

March 19, 1929.

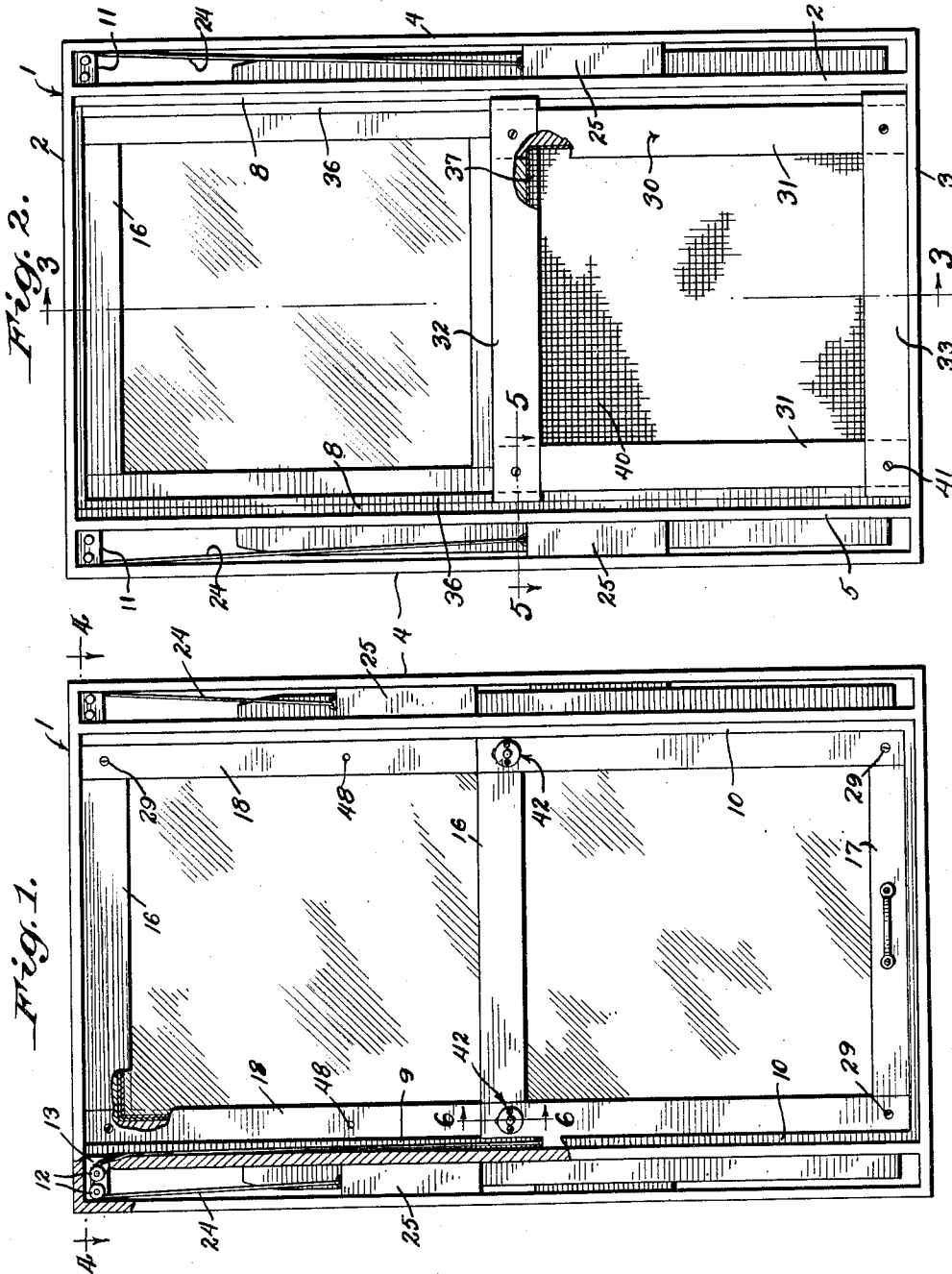
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1,706,347

WINDOW FRAME STRUCTURE

Filed Sept. 23, 1927

3 Sheets-Sheet 1



WITNESSES

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3 Sheets-Sheet 2

Fig. 3.

