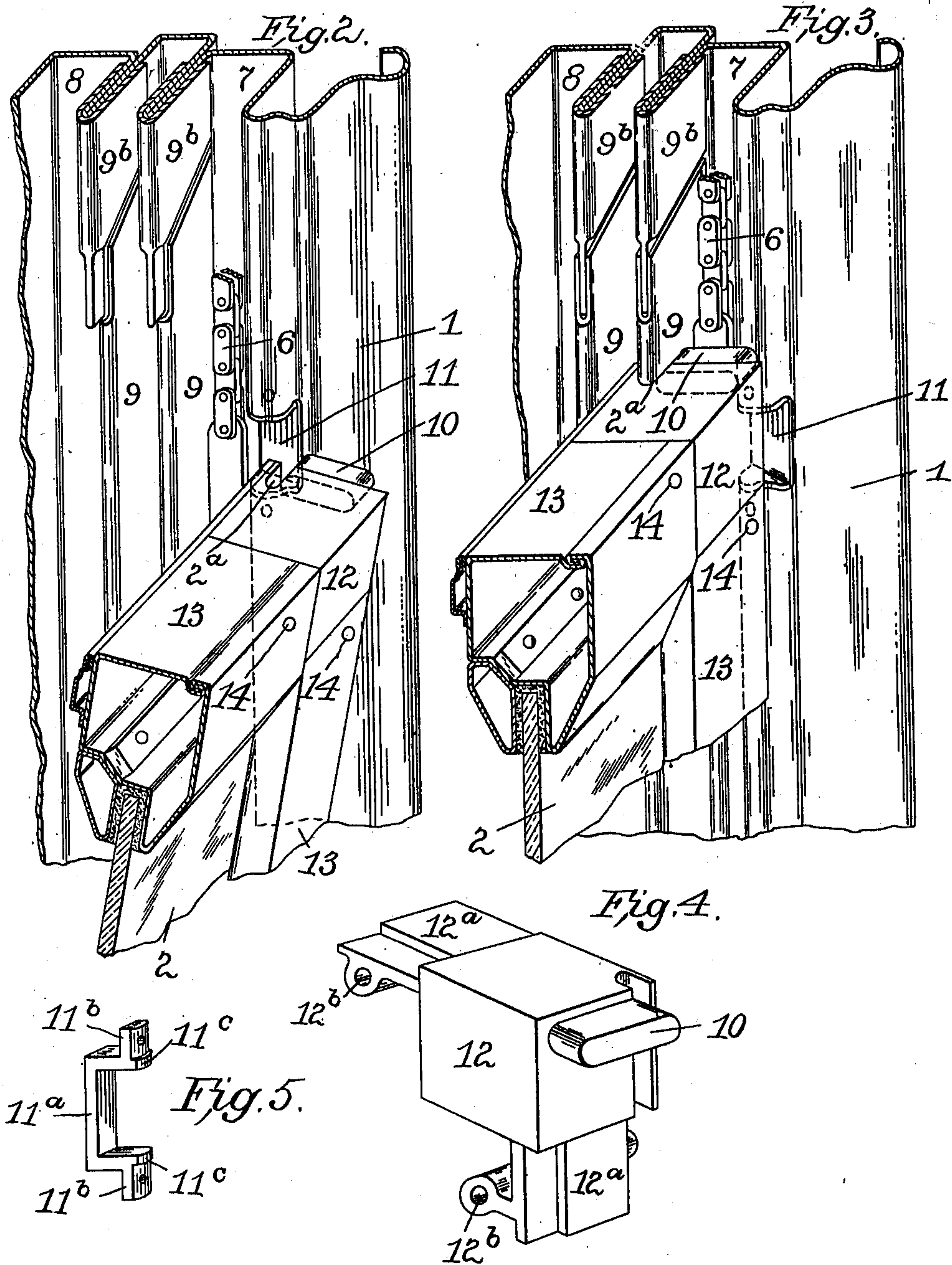
by John Middleton Donaldson & Son

Attys.

APPLICATION FILED APR. 22, 1910.

Patented May 30, 1911.

**2 SHEETS--SHEET 2.**



*Inventor:*

*Edmund H. Lunken,*

by Spear Middleton Donaldson & Spear  
Attys.



# UNITED STATES PATENT OFFICE.

EDMUND H. LUNKEN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS,  
TO THE LUNKENHEIMER COMPANY, A CORPORATION OF OHIO.

