

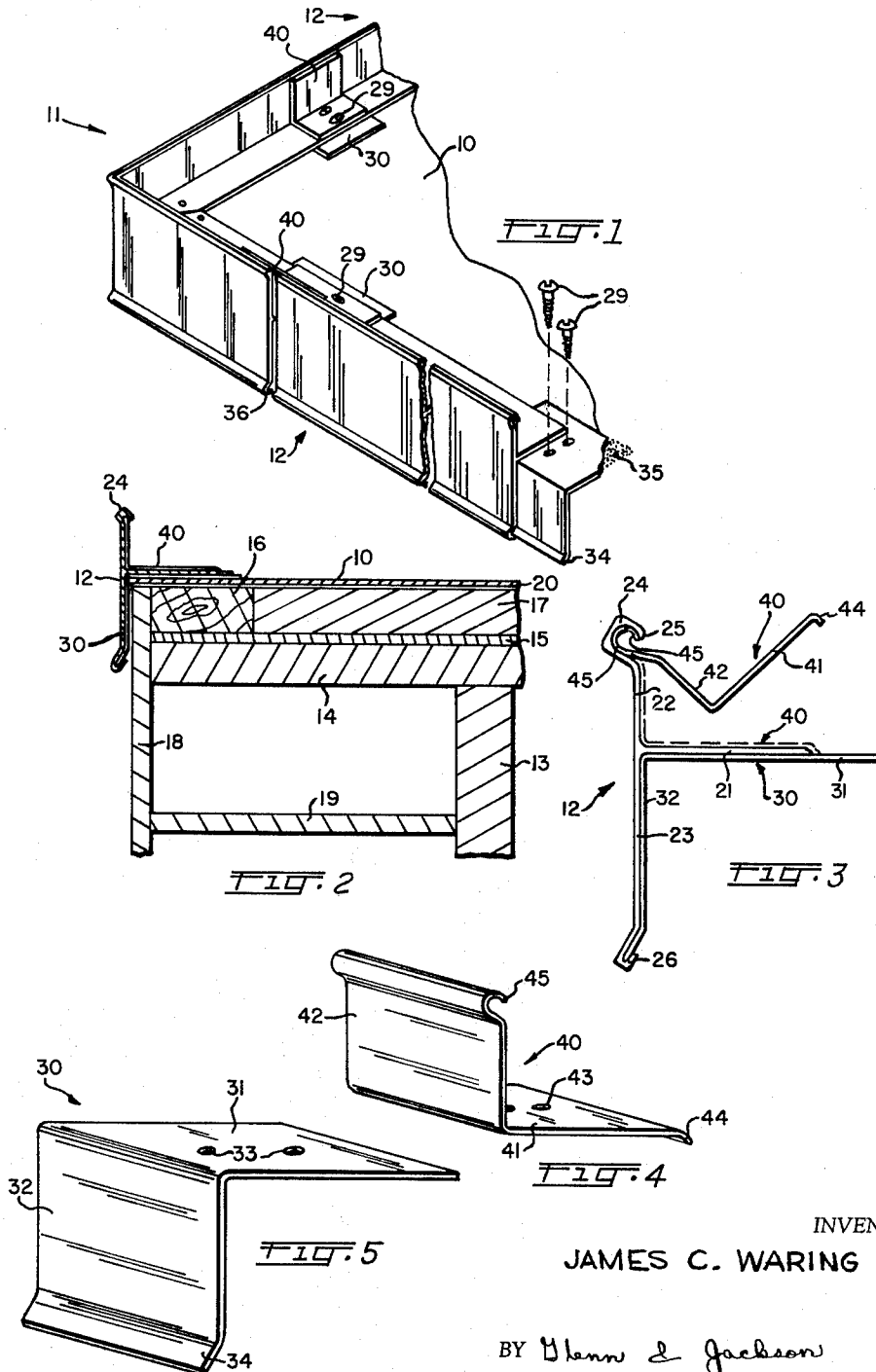
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GRAVEL STOP AND BUILDING ASSEMBLY EMPLOYING THE SAME

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GRAVEL STOP AND BUILDING ASSEMBLY EMPLOYING THE SAME

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This invention relates to building structures and more particularly to an improved gravel stop member for installation at the edge of a roof of a building. The roof for which the gravel stop member of this invention is used is one which is either flat or has a low pitch and will hereinafter be designated as "a substantially flat" roof.

