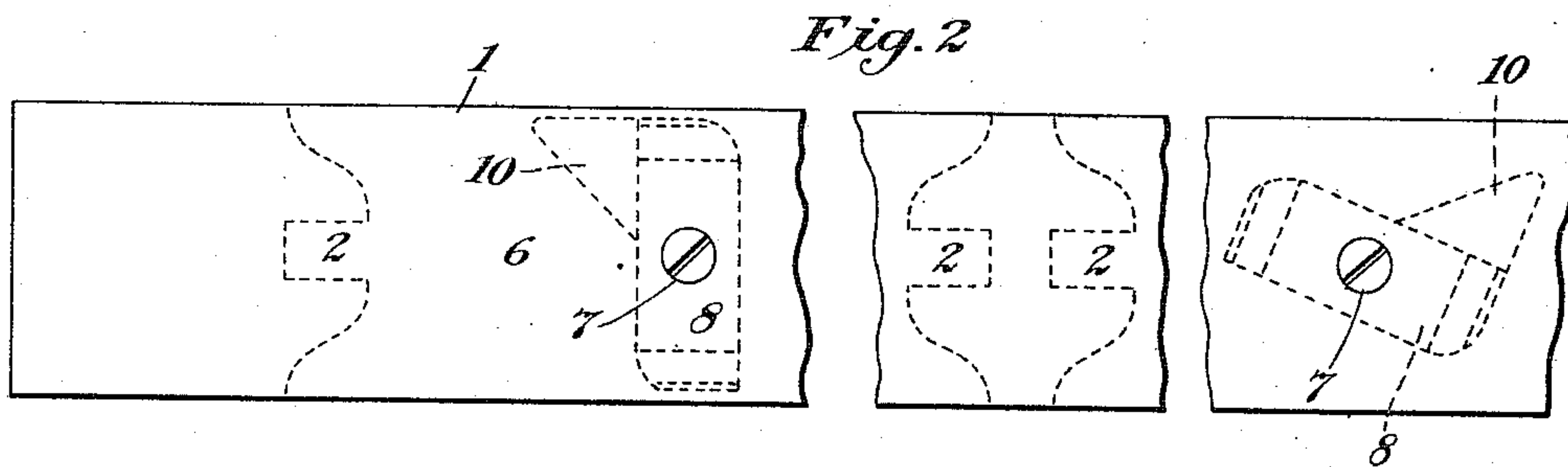
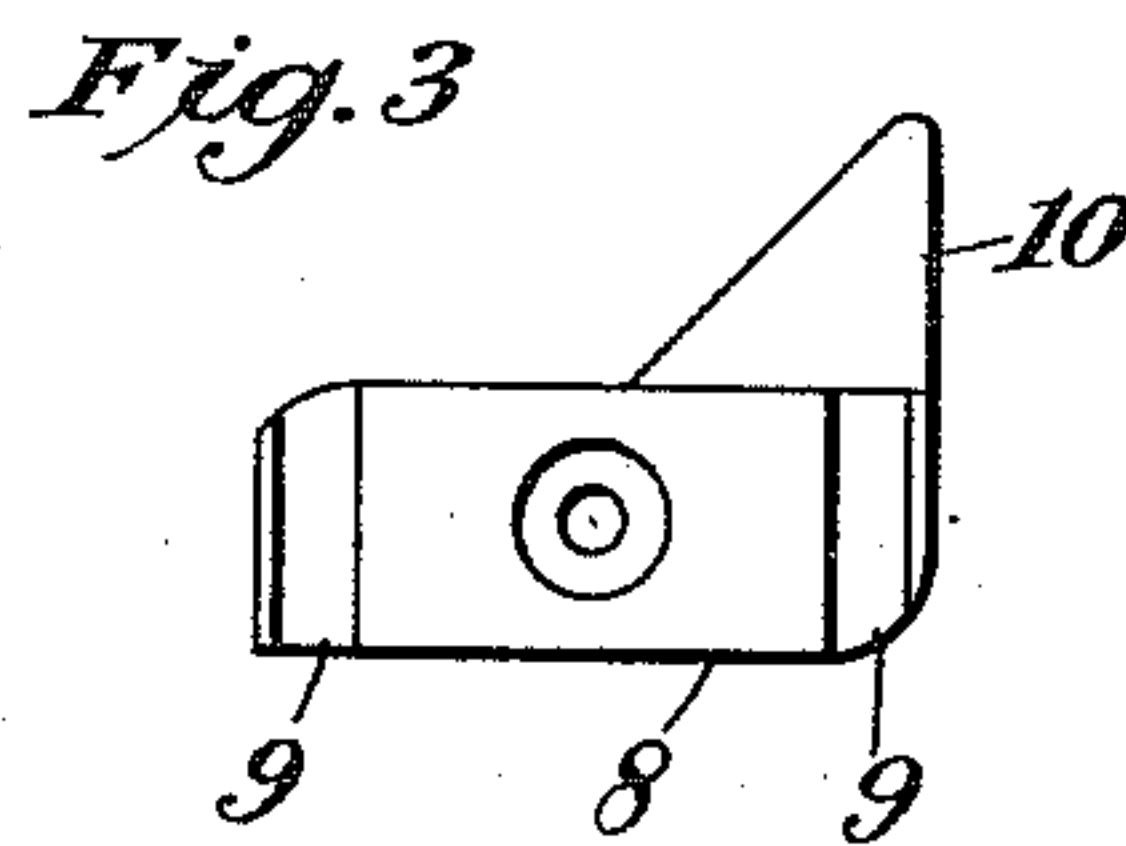
