United States Patent [19]

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[11] **3,841,101**

[45] **Oct. 15, 1974**

[54] **GUTTER COUPLINGS**

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[22] Filed: **June 18, 1973**

[21] Appl. No.: **370,606**

[30] **Foreign Application Priority Data**

July 3, 1972 South Africa 72/4540

[52] **U.S. Cl.** **61/14,** 248/48.2, 403/302

[51] **Int. Cl.** **E02b 9/04,** E04d 13/06

[58] **Field of Search** 61/14, 15; 248/48.1, 48.2; 52/11, 12; 403/363, 309, 313, 302

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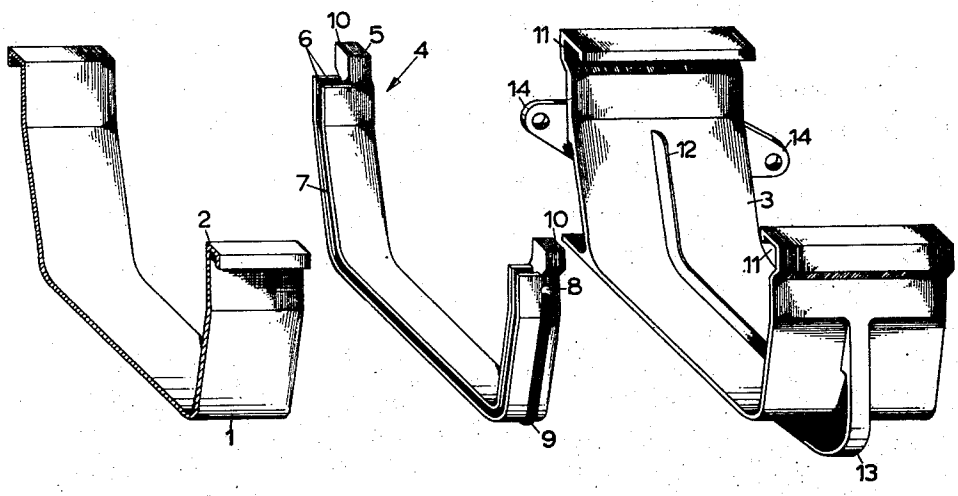
[57] **ABSTRACT**

A gutter coupling or terminating assembly for plastic guttering. The assembly comprises a stiffening member adapted to be attached to a free end of a length of guttering and a support member shaped to cradle the end of the guttering.

