

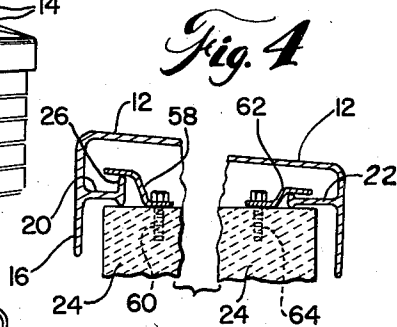
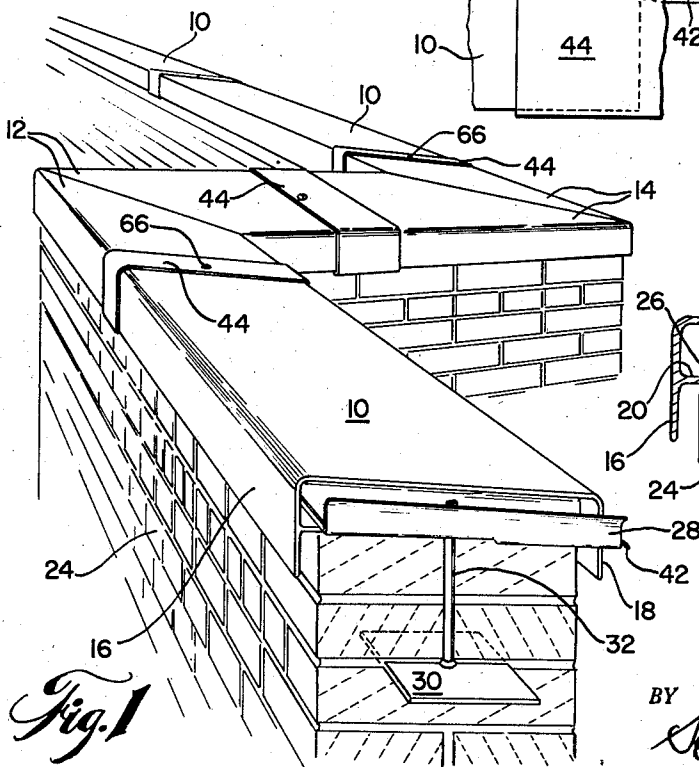
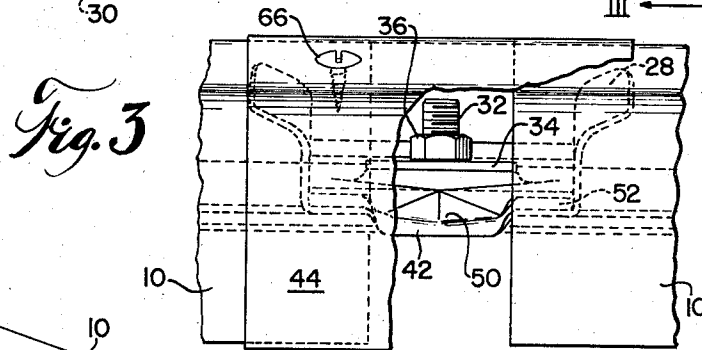
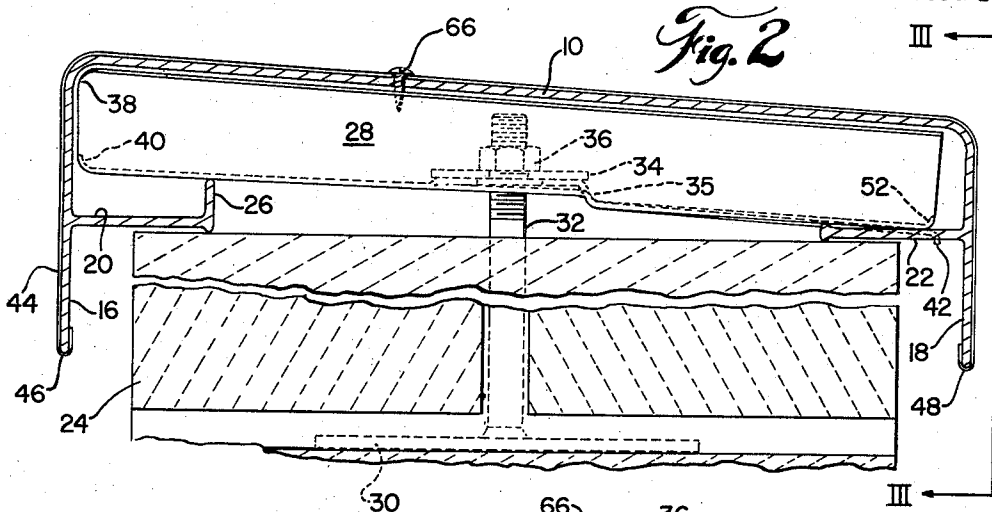
Oct. 14, 1958

