June 1, 1948. A. A. ZACHMAN 2,442,632

CLIP FOR HOLDING LAPPED PANES OF GLASS

Filed May 7, 1945

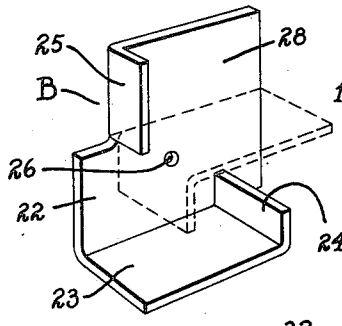


Fig. 2

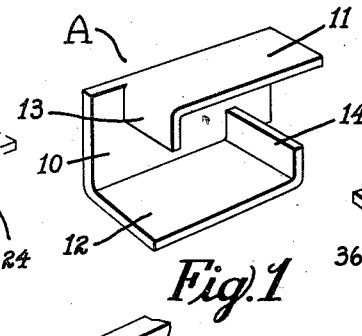


Fig. 1

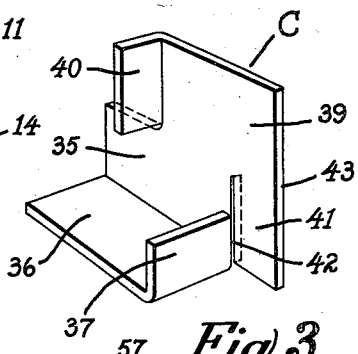


Fig. 3

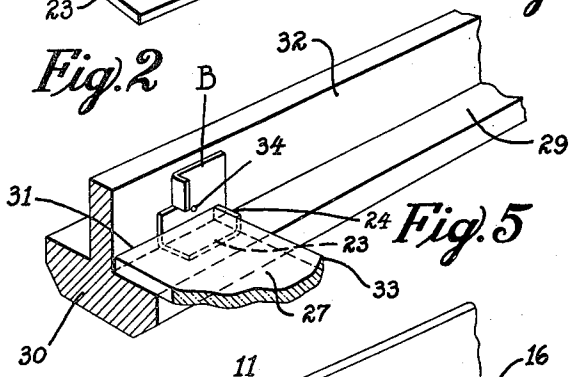


Fig. 5

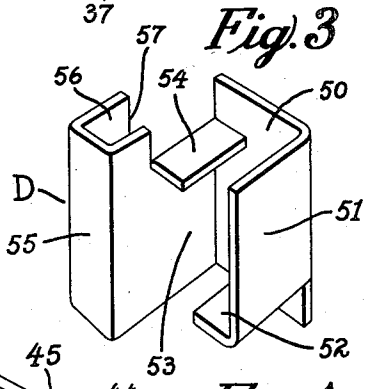


Fig. 4

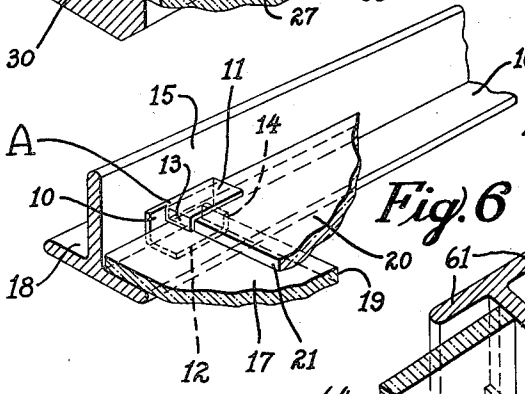


Fig. 6

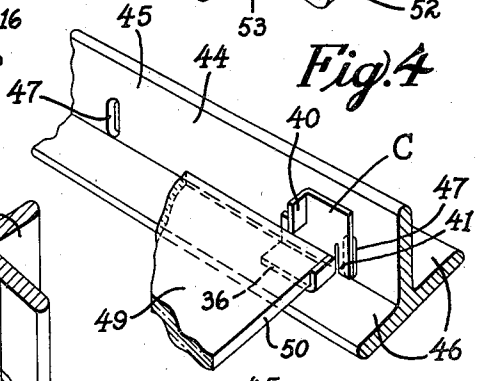


Fig. 7

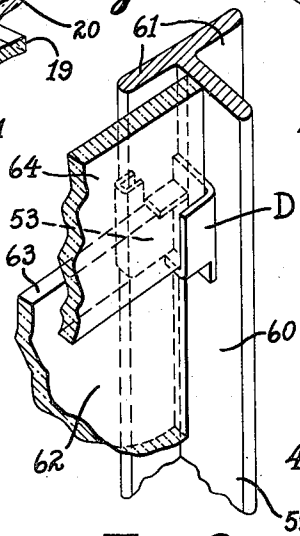


Fig. 9

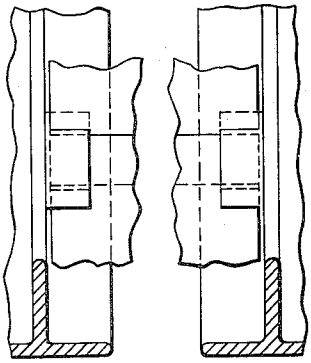


Fig. 10

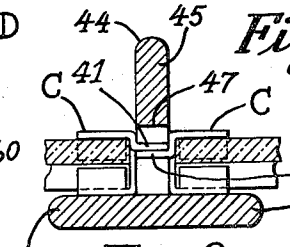


Fig. 8

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CLIP FOR HOLDING LAPPED PANES OF GLASS

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10 Claims. (Cl. 189—78)

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My invention relates to an improvement in glass clip for lapped panes of glass and deals more particularly with a clip for holding panes of glass used in green houses and the like in overlapping relation.

In the construction of green houses, it is usual practice to place panes of glass in overlapping relation between the glazing bars. The panes of glass are held in overlapping relation by any suitable means such as by nails driven into the glazing bars. With a growing use of metal glazing bars it is no longer possible to hold the panes in place by the use of nails. Furthermore nails require considerable time to apply in just the right position and require holding the panes from sliding in one direction.

It is an object of the present invention to provide a means of holding two panes of glass in overlapped relation the amount of overlap being definitely limited. As a result when the panes of glass are in place these panes can not slide in either direction.

A feature of the present invention resides in the fact that the clip extends over the edges of the panes and over the opposite surfaces of the panes, but not between the same. As a result the panes are held in contact to provide a tight joint between adjacent panes.

A feature of the present invention resides in the fact that the clips may serve to connect each adjacent pair of panes in proper relationship, or the clips may be held in fixed relation to the glazing bars. In the first instance considerable weight or force may be exerted upon the clip connecting the lowermost pair of panes in a series. In the latter instance each clip assists in supporting part of the weight of the glass.

A feature of the present invention resides in the fact that my clip may be used in holding glass in an upright position to form an upright glass wall, or may serve to hold the glass along an inclined plane as in the slanting top of a green house roof. Slight modifications in the construction are desirable to suit the conditions under which the clips are to be used.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a perspective view of a clip showing the construction thereof.

