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54 **IMPROVEMENTS RELATING TO FLASHING FOR BUILDINGS.**

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## Description

This invention relates to flashing used in buildings to provide a seal between a surface and a member projecting therefrom. The invention is particularly applicable to providing a seal between a roof structure or wall of a building and a member or structure passing therethrough, projecting therefrom, or adjacent thereto.

Historically, lead or soft malleable metals in sheet form have been used as a flashing material in buildings because of the ease of deforming the material to follow the irregular contour usually presented by the surface of the roofing material, and in the case of lead, because of its ability to be conveniently stretched on site if required. The fashioning of the flashing on site to suit individual situations requires considerable skill by the workman in order to ensure an effective seal is achieved, and was a relatively time consuming and therefore costly operation.

More recently, there has been a trend towards using rubber or like resilient deformable materials as a substitute for lead, and to prefabricate flashing devices from such materials in a manner to reduce the skill and labour involved in installing same. However, such materials have the disadvantage that due to their resilience they do not readily conform to, and maintain contact with, the surface of the roof or like to which it is to be fitted, without the use of associated components of non-resilient material.

FR-A-2333913 discloses a flashing strip which is initially constructed with a contoured edge, which can subsequently be reshaped to other contours, but there is no suggestion of stretching and, furthermore, it is not possible for the flashing strip disclosed to be stretched.

It is therefore the object of the present invention to provide an improved flashing product, particularly for use in buildings, which is effective in operation, convenient to install, and reduces the skill and labour involved in installation thereof.

According to the first aspect of the present invention there is provided a building flashing product comprising an elongate member of a flexible resiliently deformable material, and a strip of non-resilient manually deformable material extending and intimately secured thereto throughout the length of the strip, characterised in that the strip is generally planar and extends along one longitudinal edge portion of the elongate member, said strip being of a construction to permit in use non-resilient manual stretching in the longitudinal direction of said edge portion of the member so that when stretched the strip will maintain said edge portion of the member correspondingly stretched.

According to a second aspect of the present invention there is provided a flashing product according to the first aspect of the present invention charac-

terised in that the strip is non-resiliently deformable in a direction substantially normal to the plane of the strip to impart a contour to said edge portion of the member.

Conveniently, the adaption of the member to be stretched in one direction is such that compressing of the member may also be effected. In particular the adaption of the member may be such that it may be stretched along one edge and compressed along the opposite edge. This enables a portion of the member to be manually deformed in the plane thereof into an arcuate or curved form. The member or members are also manually deformable in the direction normal to the plane thereof so that it may be contoured along its length. This contouring of the member may be effected independently or in combination with stretching or compressing of the member.

Conveniently, the member is provided with a plurality of interruptions along at least one edge extending substantially in said direction of desired stretch, whereby the member is stretched by increasing the width of the interruption at least along part of the length of the member. Preferably, interruptions are provided along each of two opposite edges of the member with alternate interruption extending from opposite edges of the member. The interruptions preferably extend from the opposite edges more than half the width of the member, or at least overlap one another in the direction of the width of the member. Preferably, the interruptions extend across the major part of the width of the member, up to about 75% to 90% of the width of the member.

Conveniently, the interruption may be of a shape being wider at the edge of the member from which they extend, such as of a V shape.

The non-resilient member may be of a soft metal that is manually deformable such as aluminium, zinc plate, or steel, the steel being preferably galvanised or coated to resist corrosion. The member is preferably of a strip form with a thickness of the order of 1/2 to 2 mm, conveniently about 1 mm, to provide the degree of rigidity necessary to hold the resilient material in the stretched or compressed condition.

The non-resilient member may be attached to the deformable resilient material by bonding to one face of the resilient material, either in a superimposed or inlaid relation having one face of the member exposed. Alternatively, the member may be embedded in the resilient material. When the member is embedded in the resilient material it is preferably that at least one of the member be bonded to the resilient material.

The member or non members may be strips of metal with slots, notches, or slits extending in from one or both longitudinal edges of the strip. The degree of stretch that the member may achieve without failure is increased with the length and member of the slots, notches, or slits in the member.

When it is required to increase the length of the

strip or sheet in the area that the member or members are attached the application of a tension force in the direction of the length of the member will cause the slots or slits to open to increase the width of the slots or slits, with a resultant stretch of the resilient material spanning the slot or slit. Because of the generally non-resilient nature of the material of the member or members they will retain the stretched state when the tension force is released.

