July 15, 1941. M. P. RUMNEY ET AL 2,249,257

CASING CONSTRUCTION

Filed Feb. 16, 1940 3 Sheets-Sheet 1

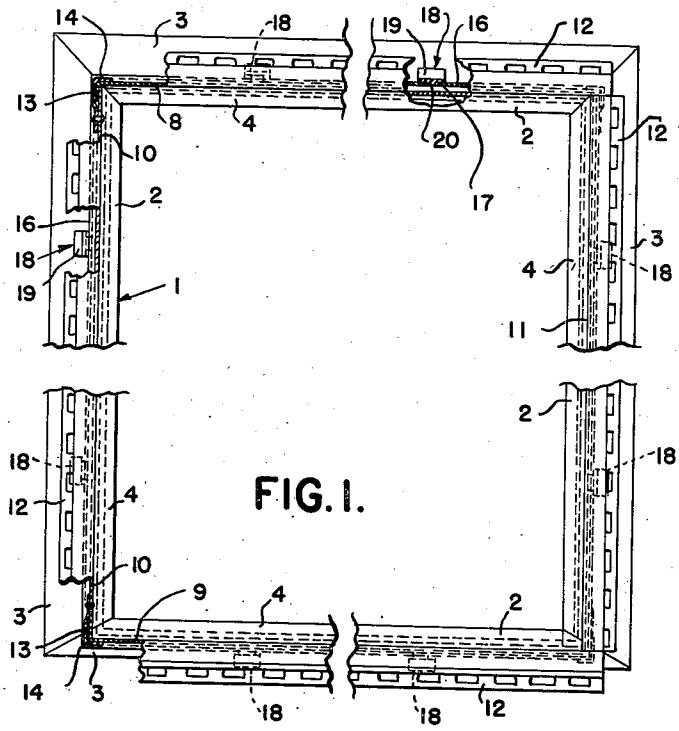

FIG. 1.

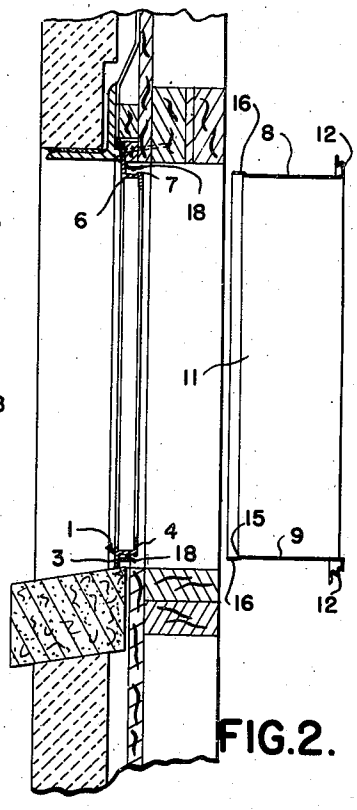

FIG. 2.

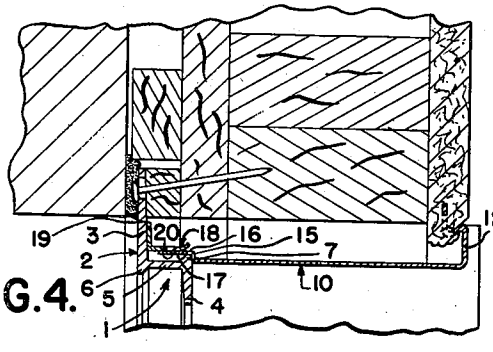

FIG. 4.

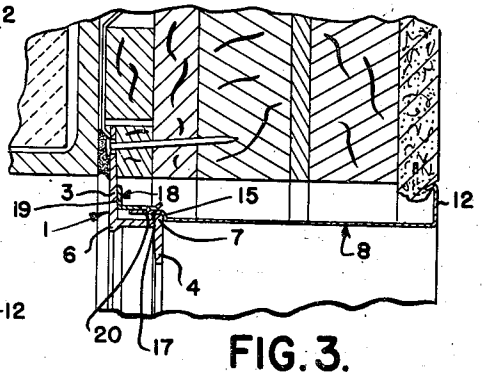

FIG. 3.

