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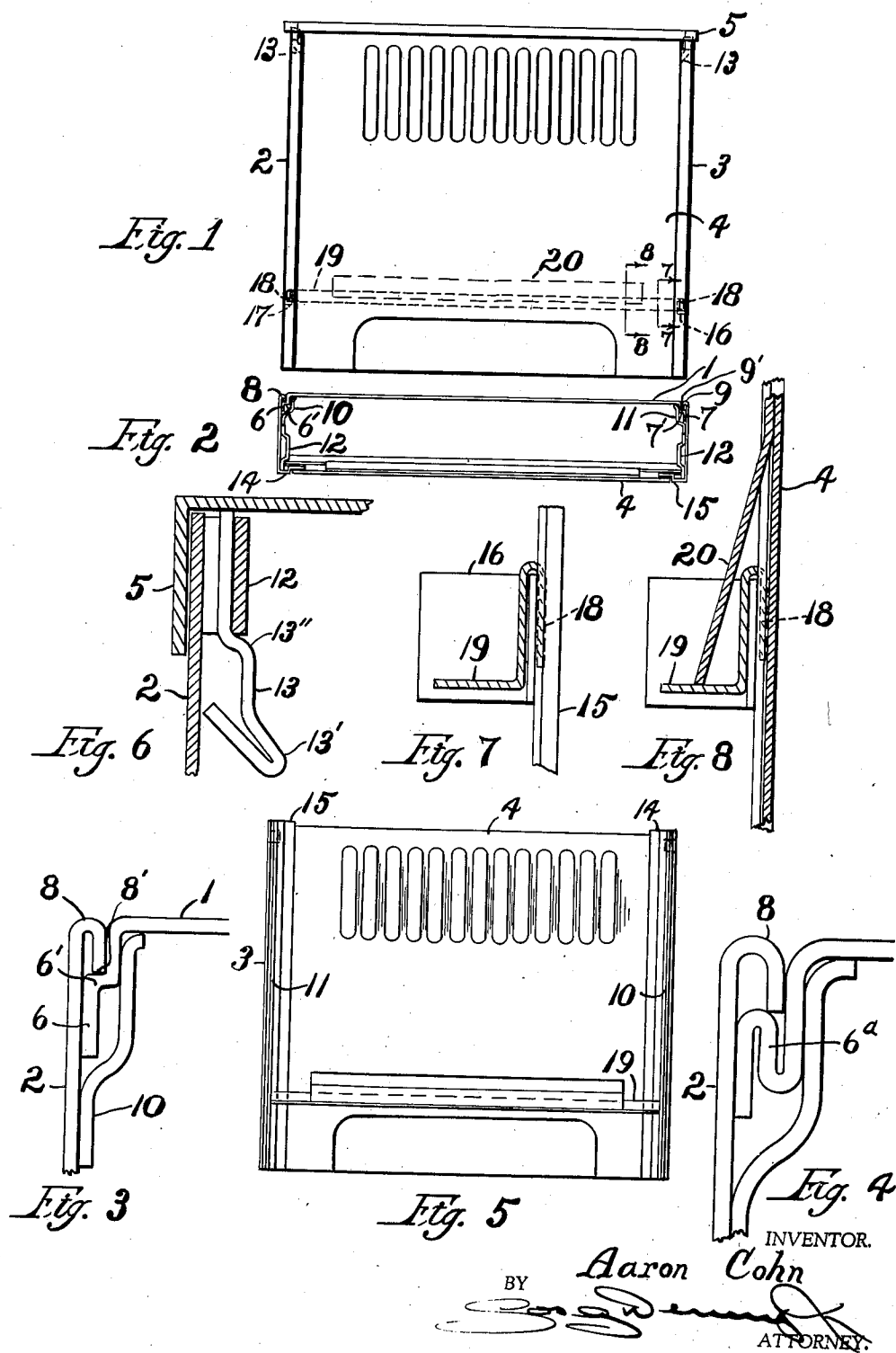
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2,332,299