J. W. TROSTLE
COPING STRUCTURES

2,855,776

Filed April 21, 1955

3 Sheets-Sheet 1



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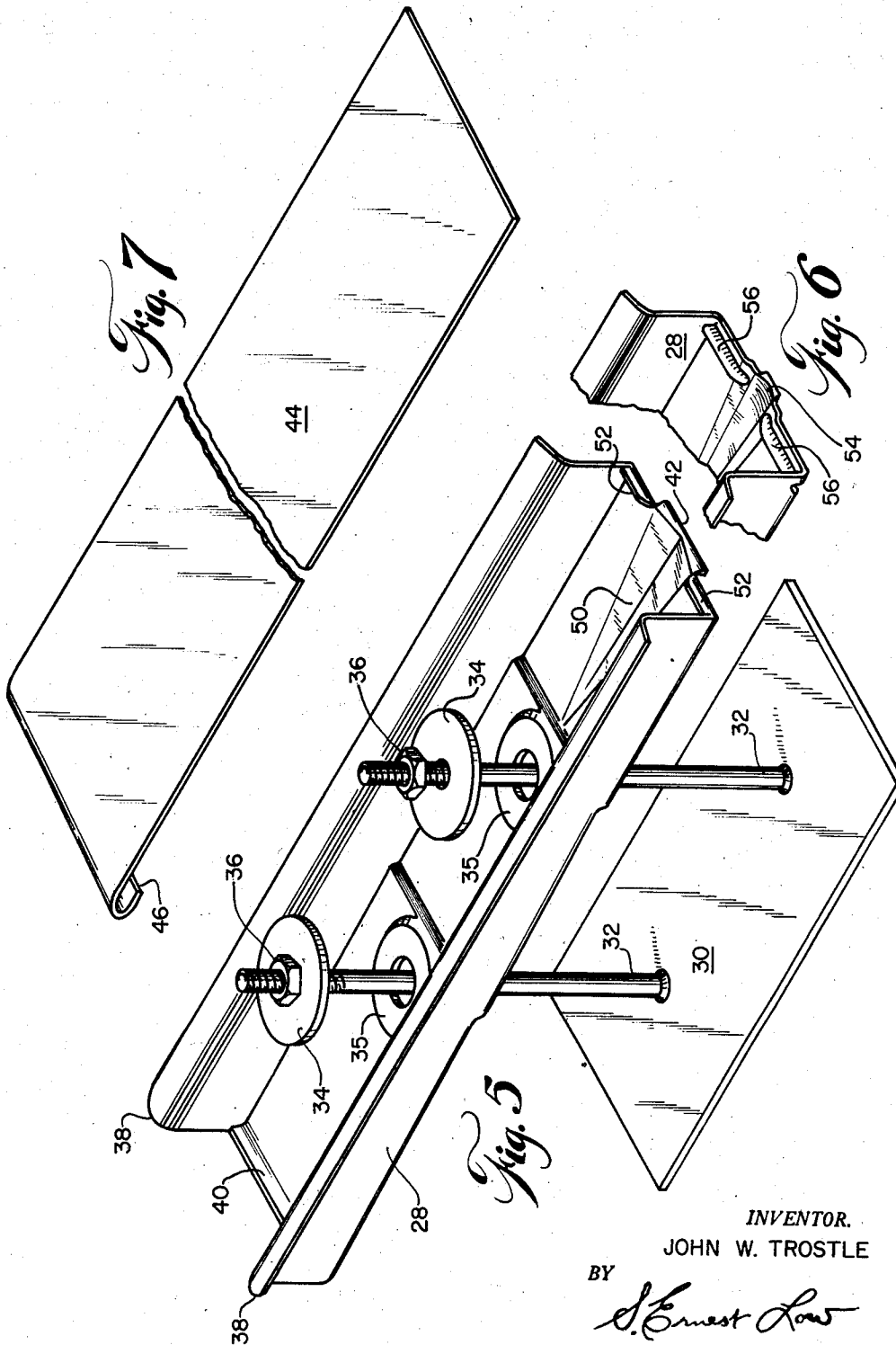
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3 Sheets-Sheet 2