Among the objects of the invention are the provision of a gravel stop member which may expand and contract without damage to the joints between adjacent members; which may be readily mounted upon a roof while employing relatively few fastening devices; which does not require the member to be slotted, notched, or otherwise preformed for attachment; which has a concealed joint between adjacent members contributing to a pleasing ornamental exterior appearance; and which embodies substantially liquid-tight joints between adjacent members.

Other objects and advantages will become more apparent as the description proceeds and when considered in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective, partially exploded view of one corner of a roof with the gravel stop structure assembled in place thereon;

FIG. 2 is a sectional view through the edge of a roof with the gravel stop structure assembled in place thereon;

FIG. 3 is an end elevation view of the elongated gravel stop member with the cooperating bottom joint member indicated in nesting relation thereto by dotted lines and the top joint member indicated in two positions in the course of assembly;

FIG. 4 is a perspective view of the top joint member drawn to a larger scale; and

FIG. 5 is a perspective view of the bottom joint member drawn to a larger scale.

In accordance with the invention an elongated gravel stop member having a generally T-shaped transverse cross section is provided for mounting at the edge of a generally flat roof of a building, which, in a conventional manner, may have a layer of gravel lying upon the roofing material. The elongated member is mounted against top and bottom joint members attached to the roof and may move longitudinally with respect to those joint members as during expansion and contraction of the elongated member. Both the top and bottom joint members are substantially concealed from view giving a substantially uniform external ornamental appearance to the gravel stop structure.

Referring now to FIG. 1, a corner section of a partially completed roof employing the invention is shown and wherein 10 indicates the upper surface of the built-up roofing prior to placing a layer of gravel thereon. At one corner of the roof, which may be of the conventional flat type with suitable drainage means, not shown, a corner member indicated generally at 11 is suitably mounted thereon. This corner member, later to be described, is rigidly attached to the roof and is adapted to cooperate with adjacent gravel stop members shown at 12 to form the improved gravel stop structure of the invention.

As seen in FIG. 2, the building assembly may include an exterior wall 13 supporting roof sheathing 14 upon which a layer 15 of base material may be mounted. Adjacent the edge of the sheathing and atop layer 15 an

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elongated cleat 16 of suitable material, such as wood, is securely fastened such as by bolting or nailing (not shown) to the sheathing. Inboard of this cleat any suitable roof sub-structure, such as a layer 17 of a conventional insulating material is disposed. A vertically mounted fascia 18 supporting a soffit 19 may be arranged flush with the edge of the sheathing and the cleat.

Superimposed upon the sub-structure, cleat, and upper edge of the fascia, is a conventional built-up roofing 10 comprising, for example, a plurality of layers 20 of roofing material adapted to be treated with saturants or adhesives such as pitch, tar or the like.

As a significant feature of the invention, an elongated gravel stop member 12 is provided for use with the above-described building assembly and includes a generally T-shaped transverse cross section which is uniform longitudinally of the member and defined by a cross member and a stem joined to the cross member intermediate the ends of the cross member. Various materials may be employed in constructing the member 12, but preferably it is formed of a metallic material, extruded aluminum alloy being particularly well suited for this purpose. As best seen in FIG. 3, the member comprises a flat stem portion 21 integrally joined to an upper arm portion 22 and to a lower arm portion 23 and with that stem portion having a generally horizontal length sufficient to engage securely with the top of the roof, the arm portions 22 and 23 defining the cross member of the T-shaped member 12. Along the upper edge of the upper arm portion an enlarged boss 24 is formed having an arcuate open recess or groove terminating in a downwardly facing lip 25. This boss serves to reinforce the elongated member in the region of the groove. Moreover, along its lower edge the lower arm portion is formed with a re-entrant lip 26 forming a second groove also extending along the entire length of member 12. The second groove may have flat inner surfaces in contrast to the curved inner surface of the first mentioned groove. Preferably, the upper edge of the upper arm portion and the lower edge of the lower arm portion are disposed outwardly of the plane of the cross of the T-shaped member 12, thus giving an improved three-dimensional ornamental appearance to the gravel stop structure which is further enhanced by its location with respect to the fascia 18. The outward extension of the boss 26 and the re-entrant lip 26 may even be more pronounced than shown if it is desired to emphasize the architectural line further and thereby approximate a channel member.

