March 29, 1966 W. SONDHEIM 3,242,834

JOINTS FOR STEEL FORMS, FACINGS AND THE LIKE

Filed March 11, 1964

FIG. 1

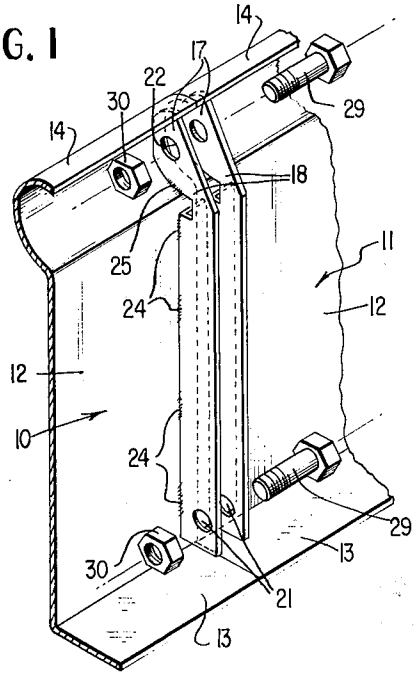


FIG. 2

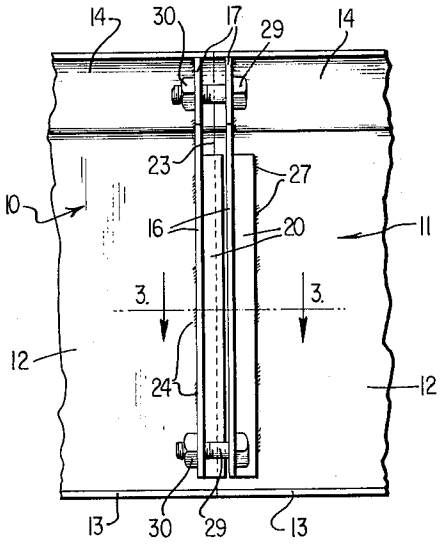
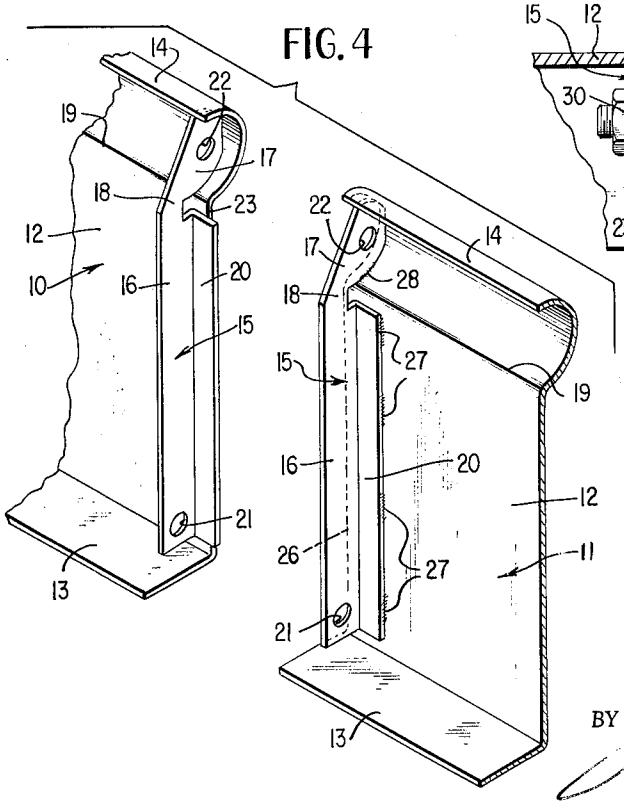


FIG. 4



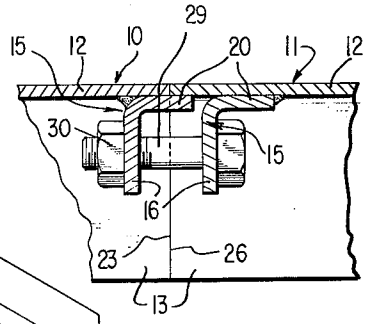


FIG. 3

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JOINTS FOR STEEL FORMS, FACINGS AND THE LIKE

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1 Claim. (Cl. 94—31)

This invention relates to improvements in joints for steel forms, facings and the like.

More particularly, the invention pertains to a simplified and highly economical joint for permanent steel forms, sheet metal curb facings and the like.

An important object of the invention is to provide a die formed joint angle for steel forms and facings which is substantially self-locating when installed upon a section of the facing without the necessity for elaborate jigs or other assembly equipment.

Another object of the invention is to provide an improved joint for forms, facings and the like which serves not only to connect the meeting ends of form sections in a highly accurate and secure manner but also materially strengthens the forms or facings by backing up the same over the major portion of the joint between form or facing sections.

Another object of the invention is to provide a one-piece joint angle element which may be applied to sections of forms or facings by welding and which will materially strengthen the forms or facings including the rolled or beaded edges thereof, thereby preventing damage during shipment or handling.

Another important object of the invention is to provide an improved joint for forms and facings which requires the minimum number of elements for completing the joint and also eliminates the need for left hand and right hand or male and female joint angles, a pair of identical angles embodying the invention serving to complete each joint along with a pair of simple bolts.