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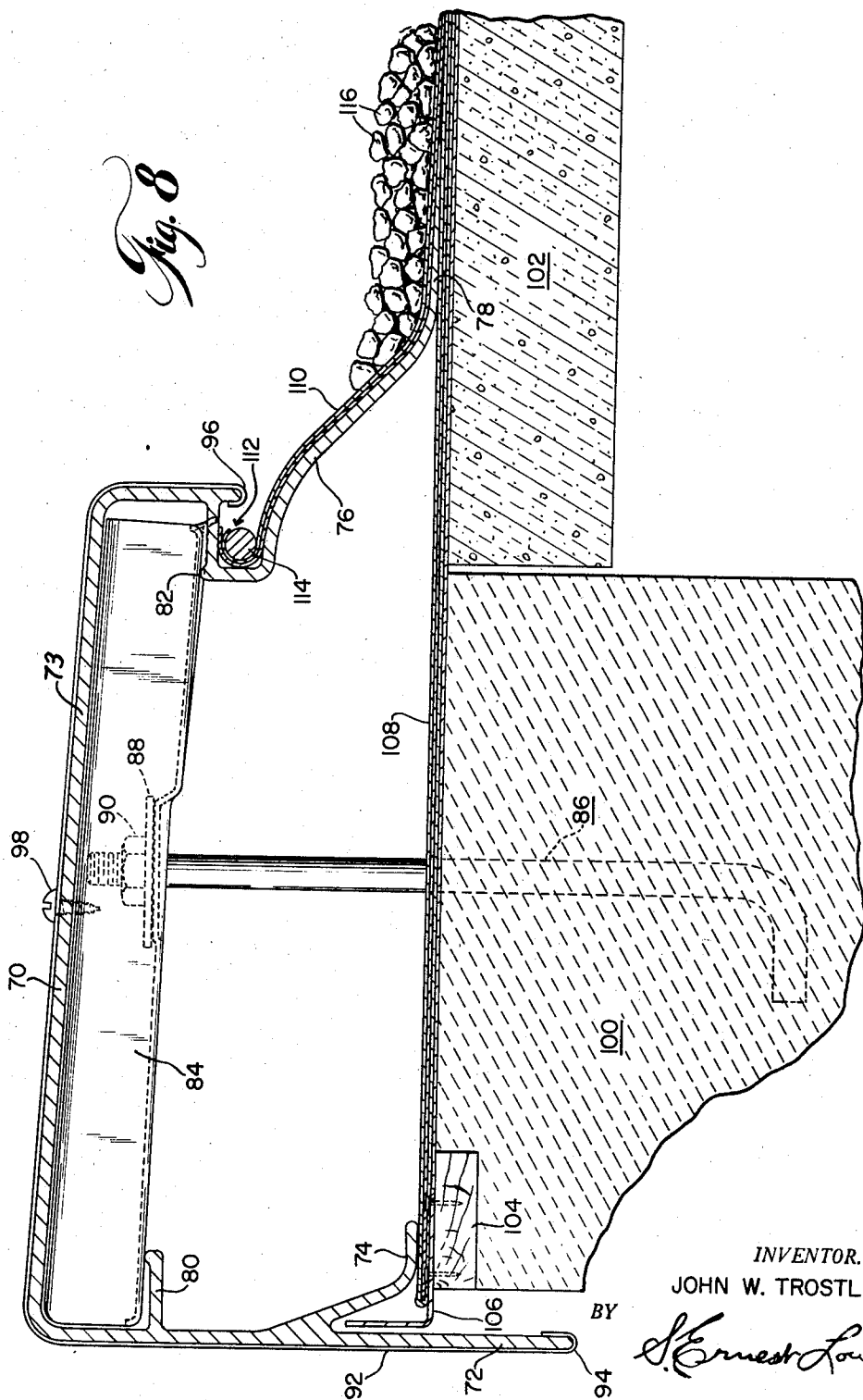
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3 Sheets-Sheet 3