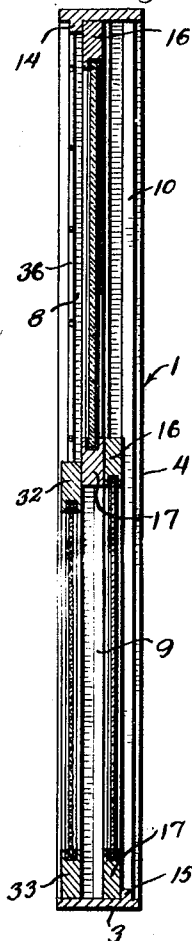


Fig. 4.

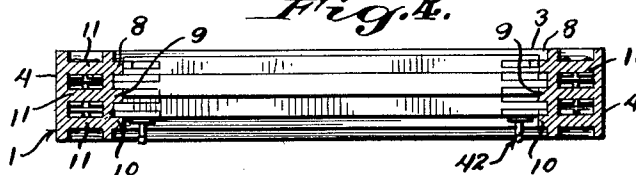


Fig. 6.

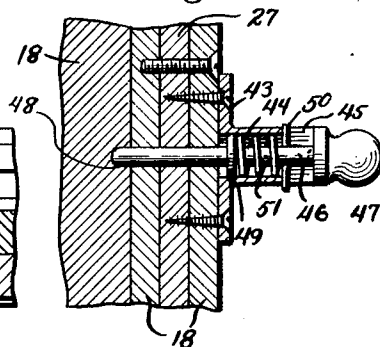


Fig. 5.

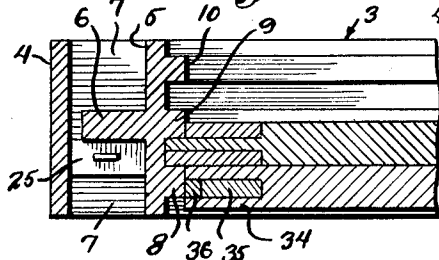


Fig. 7.

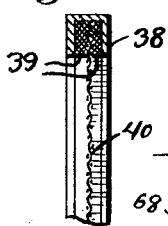


Fig. 8.

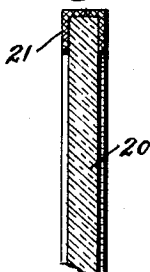


Fig. 13.

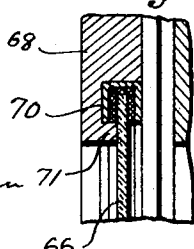
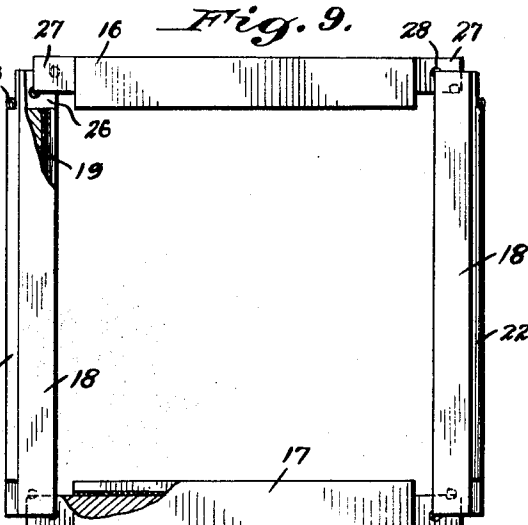


Fig. 9.