## WINDOW CONSTRUCTION.

993,853.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed April 22, 1910. Serial No. 557,063.

*To all whom it may concern:*

Be it known that I, EDMUND H. LUNKEN, citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Window Construction, of which the following is a specification.

My present invention relates to improvements in window construction of the type shown in Letters Patent of the United States granted on the third day of November, 1908, to The Lunken Steel Window Co., and numbered 902979 and 902980, and also an application filed July 17, 1908, Number 444140.

The invention comprises the novel features of construction and combination and arrangement of parts hereinafter described and particularly set forth in the appended claims.

An embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a window with the frame shown in dotted lines; Fig. 2 is a perspective view of a portion of the inner side of one face of the window frame showing the lower guide strip as pushed in, and the upper portion of the lower sash swung slightly out of its normal vertical plane; Fig. 3 is a similar view showing the lower sash in its vertical position and in engagement with the guide strip; and Fig. 4 is a perspective view of the corner block. Fig. 5 is a detail.

I have found in practice, with a sliding and swinging sash such as disclosed in the aforesaid patents, that after the guide strips have been disengaged from the sash and the sashes swung out of a vertical position, when it is desired to return them to their normal position and into reengagement with the guide strips, care must be taken to bring the grooves of the sashes into accurate alinement with the ribs of the guide strips before the sash is moved vertically in order to prevent injury to the parts. Especially is this true where the upper and lower guides are made independently movable or one fixed and the other movable, in which event vertical movement of one of the sashes before the guide strips engaged the grooves might result in serious injury.

The present invention has for its object, therefore, to provide means for securing

such alinement automatically, and this is accomplished by the construction shown in the drawing, and which will now be described.

Referring by reference characters to this drawing, the numeral 1 designates the window frame or casing, and 2 and 3 the lower and upper sashes respectively, which are mounted to be capable of both a vertical sliding and a swinging movement upon their horizontal pivots, as disclosed in said patents and application. The pivot pins 4 and 5 suitably connected as by chains 6, move in the channels 7 and 8, and the sashes 2 and 3 are guided in their vertical sliding movement by having their edge grooves or channels 2<sup>a</sup> and 3<sup>a</sup> engaged by the movable and stationary guide strips 9 and 9<sup>b</sup>. While the movable guide strips may be made to extend clear from the bottom to the top of the window frame, I may prefer to have them extend only to a point slightly above the top of the lower sash, as indicated in Figs. 2 and 3, as this is all that is necessary, and the upper guide strips 9<sup>b</sup> may be made stationary.

As will be readily understood by those familiar with the patented constructions, the guides are moved outward away from the sashes when a sash is to be swung out of the vertical for cleaning or ventilation, so as to disengage the guide strips 9 from the grooves. When so disengaged, the sash may be swung into an inclined or horizontal position or reversed for the purpose of cleaning. It will be seen that before the guide strips can be again engaged with the sash, the sash must be brought into accurate alinement therewith, and this requires some care, and were it endeavored to move the sash vertically before the ribs were so engaged, damage to the contacting parts would result, and especially is this true where the guide strip is not continuous the entire length of the window frame, as shown in Figs. 2 and 3. In order to cause the sash, when swung upon its pivot into a vertical position to be automatically stopped at the precise point where the strips and grooves are in alinement, I provide it at the upper corners with projections or stop pieces 10, which project far enough so that they strike against the face of the guide bar even when the guide bar 9 is pushed in out of engagement with the groove of the sash. In Fig. 2 I have



shown the sash in the position it assumes when it is being swung back and is nearly in the vertical position. A recess 11 is formed in the edge of the cover plate of the frame to permit the passage of the projection, and this recess is located below the joint of the guide bar and preferably exceeds but slightly in width the thickness of the projection. The projections 10 are made of a width corresponding exactly to the width of the channels 7 and 8 and so that the side edges of the projections, in the vertical movement of the sashes, slide freely but in contact with both walls of the channels. Thus it will be seen that as soon as the sash has moved vertically sufficiently to carry the projection out of alinement with the recess 11 it is accurately held in a vertical plane by the engagement of the projection with both walls of the channel.

As the frame or cover plate is preferably made of sheet metal the formation of a recess would leave an opening through the same and in order to give a finished appearance I use a finishing piece or casting 11<sup>a</sup> which has wings 11<sup>b</sup> designed to be riveted to the inner face of the frame or cover plate and ribs 11<sup>c</sup> of the thickness of the metal of which the frame or cover plate is formed.

