E. M. MATTHEWS.

WINDOW SASH.

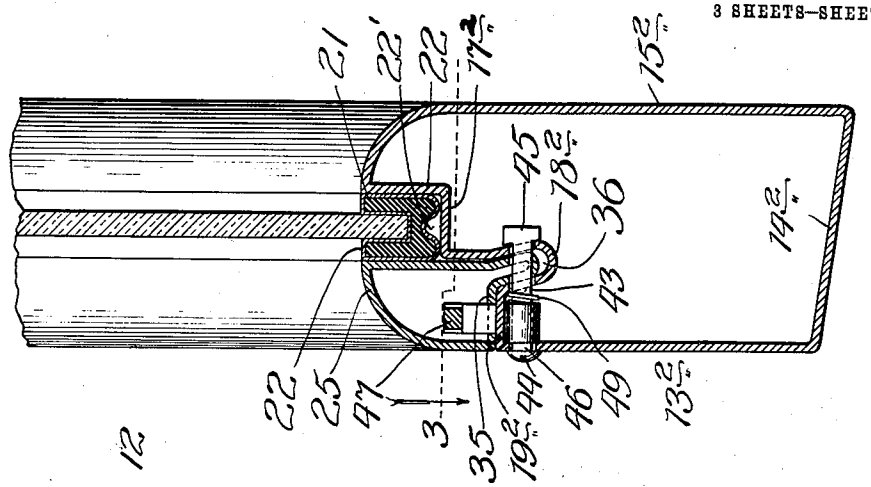
APPLICATION FILED JUNE 3, 1910.

977,415.

Patented Nov. 29, 1910.

3 SHEETS—SHEET 1.

Fig. 2.



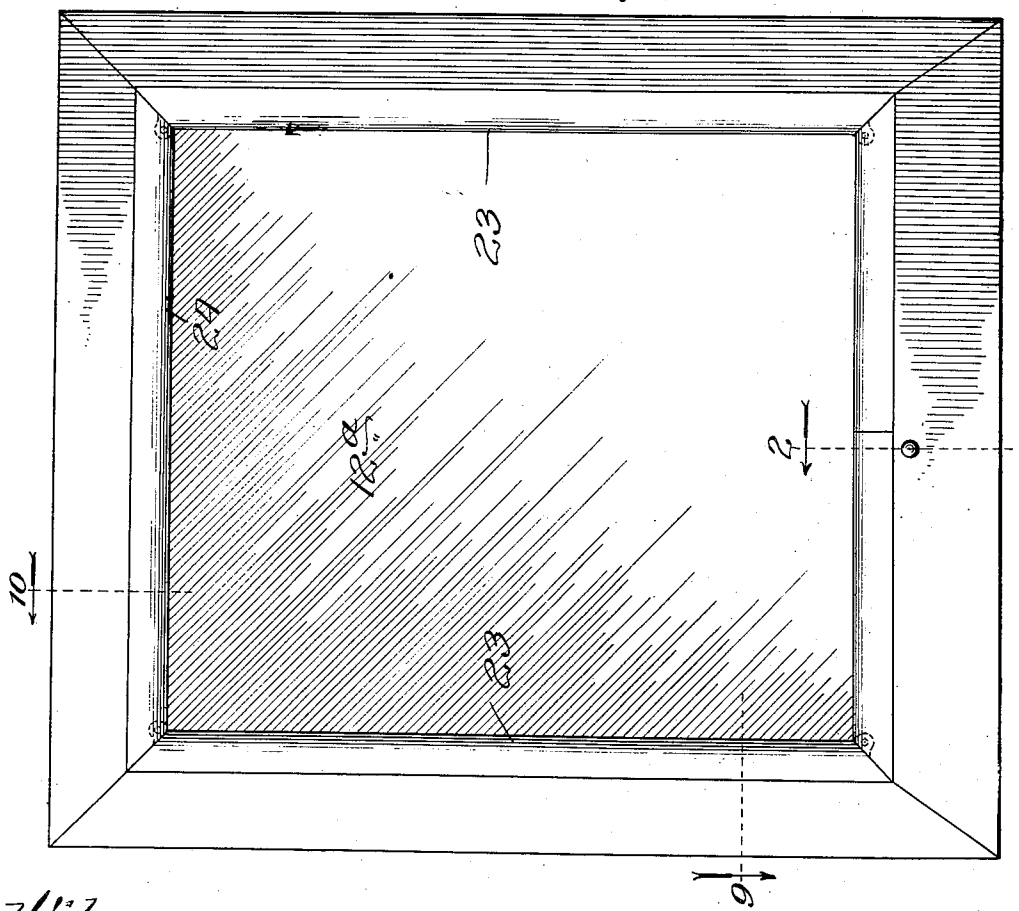


Fig. 1.