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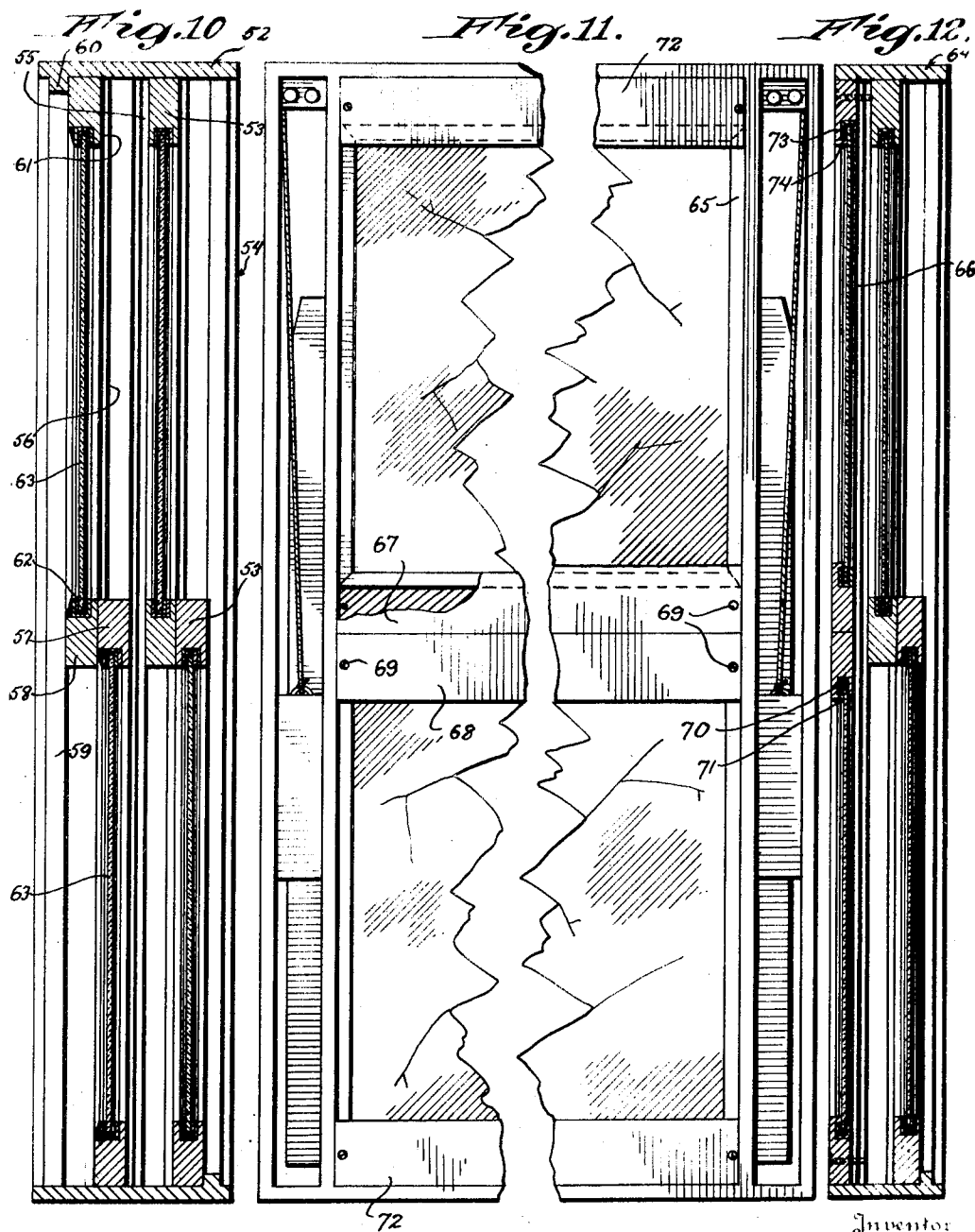
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WINDOW FRAME STRUCTURE

Filed Sept. 23, 1927

3 Sheets-Sheet 3



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WINDOW-FRAME STRUCTURE.

Application filed September 23, 1927. Serial No. 221,562.

This invention relates to a window structure and pertains particularly to a specially designed cast metal window frame structure and sashes therefor.

5 The primary object of the present invention is to provide in a manner as hereinafter set forth, a window frame cast as a single unit, of metal, preferably aluminum, and sashes of novel construction adapted to be
10 assembled in the window frame.

Another object of the invention is to provide in a manner as hereinafter set forth, and in the frame structure of the character above described, an improved type of sash
15 wherein the side members may be readily assembled and disassembled and wherein the glass may be securely held against rattling or fracture incident to jars or other severe motion.

20 A further object of the present invention is to provide in a manner as hereinafter set forth, a cast window frame and associate sash structure which shall be of simplified and improved design, strong and durable, weather
25 proof and comparatively inexpensive to manufacture and install.

