

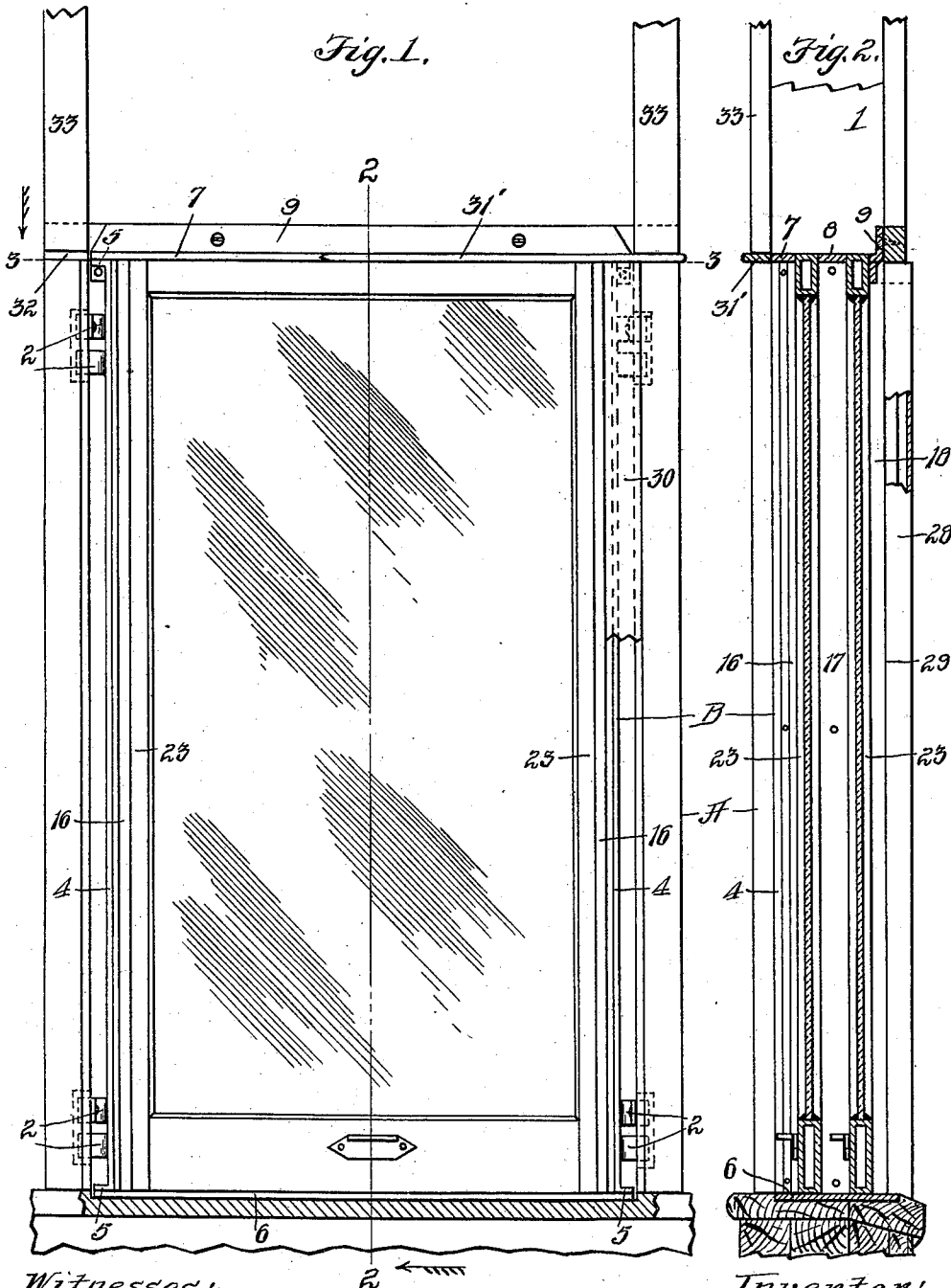
A. H. NEWPHER.
WINDOW FRAME AND SASH.

APPLICATION FILED SEPT. 18, 1908. RENEWED AUG. 25, 1909.

991,011.

Patented May 2, 1911.

3 SHEETS—SHEET 1.



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Fig. 3.