Figure 2 illustrates a clip similar to that shown in Figure 1 in partially bent position.

Figure 3 is a modified form of construction

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particularly adaptable for use in combination with metal glazing bars.

Figure 4 is another modified form of construction showing an anchoring finger integral with the clip body.

Figure 5 is a perspective view of a clip showing a method of using the same.

Figure 6 is a view similar to Figure 5 showing the use of the clip in combination with a metal glazing bar.

Figure 7 is a perspective view showing the use of the clip shown in Figure 3 of the drawings.

Figure 8 is a sectional view through the glazing bar showing a pair of clips attached to opposite sides thereof.

Figure 9 is a perspective view showing a means of attaching glass to a vertical glazing bar.

Figure 10 is a plan view showing the opposite edges of a pane of glass being attached to opposed glazing bars.

The clip A illustrated in Figures 1 and 6 of the drawings includes an edge panel 10 having a pair of flanges 11 and 12 extending at right angles therefrom. End flanges 13 and 14 are provided on the panels 11 and 12, these flanges 13 and 14 extending not over one-half the height of the edge panel 10.

When the clip A is in use the edge panel 10 lies flat against the center flange 15 of a glazing bar 18, which is T-shaped in cross section. The flange 12 lies flush against the flange 16 of the glazing bar 18, while the flange 11 is spaced from the flange 16 and parallel thereto.

One pane of glass 17 is first placed between spaced glazing bars 18 and the clip A is then positioned by raising the upper edge of the glass pane 17 and slipping the flange 12 between the undersurface of the pane and the flange 16. The panel 10 overlies the edge of the glass pane 17 and the flange 13 bends down into proximity with the outer surface of the glass pane 17. The flange 14 abuts the upper edge 19 of the pane 17.

When opposed clips A have been inserted in place the next above glass pane 20 may be placed. The lower edge 21 of the pane 20 is overlapped with the edge 19 entering the space between the outer surface of the pane 17 and the under surface of the flange 11. The edge 21 is positioned to abut against the flange 13. Thus the surfaces of the panes 17 and 20 are in contact with one another and are held from overlapping to a greater extent by the flanges 13 and 14.

If the clip is to be used in conjunction with wooden glazing bars the clip construction B

shown in Figures 2 and 5 of the drawings may be employed. This clip B includes an edge panel 22 having a flange 23 bent at right angles thereto. An end flange 24 is bent upwardly at one end of the flange 23 and is designed to abut against an end of the glass pane supported.