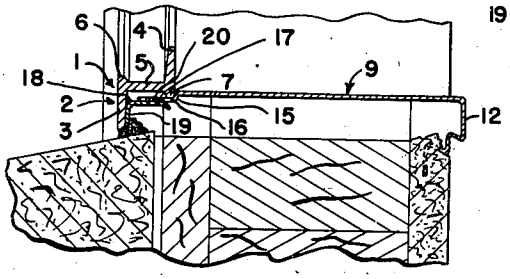

FIG. 5.

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CASING CONSTRUCTION

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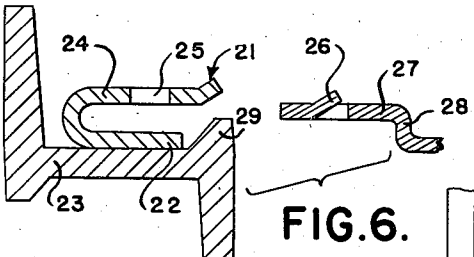

FIG.6.

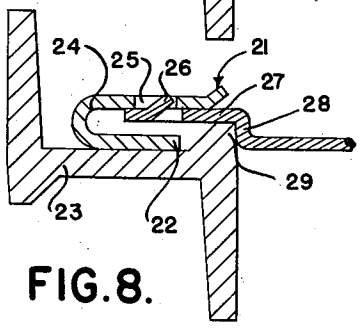

FIG.8.

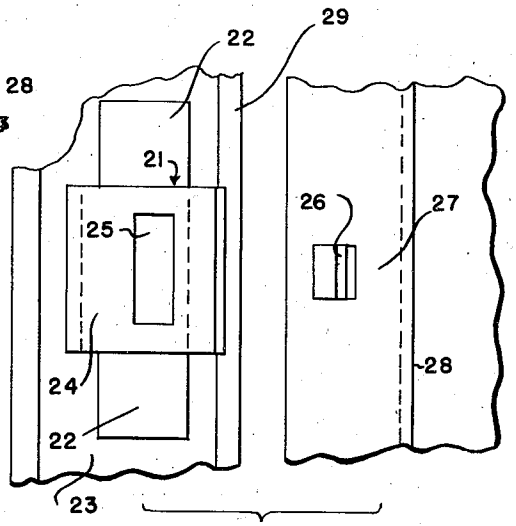

FIG.7.

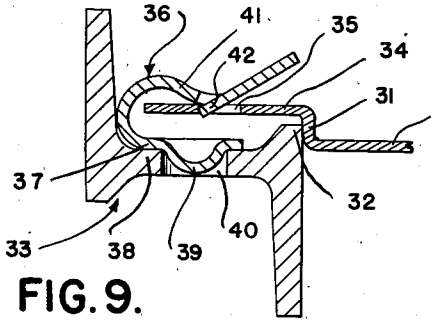

FIG.9.

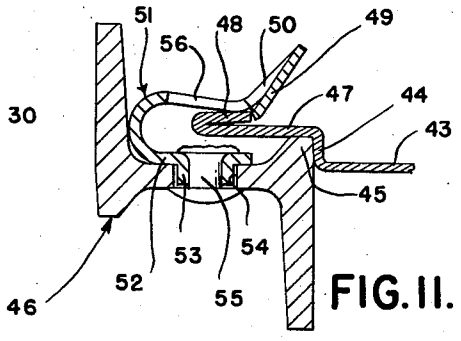

FIG.11.

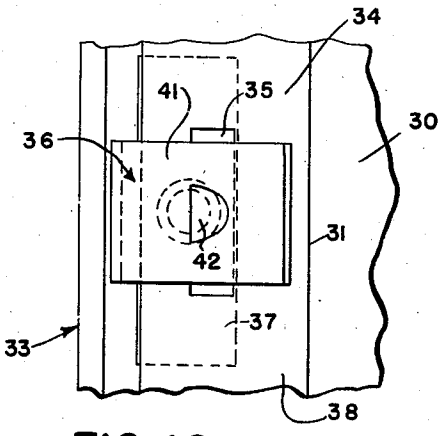

FIG. 10.