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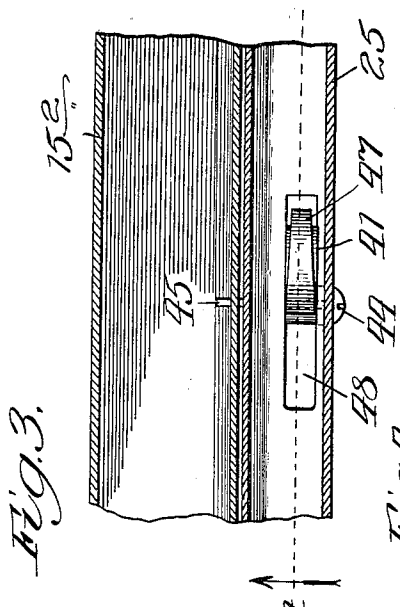


Fig. 3.

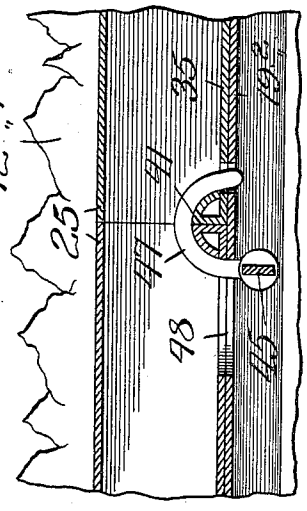


Fig. 4.

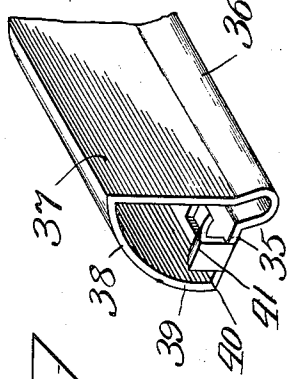


Fig. 5.

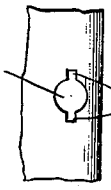


Fig. 7.

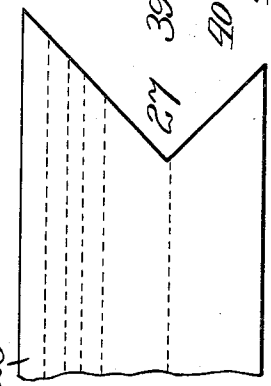


Fig. 8.

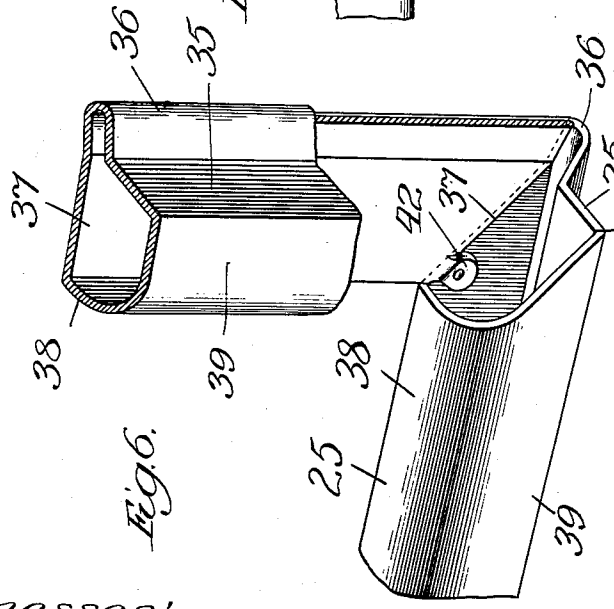
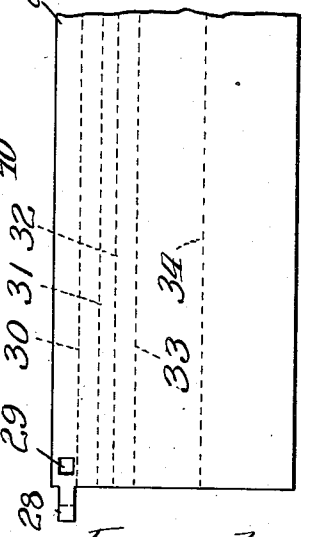


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 10.

