April 20, 1943. F. M. ZECCA 2,316,829

METAL CASING FOR BUILDING CONSTRUCTION

Filed Dec. 28, 1940

Fig. 1

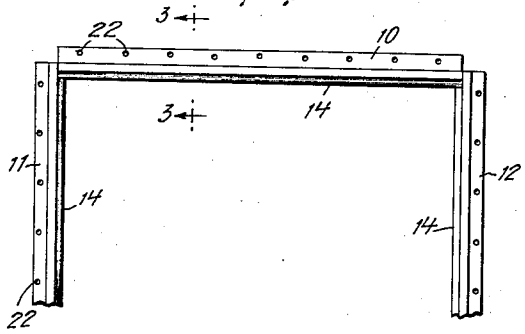


Fig. 2

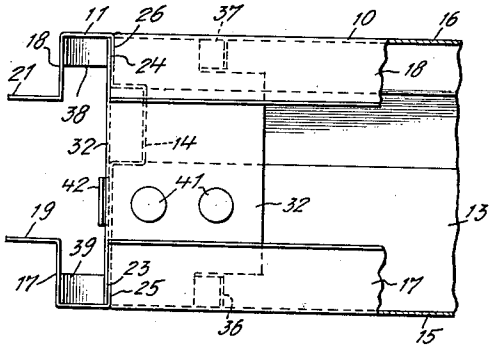


Fig. 3

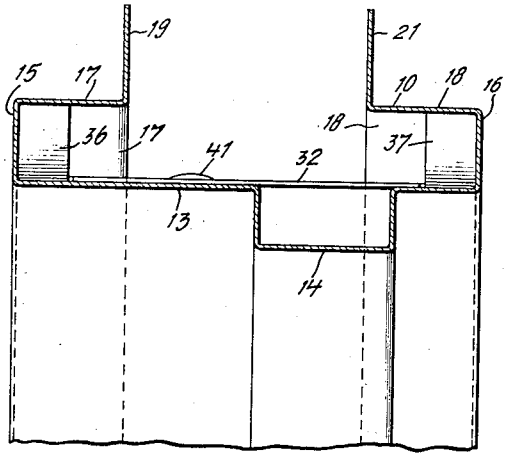


Fig. 4

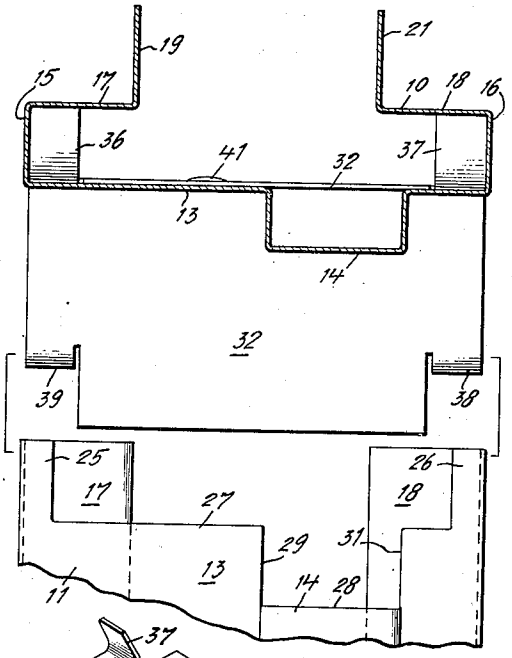
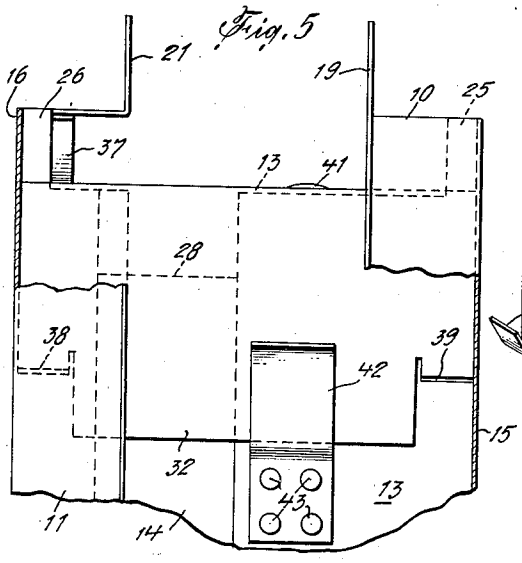