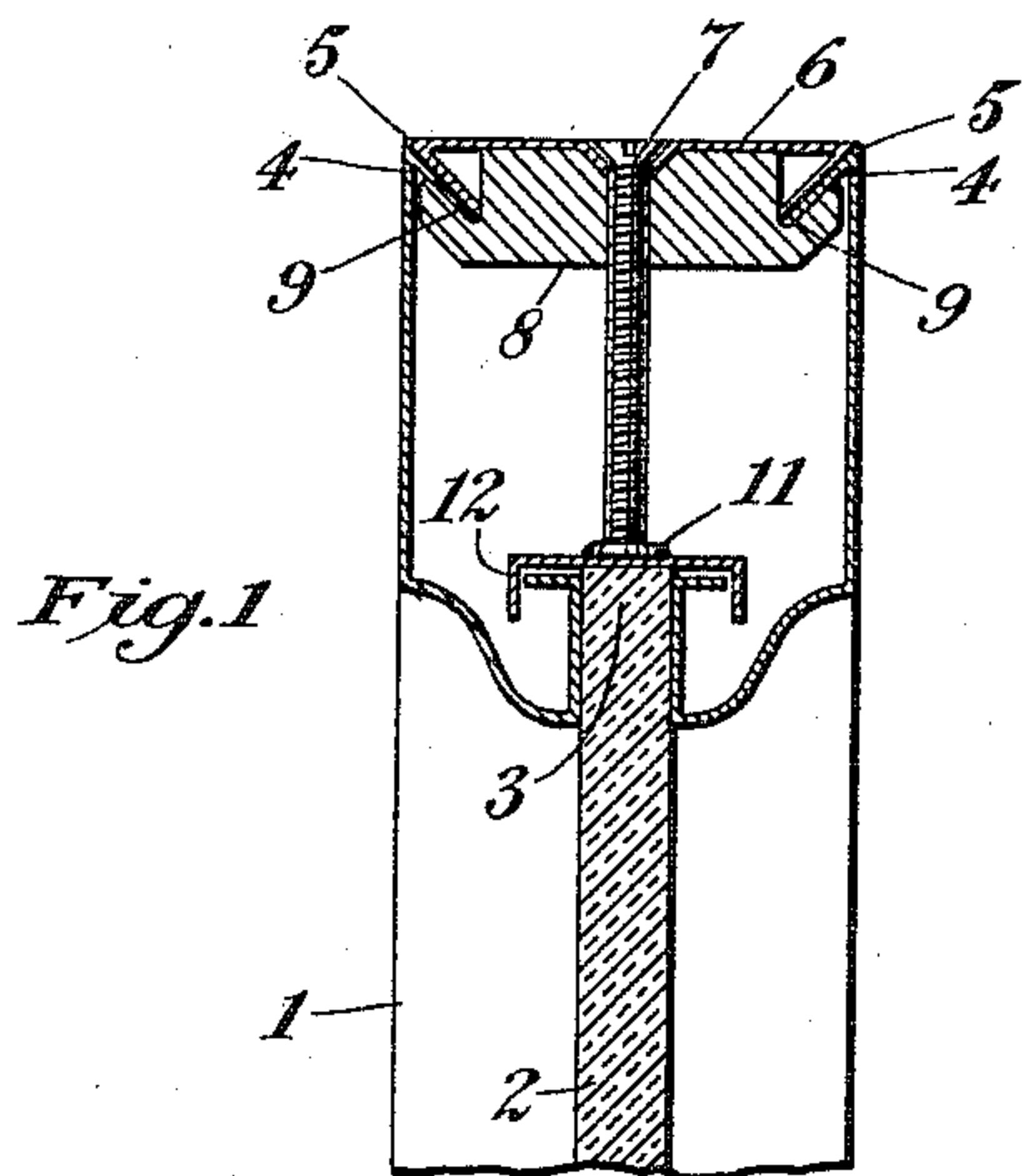