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COPING STRUCTURES

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6 Claims. (Cl. 72—86)

This invention relates in general to wall constructions and is more particularly concerned with protective coping structures for capping parapet and roof-flush walls of buildings, retaining walls, and the like, against the destructive influence of moisture penetration, snow, ice and accompanying weather conditions, it being a primary object of the invention to provide coping structures which eliminate through or in-the-wall flashing in walls capped thereby.

Another object of the invention is to provide a prefabricated metallic coping adaptable to erection on and incorporation in newly constructed or existing walls.

It is a further object of the invention to provide a metal coping structure available as a stock item for standard wall thicknesses, which permits replacement of and substitution for the much employed and expensive stone, brick, or cast masonry copings.

Other objects and advantages of the invention will be more fully appreciated on consideration of the following description and appended drawings, in which:

Fig. 1 represents a fragmentary perspective view of a parapet wall provided with one embodiment of the coping structure of the invention;

Fig. 2 represents a cross sectional elevation through the structure illustrated in Fig. 1;

Fig. 3 represents an end elevational view, with parts broken away, taken in the direction of the arrows III—III in Fig. 2;

Fig. 4 represents a fragmentary sectional view of a coping corner-securing clip structure;

Fig. 5 represents an exploded perspective view of a coping anchor gutter and securing bolts for the same;

Fig. 6 represents a fragmentary perspective view of a modified end of the anchor gutter of Fig. 5;

Fig. 7 represents a perspective view of a coping joint cover or plate member; and

Fig. 8 represents a sectional elevation of a second form of coping structure in its application to a roof-flush wall.

In general, the coping structures of the invention are fabricated from metal and are preferably extruded to such geometrical and dimensional form and accuracy that they can be placed in self-supporting relationship on the upper surface of a wall to cap the same and provide a downwardly depending fascia over at least one exposed face of the wall so capped. Anchor gutters are employed between adjacent ends of the coping sections, following their spaced end-to-end placement on the wall to be capped, the gutters being supported entirely out of direct contact with the wall through end engagement with the adjacent spaced coping sections. One or more anchor bolts embedded in the wall extend through the gutters where they are engaged by suitable locking devices urging the coping sections into positive attachment to the wall supporting the same, and cover plates engage the spaced coping sections or members locally adjacent their ends to close the opening therebetween.

In more detail, and in the preferred embodiment of

the invention, the coping structures illustrated in Figs. 1 through 7 comprise inverted channel or substantially pan-shaped members 10 of a cross-sectional width between the downwardly extending flanges thereof in excess of the wall thickness to be capped, and are provided with front and rear inwardly extending flanges or fins 20 and 22, respectively, which serve to support each coping section on the upper surface of the wall 24 to be protected. In their preferred form, and when the coping sections 10 are formed by an extrusion operation, the fins 20 and 22 will be coextensive with each length of coping section 10. The fins 20 and 22 may, however, be localized or full length clip angles separately attached to the front and rear flanges of each coping section 10. Accuracy in cross-sectional dimensions and thickness also obtains, as a result of extruding the coping sections, and permits their prefabrication to dimensionally suit standard wall thicknesses.