Fig. 5



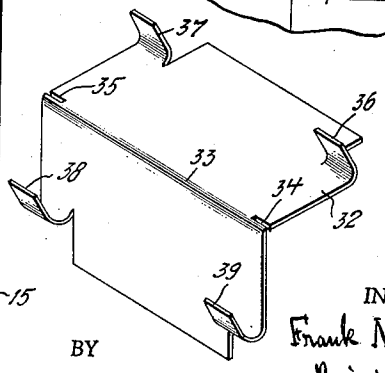


Fig. 6

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METAL CASING FOR BUILDING CONSTRUCTION

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11 Claims. (Cl. 189—36)

This invention relates to casings for the walls of apertures in building structures, and more particularly to such casings formed from sheet metal and having square corners at each end of the head or top cross piece.

In a common practice in modern building constructions involving the use of a metal door casing, the unit has been completely assembled and the component parts welded together and shipped to the construction job as a unit. The door casing, in shipment, may be easily bent and either broken at the corners or otherwise distorted so that it will be practically useless on the job without repair.

The present invention involves the elimination of the trouble recited above by providing a door casing which is composed of a plurality of preformed pieces which may be readily crated and shipped and finally assembled on the job with a minimum of labor.

A primary object of my invention is to provide a metal casing for apertures in building construction which may be shipped in a disassembled condition thus reducing the liability of damage thereto during shipment and which may be quickly assembled at low labor cost on the job.

Another object of the invention is to provide a metal casing for apertures in building construction having separate sides and a separate head but provided with means for detachably holding them in the assembled relationship.

A chief object of the invention is to provide means for locking the ends of the side pieces to the top cross piece of a sheet metal casing on the job, quickly and facilely, but without welding, so that the side pieces and the top cross piece can be cut to the required length suitable for each aperture and delivered to the job for installation with a minimum of care, skill, or labor.

A further object of the invention is the provision of a head for sheet metal casings having the ends novelly shaped to interfit with the novelly shaped tops of the adjacent side pieces so that the head and sides are quickly and precisely secured in the right-angular positions against relative sidewise movement, and the head is held against endwise movement relatively to the sides, and the sides are held against inward movement.

A further object is the provision in the foregoing structure and in combination with suitable cut-away portions in the foregoing structure, of locking plates right-angled transversely and suitably slotted to interlock with the tops of the sides and welded, one on each end of the head, before shipment to the job; each angle plate also having spaced lugs formed therein and lying within the hollow sheet metal plate to precisely maintain the joints between the head and the sides in exact right angular position during the erection of the casing on the job.

Other objects and advantages will appear as the description proceeds.

Reference is made to the drawing which is a part of this specification and in which

Figure 1 is a front view of the top and upper portions of the sides of a door casing.

Figure 2 is a top view of the upper left corner.

Figure 3 is a view on the line 3—3 of Figure 1 in the direction of the arrows but with more of the left side broken off.

Figure 4 is a view similar to Figure 3 but with the top of the left side separated from the end of the cross piece and the angle plate welded on the cross piece.

Figure 5 is a left end view of the top with the lower portion of the side piece broken away as well as the upper parts thereof.

Figure 6 is a perspective of the angle plate per se.

A casing formed of suitable sheet metal is placed in any aperture in a building construction for which it is measured, such as a door opening, and has a top or cross piece 10 and at each end thereof side pieces 11 and 12. The part of the building construction surrounding the casing and to which it is secured may be wood, cement, or any other suitable building material (not shown). In cross section the metal casing is uniform except at the corners and is hollow.