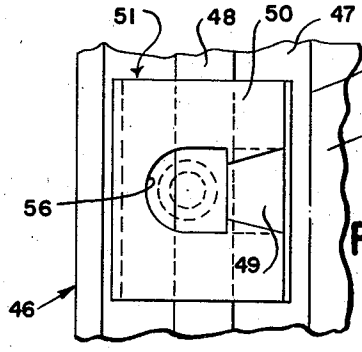

FIG.12.

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CASING CONSTRUCTION

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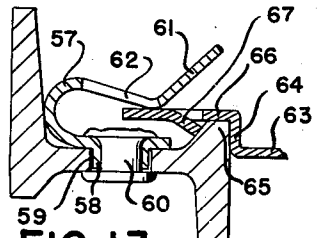

FIG. 13.

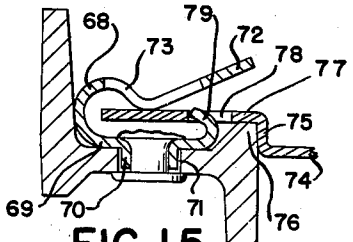

FIG. 15.

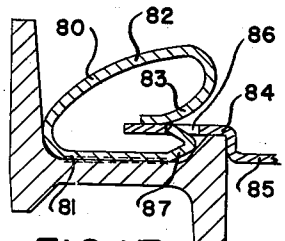

FIG. 17.

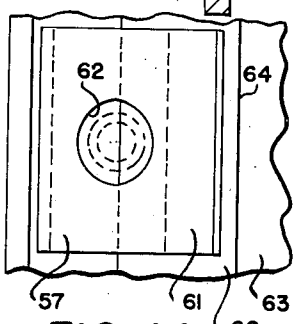

FIG. 14.

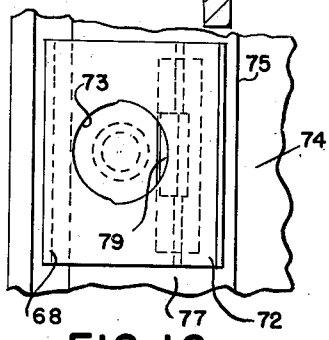

FIG. 16.

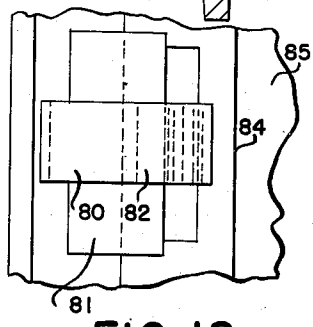

FIG. 18.

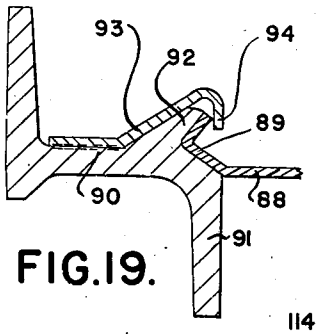

FIG. 19.

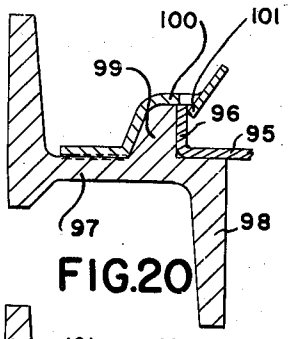

FIG. 20.

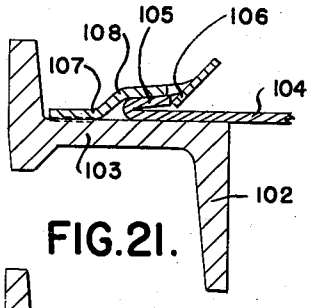

FIG. 21.

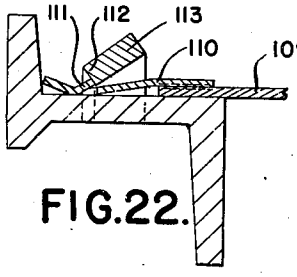

FIG. 22.

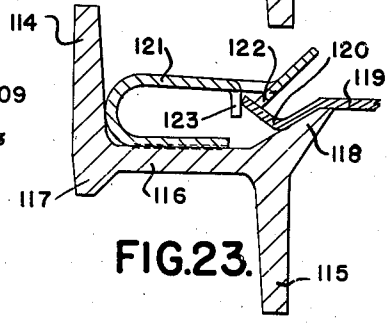

FIG. 23.