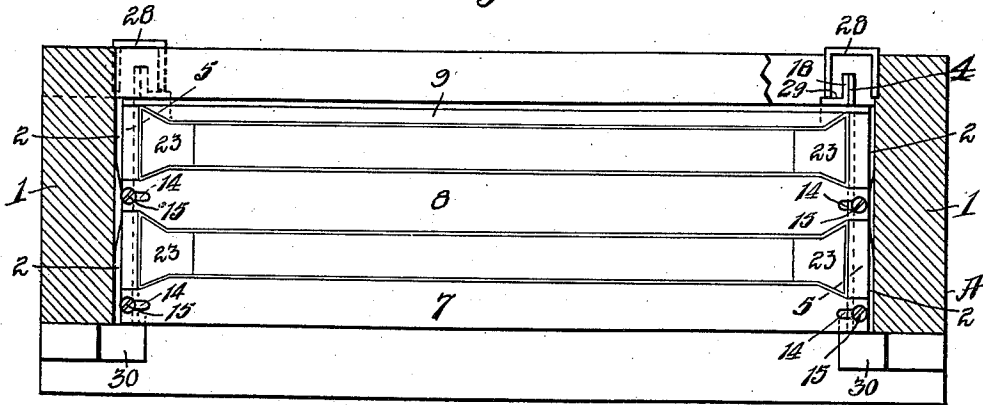


Fig. 4.

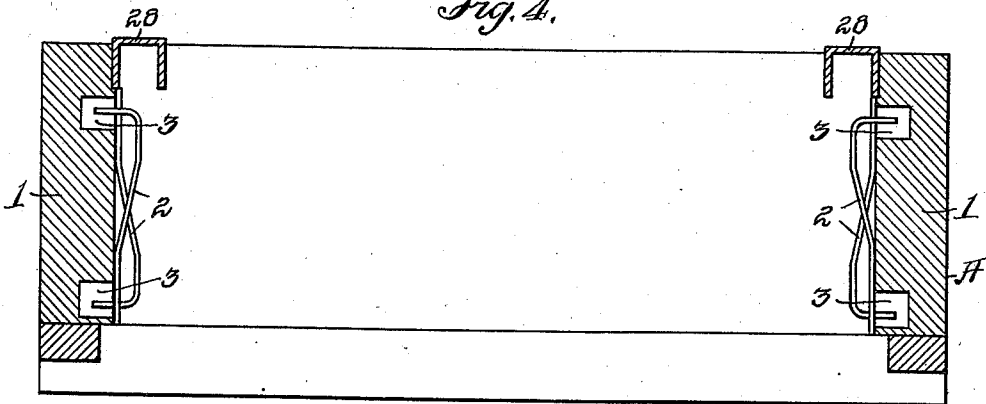
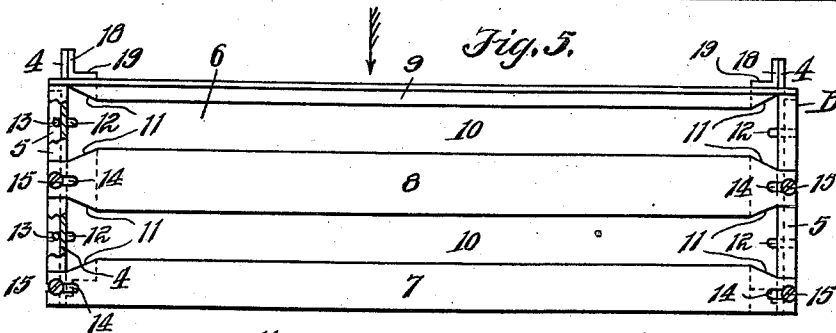


Fig. 5.