In practice, the gravel stop member 12 is employed in relatively long lengths for example, ten feet or more, and thus expansion and contraction of the same needs to be accommodated. This and other requirements are provided for in the improved mounting and joint sealing structure now to be described. As noted in FIG. 1, a corner member 11 which may comprise two mitered sections of the gravel stop member 12 welded together, is first fitted at the corner of the roof structure and rigidly secured in place as by nails, screws or the like engaging with the appropriate cleats 16. Under the ends of this corner member corresponding bottom joint members 30, as shown in FIG. 5, are mounted. Each bottom joint member includes a generally L-shaped transverse cross section having a floor portion 31 and a lower face portion 32 and with small apertures 33 in the floor portion adapted to receive fastening means such as nails or screws 29 therethrough and which will completely plug those apertures thereby to prevent any leakage of roof saturant or adhesive therethrough. At the lower edge of the lower face portion 32 a flared flat portion 34 is provided for reception within the lower groove in the gravel stop member above described. Moreover, in assembling the

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bottom joint member upon the roof, a bed of plastic roofing cement 35, a sheet of plastic material, such as Neoprene, or other sealing means, may be applied to the roof 10 under the bottom joint member whenever desired.

Accordingly, with the corner member 11 in place, the adjacent bottom joint members 30 are slid endwise into engagement with the lower groove of the ends of that corner member and bridge the expansion spaces for the gravel stop members 12. These spaces, one of which is shown at 36 in FIG. 1, may be about 1/2 inch wide and not only serve to permit expansion and contraction of the movably suspended gravel stop members, but also serve to give access to the fastening means employed in securing the respective top and bottom joint members in place on the roof and by means of which joint members that gravel stop member is movably suspended.

Cooperating with the described bottom joint member is a generally L-shaped top joint member 40, best shown in FIG. 4, and including a floor portion 41 and an upper face portion 42. The floor portion contains apertures 43 corresponding to the apertures in the bottom joint member and preferably terminates in a downwardly directed lip 44 engageable with a close fit over the exposed end of the stem 21 of the gravel stop member as seen in dotted lines in FIG. 3. The top joint member is rotatable within the enlarged boss 24 from the solid position to the dotted position in FIG. 3. The lip 44 accordingly assists in preventing seepage of roof saturant or adhesive between these relatively movable parts of the structure. The insertion of the top joint member 40 in the longitudinal groove in boss 24 serves to align one gravel stop member with an adjacent gravel stop member.

At its upper edge the upper face portion 42 is suitably curved to form a hollow open recess terminating in a downwardly directed lip 45. Thus, with the corner member 11 and adjacent bottom joint members 30 in place, the gravel stop structure is completely installed in the following manner: The elongated members 12 are moved endwise with their lower recess encompassing the flared lower edge 34 of the already emplaced bottom joint members and are positioned at the proper spacing 36 from the ends of the corner member 11. At this time their stem portions 21 of the gravel stop members 12 are flush against the top of the roofing strips 20, as seen in FIG. 2.

The top joint members 40 are then held in inverted position with the lip 45 engaging under the lip 25 of the boss 24 of the elongated gravel stop members. The thus engaged top joint members are then moved rotatably downwardly nesting the curved upper edge 45 of the top joint members within the curved recess 24 in the upper arm portion of the elongated gravel stop member and rotated from the solid to the dotted position in FIG. 3. Thereafter, fastening means, preferably wood screws, are passed through the apertures 43 and 33 to securely mount the joint members upon the roof. If desired, felt flashing strips, not shown, can also be extended from the surface of roof 10 over the top joint member and over the stem of the elongated members and corner members. With the gravel stop structure emplaced as described, a layer of gravel including the customary binding material, such as tar or pitch, may then be laid over roof 10.