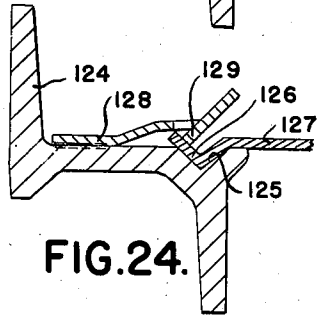

FIG. 24.

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Patented July 15, 1941 2,249,257

UNITED STATES PATENT OFFICE

2,249,257

CASING CONSTRUCTION

Mason P. Rumney and Clyde W. Kelly, Detroit, Mich., assignors to Detroit Steel Products Company, Detroit, Mich., a corporation of Michigan

Application February 16, 1940, Serial No. 319,337

3 Claims. (Cl. 189—75)

The invention relates to casing constructions and refers more particularly to metal window casing constructions for use especially in buildings.

The invention has for one object to provide a casing construction which can be readily attached to a window frame when the latter is mounted in a wall.

The invention has for another object to provide a casing construction which is attachable as a unit to a window frame.

The invention has for a further object to provide a casing construction in which the casing sections are secured to their respective frame bars by snap engagement.

These and other objects of the invention will become apparent from the following description, taken in connection with the accompanying drawings, in which

Figure 1 is an inside elevation, partly broken away, of a window frame and casing assembly embodying the invention;

Figure 2 is a vertical section through a building wall illustrating the method of attaching the casing to the window frame;

Figures 3, 4, and 5 are, respectively, head, jamb and sill sections illustrating the complete assembly;

Figure 6 is a view similar to a portion of Figure 2 and illustrating a modified construction;

Figure 7 is a plan view thereof;

Figure 8 is a view showing the parts attached;

Figure 9 is a view similar to Figure 8 and illustrating a modified construction;

Figure 10 is a plan view thereof;

Figures 11 and 12, Figures 13 and 14, Figures 15 and 16 and Figures 17 and 18 are views similar to Figures 9 and 10, respectively, and illustrating modified constructions;

Figures 19, 20, 21, 22, 23 and 24 are views similar to Figure 8 and illustrating modified constructions.

As illustrated in Figures 1, 2, 3, 4 and 5, 1 is a metal window frame of standard construction having its sides formed of the relatively narrow bars 2 which are welded or otherwise secured to each other at the corners to form a rigid structure. In the present instance, the bars are of a Z cross section having the outside and inside flanges 3 and 4 respectively, the intermediate web 5 and the beads 6 and 7 on opposite sides of the web from the outside flanges and inside flanges respectively. The window frame is adapted to be anchored in the wall of the building through the outside flanges and occupies only a fraction of the width of the wall.

The casing construction supplements the window frame and has a width corresponding to the distance from the window frame to the inside of the wall in which the window frame and casing construction are mounted. The casing construction is formed of the sheet metal sections 8, 9, 10 and 11 which correspond respectively to the several bars forming the head, sill and jambs of the window frame. The sections have at their inside edges the plaster ground and trim flange 12. The sections also have their ends fashioned for interengagement with each other, the upper and lower sections 8 and 9 being formed at their ends with the flanges 13 for overlapping the upper and lower end portions of the jamb sections 10 and 11 and the jamb sections being provided with the tongues 14 which are bent over the end portions of the upper and lower sections, thereby locking all of the sections together. The tongues may be either integral with the jamb sections or permanently attached thereto, as by riveting, welding, or other method.

The casing is attachable as a unit to the window frame when the latter is mounted in the wall. Thus, while the several sections of the casing may be shipped knocked down to occupy a minimum amount of space during transportation, the sections may be quickly assembled with each other at the point of erection to form the casing unit which may then be installed and attached to the window frame which has been previously mounted in the wall. The attachment is accomplished by movement of the casing unit transversely of the window frame. For interlocking the casing unit to the window frame cooperating shoulders are provided on each of the casing sections and window frame bars for limiting relative transverse movement thereof and also snap engagement is provided between each of the casing sections and the window frame bars, as illustrated in the present instance. In detail, each of the casing sections 8, 9, 10 and 11 has its outside marginal portion formed with the transversely extending portion 15 which provides a shoulder for engaging and cooperating with the shoulder formed by the inside face of the inside bead 7 of the associated window frame bar to limit transverse movement of the section relative to the window frame bar in an outward direction. The offset portion 16 of each section is adapted to pass over the end of the inside bead 7 and is formed with the plurality of longitudinally extending elongated openings 17.