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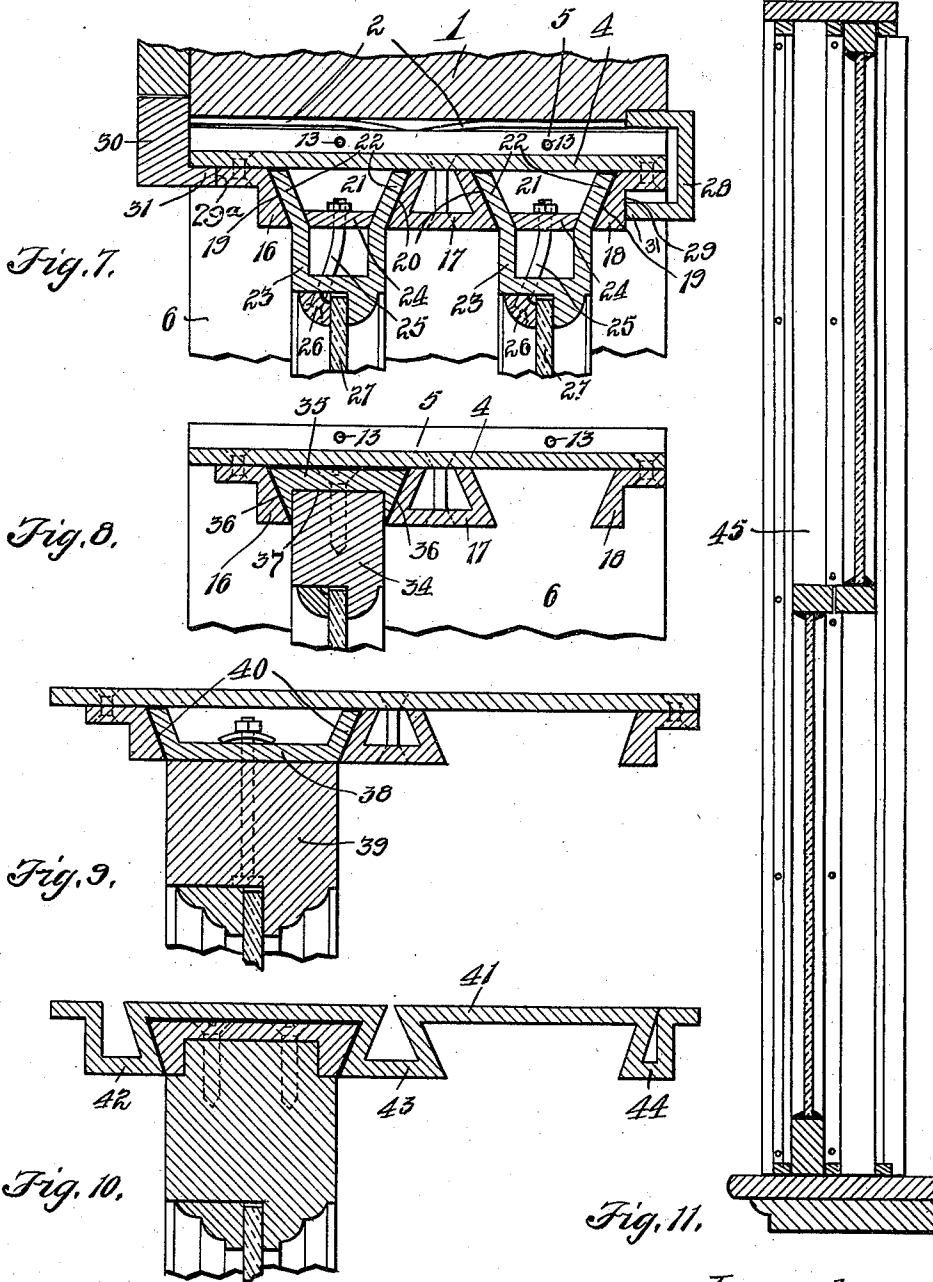
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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WINDOW FRAME AND SASH.

991,011.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed September 18, 1908, Serial No. 453,675. Renewed August 25, 1909. Serial No. 514,643.

To all whom it may concern:

Be it known that I, ALFRED H. NEWPHER, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Window Frames and Sashes, of which the following is a specification, and which are illustrated in the accompanying drawings; forming a part thereof.

The invention relates to improvements in window frames and sashes, and more particularly to such as are used in railway cars and other vehicles, although applicable as well to other structures.

The objects of the invention are to provide an adjustable sash frame with improved means for securing a close fit of the sash, whereby drafts and dust may be more effectually excluded.

The invention consists in a structure such as is hereinafter described, and which is illustrated in the accompanying drawings, in which—

Figure 1 is a detail elevation of the window and its frame, some portions being shown in dotted lines, some portions being broken away, and some portions being shown in section; Fig. 2 is a sectional detail on the line 2—2 of Fig. 1; Fig. 3 is a plan section on the line 3—3 of Fig. 1; Fig. 4 is a plan section of the outer window frame; Fig. 5 is a plan view, partly in section, of the inner window frame; Fig. 6 is a detail elevation of the same from the point of view of the arrow in Fig. 5; Fig. 7 is a detail plan section of the window frame and sash showing the preferred form of construction; Figs. 8, 9 and 10 are detail sectional views of the inner window frame and sash showing modified forms of construction; and Fig. 11 is a vertical central section of the window and its frame showing one form of construction.

In all of the figures, except Fig. 11, the invention is illustrated as applied to a railway car and as showing a window without upper sash but as having an outer and an inner sash.

The window frame comprises an outer frame, designated generally A, and an inner frame, designated generally B. The outer frame comprises the usual top and bottom rails and the side rails 1; these several parts being fixedly attached to the wall of the building structure. The inner frame comprises the side members or stiles 4, here

shown as metal plates, located adjacent the inner faces of the uprights 1 of the outer casing and bearing against springs 2 secured thereto. These springs are shown as of leaf form and as arranged in pairs adjacent the upper and lower ends of the casing; each spring being attached at one end only and having its free end bent backwardly and loosely entering and playing within a recess 3 in the frame member 1.

The side or stile members 4 of the inner frame may be united at their lower and upper ends by cross members, as shown. When so united the side members 4 may be flanged outwardly at both ends, as shown at 5—5. The bottom cross-bar 6 and the top cross-bars, here shown as three in number and designated, respectively, 7, 8 and 9, are slotted from their ends inwardly, as indicated at 12 and 14, and are secured to the end flanges 5, respectively, by screws 13 and 15 setting through these slots and suitable holes in the flanges; this construction providing for an adjustment of the side members 4.