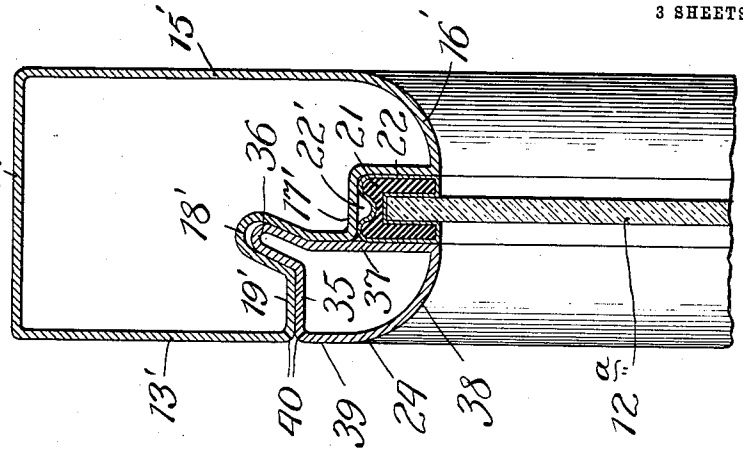


Fig. 9.

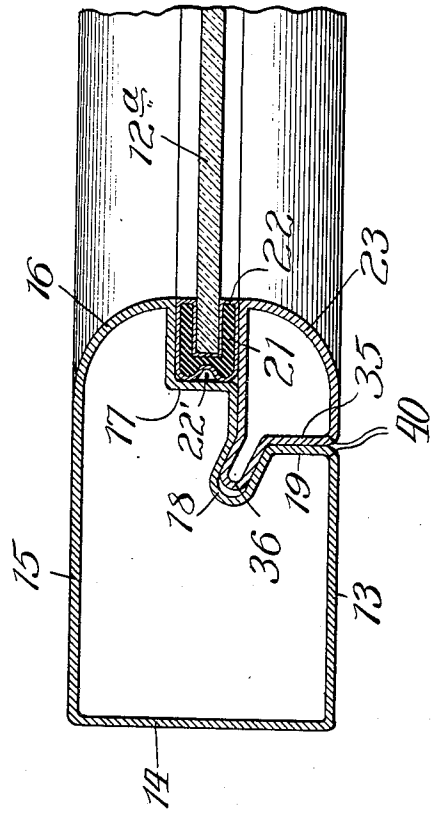
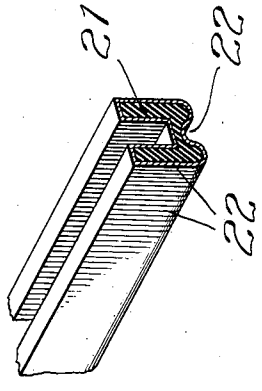


Fig. 11.



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UNITED STATES PATENT OFFICE.

EDGAR M. MATTHEWS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO W. E. ROTHERMEL, OF CHICAGO, ILLINOIS.

WINDOW-SASH.

977,415. Specification of Letters Patent. **Patented Nov. 29, 1910.**

Original application filed March 16, 1910, Serial No. 549,642. Divided and this application filed June 3, 1910. Serial No. 564,734.

To all whom it may concern:

Be it known that I, EDGAR M. MATTHEWS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Window-Sashes, of which the following is a specification.

My invention relates to an improvement in sheet-metal window-sash, and is shown and described in my pending application for Letters Patent Serial No. 549,642, filed March 16, 1910, of which the present is a divisional application.

In the accompanying drawings, Figure 1 is an inner-face view of a glazed window-sash of my improved construction; Fig. 2 is an enlarged broken section on line 2, Fig. 1; Fig. 3 is a section on the irregular line 3, Fig. 2, and Fig. 4 is a sectional view of the same in elevation; Fig. 5 is a broken perspective view of one of the two sections forming the bead for the lower sash-rail, showing the keeper-member therein; Fig. 6 is an enlarged broken perspective view of the base-rail bead and a side-rail bead showing the pivotal junction between them at their meeting corners; Fig. 7 is an enlarged broken view of the part of the lower sash-rail containing an opening through which to admit into operative position the key for separably locking the beads to the sash; Fig. 8 is a broken plan view of one of the two similar sheet-metal blanks out of which the two sections of the bead for the lower sash-rail are formed; Fig. 9 is a broken, enlarged section on line 9, Fig. 1; Fig. 10 is an enlarged section on line 10, Fig. 1, and Fig. 11 is a perspective view of a canvas-covered pane-seating cushion employed with the sash.

