

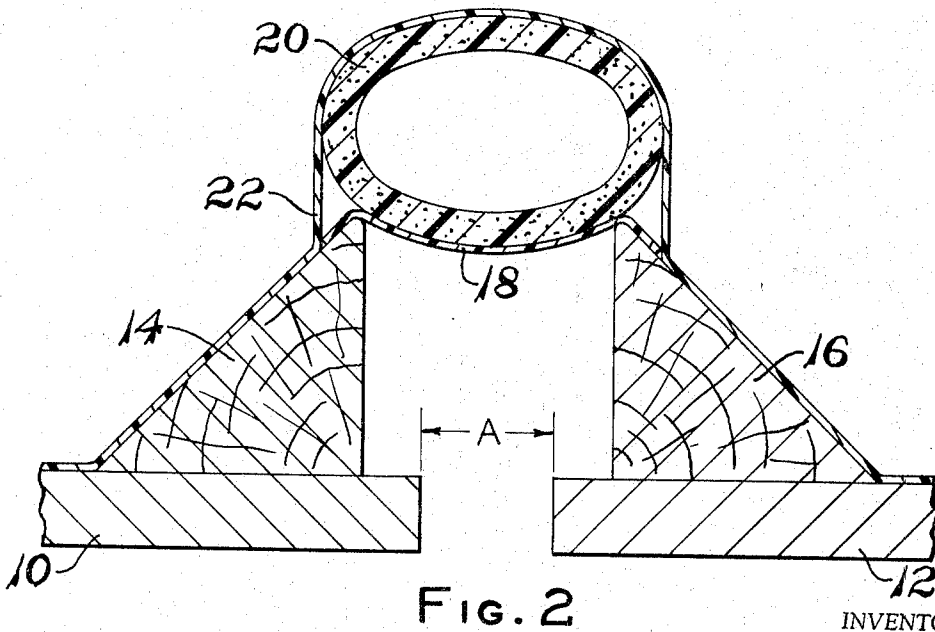
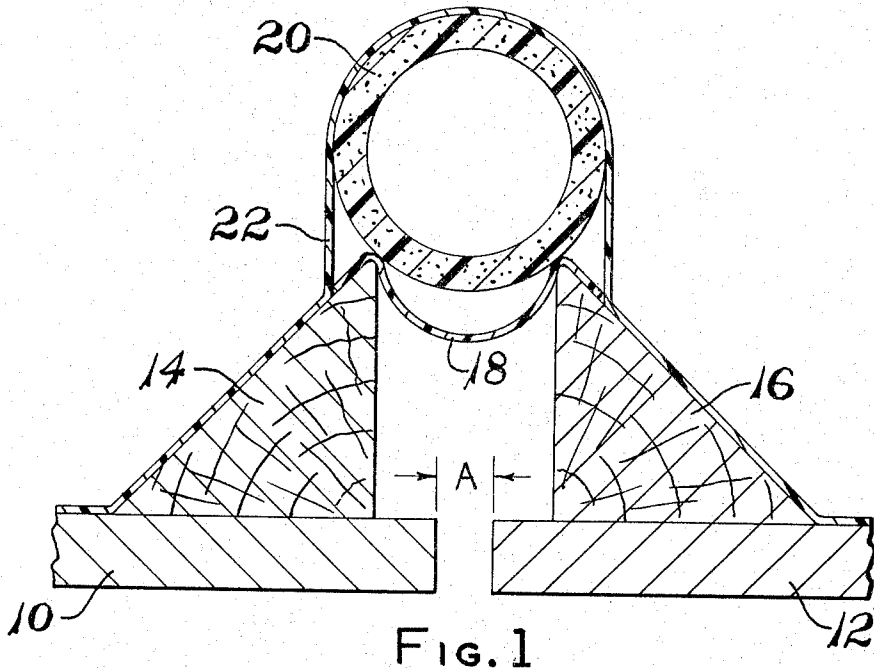
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ROOF EXPANSION JOINT

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ROOF EXPANSION JOINT

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ABSTRACT OF THE DISCLOSURE

An expansion joint featuring a flexible tube overlying the gap between structural members being covered by a flexible flashing member, the tube being deformable in response to gap variation to reduce shear forces on the flashing member.

This invention relates to waterproof seals for expansion joints in roofs and similar places to compensate for thermal expansion and contraction of the roof material.

The expansion joint seal of this invention is uniquely simple and capable of low cost fabrication and installation, as compared with the presently known structures for sealing roof expansion joints. Additionally, the seal of this invention provides a permanent thermal insulation along the entire length of the expansion gap.