J. T. LEONARD.
METAL WINDOW SASH.
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998,621.

Patented July 25, 1911.



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UNITED STATES PATENT OFFICE.

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METAL WINDOW-SASH.

998,621.

Specification of Letters Patent.

Patented July 25, 1911.

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To all whom it may concern:

Be it known that I, JOHN T. LEONARD, a citizen of the United States and of the State of New Jersey, residing at Woodcliff, New Jersey, have invented certain new and useful Improvements in Metal Window-Sash, of which the following is a specification.

My invention relates particularly to window sashes which are formed of hollow sheet metal and consists in certain improvements whereby the sheets or panes of glass may be readily and conveniently inserted therein and held in position or removed therefrom.

In the drawings Figure 1 is a vertical section of one of my improved sashes showing the top and bottom rails cut through and the center of the side rail broken out; Fig. 2 is a top view of portions of the sash showing the side rail and middle rail and the fasteners in broken lines, and Fig. 3 is a plan view of one of the fasteners.

Similar reference numerals indicate corresponding parts in all the figures.

The window sash 1 is formed of a shell of sheet metal, and is provided with a groove 2 in the sides and bottom thereof which runs into a slot 3 above and into the top rail. The top rail is provided with inwardly inclined flanges 4, 4, upon which rest the complementary flanges 5, 5, of the sheet metal cover, 6, which is pierced at suitable distances to allow the passage of threaded bolts 7, 7, which carry the fasteners 8, 8, these fasteners being provided with grooves 9, 9, adapted to receive the flanges 4, 4, and with projecting portions 10, 10, which are adapted to enter inside of the top rail so as to prevent more than a partial rotation of the fasteners 8. Bolts 7, 7, are preferably enlarged at their lower ends, as at 11, to prevent their being drawn entirely through the fasteners 8, 8, and also to give them a broader bearing on the cap 12 which closes the top of the groove. It will be seen that when the metal cover 6, with its attachments, is removed from the top rail, and the slot cap 12 is lifted off, a sheet of glass may be slipped down through the top rail into its proper position in the groove 2. The cap 12 is then placed over the top groove. The cover 6 is next fitted into position on the top rail, the fasteners 8, 8, being turned into the position shown by the broken lines at the right of Fig. 2, and lowered on the bolts 7, 7, so as to allow them to be passed down between the flanges 4, 4, of the top rail,

when their extensions 10, 10, engage against the inside of the top rail and prevent their turning further. The continued turning of the bolts 7, 7, will draw the fasteners 8, 8, up against the flanges 4, 4, and clamp them firmly in position, thus securing the cover 6 firmly upon the top rail. At the same time the ends 11, 11, of the screws 7, 7, will bear down upon the slot cap 12, holding it in position over the slot 3, and effectually preventing the glass from slipping out of the sash in whatever position the sash may be. In case it is desired to remove the glass at any time, it is only necessary to turn the bolts 7, 7, from right to left, thus lowering and releasing the fasteners 8, 8, and turning them so that they may pass up between the flanges 4, 4, when the cover is lifted off. The slot cap 12, can then be removed and new glass can be inserted in the sash. By this arrangement I secure a sash wherein the glass can be securely and easily placed and replaced without removing the sash from its position in the window, and in which the glass will be securely held against lateral or vertical displacement.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States, is:—

1. The combination in a metal window sash, of a bottom rail and side rails having a groove therein, a top rail having a slot through the bottom thereof and an open top provided with inturned edges, a cap for the top rail slot, a cover for the open top of the top rail, and means consisting of a partially rotatable fastener and a threaded bolt passing therethrough to detachably secure said cover to the top rail by engaging with its inturned edges and to hold said slot cap in position.

2. The combination in a metal window sash, of a bottom rail and side rails having a groove therein, a top rail having a slot through the bottom thereof and an open top provided with inturned and downwardly inclined edges, a cap for the top rail slot, a cover provided with inwardly and downwardly turned edges, and means consisting of a partially rotatable fastener provided with upturned ends and a threaded bolt passing through said cover and fastener to detachably secure said cover to the top rail by engaging said fastener with its inturned edges, and to hold said slot cap in position by the end of the bolt bearing thereupon.

3. The combination in a metal window sash, provided with bottom rail and side rails having a groove therein and a top rail with a slot through the bottom thereof, 5 and an open top with inwardly and downwardly inclined edges, of a top cap, a threaded bolt passing therethrough and carrying an elongated anchor nut provided with upwardly turned inclined ends, and an extended portion to prevent its complete 10 rotation within said top rail.

JOHN T. LEONARD.

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