SHEET METAL CASING

Filed Jan. 16, 1940

2 Sheets-Sheet 1



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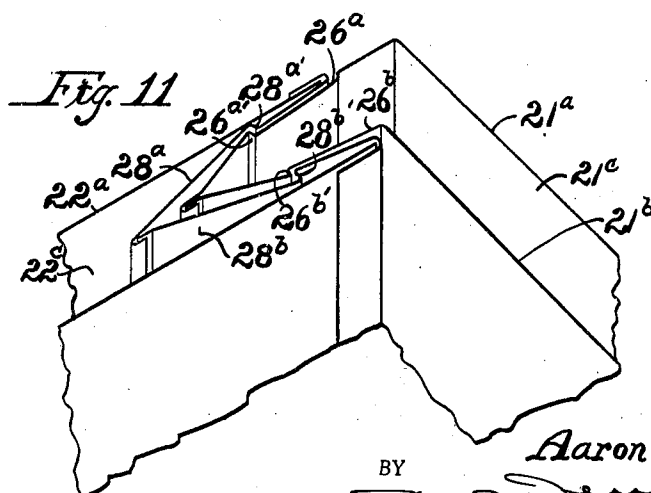
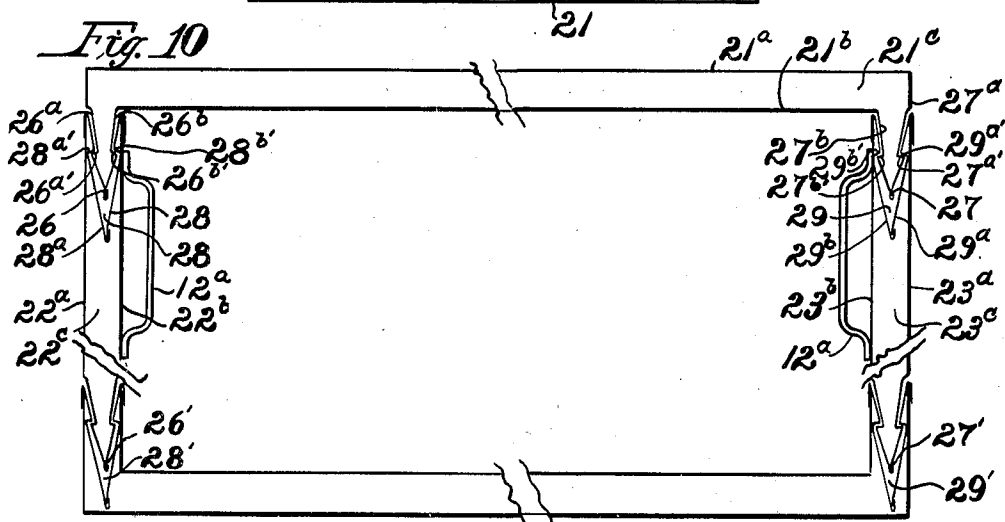
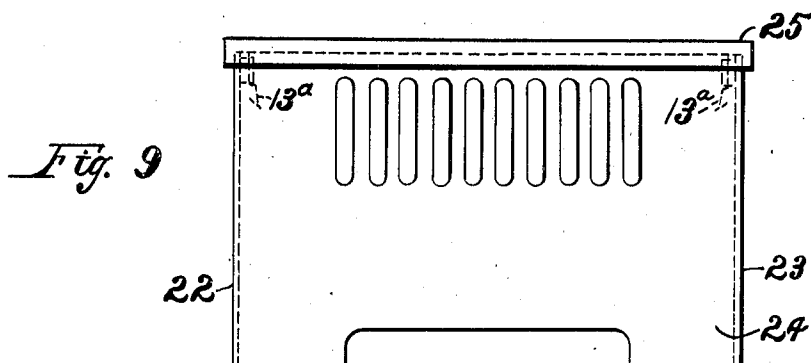
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2 Sheets-Sheet 2



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2,332,299

SHEET METAL CASING

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1 Claim. (Cl. 220-4)

My invention relates to casings such, for instance, as radiator enclosures, and the primary object of my invention is to provide sheet metal casing sections which may be shipped in knock-down form and are provided with integral locking devices whereby the sections may be quickly and easily assembled, without tools, into permanent and rigid structures at the point of use.

In accordance with my invention, adjacent casing sections are provided respectively with complementary male and female members having shoulders which are spring pressed into latching position so as to form a tight and rigid joint between the sections.

The sections may be thereby joined together with ease but are separable only with difficulty.

When the casing sections to be joined are of sheets of single thickness, they may be secured together by bending a marginal portion of one wall section to form a tongue having an intermediate shoulder or rib and inserting such tongue in a channel or groove formed by securing a leaf spring along a marginal portion of a second wall section having its edge portion intumed to form a shoulder complementary to the shoulder of the tongue, which is pressed against the intumed edge by the leaf spring.