Having thus described the invention, various practical features thereof will now be apparent to those skilled in the art. For example, the installation of the gravel stop structure may be carried out by relatively unskilled labor using only simple tools. Both of the joint members are concealed from side view of the building except at the small expansion space, resulting in an attractive appearance for the structure. The elongated member 12, while being securely mounted at the edge of the roof, nevertheless are movably suspended upon the cooperating stationary top and bottom joint members and do not require long slotted apertures or notches adjacent their ends for mounting purposes, but still can expand or contract as necessary. The apertures in the joint members are com-

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pletely plugged by the fastening means and the space 36 between the stem portions of adjacent members 12 is covered by the top joint member 40 and its lip 44, thus minimizing the opportunity for roof saturant or adhesive to leak outwardly at the expansion space. The invention having been described in terms of the embodiment as shown, it will be understood that other forms and embodiments thereof may be employed without in any way departing from the spirit and scope of the invention which is intended to be limited only as defined by the appended claims.

What is claimed is:

1. A gravel stop structure for a substantially flat roof comprising in combination an elongated member having a generally T-shaped transverse cross section defined by a cross member and a stem joined to said cross member intermediate the ends of said cross member, said cross member having inner and outer surfaces and forming upper and lower arms, said stem having a generally horizontal length sufficient to engage securely with the top of the roofing material along the edge of the roof, a bottom joint member of generally L-shaped transverse cross section adapted to have intimate contact throughout its length with both the under surface of said stem and the inner surface of the elongated member along the lower arm thereof, said bottom joint member being disposed at the end of said elongated member and bridging an expansion space between said elongated member and an adjoining gravel stop structure, a top joint member of generally L-shaped transverse cross section adapted to contact both the upper surface of said stem and the inner surface of the elongated member along the upper arm thereof, said top joint member being disposed above said bottom joint member, and means for aligning said elongated member with an adjoining gravel stop structure.

2. A gravel stop structure for a substantially flat roof as defined in claim 1 wherein said means for aligning said elongated member with an adjoining gravel stop structure includes a longitudinal groove in said elongated member adjacent the upper arm thereof adapted to receive an edge of said top joint member.

3. A gravel stop structure for a substantially flat roof comprising in combination, an elongated member having a generally T-shaped transverse cross section defined by a cross member and a stem joined to said cross member intermediate the ends of said cross member, said stem having a generally horizontal length sufficient to engage securely with the top of the roofing material along the edge of the roof, the cross member of said elongated member having inner and outer surfaces and forming upper and lower arms, a bottom joint member of generally L-shaped transverse cross section adapted to have intimate contact throughout its length with both the surface of said stem between said roof and said elongated member and the inner surface of the elongated member along the lower arm thereof, said bottom joint member being disposed at the end of said elongated member and bridging an expansion space between said elongated member and adjoining gravel stop structure, a top joint member of generally L-shaped transverse cross section adapted to contact both the upper surface of said stem and the inner surface of the elongated member along the upper arm thereof, said top joint member being disposed above said bottom joint member, a first longitudinal groove in said elongated member adjacent the edge of the upper arm thereof for engagement therein of an edge of said top joint member, and a second longitudinal groove adjacent the lower arm thereof for engagement therein of an edge of said bottom joint member.

4. A gravel stop structure as defined in claim 3 wherein said top joint member includes a downwardly directed lip at the horizontal edge thereof, said lip being adapted to cover the edge of the stem of said elongated member thereby to prevent leakage of roofing materials into said expansion space.