Numerous other objects and advantages of the present invention will become apparent as the description of the same proceeds and the invention will be best understood from a
30 consideration or the following detailed description taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however,
35 that the invention is not confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of
40 the invention as expressed in the appended claims.

In the drawings:

Figure 1 shows an interior elevational view of the structure embodying the present
45 invention ready for insertion into the window opening in the wall.

Figure 2 is an elevational view of the window frame and sash structure from the outside thereof.

50 Figure 3 is a longitudinal section taken upon the line substantially 3—3 of Figure 2.

Figure 4 is a transverse section taken substantially upon the line 4—4 of Figure 1.

Figure 5 is a transverse section taken upon the line 5—5 of Figure 2. 55

Figure 6 is a section taken upon the line 6—6 of Figure 1.

Figure 7 is a detailed section through one rail of a screen frame structure.

Figure 8 is a detailed section through one
60 edge of a sash glass showing a protecting shield around the edge of the same.

Figure 9 is a view of a partially assembled frame of the character embodying a part of
65 the present invention.

Figure 10 is a longitudinal section taken through a modified form of window frame showing the method of mounting a storm
70 window in the outer side thereof.

Figure 11 is a view in front elevation of a
75 frame showing a further modification of storm window.

Figure 12 is a central longitudinal section through the structure shown in Figure 11.

Figure 13 is an enlarged detail view showing a transverse section through a portion of
80 the storm window structure shown in Figure 12.

Referring now to the drawings in detail wherein like numerals of reference indicate
85 corresponding parts throughout the several views, the window frame structure embodying this invention is indicated as a whole by the numeral 1 which as shown, comprises the top and bottom rails 2 and 3 respectively
85 having the outer connecting side rails 4. These outer side rails 4 like the top and bottom rails 2 and 3 are cast integral as is shown and extending in spaced parallel relation to each of the side rails 4 is an inner sash guide
90 rail 5 which has extending longitudinally of the central portion of that face opposing the adjacent outer rail 4, the guide tongue 6, which though it does not extend throughout
95 the entire length of the rail of which it forms a part, divides the space between the inner and outer rails into two chambers or compartments 7.

Cast integral with and extending throughout the entire length of the inner face of
100 each of the sash guide strips 5 are three spaced parallel sash frame guide beads 8, 9 and 10,

the beads 8 being upon the outer side of the frame, the beads 9 being centrally located and the beads 10 being adjacent the inner side of the frame, as will be readily seen from
5 the cross sectional views in Figures 4 and 5.

In the upper portion of the frame between the outer rails 4 and the inner rails 5, there are located spaced cross members 11 each being in alignment transversely of the
10 frame with one of the bead strips 8, 9, and 10. Between the central one of these cross members 11 and the adjacent outer member there is pivotally mounted a pair of pulleys 12 and each of the inner rails 5 is
15 provided at its upper end with the passage 13 to permit a sash cord hereinafter more specifically designated, to pass from a sash within the frame to the pulleys.

The top rail of the frame is provided on
20 its inner face with the cross bead 14 which lies in the same vertical plane as the outer side beads 8 and the bottom rail 3 of the frame is likewise provided with a cross bead 15 upon its inner face, which bead lies in the
25 same plane as the inner side beads 10.

The sash embodying a portion of the present invention is especially designed to permit its being assembled in the frame between the sash guide rails 5, and one of these sash is indicated in partially assembled condition, in
30 Figure 9. As is shown, this sash structure comprises the top and bottom bars 16 and 17 respectively and the side bars 18. The inner edge of each of the four bars is provided
35 with the groove 19 for the reception of one edge of the glass panel indicated by the numeral 20 in Figure 8 and in each of these grooves there is fitted a rubber lining 21 which engages over the edge of the glass
40 panel to provide resilient cushion between the panel and the frame bar.

Each of the side rails or bars 18 of each sash has formed upon the outer edge adjacent one side face thereof the flange 22,
45 this flange being of materially less width than the bar upon which it is formed and as shown in Figure 9, it terminates a slight distance inwardly of the top bar of the sash and has secured in the top end the eye 23 through
50 which one end of a sash cord 24 is passed and secured. When the sash is in position in the frame as shown in Figures 1 and 2, this cord passes through the opening 13 in the adjacent guide rail 5 of the frame, passing
55 over the pulleys 9 and downwardly into the adjacent compartment where it is attached to the sash weight 25.