A flat inside panel 13 has an intermediate lengthwise rib 14, rectangular in cross section, which provides a stop engaging the edge of a door (not shown), sides 15 and 16 connected by right angled bends with the edges of the panel 13 and at their inner edges connected by other right angled bends with smaller centrally extending panels 17 and 18; the latter being connected at their central edges by right angled bends with lengthwise flanges 19 and 21, which are pierced at their outer edges with nail holes 22, provided for facilitating attachment to the building structure.

The end of the top cross piece 10 has right-angular notches 23 and 24 on opposite sides cut to a depth equal to the thickness of the sheet metal and which admit lips 25 and 26 which are continuations of the edge portions of the panel 13 on the end of the side 11. The top 27 of the panel 13 on the side 11 between the lips 25 and 26 lies in a transverse plane removed from the ends of

the lips 25 and 26 a distance equal to the width of the sides 15 and 16 so that when the lips are in the notches, the end of the panel 13 of the top 10 lies on the top 27; the end of the panel 13 on the side piece is cutaway in a transverse plane so that the top 28 of the side rib 14 lies removed from the end 27 a distance equal to the inward projection of the rib 14 so that the rib 14 of the top cross piece lies directly on the top 28 and its end engages the edges 29 and 31 of the side panel 13 which connect the top 27 with the top 28. It is now obvious that the above defined structure checks movement of the top 10 toward the side 11, or the sidewise or downward movement of the top 10 with reference to the side 11.

A flat plate 32 is formed with right angular transverse bend 33 at the ends of which are slots 34 and 35 adapted to receive the lips 25 and 26. The corners of the plate are cut back at each end and are bent outward to form spacers 36, 37, 38, and 39. Before shipment to the job the plate 32 is secured on the end of the top 10 inside the panel 13 by spot welding 41 so that the bend 33 exactly fits on the end of the panel 13, and the spacers 36 and 37 touch the inside of the panels 17 and 18. Altho only the left end of the top cross piece 10 is shown in detail it will be understood that a similar plate 32 is symmetrically positioned and welded on the right end of the cross piece 10 which is formed similarly and symmetrically with the left end. It will also be understood that the top of the side piece 12 is similarly and symmetrically formed with the top of the side piece 11.

Installation at the job is accomplished manually simply by positioning the pieces manually as shown in Figure 1 with the free leaf of the plate 32 on the inside of the panel 13 and the lips 25 and 26 in the slots 34 and 35. The lower end of the plate 32 may be engaged on the outside by a clip 42 the lower end of which is spot welded at 43 on the panel 13 of the side piece 11. A similar clip 42 is mounted on the inside of panel 13 of the side piece 12.

The joints are quickly and easily made manually and when assembled are simple, strong, and rigid.

Having shown and described one embodiment of my invention, and realizing that, in view of my disclosure omissions, substitutions and changes will readily occur to those skilled in the art, I do not limit myself to the exact form shown.

I claim:

1. A joint for interlocking the ends of a cross piece and a side piece of a hollow sheet metal casing that is uniform in cross section, each of said pieces having a flat lengthwise panel, said panel having lengthwise parallel sides joined right angularly at their inner edges to the panel and joined at their outer edges angularly to narrow panels which extend centrally and spaced from the first panel, comprising an end of the cross piece being in a transverse plane but having notches on both edges, and the adjoining end of a side piece being in a transverse plane but a central portion of the first panel thereof terminating in a straight line removed from the end of the side piece a distance substantially equal to the width of said angularly located sides of the casing, the side portions of said panel forming lips continuing beyond said straight line and seating in the cross piece notches, whereby said cross piece is held on said side piece against downward and sidewise movement and against endwise movement over said side piece, and a flat plate right angled transversely and secured at an end of the cross piece on the inner wall of the first panel, said plate having side slots admitting said lips.

2. The subject-matter of claim 1, together with the edges of said plate engaging the inner walls of the parallel sides of the casing.

3. The subject-matter of claim 1, together with a spacing member on the plate and engaging the inside of the second panel on the side piece and tending to hold the plate in engagement with the first panel on the side piece.

4. The subject-matter of claim 1, together with the edges of said plate engaging the inner walls of the parallel sides of the casing, and a member engaging the inside of the second panel and tending to hold the plate in engagement with the first panel.