9 Claims, 2 Drawing Figures



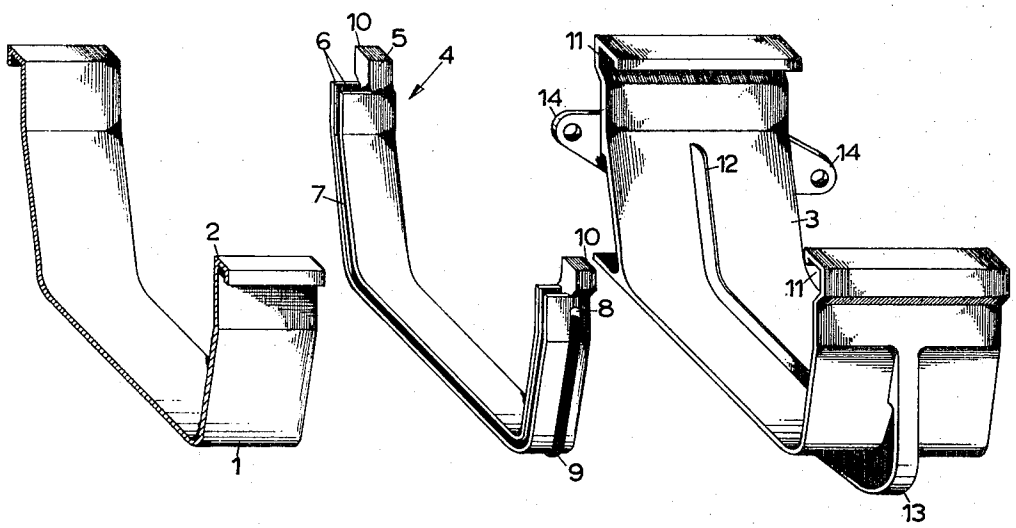


FIG.1

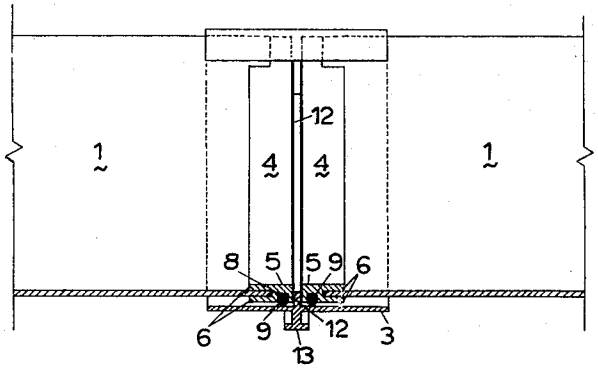


FIG.2

GUTTER COUPLINGS

This invention relates to gutter couplings and more particularly to coupling or terminating assemblies for guttering made of plastics material.

Plastic guttering has been used and is advantageous in that it is durable and easy to install. In view of the relatively high coefficient or expansion of the plastic material usually used for this purpose, lengths of guttering are usually joined or terminated by means including a rubber gasket to allow movement and at the same time maintain a leakproof joint. However, to minimize costs, the extruded lengths of guttering usually have relatively thin web and flange thicknesses. The result is that the gutters tend to distort and to develop leaks at the joints irrespective of the rubber gasket.

It is accordingly an object of this invention to provide a gutter coupling or terminating assembly for plastic guttering wherein the above disadvantage is substantially eliminated.

According to this invention there is provided a gutter coupling or terminating assembly for plastic guttering comprising a stiffening member shaped to co-act with an end of a length of guttering to stiffen the end and a support member adapted to cradle the stiffened end of the guttering.

Further features of the invention provide for the stiffening member to conform to the cross section of the guttering and to have a continuous channel at one end thereof for receiving the end of the guttering in closefitting manner, for the stiffening or support members to have a formation along their periphery for receiving a seal and for the members to be provided with longitudinal flange and groove formations respectively or vice versa, these formations being complementary to one another to enable relative coaxial movement between the members to be effected.

The invention also provides a method of coupling or terminating plastic guttering comprising attaching a stiffening member to an end of a length of guttering to stiffen the end and cradling the stiffened end of the guttering in a support member.

Further features of the invention provide for the stiffening member to be adhesively attached to the end of the guttering, for a seal to be interposed between the stiffening and support members, for the stiffening and support members each to be produced by injection moulding and for the stiffened end of the guttering to be cradled in the support member by sliding the former coaxially into the latter.

The invention furthermore provides a stiffening member and support member for use with an assembly as hereinabove defined.

A preferred embodiment of the invention is described below with reference to the accompanying drawings in which:

FIG. 1 is an exploded view of part of a gutter coupling assembly; and

FIG. 2 is a cross-sectional elevation of an assembled coupling.

In this embodiment of the invention two lengths of channel shaped extruded P.V.C. guttering **1** are to be joined to form a continuous gutter. The free edges of the walls of the guttering **1** are preferably provided with longitudinal flange formations in the form of ribs **2** to impart rigidity to the guttering. The joining is accomplished by a coupling assembly consisting of a support member **3** and two stiffening members **4**. In FIG. **1** one only length of guttering **1** and one only stiffening member **4** are shown. The support member **3** and the stiffening members **4** are each injection moulded from a suitable plastics material so that they have the necessary dimensional accuracy.

The stiffening member **4** conforms to the cross-section of the guttering **1**. It comprises a base portion **5** and two continuous parallel flanges **6** extending from the base portion to define a channel **7** for receiving a free end of the guttering **1** in close fitting manner. A groove **8** is also formed in the outer peripheral surface of the base portion **5** of the stiffening member. The groove is adapted to receive a seal **9** which will protrude beyond the outer peripheral surface of the base portion.

The flanges **6** terminate short of the upper free edges of the base portion **5**. Said free edges are each formed by an outwardly extending flange **10**, transverse to the flanges **6**. The arrangement is such that when the stiffening member is fitted to an end of the guttering **1**, the flanges **10** correspond to the ribs **2** on the free edges of the walls of the guttering. In use the stiffening member is preferably secured to an end of the guttering by means of adhesive. However, it may also be secured by welding, a press fit or snap fit to provide a leakproof joint between stiffening member and guttering.