Each of the sash side bars 18 further has each end provided with a mortise 26 which
60 opens through the end of the frame and through the inner edge thereof and the top and bottom rails or bars 16 and 17 of the sash are formed at the end to set up the tenon 27 which is designed to fit into the mortise 26 of
65 the adjacent side bar. Apertures 28 are

formed through the side walls of the mortise and through the tenons for the passage of securing members 29 to maintain the sash in assembled condition when the same are in position in the frame.

The outside beads 8 are formed to guide
70 and retain in position in the window frame, an especially designed screen frame structure indicated as a whole by the numeral 30. This screen frame comprises the side bars 31
75 and the top and bottom bars 32 and 33 respectively. In this instance, each end of the top and bottom rails is provided with a relatively deep mortise 34 (Figure 5) and each end of each guide bar 31 is reduced to form
80 a tenon 35 which is positioned in the mortise 34 of the adjacent top or bottom bar. As is clearly shown, in Figure 2, the side bars 31 of the screen frame set inwardly of the top and bottom bars. Secured to the face of each
85 of the beads 8 is an auxiliary bead strip 36. These bead strips engage in the mortised end portions of the top and bottom bars 32 and 33 and the outer edges of the side bars 31 slide against the faces of the strips. The inner
90 edge faces of the screen bars 31, 32 and 33 are channeled as indicated at 37 (Figure 2) to receive the channel lining body 38 in which a pair of resilient strip bodies 39 are pressed as shown in Figure 7 and between
95 these bodies 39 is gripped one edge of a screen fabric 40. The bars 31, 32 and 33 of the screen frames are secured together at the corners by securing members 41 in substantially the same manner in which the sashes
100 are secured. The lower or outer one of the sashes has each side bar 18 thereof provided with a latching member indicated as a whole by the numeral 42. Each of these latching members comprises a base plate 43 having a
105 central aperture and further having a sleeve 44 projecting from one face thereof in alignment with the aperture through the plate. The sleeve 44 is provided at its outer edge with a transversely extending kerf 45 and
110 extending through the sleeve is a latch pin 46 having a head 47 upon its outer end which head normally bears against the free outer end of the sleeve. The inner end of the latch pin is designed to project through the adjacent side bar of the sash upon which it is
115 secured for engagement in aperture 48 of the adjacent sash. Substantially mid-way between the ends of the latching pin 46 is a collar 49 which is arranged within the sleeve 44 and extending transversely through the
120 pin 46 is a short stop pin 50. Surrounding the pin 46 between the stop pin 50 and the collar 49 is a resilient spring member 51. The outer end of this spring is secured to the
125 sleeve 44 and from this it will be readily understood that upon drawing the pin 46 outwardly, the spring 51 will be compressed and the pin 46 can be maintained in the outwardly extended position by rotating the pin 46
130

a quarter turn to allow the latch pin 50 to move from alignment with the kerf 45 so that it can rest upon the free edge of the sleeve 44. Further rotation of the pin 46 will permit the latch pin 50 to slip into the kerf 45 under the urge of the spring 51 and the spring will then project the latch pin or bolt 46 into the aperture 48 when brought into alignment.

10 In Figures 10 to 13 there is shown a modified construction of frame designed to receive storm sash.

As shown in Figure 10 the frame 52 is of materially greater width than the frame 3 described in connection with the foregoing figures although the inner portion thereof is the same structurally for the reception of the sash members which in this figure are indicated by the numeral 53.

20 The frame 52 is provided along the inner faces of the side members 54 with the retaining beads 55 which maintain the outer sash of the window in position. Spaced from and in parallel relation with the beads 55 are similar beads 56 and between the beads 55 and 56 a lower sash 57 of a storm window is retained. Associated with this sash 57 is an upper sash member 58 which is held in position in the frame between the beads 56 and the outer retaining beads 59 and 60, the beads 59 extending longitudinally of the inner faces of the side members 54 while the bead member 60 extends across the under side or inner face of the top portion of the frame.