The front fin 20 is preferably formed with an upwardly extending terminal 26 and the upper surface of each coping member 10 preferably slopes rearwardly away from the exposed front face of a wall supporting the same to provide drainage away from the front and toward the rear edge of the coping.

In erecting the coping structures illustrated in Figs. 1 through 7, the wall 24 to be capped is preferably initially provided with embedded anchor plates 30, which support one or more upstanding anchor bolts 32 extending upwardly through the top surface of the wall. The anchor bolt installations are made along the running length or lengths of the wall 24 at spaced intervals slightly in excess of a selected unit length of the coping section 10, the coping sections being spaced adjacent their ends to clear the upstanding bolts 32 and being otherwise supported in bearing relationship on the upper surface of the wall 24 by means of the inwardly extending supporting fins 20 and 22 respectively.

The anchor gutters 28 are generally channel shaped and are provided with upwardly pressed or otherwise formed bosses 35 in their bottom webs through which the anchor bolts 32 extend. The gutters 28 are also slightly wider than the gap or space between the ends of the adjacent coping sections 10, in order to span the gap or space therebetween, and are supported in forward elevated bearing engagement on the upwardly extending fins 26 and on the rear supporting fins 22 of the adjacent spaced coping sections. Following placement of the anchor gutters 28 in position, as best illustrated in Fig. 2, washers 34 and nuts 36 serve to draw the gutters into clamping relationship on the coping sections 10 to secure the same in unitary assembly on the wall 24. The elevated position of the fin 26 above the rear supporting fin 22 insures a definite drainage pitch for the gutters 28 toward the rear of the wall 24. The excess cross-sectional width of the coping members 10, in respect to the thickness of wall 24, permits their installation in overhung front and rear relationship to the wall 24, as well as permitting the use of a length of gutter 28 which extends forwardly and rearwardly of the wall 24.

A cover strip or plate 44 is preferably prefabricated with a hook 46 at one end thereof and is preferably installed in hook-engagement with the front depending leg, flange or fascia portion 16 of each of a pair of spaced adjacent coping sections 10 and is thereafter drawn rearwardly into conformity with the exposed surfaces presented by the spaced coping sections, where the opposite end of the cover member is curled into hook-engagement at 48, or otherwise secured, with the rear depending leg or flange portion of each pair of said coping sections 10. It will be observed that the cover strips 44 close the space between the ends of adjacent coping sections 10 directly over the anchor gutters 28. A machine screw 66, or the like, is

employed in each of the cover plates, but extending only into one coping section, to permit contraction and longitudinal expansion of the joints between adjacent coping sections 10 in response to temperature changes.

In the event the wall to be capped incorporates angular corner bends, outside and inside corner members, or sections of coping 12 and 14, respectively, are preferably prefabricated to include a welded mitered joint. The corner members 12 and/or 14 are fabricated from short lengths of a coping section 10, suitably sheared and welded, and are first placed on the wall 24 to be capped, the joints between the ends of the mitered corner members and adjacent running straight lengths of coping 10 being thereafter made as previously described for the straight length coping joints.

On reference to Fig. 4, it will be observed that the outside or forward and inside or rearward mitered corner members 12 and 14 may be positively secured to the underlying parapet wall 24 by means of a suitable front clip member 58, mounted in engagement with the vertically extending leg 26, and a suitable rear clip member 62 engaging the rear supporting fin 22. Embedded lag screws or other bolt means 60 and 64, respectively, secure the clip members 58 and 62 in place. The clip members 58 and 62 may be of rigid metal construction, or they may be made in the form of resilient spring clips.