According to the invention a roof expansion gap is covered and closed by a single flexible tube which bridges between the roof members defining the gap and fits lengthwise along the gap. A flexible flashing, or roofing material is then fastened to the roof members so that it covers and encloses the side of the tube directed away from the gap. The flexible tube prevents the flexible weather proof covering from being subjected to direct shear loads parallel to the roof members. Preferably the tube is supported by and between the two opposing cant strips fastened on the roof members. The tube is preferably a flexible sponge material.

The invention will be further described with reference to the accompanying drawings which show one preferred roof expansion joint seal embodying the principles of this invention.

In the drawing:

FIG. 1 is a cross-sectional view of the preferred roof expansion joint seal showing the position of the parts when the roofing members are expanded to reduce the clearance or gap between them to its minimum width.

FIG. 2 is a cross-sectional view showing the same parts when the roofing members are contracted to expand the gap between them to its maximum width.

The preferred roof expansion joint seal of this invention is shown in an expansion gap A between two adjoining roofing sheets 10 and 12. The seal includes a cant strip 14 fastened to the top surface edge of roofing sheet 10, and another similar cant strip 16 fastened to the top surface edge of roofing sheet 12 so that it is parallel to and spaced laterally from cant strip 14. These cant strips are interconnected by a narrow restriction flashing 18 the lengthwise edges of which are fastened to both cant strips 14 and 16 so that the central portion of flashing 18 sags below the top portion of cant strips 10 and 12.

A flexible-sponge-like foamed rubber or plastic tube

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20 rests loosely upon the top edges of canting strips 10 and 12 and immediately above flashing 18 as shown in FIG. 1. The tube 20 is considerably wider than the maximum gap width between the roof sheets 10 and 12 and the tube fits lengthwise along the gap between the cant strips.

A weather flashing 22 encloses the entire roofing joint. The lengthwise central portion of flashing 22 directly covers and encloses the side of tube 20 directed away from the cant strips and flashing piece 18. One of the lengthwise margin portions of flashing 22 is cemented or otherwise fastened to the exposed face of cant strips 14 and sheeting 10. The opposite lengthwise margin portion of flashing 22 is similarly bonded to the exposed face of cant strip 16 and sheeting 12.

The cant strips 14 and 16 are preferably wood and may be simply nailed directly to the roofing sheets. The restriction flashing 18, which is preferably a flexible vinyl material, may be affixed to cant strips 14 and 16 by adhesive or mechanical means.

Insulator tube 20 may be any suitable foamed flexible material. It is laid loosely along the top edges of cant strips 14 and 16 without any fastening other than that provided by the flashing 22.

Flashing 22 is preferably a flexible vinyl sheet material and is bonded at its outer edges to both the roofing sheets 10 and 12, and cant strips 14 and 16 with suitable adhesives.

When the thermal expansion and contraction of roofing sheets 10 and 12 causes cant strips 14 and 16 to move in parallelism closer to each other or further apart as the case may be, the flexible tube 20 will consequently rise and fall accordingly depending on the spacing. In FIG. 1, the roofing sheets 10 and 12 are shown in a position where high temperature has resulted in a close or minimum spacing between cant strips 14 and 16 due to expansion of roofing sheets 10 and 12. FIG. 2, on the other hand, shows the maximum possible spacing and at this FIG. 2 position tube 20 is engaged by restraint flashing 18 which results in a deformation of tube 20. Tube 20 may be easily deformed without impairing its sealing ability.

As tube 20 rises and falls in response to changes in the spacing between supporting cant strips 14 and 16, flashing 22 flexes easily between about its FIG. 1 position and its FIG. 2 position. This design transmits no significant shear stresses to the adhesive bonds attaching the margins of flashing 22 to the roof sheets and cant strips.

I claim:

1. An expansion joint seal comprising two laterally spaced members one of which is movable relative to the other to provide a variable width expansion gap between the members, a flexible tube having a lateral dimension larger than the maximum width of said gap, said tube bridging between and being supported by said members lengthwise along said gap, and a flexible weather proof flashing attached to each of said members and also covering and enclosing the side of said tube directed away from said gap.

2. A roof expansion joint seal according to claim 1 wherein said tube is a flexible sponge material.

3. A roof expansion joint seal comprising two adjacent laterally spaced roofing members, a pair of cant strips

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each fastened to one of said members, a flexible tube member bridging between and supported lengthwise by said pair of cant strips, and a weather proof flashing which is fastened to said roofing members and which covers and encloses said cant strips and the side of said tube directed away from said cant strips.

4. A roof expansion joint seal according to claim 3 wherein said joint further comprises a restriction flashing fastened to said adjacent cant strips and extending between said cant strips around the side of said tube directed toward said cant strips.

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