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5. A gravel stop structure for a substantially flat roof comprising in combination, an elongated member having a generally T-shaped transverse cross section defined by a cross member and a stem joined to said cross member intermediate the ends of said cross member, said stem having a generally horizontal length sufficient to engage securely with the top of the roofing material along the edge of the roof, the cross member of said elongated member having inner and outer surfaces and forming upper and lower arms, a first longitudinal groove in said elongated member adjacent the edge of the upper arm thereof, said first groove having a downwardly directed lip at the edge thereof, a second longitudinal groove in said elongated member adjacent the edge of the lower arm thereof, said second groove having an upwardly directed lip at the edge thereof, a bottom joint member of generally L-shaped transverse cross section and having a lower edge adapted to fit in said second groove, said bottom joint member being adapted to have intimate contact throughout its length with both the surface of said stem between said roof and said elongated member and the inner surface of said elongated member along the lower arm thereof and being disposed at the end of said elongated member and bridging an expansion space between said elongated member and adjoining gravel stop structure, a top joint member of generally L-shaped transverse cross section and having a hollow open recessed portion at its upper edge adapted to fit in said first groove, said recessed portion including a downwardly extending lip for rotatable engagement under the corresponding lip of said first groove during assembly of said structure, said top joint member being disposed above said bottom joint member and being adapted to contact both the upper surface of said stem and the inner surface of said elongated member along the upper arm thereof.

6. A gravel stop structure as defined in claim 5 wherein the inner surface of said first groove and the surface of said top joint member in contact therewith comprise arcuate surfaces.

7. A building structure comprising a substantially flat roof, a gravel stop corner member having a generally T-shaped transverse cross section mounted at a corner edge of said roof, a plurality of elongated members each having a transverse cross section corresponding to that of said corner member, said T-shaped cross sections of said corner and elongated members each being defined by a cross member and a stem portion joined to said cross member intermediate the ends of said cross member, the stem portions of said corner and elongated members having a length sufficient to engage securely with the top of said roof, the cross members of said corner and elongated members each having inner and outer surfaces and forming upper and lower arms, a plurality of bottom joint members of generally L-shaped transverse cross section adapted to have intimate contact throughout its length with both the surface of said stem portions between the roof and the respective corner and elongated members and the inner surface of the respective corner and elongated members along the lower arm portions thereof, said bottom joint members being disposed respectively between said corner member and the adjacent elongated members and bridging an expansion space therebetween, a plurality of top joint members of generally

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L-shaped transverse cross section adapted to contact both the upper surfaces of said stem portions and the inner surfaces of the upper arm portions of the respective corner and elongated members, said top joint members being disposed above the corresponding bottom joint members, means fastening said top and bottom members in corresponding pairs rigidly to said roof, each of said elongated members and said corner member having first longitudinal grooves adjacent the edge of the upper arm portion thereof for slidable engagement therein of the upper edges of the respective top joint members, and each of said elongated members and said corner member having a second longitudinal groove adjacent the edge of the lower arm portion thereof for slidable engagement therein of the lower edges of the respective bottom joint members.

8. A structure as defined in claim 7 wherein said fastening means pass through said expansion spaces thereby to permit free expansion and contraction of said elongated members.

9. A structure as defined in claim 7 wherein said top joint members include a downwardly directed lip at the horizontal edge thereof, said lip being adapted to cover the stem of said elongated and corner members thereby to prevent leakage of roofing materials into said expansion space.

10. A gravel stop structure for a substantially flat roof comprising in combination, an elongated member having a generally T-shaped transverse cross section defined by a cross member and a stem joined to said cross member intermediate the ends of said cross member, the stem of which has a generally horizontal length sufficient to engage securely with the top of the roofing material along the edge of the roof, said T-shaped member having a first longitudinal groove adjacent the edge of the upper arm thereof and a second longitudinal groove adjacent the edge of the lower arm thereof, a top joint member of generally L-shaped transverse cross section and having a hollow open recessed portion at its upper edge adapted to fit in said first groove, a bottom joint member of generally L-shaped transverse cross section and having a lower edge adapted to fit in said second groove, said top and bottom joint members respectively being in overlying relationship and bridging an expansion space between adjacent elongated T-shaped members, and fastening means passing through said top and bottom joint members in the region of said expansion space to clamp the stem portions of said adjacent elongated T-shaped members between opposed contacting surfaces of said top and bottom joint members but permitting longitudinal expansion of said T-shaped members.

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