When the casing sections are each formed of spaced sheets, a marginal portion of one wall section is bent to form a tongue of sagitated cross section providing a wedge shaped or cuneiform entering edge terminating in oppositely projecting shoulders. Such tongue is locked in a channel or groove formed between the sheets of a complementary wall section by inwardly projecting strips having shoulders complementary to the tongue shoulders, and each strip acts as a leaf spring to secure the shoulder of the other strip in interlocking engagement with its complementary tongue shoulder.

The characteristic features and advantages of my improvements will further appear from the following description of embodiments of my invention and the accompanying drawings in illustration thereof.

In the drawings, Fig. 1 is a front elevation of a casing, suitable for use as a radiator enclosure, embodying my improvements; Fig. 2 is a top plan view of the casing shown in Fig. 1 with the cover removed; Fig. 3 is an enlarged fragmentary top plan view of the connection between the back and side sections of the casing; Fig. 4 is an enlarged fragmentary top plan view of a modified connection between the back and side sections of the casing; Fig. 5 is a rear elevation of the casing

with the rear section removed; Fig. 6 is an enlarged fragmentary sectional view of the connection between the cover and a side wall; Fig. 7 is an enlarged fragmentary view taken on the line 7-7 of Fig. 1 and showing the connection between a front cross bar and a side wall, but with the front panel removed; Fig. 8 is an enlarged fragmentary sectional view taken on the line 8-8 of Fig. 5; Fig. 9 is a front elevation of a modified casing embodying my invention and having walls composed of spaced sheets; Fig. 10 is an enlarged top plan view of the casing shown in Fig. 9 with the cover removed; and Fig. 11 is an enlarged fragmentary perspective view showing the connection between a side and back sections of the casing.

In the embodiment of my invention illustrated in Figs. 1 to 8 inclusive, the casing consists of a back wall section 1, side wall sections 2 and 3, apertured front wall section 4 and the flanged top section 5, each section being stamped from sheet metal.

In accordance with my invention, the marginal side portions of the back wall 1 are bent substantially normal thereto to form tongues 6 and 7. As shown in Figs. 2 and 3, each tongue may be given a single longitudinal crimp to form a shoulder 6' or 7' extending longitudinally of the tongues; or, as shown in Fig. 4, each tongue may be given a sigmoid crimp to form thereon a similar but oppositely disposed shoulder such as 6a extending longitudinally of the tongue.

The marginal rear portions 8 and 9 of the side wall sections 2 and 3 are bent inwardly substantially parallel to the bodies of such wall sections, and the edges of such intumed portions form similar but oppositely disposed shoulders 8' and 9'. Similar but oppositely disposed strips 10 and 11 are welded to the wall sections 2 and 3 parallel to the edges thereof and form with such wall sections, channels or grooves for the reception of the tongues 6 and 7. When the tongues 6 and 7 are pressed into the channels formed by the members 2 and 10 and 3 and 11 respectively, the members 10 and 11 act as leaf springs biasing the shoulders 6' and 7' in interlocking relation with the shoulders 8' and 9' and pressing against the wall sections 2 and 3 the portions of the tongues between their edges and shoulders to stiffen the joints.

When the back section 1 has been locked to the side sections 2 and 3, the flanged cover 5 is telescoped over the upper portions of the sections 1, 2 and 3. The flanged cover 5 may be secured in place by the engagement of bowed straps 12 on

the wall sections 2 and 3 by resilient tongues 13 projecting downwardly from the cover and having reversely bent heads 13' and shoulders 13''. The tongues 13 are so biased as to hold the shoulders 13'' firmly in engagement with the straps 12 and their dislodgement is hindered by the engagement of the termini of the heads 13' with the walls 2 and 3.

The side sections 2 and 3 have front marginal portions thereof bent normally to the bodies thereof so as to form flanges 14 and 15 having recessed edges forming seats for the front panel 4.

Similar L-shaped straps 16 and 17 are welded respectively to the side wall 3 and recessed portion of the flange 15 and to the side wall 2 and recessed portion of the flange 14 so as to provide sockets for clips 18 bent over from an angular front cross-bar 19. The front panel 4 has welded thereto a resilient strip 20 diverging therefrom so as to fit over the vertical flange of the cross bar 19.