I have devised my improved sheet-metal sash for use more particularly in the modern type of steel railway-cars, as being especially useful in that connection, although the more important features of my improvement are adaptable to window-sash generally.

The four rails of a square window-sash 12, like that shown in Fig. 1, are hollow and may be formed out of a continuous sheet-metal blank of suitable proportions, having the section for each rail and the ends beveled at their edge-portions to form the interfitting corners of the sash, substantially as described of the sash of my pending application, Serial No. 546,883, filed March 2, 1910. Each side sash-rail is given the configuration illustrated in Fig. 9 by bending a section of the sheet-metal blank, referred to, to produce the inner vertical face 13, the lateral face 14, a vertical outer face 15 curved convexly at 16 to form a crown-portion, a rectangular seat 17 for the window-pane 12^a, cushioned as hereinafter described, an outwardly-inclined vertical socket 18, and a vertical bead-seat 19. The meeting edges of each side-rail, as at 40, may be united by welding or brazing. The configuration of the upper sash-rail, shown in Fig. 10, is produced by bending the proper blank-section to produce the inner face 13′, the top-face 14′, the outer face 15′, the crown-portion 16′, window-pane seat 17′, inclined socket 18′ and bead-seat 19′. The bottom sash-rail, shown in Fig. 2, is produced by bending the proper blank-section to produce the inner face 13^2, bottom 14^2, outer face 15^2 with upper crown-portion 16^2 and window-pane seat 17^2, socket 18^2 and bead-seat 19^2. The socket 18^2 has key-openings formed transversely and coincidentally through its walls, as shown, the opening illustrated at 20 in Fig. 7, which is the innermost one, being provided with lateral recesses 20′ diametrically opposite each other, for the purpose hereinafter explained.

Trough-shaped cushions 21, preferably of soft rubber covered with canvas 22 to shield the rubber against contact with metal, fit against the seats 17, 17′ and 17^2 provided for them in the rails; and these cushions, which confine the window-pane at its edge-portions and serve to protect it against fracture from jar, shock and the like, are grooved, as shown at 22′, along their seating-faces in molding them, for a purpose hereinafter explained.

For releasably confining the window-pane in the sash, thereby to adapt a broken pane to be readily taken out and the sash to be glazed without requiring it to be removed from the window-frame, beads are employed, those illustrated being formed hollow out of sheet-metal from suitable blanks. The two beads 23, 23, for the side-rails of the sash and the bead 24 for the top-rail are alike, while the bead 25 for the lower sash-rail, though of the same configuration as the

other beads, is provided in two similar longitudinal sections, each formed out of a sheet-metal blank 26, like that represented in Fig. 8, having a notch 27 in one end and a tongue 28 projecting from its opposite end and in alinement with a rectangular opening 29 in the blank at a corner-portion thereof. The blank for each bead 23 and 24 is like two of the blanks 26 formed as a continuous strip with notches 27 in its ends and omitting the tongue 28 and opening 29, so that the manner of forming each bead will be understood from the following description with reference to bending the blank of Fig. 8. By suitably bending the sheet-metal strip along the dotted lines 30, 31, 32 and 33, the flat base 35, the gutter-like tongue 36 and the flat back 37 of the bead are formed, and suitably bending the blank along the dotted line 34 forms the crown-portion 38 and the flat face 39 of the bead, the edge of which face may be united to that of the base 35 at 40 (Fig. 6) by welding or brazing.

A blank 26 is formed in the manner described into each section of the bead 25, and the tongues 28 on their meeting edges are each bent into the segmental shape illustrated in Fig. 4 to abut against each other and constitute a semi-circular keeper 41 for the purpose hereinafter explained. The beads are pivotally connected together at ears on their ends, like the ear shown at 42 in Fig. 6, where the ends are caused to meet and interfit by the notches 27 provided in the blank-ends and conform to the corners of the sash-frame when the beads are adjusted in place therein with their bases 35 against the seats 19, 19′ and 19^2, respectively, their tongues in the sockets 18, 18′ and 18^2, respectively, and their sides 37 bearing against the adjacent sides of the cushions 21 to confine the latter. As will be observed, the crown-shape of the beads causes them to conform to and round out the crown-portions of the sash-frame rails.