35 The storm window sash 57 and 58 have their inner faces adjacent the inner sides thereof provided with the surrounding flanges 61. In each of these sash there is fitted a metal frame 62 which is similar to the frame 21 and which carries a pane of glass 63. This frame is held in place in each sash by appropriate securing means such as glazier's tacks or putty. From this it will be understood that the glass panels 63 can be readily removed and screen frames inserted to transform the storm window into a screen window. It will of course be understood that the storm window sash can be made slidable if desired the same as sash 53.

50 In Figures 11 and 12 the frame 64 is like the frame 52 with the exception of the fact that the beads 59 and 60 are eliminated so that the storm window used in association with this frame is flush at its outer side with the outer edge of the frame.

In the structure shown in Figures 11 and 12 the window pane retaining metal frames 65 are placed in position directly against the longitudinal side beads 66, and secured transversely of the central portion of the window frame between the glass panels is a pair of retaining panels 67 and 68 the same being in edge abutting relation and secured at their ends to the bead strip 66 against which they rest by the screws 69. The free edges of these

retaining panels are formed to receive the adjacent portion of the metal frame 65 in which the pane 66 is carried, as indicated at 70 and as shown at 71 an inwardly extending tongue is provided which engages the under edge of the frame 65 to hold the glass panel in position. Similar retaining panels 72 are secured across the top and bottom of the window frame and these panels also have their inner edges recessed as at 73 to receive the frame of the window pane and to hold the under edge of the same by the inwardly directed tongue 74.

From the foregoing description it will be understood that any one of the retaining panels may be removed if desired without disturbing the glass panels 66 thus affording means for obtaining ventilation without removing the entire storm window structure. It will also be seen that the glass panes can be readily replaced by screen frames to adapt the storm window structure to summer use.

Having thus described my invention, what I claim is:

1. A cast metallic window frame structure of the character described, comprising top and bottom rails, side rails connecting the ends of said top and bottom rails, inner sash guiding side rails arranged in spaced aligned relation to said first mentioned side rails, sash guide bead strips cast integral with the inner faces and extending throughout the length of said sash guiding side rails and a separating strip for sash units cast upon the center of the outer face of each inner rail and extending longitudinally thereof for the separating of a pair of weights arranged between the inner and outer side rails.

2. A window structure of the character described, comprising a frame consisting of top and bottom rails, side rails connecting the ends of said top and bottom rails, inner sash guiding side rails arranged in spaced aligned relation to said first mentioned side rails, sash guide bead strips formed integral with the inner faces and extending throughout the length of said sash guiding rails, shiftable sash units designed to be assembled between the sash guide rails and said guide beads, sash cords engaging said sash and passing through the adjacent side rails to position between the same and the adjacent outer side rail, and weight members slidably housed within the space between the first mentioned side rails and the sash guide side rails and having connection with said cords.

3. A cast metallic window frame, comprising top and bottom rails, connecting outer side rails, inner sash guiding side rails formed parallel with and in spaced relation to the outer side rails, each of said inner side rails having a sash cord aperture formed therethrough at the top thereof, spaced parallel sash guide bead strips formed longitudinally of the inner face of each inner side rail

and of the inner faces of the top and bottom rails, a separating plate formed longitudinally of the outer face of each inner guide rail between the same and the adjacent outer
5 guide rail for maintaining sash weights arranged between the inner and outer guide rails, in spaced relation, a plate member formed transversely of the upper end of the space between the inner and outer guide rails
10 adjacent said apertures, and sash cord pulleys mounted upon said plates to receive the sash cords passing through the adjacent apertures.

4. A window structure of the character de-

scribed, comprising a cast metallic frame hav- 15
ing top, bottom and side rails, a plurality of sash guiding beads strips cast integral with the inner faces of said top, bottom and side rails, to set up a pair of sash guide channels, a sash slidably mounted in each of said chan- 20
nels, a plurality of outer sash guiding bead strips cast integral with the inner faces of the top, bottom and side rails setting up a pair of outer sash guiding channels, and a pair of outer sash each mounted in one of said 25
outer channels.

In testimony whereof I affix my signature.
GEORGE H. BROWN.