5. The subject-matter of claim 1, together with the corners of the plate being turned outward to form spacers adapted to lie between the first panel and the second panels.

6. The subject-matter of claim 1, together with a clip secured on the inside of the side piece and engaging said plate to hold it against said side piece.

7. A joint for interlocking the ends of a cross piece and a side piece of a hollow sheet metal casing that is uniform in cross section, each of said pieces having a flat lengthwise panel formed with a lengthwise rib to serve as a stop for a door or the like, said panel having lengthwise parallel sides joined right angularly at their inner edges to the panel and joined at their outer edges angularly to narrow panels which extend centrally and spaced from the first panel, comprising an end of the cross piece being in a plane transverse to its length but having recesses at both sides, and the adjoining end of a side piece being in a plane transverse to its length except the central portion of the first panel terminates in a line removed from the end of said side piece a distance substantially equal to the width of said angularly located sides of the casing and the top of the side piece rib terminates in a plane removed from the adjacent end of the central portion of the panel a distance substantially equal to the thickness of the rib, the side portions of said panel forming lips continuing beyond said central terminal line of said panel and seating in the cross piece recesses, whereby said cross piece rests upon and engages flat surfaces of said side piece and is held against downward and sidewise movement and against inward endwise movement relative to said side piece, and a member extending downwardly at right angles to said cross piece and engaging an inner surface of said side piece to prevent outward endwise movement of said cross piece relatively to said side piece.

8. The subject-matter of claim 7, together with said narrow panels terminating in two outwardly and angularly extending flanges engageable with the building structure.

9. A joint construction for interlocking the ends of a cross piece and a side piece of a hollow sheet metal casing that is uniform in cross section, each of said pieces having an inner lengthwise panel, lengthwise parallel sides substantially at right angles thereto, and narrow outer panels extending centrally from said sides and spaced from said first panel, comprising an end

of the cross piece being in a transverse plane but having a recess at each side and the central portion of the adjoining end of a side piece terminating in a line conforming to the face of the corresponding portion of the cross piece, the ends of said line being spaced from the ends of the sides of said side piece a distance substantially equal to the width of the sides of the casing, the side portions of the inner panel of said side piece forming lips seating in said recesses, whereby when said parts are assembled said cross piece rests upon said side piece and is held against downward and sidewise movement and against inward endwise movement relative to said side piece; and a member extending downwardly at a right angle to said cross piece and engaging an inner surface of said side piece to prevent outward endwise movement of said cross piece relatively to said side piece.

10. A joint construction for interlocking the ends of a cross piece and a side piece of a hollow sheet metal casing that is uniform in cross section, each of said pieces having an inner lengthwise panel, lengthwise parallel sides substantially at right angles thereto, and narrow outer panels extending centrally from said sides and spaced from said first panel, comprising an end of the cross piece being in a transverse plane but having a recess at each side and the central portion of the adjoining end of a side piece terminating in a line conforming to the face of the corresponding portion of the cross piece, the ends of said line being spaced from the ends of the sides of said side piece a distance substantially equal to the width of the sides of the casing, the side portions of the inner panel of said side piece forming lips seating in said recesses, whereby when said parts are assembled said cross piece rests upon said side piece and is held against downward and sidewise movement and against inward endwise movement relative to said side piece; and a right-angled member secured to an inner surface of said cross piece and extending downwardly therefrom and removably engaging an inner surface of said side piece to prevent outward endwise movement of said cross piece relatively to said side piece.

11. In a joint construction for interlocking the ends of a cross piece and a side piece of a hollow sheet metal casing that is uniform in cross section, each of said pieces having an inner lengthwise face, lengthwise sides, and outer panels extending centrally from said sides and spaced from said face: the combination with said pieces of a flat plate right angled transversely and secured at an end of said cross piece on the inside wall of said face and engageable with the inside wall of the face of said side piece, the side edges of the plate engaging the inner walls of the sides of both said pieces when the parts are assembled and the corners of the plate being turned outward to form spacers lying between the face and the outer panels of both said pieces and engaging said outer panels.

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