In more detail, the anchor gutters 28 are preferably formed with their unsupported flanges rounded at 38 and flared outwardly along their length to insure against any contact with the underside of the adjacent coping sections 10 supporting the same. The elevated forward edge of the bottom web portion of each gutter 28 is also preferably curled or formed upwardly at 40 and is provided with a rearwardly and downwardly sloping depression 50 towards its rear edge, where it terminates in a downwardly curved drainage lip 42 located centrally between upstanding lateral dams 52. In the modified form of gutter illustrated in Fig. 6, the lateral dams 56 are formed by upward deformation of the web of the gutter 28 on either side of the centrally located drainage spout 54.

The modified form of coping shown in Fig. 8 is illustrated in its application on a building having a substantially roof-flush wall. The building construction therein illustrated comprises an exposed wall 100 substantially flush with a roof 102 of wood, block or tile construction. The wall 100 is preferably provided with a wood nailing strip or block 104 along its outer top edge to which a pitch dam 106, preferably in the form of an angularly bent sheet metal edging, is nailed or otherwise secured with its vertical leg extending upwardly above the roof-flush wall surface. Several layers of roofing felt 108, saturated with tar, pitch, or the like, are laid on the roof surface to cover its entire area, the pitch dam 106 preventing bleeding or discharge of the roofing felt saturant down the face of the building wall 100.

The coping sections 70 for the roof-flush wall type of construction above-described simulate the previously described parapet wall coping sections 10 in that they are supported on the upper surface of the exposed wall 100, extend above the same and incorporate drainage channel anchor members between adjacent lengths of the end-spaced coping members. The coping sections or members 70 are also preferably extruded to accurate dimensional cross-section with a front depending fascia portion 72, rearwardly sloping top portion 73 and a front leg 74 for bearing support on the upper roof-flush wall 100. The rear edge of each coping section 70 is formed by a contiguous rearwardly sloping cant and gravel stop portion 76 terminating in a feathered supporting ledge or foot 78. The front and rear supporting surfaces 74 and 78, respectively, are coextensive with each length of coping section 70, when extruded, but may be localized at spaced intervals or full length clip angles secured to an otherwise sheet metal formed coping section. The front supporting foot or ledge 74 is also angularly at-

tached to the rear face of the depending fascia 72 to provide clearance for the upwardly extending pitch dam 106.

In erection, the coping sections 70 are placed in position above and along the exposed wall 100 in spaced end relationship to provide clearance for one or more anchor bolts 86 embedded in the wall 100. Anchor gutters 84 of the general type described in Figs. 1 through 7 are positioned over the anchor bolts 86, the gutters being supported in bearing relationship on front and rear inwardly extending integral or separately attached fins 80 and 82, respectively, in rearwardly sloping drainage-providing disposition. Each anchor bolt receives a washer 88 and nut 90 for securing the anchor gutters 84 and underlying adjacent coping sections 70 in unitary assembly on the wall 100. A cover strip 92 is hook-engaged at 94 and 96, front and rear respectively, to cover the gap between adjacent spaced ends of the coping sections 70, a cover-securing fastener, such as a self-tapping screw 98 being employed for attaching each cover strip to one coping section only immediately over each of the anchor gutters 84.

One or more outer layers of roof covering, such as roofing felt or the like 110, are laid on the roof following installation of the coping sections 70, the outer roof covering being carried up the exposed rearwardly sloping cant and gravel stop surface 76 and terminating within a cavity or recess 112 below the rear inwardly extending gutter-supporting fin 82, where a reglet bar, rope or flexible cable 114 firmly secures the outer roof covering 110. A liberal application of pitch, tar, or other suitable waterproof adhesive, is preferably employed between the outer roof covering 110 and rearwardly sloping cant and gravel stop surface 76. Gravel 116 is normally spread on the roof as illustrated.