18 are resilient sheet metal clips each having the foot flange 19 fixedly secured to the outside flange 3 of each window frame bar, as by riveting, welding, or other means, and having a body extending substantially parallel, but spaced from the web of the bar so that the offset portion of the associated casing section may pass under the body. The clips correspond in number to the openings 17 and are located so that the tongues 20, one of which is struck out from the body of each clip, may extend into an opening. The tongues are inclined toward the web of the associated bar and also toward the outside so that when the casing is being inserted the casing sections flex the clips while riding past the tongues until the tongues snap into the openings. The free ends of the clip bodies are preferably inclined away from the webs to facilitate installation of the casing. At this time the ends of the tongues form shoulders which engage and cooperate with the shoulders formed by the outside edges of the openings to limit transverse movement of the casing sections relative to the frame bars in an inward direction and the transverse portions 15 of the sections being engageable with the inside beads 7 to limit transverse movement in the opposite direction. After the casing has been installed, the inside face of the wall may then be finished by plaster which anchors on the flanges 12 of the casing sections.

Figures 6, 7 and 8 illustrate a modified construction which differs essentially from that of Figures 1 to 5 inclusive in that the resilient sheet metal clips 21 are U-shaped and have the side flanges 22 fixedly secured to the webs 23 of the window frame bars as by riveting, welding, or other means. The opposite side flanges or body portions 24 of the clips are formed with the transverse elongated openings 25 into which the tongues 26 upon the casing sections are adapted to snap. These tongues are struck out from the offset portions 27 at the outer marginal edges of the casing sections and are inclined away from the webs 23 and toward the inside. As a result, the ends of the tongues form shoulders adapted to engage and cooperate with the shoulders formed by the inside edges of the openings to limit transverse movement of the casing sections relative to the window frame bars in an inward direction. Relative transverse movement in an outward direction is limited by the transverse portions 28 upon the casing sections engageable with the inside beads 29 of the frame bars.

Figures 9 and 10 illustrate another modification in which each casing section 30 has the longitudinally extending transverse portion 31 for engaging the inside bead 32 of the associated window frame bar 33 and also has the offset marginal portion 34 which is formed with the elongated openings 35 extending longitudinally of the casing section. 36 are resilient sheet metal clips which are generally U-shaped, each having the side flange 37 rigidly secured at its ends as by riveting, welding, or other method, to the web 38 of the bar. The flange 37 is provided intermediate its ends with the boss 39 which enters the circular opening 40 in the web. As a result, each clip is accurately positioned on the frame bar. The opposite side flange 41 of each clip has struck out therefrom the tongue 42 which is inclined toward the web and toward the outside and has its end engageable with the outside edge of the adjacent opening 35. The free end portion of the outside flange is inclined or flared to facilitate entrance of the casing section.

In the modification disclosed in Figures 11 and 12, the casing unit is formed of the casing sections 43, each having the longitudinally extending transverse portion 44 for engaging the inside face of the inside bead 45 of the associated window frame bar 46. The offset portion 47 of the casing section is formed with the return-bent flange 48, the end of which is engageable with the end of the tongue 49 depressed from the free end portion of the side flange 50 of the resilient U-shaped sheet metal clip 51. The opposite side flange 52 of the clip is formed with the tubular portion 53 which is adapted to extend into the circular hole 54 in the web of the frame bar. 55 is a suitable rivet passing through the tubular portion and fixedly securing the clip to the frame bar, the flange 50 being formed with the opening 56 to permit access to the rivet to head the same.