Other objects and advantages of the invention will be apparent during the course of the following detailed description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

FIGURE 1 is a fragmentary perspective view, partly exploded, of a joint for steel forms and facings embodying the invention,

FIGURE 2 is an interior side elevation of the completed joint shown in FIGURE 1,

FIGURE 3 is an enlarged fragmentary horizontal section taken on line 3—3 of FIGURE 2, and

FIGURE 4 is a fragmentary exploded perspective view of separated form sections before joining with the invention means.

In the drawings wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numerals 10 and 11 designate companion sections of a steel form, curb facing, sidewalk facing or the like. Each form or facing section includes a main flat web or body portion 12, a bottom laterally projecting return flange 13 for added strength, and an upper rolled edge or bead 14 for increased stiffness and to provide an attractive contour on the exterior face of a curb, filling station island, bay or the like. The sections 10 and 11 per se are conventional and are formed from heavy gage sheet metal by means of suitable manufacturing dies. The invention proper, now to be described, involves an improved economical joint for the sections 10 and 11 as well as a means for backing up and strengthening the sections adjacent the joint and for maintaining proper alignment of parts with economy.

With continued reference to the drawings, the improved joint comprises a pair of identical die formed joint angles 15, one each installed by welding to adjacent sections 10 and 11 of the form or facing. Each angle 15 has a main web 16 which is perpendicular in assembly to the form body portion 12 and extends substantially from the top to the bottom thereof. A continuation or extension of the main web 16 forms a head 17 thereon having a marginal shape to fit snugly within the rolled bead 14 for reinforcing or stiffening the same. A relatively thin neck portion 18 serves to join the contoured head 17 with the main web 16 and this neck 18 lies adjacent the lower bend 19 of the rolled bead 14. Each joint angle 15 further includes an integral flange or web 20 arranged at right angles to the main web 16 and substantially coextensive therewith from a point just below the neck 18 to the bottom of the angle and form.

The web 16 has a bolt opening 21 near the bottom thereof and a like opening 22 is formed through the head 17 centrally of the arcuate bead 14.

As shown clearly in the drawings, each die formed angle element 15 is secured permanently to one of the sections 10 or 11 by welding. In connection with the section 10 of the form or facing, the joint angle 15 is applied thereto so that the flange 20 projects somewhat beyond the end terminal edge 23 of the form section 10. The angle 15 in this case is welded to the form section 10 as indicated at 24 and at 25 adjacent the corner or angle formed by the webs 16 and 20 and along the margin of the head 17.

In the case of the section 11 of form or facing, the identical joint angle 15 is set bodily inwardly of the endmost edge 26 and welded to the section 11 as at 27 and 28 along the longitudinal edge of the flange 20 and along the margin of the head 17 within the bead 14. Consequently, the identical joint angle 15 may be installed on each of the mating form sections 10 and 11 in the manner shown and without the necessity of resorting to right or left hand angles or "male" and "female" angles or angles of unlike design. It will be understood that a pair of the angles 15 will be installed on each end of a section 10 or 11 of form or facing and the respective installations of the angles for the two ends of a single section of form differ in the same manner above-described for a complete joint involving two unlike ends of a pair of companion form sections. In other words, the application drawings illustrate only one complete joint between form sections and all successive joints along a form or facing will be identical to the single joint illustrated herein and composed of the same parts mounted in the same manner on corresponding ends of other form sections identical to the sections 10 and 11. For instance, the end of the form section 10 not shown in the drawings has a joint angle 15 installed thereon in the same manner as the angle 15 for the form section 11 which is shown herein.

To complete the invention joint, a pair of bolts 29 are placed through the aligned openings 21 and 22 of the companion angles 15 constituting the joint. Nuts 30 are then applied as shown and engage against the outer face of the web 16 of the angle on section 10. It will be noted with reference to FIGURES 2 and 3 that the flange 20 of the angle on form section 10 bridges or spans the meeting ends of the two form sections and serves to pilot and guide the same into a smooth hairline joint. No separate line-up pins or clips need be employed to assure proper alignment of the meeting edges of the form sections because of the arrangement of the two coacting angles 15. Additionally, the two angles adequately back up the joint over substantially the full height of the form or facing. Additionally the contoured heads 17 back up and stiffen the beads 14 as explained above. Since the

parts are die made and therefore uniform, they are substantially self-locating when the angles are installed upon the forms and welded in place. Also, there is no problem regarding the proper lining up of the bolt holes in the companion pairs of angles. The construction of the joint is very strong and durable and most efficient. The advantages of the joint should now be apparent to those skilled in the art without the need for any further description herein.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention or scope of the subjoined claim.

Having thus described my invention, I claim:

In a sectional form and facing involving at least two form sections having a main flat wall with longitudinal top and bottom edges and end edges, and having a rounded, outwardly offset bead at the top longitudinal edges, the sections being arranged with their adjacent end edges in abutting relationship, a connection joint comprising:

joint angle elements each including first and second webs arranged, substantially at right angles to one another;

the webs being coextensive in length for a measured distance thereof;

the second webs being connected to the main flat webs of the sections, adjacent the end edges thereof, one

web of each pair of angle members projecting beyond the adjacent end edge of the section carrying it, and the corresponding web of the other angle element lying bodily inward of the adjacent end edge of the section carrying it;

the last named web partially extending over the end edge of the next adjacent form section;

head extensions on each of the first webs, extending inside of the rounded beads and having arcuate marginal portions fixedly secured to the bead, the head extension being shaped to conform to the bead;

the head extensions having coaxial openings formed therein, and the first webs having coaxial openings therein spaced from the opening of the head; and

detachable fastener means extending through said coaxial openings to complete and maintain the joint, with said end edges of the adjacent form sections in edge-to-edge contact.

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