It will be observed that the coping structures above-described provide positive protection to parapet walls and roof-flush wall structures, against moisture penetration and the like, without resorting to metallic or other types of flashing extending into or through the wall or roof protected thereby. The anchor gutters serve the dual purpose of drawing and securing the coping members in firm attachment with their underlying supporting surfaces, while providing drainage toward the roof behind the wall that is capped by the coping structures. To this end, even the fasteners securing the cover plates adjacent the spaced ends of the coping members are located over the anchor gutters to insure collection and drainage of any moisture entering the coping joints at these points, and the coping members are devoid of any securing devices that necessitate their interengagement with the walls protected thereby. Although extrusion has been referred to as a preferable mode of fabrication for the coping members of the invention, it will be understood that sheet metal technique may be employed in their manufacture.

Having described two specific forms of coping structures within the contemplated scope of the invention, it is to be understood that the invention may be practiced outside the specific examples and is not to be limited in any way except as defined in the appended claims.

What is claimed is:

1. A coping structure comprising at least two substantially pan-shaped inverted channel members arranged in end-to-end spaced relationship above a surface to be capped thereby and presenting depending front fascia flanges in spaced advance relationship in respect to an exposed wall in angular disposition to the surface to be capped and rear depending flanges, inwardly projecting supporting fins unitarily attached to the rear face of the front fascia flange and rear depending flange of each inverted channel member in bearing contact with the surface to be capped, an anchor gutter spanning the gap between the end-to-end spaced channel members and supported by the inwardly projecting fins out of contact with the surface to be capped, said anchor gutter being elevated

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adjacent the fin on the rear face of the front fascia flanges to impart a rearwardly sloping drainage inclination to the anchor gutter, at least one anchor bolt embedded in the surface to be capped and extending upwardly between the end-to-end spaced channel members through a raised boss in the bottom web of the anchor gutter, a washer surrounding each anchor bolt in close fitting relationship therewith and resting on the raised boss, a nut on each anchor bolt drawn down onto the washer and clamping the anchor gutter and adjacent inverted spaced channel members engaged thereby in respect to the surface to be capped, a cover plate spanning the gap between the end-to-end inverted spaced channel members localized over the anchor gutter therebelow, and a fastener securing the cover plate to only one of the adjacent end-to-end inverted spaced channel members.

2. A coping structure comprising at least two substantially pan-shaped inverted channel members each having a front depending fascia flange and rear depending flange, supporting fins formed integrally with the front and rear depending flanges and extending inwardly towards each other in a common plane, said front fin having an upwardly extending leg above the aforesaid common plane, said inverted channel members being positioned with their supporting fins on a surface to be capped in end-to-end spaced relationship, a drainage and anchor gutter supported on the upwardly extending leg and rear supporting fin in spaced relationship to the surface to be capped and spanning the space between the inverted spaced channel member, said supported gutter assuming an inclined drainage attitude towards the rear of the coping structure, at least one anchor bolt extending upwardly from embedded attachment within the surface to be capped between the end-to-end inverted spaced channel members through the drainage and anchor gutter, means carried by each anchor bolt clamping the gutter and inverted spaced channel members on the surface to be capped, a central drainage depression in the lower bottom surface of the gutter, lateral dams on either side of the central drainage depression restricting the same to substantially the width of end-to-end spacing between adjacent inverted channel members, and a cover member localized over the gutter and in engagement with exposed surfaces of the inverted spaced channel members to close the gap therebetween, said cover member being fixedly secured to only one of the adjacent inverted spaced channel members.

3. A roof-flush wall coping structure comprising at least two substantially pan-shaped inverted channel members each provided with a front wall depending fascia flange and a rear depending flange connected by an inclined web sloping away from the front wall depending fascia flange, inwardly projecting fins attached to the inwardly facing front wall depending fascia and rear flanges, the fin on the fascia flange being elevated above the rear fin, a reglet-receiving recess below said rear fin and a rearwardly and downwardly sloping cant and gravel stop surface contiguous with a wall of the recess and terminating in a feathered supporting ledge for the coping structure, a front coping supporting leg attached to the inner surface of the front wall depending fascia flange below the front fin, said inverted channel members being supported in end-to-end spaced relationship on the front supporting leg and rear feathered ledge in contact with a roof-flush wall with the front wall depending fascia flange extending below the roof surface, an anchor and drainage gutter supported on the front and rear fins of adjacent end-to-end inverted spaced channel members, at least one anchor bolt embedded in the surface of the wall and extending upwardly between the spaced inverted channel members through the gutter, securing means on the anchor bolt in clamping relationship in respect to the gutter, adjacent spaced inverted channel members and wall, and a cover plate overlying the gap between the adjacent spaced inverted channel members.