In the modified construction disclosed in Figures 13 and 14, the resilient sheet metal clips 57 are U-shaped and each is formed with the tubular portion 58 extending into the circular opening 59 in the web of the frame bar and fixedly secured thereto as by the rivet 60. The spaced flange 61 is formed with the opening 62 permitting access to the rivet and with the flared free end portion to facilitate installation of the casing unit. The casing unit is formed of the casing sections 63, each of which has the longitudinally extending transverse portion 64 for engaging the inside bead 65 of the associated frame bar. Each casing section also has the offset portion 66 which is adapted to extend between the inside bead and the spaced side flange of the clip and which is formed with the struck out tongues 67 inclined toward and engageable with the outside face of the inside bead. In this construction, the two faces of the inside bead of each window frame bar function to limit transverse movement of the associated casing section in opposite directions.

In the construction illustrated in Figures 15 and 16, 68 is one of a plurality of resilient generally U-shaped sheet metal clips having the base side flange 69 formed with the tubular portion 70 extending into the circular opening 71 in the web of the bar and riveted thereto. The opposite flange of the clip is formed with the flared portion 72 to facilitate installation of the associated casing section and also with the opening 73 to permit access to the rivet. The casing section 74 is formed with the longitudinally extending transverse portion 75 engageable with the inside face of the inside bead 76 of the frame bar and the offset portion 77 of the casing section is formed with the openings 78, the outside edges of which are engaged by the free ends of the tongues 79 formed upon the base portions 69 and extending outwardly. During the installation of the casing unit, it will be seen that the offset portions of the casing sections flex the spaced flanges of the clips and also flex about the transverse portions of the casing sections until the tongues 79 register with the openings 78, when the offset portions of the casing sections will be resiliently urged toward the webs of the associated bars to engage the tongues in the openings.

Figures 17 and 18 disclose another modified construction in which the resilient sheet metal clips 80 are generally U-shaped and have their base side flanges 81 fixedly secured to the web

of the associated window frame bar as by riveting, welding, or other method. The opposite side flange 82 is formed at its free edge with the return-bent portion 83 which assists in guiding the offset portion 84 of the casing section 85. The offset portion is formed with the elongated openings 86 which are engageable by the tongues 87 formed upon the free ends of the base flanges 81. This structure is installed in much the same manner as that illustrated in Figures 15 and 16.

The modified constructions disclosed in Figures 19 to 24 inclusive have window frames in which the bars are of special cross section. In the structures disclosed in Figures 19 to 22 inclusive the casings are attachable as units to the window frames, while in the constructions illustrated in Figures 23 and 24 the casings are attachable to the window frames by attaching the casing sections forming the casings individually to their respective window frame bars.

Referring to the structure of Figure 19, 88 is one of the casing sections of the casing unit having at its outer edge the V-shaped portion 89 which is adapted to engage a correspondingly shaped portion formed upon the associated window frame bar 90 by the inside flange 91 and the oppositely extending inside bead 92. The casing unit has a snap engagement with the window frame, the bars of the latter having permanently secured to their webs the resilient clips 93 which have at their free ends the transverse portions or tongues 94 which overlie the terminal edges of the V-shaped portions 89 and prevent accidental disengagement of the casing unit from the window frame.

As shown in Figure 20, each of the casing sections 95 are formed at their outside edges with the transverse flanges 96 and each of the window frame bars 97 is formed with a rabbet which is produced by the inside flange 98 and the inside bead 99, the latter being offset outwardly relative to the former. 100 is one of the resilient sheet metal clips fixedly secured to the webs of the window frame bars and having at its free end the sheared out tongue 101, the end of which is engageable with the inside face of the flange 96. As a result, each of the casing sections of the casing unit is held from transverse movement in either direction relative to the associated window frame bar.

As shown in Figure 21, the bars 102 of the window frame are of Z section but the face of the web 103 of each bar opposite the inside flange is in the one plane. Each of the casing sections 104 of the casing unit are adapted to slide over this face of the web and have at their outside edges the return-bent portion 105, the free end of which is engageable with the tongues 106 struck out from the resilient sheet metal clips 107 which have their bases fixedly secured to the web by suitable means, such as riveting, welding, or other method. The other end of the return-bent portion is engageable with the transverse portion 108.