A second flange 28 is integral with the edge panel 22 and coplanar therewith in ordinary form. The flange 24 is provided with an end flange 25 bent forwardly therefrom. A nail hole 26 is provided in the panel 22 above the center thereof.

When the clip B is used the glass pane 27 is rested upon the shoulder 29 of the glazing bar 30 with the edge 31 thereof in closely spaced relation to the center rib 32 of the glazing bar. The clips B are then inserted in place. The flange 23 rests upon the shoulder 29 and between this shoulder and the under surface of the pane 27, and with the flange 24 abutting the upper edge 33 of the pane. When in this position the edge panel 22 lies between the edge 31 of the pane 27 and the center rib 32 of the glazing bar. While in the position shown in Figure 5 of the drawings a small nail 34 is driven through the aperture 26 into the center bar 32. A bolt or rivet could similarly be used, particularly if the glazing bar 30 is formed of metal. This holds the clip B firmly in place relative to the glazing bar. A second pane of glass may then be placed in overlapping relation to the pane 26 as indicated in Figure 6 of the drawings. The flange 28 and the flange 25 supported thereby are then bent down into right angular relation to the pane 22 so that the clip is in the form illustrated in Figure 1 of the drawings.

It will be noted that the clip B is identical with the clip A, with the exception that the clip B is provided with an aperture 26 therethrough and the upper portion of the clip is not bent into channel form. The clips are made of material which does not bend with too great ease, but which may bend under manual pressure after the nail 34 has been inserted therethrough. A nail set or blunt chisel is used to force the nail 34 into place.

In Figures 3, 7, and 8 of the drawings I illustrate a clip C, which is very similar to the clip B, but which may be used in conjunction with metal glazing bars. The clip C comprises a body panel 35 having a flange 36 extending at right angles to one edge thereof. An upstanding flange 37 is provided at one edge of the flange 36. A potential flange 39 is integral and coplanar with the body panel 35 and an end flange 40 is bent forwardly from one end of the flange 39.

At one end of the body panel 30 I provide an ear 41 which is formed by slotting the body panel at 42 spaced from an end 43 thereof. The ear 41 is designed to engage in a suitable aperture in the glazing bar to hold the clip from moving in any direction.

To illustrate the attachment of the clip C, attention is directed to Figures 7 and 8 of the drawings. The glazing bar 44 is of generally T-shaped cross section having a center flange 45 and oppositely extending side flanges 46. Apertures 47 are located at intervals along the bar 44 in the center flange 45 thereof. These apertures 47 are designed for engagement with the ears 41.

In attaching the clips C the glass pane 49 is rested upon one of the side flanges of each of a pair of spaced glazing bars 44. The end edge 50 of the pane 49 is cut to extend into close proximity with an aperture 47. The clip C is then inserted in place with the flange 36 interposed between the pane 49 and the flange 46 and with the edge panel 35 extending along a surface of the flange 45. The ear 41 is then in registry with the aperture 47. With the clip in the position shown in Figure 7, the ear 41 is then bent inwardly into the aperture 47 so as to lock the clip from movement in any direction.

The next pane of glass may then be applied in overlapping relation with the pane 49, with the lowermost edge of the glass abutting against the flange 40, this flange limiting the overlap of the two panes. The potential flange 39 and the end flange 40 carried thereby are next bent down so that the flange 39 is in parallel relation to the flange 36. Figure 8 shows a pair of opposed clips C in position with the ears 41 thereof bent into the aperture 47.

Figures 4 and 9 of the drawings illustrate a slightly modified form of construction of particular advantage in vertical wall structures. The clip C illustrated is identical to the clip A except that one flange thereof is contained to form an anchoring clip. The clip D includes an edge panel 50 having a flange 51 extending along one edge thereof at right angles thereto. An end flange 52 is provided at one end of the flange 51.

A second flange 53 extends in parallel relation to the flange 51 from the opposite edge of each panel 50. An end flange 54 is provided on the flange 53 extending toward the flange 51. The flanges 52 and 54 are not more than one-half the width of the edge panel 50.

Integral with the flange 53 I provide a rearwardly turned edge which may be used for holding the clip D in place. A short flange 55 connects the flange 53 with the marginal edge 56 of the clip which extends in parallel spaced relation to the panel or flange 53. Thus a channel clip and a channel-shaped recess 57 are provided, this recess accommodating one side of the glazing bar 59.