The inner frame is held in place by stop bars 28, 30, secured to the uprights 1 and extending beyond the plates 4, one at each edge thereof, and being flanged inwardly at their inner ends, as shown at 31, to overlap these plates and thus limit their inward movement.

Suitable stops are fixed to the inner faces of the plates 4 to provide ways for the window sash. In the construction as illustrated in Figs. 1 to 10, in which there are used two sashes, three stops 16, 17 and 18 are employed. The stops 16 and 18 make a tight fit, as shown at 29 and 29^a, respectively (Fig. 7), with the instanding flanges of the bars 30 and 28 for the exclusion of drafts, dust, etc.

The sash as illustrated in Fig. 7 comprise the side rails 23, substantially U-shaped in cross-section, the opening being outwardly and the outer portions of the arms of the U being spread somewhat, as indicated at 22, 22. The faces of the stops 16, 17 and 18, against which the sides of the sash rail bear, are correspondingly inclined, as shown at 19, 20, thus securing a dove-tail form of connection between the sash and the frame which effectually excludes drafts and dust. A suitable rabbet is formed at the inner edge of the sash rails 23 to provide a seat for the glass 27, and the latter is held in place by

means of a strip 26 secured by bolts 25 setting through into the interior of the sash rail and engaged by a block 24.

In the construction illustrated in Fig. 8, there is shown a sash having side rails 34 of wood, these rails bearing upon their outer faces 37 a shoe 35 for engaging the stile stops, the dove-tail form being preserved, as shown at 36.

In the construction illustrated in Fig. 9, the sash rail 39 is of wood, and a shoe 38 is applied to it which may be made of sheet metal having its edges upturned to form flanges for engaging the stile stops, as shown at 40.

In the construction illustrated in Fig. 10, the stile plate 41 and stops 42, 43 and 44, are made of a single piece of metal.

In Fig. 11 there is illustrated a window having an upper and lower sash running in ways 45 between the stile stops, this construction being adapted for use in buildings.

In the construction illustrated in Figs. 1 to 6, the window is especially adapted for use in railway cars. The plurality of top cross-bars, as shown at 7, 8 and 9, provide openings 10, 10, for accommodating the top rails of the sash and permitting the latter to be raised. The ends of the bars 7, 8 and 9 are beveled, as shown at 11, to correspond with the dove-tail form of the side rails. The stop bars 30 may be conveniently secured in position by means of a wedge plate 31', adapted to enter a space 32 provided between the upper end of the bar and the molding 33 of the window casing, as shown in Figs. 1 and 2.

The outer sash frame is made of such size as to admit of some lateral movement of the sash and the stile plates. The springs 2 hold the stile plates snugly against the sash, or, when these plates are united by top and bottom bars, as shown, hold the inner sash frame firmly but yieldingly and protect it from distortion by reason of any settling or straining of the wall of the building structure. The invention is therefore of value not only in providing for an easy and accurate fitting of the frame to the sash, but in avoiding the necessity of repairs.

I claim as my invention—

1. The combination of a main frame, of an inner frame, means secured to the inner side faces of said main frame for holding said inner frame in position, a pair of ver-

tically-disposed channel stops secured to said main frame and adapted to receive a portion of the side members of the inner frame, stop strips secured to the inner vertical faces of said inner frame to form tapering channels, sashes having a dove-tail portion adapted to work in said tapering channels, slotted openings in the top of said inner frame to facilitate the sliding of the sashes upwardly, and means for locking said inner frame within the aforesaid main frame.

2. A metallic sash frame comprising a pair of adjustable vertically-disposed side members, tapering channels formed on the faces of said vertically-disposed members, a bottom member removably secured to said side members, a plurality of spaced top members removably secured to said side members, slotted openings formed in the top of said frame by the spacing of said top members, dove-tail sashes adapted to be slidably held in said tapering channels, said sashes being capable of being slid upwardly.

3. The combination, of a main frame, an inner frame adapted to be held and locked in said main frame, said inner frame comprising a pair of adjustable side members, a bottom member, and a slotted top, vertically-disposed tapering recesses provided on the inner faces of said members, sashes slidably mounted in said inner frame, said sashes having dove-tail or flaring vertical sash bars adapted to work in said tapering recesses which sashes are capable of being slid upwardly through said slotted openings.

4. In combination, a main frame, an inner frame movably mounted within the main frame and having side plates, angle bars secured to the sides of the main frame and spaced apart to inclose the side plates of the inner frame, one leaf of each angle bar overlapping the inner face of the inclosed side plate, and sash stops secured to the inner face of each inner frame side plate and slidably engaging the inner edge of the overlapping flange of one of the angle bars.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED H. NEWPHER.

Witnesses:

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