The bars forming the window frame illustrated in Figure 22 are formed in the same manner as the bars 102 of Figure 21. The casing sections 109 of the casing unit are each provided with the sheet metal resilient clips 110 fixedly secured at one end to the outer edge of the casing section. Each of these clips is formed with the struck out tongue 111 which, after the casing unit has been installed, has its free end engageable with the outside edge 112 of the stop 113 fixedly secured to the adjacent web of the window frame bar. The outer end of each of the resilient clips is engageable with the adjacent outside flange of the frame bar, the construction being such that movement of each of the casing sections transversely of its associated window frame bar in opposite directions is limited.

As disclosed in Figure 23, each of the window frame bars is of general Z section having the outside and inside flanges 114 and 115, respectively, the connecting web 116, the bead 117 extending away from the outside flange, and the bead 118 extending at an angle away from the inside bead 115 and inwardly. Each of the casing sections 119 is individually attachable to its associated frame bar and each casing section has at its outside marginal edge the V-shaped portion 120, one part of which extends parallel to and engages the outside face of the inside bead 118 and the other part of which extends substantially at right angles thereto. Substantially U-shaped resilient sheet metal clips 121 have their base side flanges rigidly secured to the web 116 and have the struck out tongues 122 and 123 struck out from the spaced side flanges and engageable with the terminal part of the V-shaped portion 120 at opposite sides thereof.

As illustrated in Figure 24, each of the window frame bars 124 is of general Z section and has opposite the inside flange the longitudinally extending V-shaped recess 125, the walls of which are engaged by correspondingly inclined walls of the V-shaped terminal portion 126 formed upon the casing section 127. 128 is the resilient sheet metal clip fixedly secured at one end to the web of the associated frame bar and having struck out from near its opposite end the tongue 129 which extends transversely of the terminal part of the V-shaped portion 126 and engages this part to firmly hold the casing section from disengagement from the associated frame bar. In this construction, it will be noted that the casing section 127 is individually attachable with the associated frame bar, this also being true of the other casing sections.

In the structures of both Figures 23 and 24, the casing sections after being individually engaged with their respective frame bars are secured to each other at their ends preferably in the same manner as illustrated in Figure 1.

What we claim as our invention is:

1. The combination with a wall having an opening and a frame in the opening, of a casing attachable to said frame as a unit, comprising a plurality of sections corresponding respectively to the several sides of said frame spaced from the boundary of the wall opening and secured together, cooperating means upon certain of said frame sides and sections for limiting relative transverse movement of said frame sides and sections in one direction, means for limiting relative transverse movement of said frame sides and sections in the opposite direction comprising shoulders upon certain of said frame sides and projections upon certain of said sections engageable with said shoulders, and a plurality of clips upon certain of said frame sides spaced from the boundary of the wall opening and engageable with certain of said sections to hold the latter toward the former, one of said pluralities being resilient to provide for snapping said projections over said shoulders.

2. The combination with a wall having an opening and a frame in the opening, comprising

sides each formed with oppositely facing shoulders, of a casing attachable to said frame as a unit comprising a plurality of sections corresponding respectively to said frame sides and secured together, means upon certain of said sections engageable with certain of said shoulders for limiting relative transverse movement of said frame sides and sections in one direction, projections upon certain of said sections engageable with certain other of said shoulders for limiting relative transverse movement of said frame sides and sections in the opposite direction, and a plurality of clips upon certain of said frame sides engageable with certain of said sections to hold the latter toward the former, one of said pluralities being spaced from the boundary of the wall opening and also being resilient to provide for snapping said projections over said shoulders.

3. The combination with a wall having an opening and a frame in the opening comprising sides each formed with oppositely facing shoulders, of a casing attachable to said frame comprising a plurality of sections corresponding respectively to said frame sides, means upon certain of said sections engageable with certain of said shoulders for limiting relative transverse movement of said frame sides and sections in one direction, projections upon certain of said sections engageable with certain other of said shoulders for limiting relative transverse movement of said frame sides and sections in the opposite direction, and a plurality of resilient clips upon certain of said frame sides spaced from the boundary of the wall opening and engageable with said sections having said projections thereon to hold said last mentioned sections toward said frame sides having said clips thereon, the resiliency of said clips providing for snapping said projections over their respective shoulders.

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