As indicated in Figure 9 of the drawings the glazing bar 59 is provided with a center strip or ridge 60 and a pair of oppositely extending sides 61. In inserting the clip D in place the lower pane of glass 62 is first applied to rest against one side 61 of the glazing bar 59. The clips D are then applied so that the flange or panel 53 lies between the side 51 and the pane 62 with the channel-shaped recess 57 embracing an edge of the side 61. The flange 54 rests against the upper edge 63 of the pane 62 and the flanges 52 on opposed clips serve to support the next above pane 64.

Once the clips D are in place, the panes can not tile away from the glazing bar 59 due to the anchoring finger formed by the flange 55 and the marginal clip edge 56. The anchoring finger thus described is held in place by the glass panes, these panes being of such width as to prevent disengagement of the anchoring finger from the side 61 of the glazing bar.

Thus it will be noted that my clip may be used to secure panes in lapped relation either in inclined roof surfaces or vertical wall surfaces. The glass panes are held in contacting relation and held from longitudinal movement in either direction. After the panes are in place putty is usually applied which conceals the clips and fills the space between the edges of the glass panes and the center rib of the glazing bar. When thus completed the panes are firmly supported from movement.

In accordance with the patent statutes, I have

described the principles of construction and operation of my glass clip, and while I have endeavored to set forth the best embodiments thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A clip for holding panes in lapped formation comprising an edge panel extending along an edge of the superimposed pane portions, a flange underlying a portion of the surface of one of the panes, a second flange on said edge panel in parallel spaced relation to the first flange and overlying the other of said panes, and an end panel on each of said flanges, each end panel being bent at substantially right angles to the panel from which it issues and engaging the end of the adjacent pane.

2. A clip for holding glass panes in lapped formation comprising a flat panel, flanges extending at substantially right angles from one side of said panel in parallel relationship, and an end flange on each of said first named flanges extending toward the other of said flanges, said end flanges being arranged in off-set relation.

3. A clip for holding panes in lapped formation comprising a channel-shaped body including a base panel and parallel side panels, and an end flange on each of said side panels extending toward the opposite side panel, said end flanges being in off-set relation.

4. A clip for holding glass panes in lapped relation comprising a channel shaped body, said body including a base and a pair of parallel sides, and an end flange on each of said sides extending toward the opposite side, the end flange on one side being at one end of the body and the end flange on the other side being at the opposite end of the body.

5. A clip for holding panes in lapped relation comprising a channel-shaped body having a base and opposed sides, end flanges on each of said sides, each end flange extending toward the opposite side and terminating at a point spaced at least one-half the distance between the sides, the end flange on one side being at one end of said body and the end flange on the other side being at the opposite end of said body.

6. A clip adapted to be bent to hold panes in lapped relation comprising a potentially channel shaped body including a base and a pair of sides, one of said sides being coplanar with said base and foldable into parallel relation with the other of said sides, and a flange on one edge of each of said sides, each flange being designed to extend toward the opposite side when said sides are parallel, the end flange of one side being nearer one end of said body and the end flange on the other of said sides being nearer the other end of said body.

7. A clip adapted to be bent to hold panes in lapped relation comprising a potentially channel shaped body including a base and a pair of sides, one of said sides being coplanar with said base and foldable into parallel relation with the other of said sides, a flange on one edge of each of said sides, each flange being designed to extend toward the opposite side when said sides are parallel, the end flange of one side being nearer one end of said body and the end flange on the other of said sides being nearer the other end of said body, and an aperture through said body adapted to receive an anchoring means.

8. A clip adapted to be bent to hold panes in lapped relation comprising a potentially channel shaped body including a base and a pair of sides, one of said sides being coplanar with said base and foldable into parallel relation with the other of said sides, a flange on one edge of each of said sides, each flange being designed to extend toward the opposite side when said sides are parallel, the end flange of one side being nearer one end of said body and the end flange on the other of said sides being nearer the other end of said body, and an ear coplanar with said base and bendable out of coplanar relationship to anchor said body.

9. A clip adapted to be bent to hold panes in lapped relation comprising a potentially channel shaped body including a base and a pair of sides, one of said sides being coplanar with said base and foldable into parallel relation with the other of said sides, a flange on one edge of each of said sides, each flange being designed to extend toward the opposite side when said sides are parallel, the end flange of one side being nearer one end of said body and the end flange on the other of said sides being nearer the other end of said body, and an ear integral with said body for anchoring said clip.

10. A clip for holding panes in lapped relation comprising a channel shaped body including a base and substantially parallel sides, end flanges on each of said sides extending toward the opposite side, the end flange on one of said sides being at one end of said body and the other end flange being positioned near the other end of said body, and an anchoring finger integral with one of said sides for holding said clip in place.

ARNOLD A. ZACHMAN.

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The following references are of record in the file of this patent:

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