To fasten and tighten the beads in place, a key 43 is employed (Fig. 2). It has a slotted screw-head 44 on one end of a cylindrical stem to adapt it to be turned by a screw-driver, and it terminates at its opposite end in a comparatively thin cross-head 45. This key is inserted through an opening 46 in the bottom sash-rail near the inner end of one of the two sections of the divided bead 25, and through alining openings in the socket 18^2 (including the recessed opening 20) and a slot in the tongue 36 therein; and a slight turn of the key will take its head 45 out of registration with the recesses 20′ (Fig. 7) and thus cause it to obstruct withdrawal of the key. The stem of the key carries, to turn with it, a hook-shaped latch 47 which extends into the bead 25 through, and works in elongated slots 48 (Fig. 4) in the bead-seat on the lower sash-rail and base of the bead-section upon it; and on the key-stem is confined, between the hub of the latch and the adjacent wall of the socket 18^2, a spiral spring 49 tending to hold the key in place when turned to its described non-withdrawable position. By turning the key to that position the latch 47 engages the keeper 41, as shown in Fig. 4, the free end of the latch entering the opening 29, which is that shown in the blank 26; and thus the beads are locked in place, the sections of the bead 25 being tightened by the spring-action of the key against the adjacent cushion 21 and compressing it, thereby narrowing the groove 22′ with the effect of mutually tightening the cushions and edges of the window-pane against each other. By turning the key in the direction to register the cross-head 45 with the recesses 20′ it is loosened to free the lower bead-sections, permitting them to be raised on their pivoted ends and thus releasing the upper and side beads to enable them to be removed, as for taking out of the sash a fractured window-pane and inserting a new one, which is then to be fastened in the sash-frame by adjusting the beads in place and securing them with the key 43.

What I claim as new and desire to secure by Letters Patent is—

1. In a window-sash, the combination of a frame comprising rails provided with window-pane seats, beads coöperating with said seats to confine the pane, one of said beads comprising longitudinal alining sections, and key-operated means coöperating with a frame-rail and said sections to releasably lock the sections together.

2. In a window-sash, the combination of a frame comprising rails provided with window-pane seats, beads coöperating with said seats to confine the pane and pivotally connected end to end, one of said beads comprising longitudinal alining sections, and key-operated means coöperating with a frame-rail and said sections to releasably lock the sections together.

3. In a window-sash, the combination of a frame comprising rails provided with window-pane seats, trough-like cushions on said seats for confining a pane at its edges, said cushions being grooved along their seating faces, beads coöperating with said cushions to confine them, and key-operated means cooperating with a frame-rail and the bead thereon to releasably secure the beads in place.

4. In a window-sash, the combination of a frame comprising rails provided with window-pane seats, trough-like cushions on said seats for confining a pane at its edges, said cushions being grooved along their seating edges, beads coöperating with said cushions to confine them and flexibly connected at their ends, one of said beads comprising

longitudinal alining sections, and key-operated means coöperating with a frame-rail and said sections thereon to releasably lock the sections together.

5. In a window-sash, the combination of a frame comprising rails provided with window-pane seats and bead-seats with interposed sockets, beads removably fitting against said seats and having tongues extending into said sockets, one of said beads comprising longitudinal alining sections with a keeper on their adjacent ends, a key working in the frame-rail provided with said bead-sections and passing through the socket and tongue in its path, said key having a head on its inner end, and a latch on the key extending into the adjacent bead-section to engage said keeper.

6. In a window-sash, the combination of a frame comprising hollow rails of sheet-metal provided with window-pane seats and bead-seats with interposed sockets, hollow sheet-metal beads fitting against said seats and having tongues extending into said sockets, one of said beads comprising longitudinal alining sections with a keeper comprising coöperating parts on their adjacent ends, a spring-pressed key working in the frame-rail provided with said bead-sections and passing through the socket and tongue in its path, said key having a head on its inner end, and a latch on the key extending into the adjacent bead-sections to engage said keeper.

EDGAR M. MATTHEWS.

In presence of—
J. G. ANDERSON,
R. A. SCHAEFER.