The support member **3** conforms in shape to the guttering **1** and is adapted to cradle two oppositely directed free ends of guttering in tight fitting relationship with each free end having a stiffening member **4** secured thereto. The upper free edges of the walls of the support member **3** are each provided with longitudinal groove formation **11** which serves as a guide for the flanges **10** of the stiffening member **4** and the ribs **2** of the guttering when the guttering is slid coaxially into the support member **3**.

A shoulder **12** is provided on the inner periphery of the support member at substantially the centre of the length thereof. The shoulder **12** extends the length of the web of the support member and a distance along each wall thereof. It serves the purpose of a locating stop for the gutter ends received by the support member.

The support member **3** may be strengthened by a web **13** formed integrally therewith. It may also be provided with suitable flanges **14** for attachment thereof to a purlin or the like.

In use, a stiffening member **4** is secured to each of the two ends of guttering to be joined to stiffen these ends. A seal **9** which may conveniently be a suitably shaped strip of rubber, is fitted in the groove **8** in each stiffening member. The stiffened ends of the guttering are slid coaxially into the support member **3**, one from each side, until each end abuts the shoulder **12** in the support member. This position is illustrated in FIG. **2**.

It will be appreciated that the stiffening member **4** prevents distortion of the guttering and subsequent development of leaks therein. The stiffening member is moulded separately from a suitably rigid plastics material such as unplasticised poly-vinyl choride and need consequently not be of the same material as the guttering. It will also be appreciated that the sealing member is contained between and shaped by the two stoutest members of the coupling.

Many embodiments of the invention may be made without departing from the scope of the invention. For

instance, the support member may be provided with suitable formations along its inner periphery for retaining the seals **9.** Also, a support member **3** with one end closed may be used for a gutter terminating assembly. Furthermore, the stiffening and support members **4, 3** may be provided with longitudinal groove and flange formations respectively instead of the flange and groove formations **10, 11** respectively.

What I claim as new and desire to secure by letters patent is:

1. A gutter coupling assembly comprising:

a support member; two lengths of channel-shaped plastic guttering having ends thereof extending into said support member from opposite sides of said support member, said ends being cradled by said support member which conforms to the general cross-sectional shape of said guttering;

two stiffening members, each generally conforming to the cross-sectional shape of said guttering lengths and each secured to one of said length ends; and

means on each stiffening member for thus securing the stiffening members, said means being such that said ends are stiffened when the stiffening members are secured thereto.

2. A gutter coupling assembly as set forth in claim **1** wherein two resilient seals are provided in the assembly, each seal located between one of said stiffening members and said support member.

3. A gutter coupling assembly as set forth in claim **2** wherein each stiffening member has means along its outer periphery for retaining said seal.

4. A gutter coupling assembly as set forth in claim **2** wherein said support member has means along its inner periphery for retaining said seals.

5. A gutter coupling assembly as set forth in claim **1** wherein the said means on each stiffening member comprises a pair of parallel flanges defining a continuous channel, said channel receiving the said end of the guttering along substantially the entire periphery of the guttering and in close fitting manner.

6. A gutter coupling assembly as set forth in claim **1** further including,

longitudinal flange formations on opposite longitudinal edges of each of said lengths of guttering; and complemental longitudinal groove formations on corresponding opposite edges of the support member, said flange and groove formations mating to support sliding engagement of the said ends in the support member.

7. A gutter coupling assembly comprising:

a support member; a length of channel-shaped plastic guttering having an end thereof extending into said support member, said end being cradled by said support member of general complemental shape; a stiffening member having a shape conforming to a crosssection of the guttering;

means on said stiffening member for securing it to said end of the guttering to thereby stiffen said end, said means comprising a pair of parallel flanges extending along said stiffening member and defining a continuous channel, said channel receiving the said end of the guttering along substantially the entire periphery of the guttering and in close fitting manner.

8. An assembly as claimed in claim **7** in which the stiffening member has a formation along its outer periphery for receiving a seal.

9. An assembly as claimed in claim **7** in which the support member has a formation along its inner periphery for receiving a seal.

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