In shipping the casing, the sections thereof are packed in knocked-down or separated form. When the casing is to be assembled, the wall sections 2 and 3 are arranged in parallel relation and the tongues 6 and 7 are locked in the channels formed by the parts 2 and 10 and 3 and 11 respectively. The cover 5 is then placed on the top edges of the walls and the tongues 13 thereof forced through the slots formed by the bowed straps 12. The cross bar 19 then has its clips 18 inserted in the sockets formed by the straps 16 and 17. The top edge of the front panel 4 may then be inserted beneath the front flange of the cover 5, and the panel is lifted until the bottom of the keeper 20 clears the top of the cross bar 19. The lower portion of the panel is then pushed rearwardly into the seats formed by the recessed edges of the flanges 14 and 15. The front panel is then dropped until its keeper 20 rests on the horizontal flange of the cross bar 19, in which position the top edge of the panel 4 will still be concealed by the front flange of the cover 5.

In the embodiment of my invention illustrated in Figs. 9 to 11 inclusive, the casing is composed of a rear wall section 21, side wall sections 22 and 23, front wall section 24 and cover 25.

The rear wall section 21 is composed of sheet-metal sheets 21a and 21b spaced from one another to form an insulating air space 21c. The walls 21a and 21b have their respective marginal side portions 26a and 27a and 26b and 27b bent substantially normal thereto and crimped or ribbed longitudinally to form the respective shoulders 26a', 26b', 27a' and 27b'. The extremities of the members 26a and 26b are converged and connected together and the extremities of the members 27a and 27b are converged and connected together along their edges so as to form the sagitate tongues 26 and 27 on opposite sides of the back wall section and projecting substantially normal therefrom.

The side wall sections 22 and 23 are composed respectively of the sheet metal sheets 22a, 22b and 23a, 23b with the air spaces 22c, 23c between them.

Resilient strips 28a and 28b are bent over and secured to the marginal sections of the sheets 22a and 22b and extend therefrom inwardly into the air space 22c.

The strips 28a and 28b are longitudinally crimped to form the oppositely projecting shoulders 28a' and 28b', and the edges of the strips 28a and 28b are converged and connected to-

gether so as to form a channel 23 of sagitate cross section adapted to receive the tongue 26. The shoulders 26a' and 26b' are interlocked with and held by the shoulders 28a' and 28b'.

The strip 28a acts as a leaf spring to maintain bearing engagement between the shoulders 26b' and 28b' and the strip 28b acts as a leaf spring to maintain bearing engagement between the shoulders 26a' and 28a'.

Resilient strips 29a and 29b are bent over and secured to the marginal sections of the sheets 23a and 23b and extend therefrom inwardly into the air space 23c.

The strips 29a and 29b are longitudinally crimped to form the oppositely projecting shoulders 29a' and 29b', and the edges of the strips are converged and connected together to form a channel 29 of sagitate cross section adapted to receive the tongue 27. The shoulders 27a' and 27b' are engaged and held by the shoulders 28a' and 29b'. The strip 29a acts as a leaf spring to maintain the engagement between the shoulders 27b' and 29b', and the strip 29b acts as a leaf spring to maintain the engagement between the shoulders 27a' and 29a'.

The forward ends of the side wall sections 22 and 23 may be provided with sagitate tongues 26' and 27' similar to the tongues 26 and 27 and the front wall section 24 may be provided with sagitate channels or grooves 28' and 29' formed by strips similar to the strips forming the channels 28 and 29.

The flanged cover 25 may be secured in place by the engagement of bowed straps 12a on the wall sections 22 and 23 by tongues 13a fixed to the top 25 and similar in construction and operation to the tongues 13.

The wall and cover sections may be packed and shipped as knocked-down units and the casing may be assembled at the point of use by inserting the tongues 26, 27, 26' and 27' into the channels 28, 29, 28' and 29' respectively, and then placing the flanged cover 25 over the walls so that its tongues 13a are locked in the loops formed by the bowed straps 12a.

By each embodiment of my invention there is provided a knock-down casing comprising a plurality of sheet material wall sections, one of which has a marginal tongue provided with a shoulder and the other of which has marginal members forming a channel housing the tongue. One of such members has a shoulder complementary to the shoulder of the tongue and the other of such members maintains the shoulders in interlocked relation by its biasing action.

Having described my invention, I claim:

A knock-down casing comprising a pair of parallel side sections each having an inturned rear edge and a resilient strip adjacent to said edge and forming therewith a channel, said side sections each having a bowed strap extending transversely thereto adjacent to the top thereof and each having an L-shaped strap secured thereto intermediate the top and bottom thereof, a back section having tongues extending normally thereto and locked in said channels, a top section having tongues extending normally thereto and interlocked with said bowed straps, a bar having clips interlocked with said L-shaped straps, and a front section interlocked with said top section and having a resilient strip diverging therefrom and fitting over said cross bar.

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