The projection is conveniently formed as an integral part of a corner block 12, as shown in detail in Fig. 4. The corner block has projecting members 12<sup>a</sup> which are rabbeted sufficiently to accommodate the sheet metal walls of the hollow sash bars or rails 13, these members 12<sup>a</sup> having thickened or enlarged parts provided with holes 12<sup>b</sup> through which are passed rivets 14 for securing the sash bars thereto. It will be understood that the upper sash is provided with projections or stops identical in all respects with the lower sash, and operates in precisely the same way, except that the upper sash would be pulled down before being swung upon its horizontal pivots and the recess for the projection of the upper sash is located on the outer side of the frame or cover plate directly opposite the recess for the projection of the lower sash. In the case of the upper and lower sashes counterbalancing each other, the lower sash would rise as the upper sash is pulled down, but where the sashes are independently counterbalanced, it would, of course, be necessary to raise the lower sash before the upper sash which has been lowered could be swung upon its pivot.

Having thus described my invention what I claim is:

1. In combination a window frame member having a channel, a sash having a horizontally disposed hinge pin located centrally of the sash and traveling in said channel, means located within the channel and connected with the hinge pin for support-

ing the sash, a movable guide strip adjoining the channel and having an interlocking connection with the edge of the sash, and a projection at the side of the sash for abutting against the side walls of the channel, substantially as described.

2. In combination a window frame member having a channel, a sash having a horizontally disposed hinge pin located centrally of the sash and traveling in said channel, means located within the channel and connected with the hinge pin for supporting the sash, a movable guide strip adjoining the channel and having an interlocking connection with the edge of the sash, and a projection at the corner of the sash for abutting against the side walls of the channel, said frame member having a transverse recess leading to the channel to permit the passage of the projection upon the swinging of the sash, substantially as described.

3. In combination a sheet metal window frame member having a channel and a movable guide strip or bar, a sash having a separable interlocking connection with the guide bar and having a hinge pin located in the channel, means located in the channel and connected with the hinge pin for counterbalancing the sash, a projection on the side of the sash of a width corresponding to the width of said channel, said frame member having a cut away portion or recess to permit the passage of said projection upon the swinging of the sash, and a finishing piece for said recess, substantially as described.

4. A sash for sliding and swinging windows comprising hollow sash bars, a corner block having angularly projecting portions entering said hollow sash bars, fastening means connecting the said projecting portions with the hollow parts, and a guiding projection carried by one of the corner blocks, substantially as described.

5. A sash for sliding and swinging windows comprising hollow sash bars, a corner block having angularly projecting portions entering said hollow sash bars, fastening means connecting the said projecting portions with the hollow parts, and a guiding projection carried by one of the corner blocks, in combination with a window frame having a channel in which said projection fits when the sash is in vertical position, said frame having a cut away portion or recess leading to said channel, substantially as described.

6. In combination a window frame member having guide strips or ribs and side channels, a pair of sashes having horizontally disposed hinge pins traveling in said channels, means located within the channels and connected with the hinge pins for supporting the sashes, said pair of sashes engaging the guide strips or ribs in their



sliding movement and being capable of disengagement therefrom to permit the pivoting of the sashes, lugs carried at the corners of the sashes of a width corresponding to the width of the channels for assisting in guiding the sashes in their vertical movement, the said casing being provided with recesses or cut away portions to permit the passage of said lugs when the sashes are to be swung on their horizontal pivots, substantially as described.

7. In combination a window frame member having stationary and movable guide strips or ribs and side channels, a pair of sashes having horizontally disposed hinge pins traveling in said channels, means located within the channels and connected with the hinge pins for supporting the sashes, said pair of sashes engaging the guide strips or ribs in their sliding move-

ment and being capable of disengagement from the movable guide strips to permit the pivoting of the sashes, lugs carried at the corners of the sashes of a width corresponding to the width of the channels for assisting in guiding the sashes in their vertical movement, the said casing being provided with recesses or cut away portions to permit the passage of said lugs when the sashes are to be swung on their horizontal pivots, said recesses being located below the line of junction of the stationary and movable guide strips, substantially as described.

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

EDMUND H. LUNKEN.

Witnesses:

GEO. H. RIDDELL,  
E. F. LUNKEN.

---

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

---