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4. A coping structure comprising at least two substantially pan-shaped channel members each having a web and front and rear flanges, said channel members being arranged in inverted end-to-end spaced relationship above a surface to be capped, extensions attached to the front and rear flanges of the channel members having under surfaces in supporting contact on the surface to be capped, an anchor gutter spanning the gap between the end-to-end spaced inverted channel members, said anchor gutter being disposed below and in spaced relationship to the webs of the end-to-end spaced inverted channel members and resting on the extensions attached to the front and rear flanges thereof, at least one anchor bolt fixedly embedded below the surface to be capped and projecting above the same between the end-to-end spaced inverted channel members and through the anchor gutter, securing means carried on the anchor bolt in engagement with the anchor gutter and clamping the anchor gutter and spaced inverted channel members in overlying unitary assembly on the surface to be capped, and a cover member in engagement with the upper surfaces of the spaced inverted channel members spanning the end-to-end gap therebetween.

5. A coping structure comprising at least two substantially pan-shaped channel members each having a web and front and rear flanges, said channel members being arranged in inverted end-to-end spaced relationship adjacent an exposed wall and above a surface to be capped, inwardly projecting fins attached to the front and rear flanges of the channel members and having under surfaces in supporting contact on the surface to be capped, the fins attached to the front flanges being adjacent the exposed wall and having upwardly extending terminals the upper edges of which are elevated above the plane of the oppositely disposed fins attached to the rear flanges of the inverted channel members, an anchor gutter spanning the gap between the end-to-end spaced inverted channel members, said anchor gutter being inclinedly supported on the upper edges of the upwardly extending terminals and on an upper surface of the fins attached to the rear flanges of the inverted channel members, at least one anchor bolt fixedly embedded below the surface to be capped and projecting above the same between the end-to-end spaced inverted channel members and through the anchor gutter, securing means carried on the anchor bolt in engagement with the anchor gutter and clamping the anchor gutter and spaced inverted channel members in overlying unitary assembly on the surface to be capped, and a cover member in engagement with the upper surfaces of the spaced inverted channel members spanning the end-to-end gap therebetween.

6. A coping structure comprising at least two substantially pan-shaped channel members each having a web and front and rear flanges, said channel members being arranged in inverted end-to-end spaced relationship adjacent an exposed wall and above a surface to be weather-protected, the front depending flange on each of the inverted spaced channel members extending downwardly over the exposed wall and having a rearwardly extending fin an under surface of which rests on the surface to be weather-protected, the upper surface of each said fin having an upwardly extending terminal, the rear depending flange on each of the inverted spaced channel members having an inwardly extending fin in the plane of the first-mentioned fins and each having an under surface resting on the surface to be weather-protected, an anchor gutter spanning the gap between the end-to-end spaced inverted channel members and rearwardly inclinedly supported on the upwardly extending terminals adjacent the exposed wall and on an upper surface of the oppositely disposed inwardly extending rear fins below the webs of the inverted channel members, at least one anchor bolt fixedly embedded below the surface to be weather-pro-

tected and projecting above the same between the end-to-end spaced inverted channel members and through the anchor gutter, securing means carried on the anchor bolt in engagement with the anchor gutter and clamping the anchor gutter and spaced inverted channel members in overlying unitary assembly on the surface to be weather-protected, and a cover member in engagement

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with the upper surfaces of the spaced inverted channel members spanning the end-to-end gap therebetween.

References Cited in the file of this patent

UNITED STATES PATENTS

2,554,779	Goodwin	May 29, 1951
2,697,932	Goodwin	Dec. 28, 1954