It many flashing products, the non-resilient member or members are attached to a marginal edge portion of the product so that the edge portion may be shaped and/or contoured to closely follow the surface to which the flashing product is being fitted. In such products the marginal edge portion is required to establish a sealed relation with the surface to which it is being fitted, and so after suitable shaping of the marginal edge portion, suitable fastenings, such as bolts, screws or rivets, are used to secure same together with the resilient material compressed between the non-resilient member and the surface to which the flashing product is fitted.

With slots or slits extending in from opposite edges of the member or members if the slits or slots are generally equally stretched the edge of the strip will remain generally straight in the plane of the strip. However, the edge of the strip may be curved by stretching one edge of the member more than the other, or by stretching one edge and compressing the other.

In one preferred embodiment the non-resilient members are in the form of a zig-zag or wave shaped strip. Conveniently, the strips are arranged in a nested relation without actual contact between adjacent strips when attached to the resilient material. The greater the spacing of the members the greater the maximum degree of stretch, but the degree of retention of deformation may be somewhat reduced.

The use of the zig-zag or wave form in a plurality of members attached to a single sheet or strip of resilient material permits stretching in multi directions and deformation in multi orientations.

In one form the flashing product is a flashing strip comprising an elongated strip of rubber or like resilient material having along the opposite longitudinal edge portions a metallic strip. Each metallic strip has slits or slots extending transversely thereof with alternate slits or slots extending from opposite edges of the metallic strip. The metallic strips are preferably between about 25 to 35 mm wide and 0.75 to 1.5 mm thick and are embedded in the rubber.

This flashing strip may be used to flash the junction between a generally flat surface and a non-planar surface, such as the junction of a roof with an upright surface of a wall or structure. The slotted or slit metal strip enables the edge portion in which it is embedded to be longitudinally stretched and/or deformed to closely follow the contour of the roof without undue

tucks or folds in the flashing strip.

The invention will be more readily understood from the following description of several practical arrangement of products incorporating the present invention as illustrated in the accompanying drawings.

In the drawings :

Figure 1 is a perspective view of portion of a flashing strip.

Figure 2 is a view of a portion of the type of metal strip used in the flashing strip shown in Figure 1. Figure 3 is an enlarged view of a portion of the flashing strip shown in Figure 1 formed into a curved shape.

Figure 4 is a perspective view of a known type of sealing device modified to incorporate the present invention.

Figure 5 is a perspective view of another known type of sealing device modified to incorporate the present invention.

Figure 6 is a perspective view of a skylight installation incorporating the flashing strip.

Figure 7 is a view of a further modification of the present invention.

Referring now to Figure 1 there is illustrated a flashing strip for use in providing a seal between two intersecting surfaces such as a roof and wall or structure projecting therefrom. The flashing strip 10 is comprised of an elongated sheet or strip 20 of rubber or like resilient material having suitable physical properties for outdoor use, particularly extended exposure to sunlight. Each longitudinal marginal edge portion 22 of the sheet 20 has a metal strip 21 bonded to the surface thereof on the same side of the sheet. Each metal strip 21 has a series of slits or slots 23, 24 therein extending inwardly from the respective edges 25, 26 of the strip. The construction of the strip 21 is more clearly shown in Figure 2 wherein the same reference numeral as used in Figure 1 apply.

The strip 21 is manufactured as a continuous band with the slots 23 and 24, extending from the opposite edges 25 and 26, alternating. At the junction of the slots with the edges of the strip the corners are radiused at 30 to reduce the risk that the corners may pierce the rubber sheet, and so create a leak or even promote tearing of the rubber sheet. Also the base of the slots 23 and 24 are radiused at 31 to produce the risk of the metal of the strip tearing when the strip is stretched.

In a typical arrangement of the flashing strip 10 the strips 21 are made of an aluminium alloy of a thickness of 1 mm and a width of 25 mm. The slots 23, 25 are of a width of 1.5 mm and a length of 18 mm. The rubber of which the sheet 20 is preferably an EPDM rubber with a hardness preferable less than 40 Durometer.

The flashing strip 10 as shown in Figure 1 has the strips 21 bonded to the surface of the rubber sheet 20,

and this is achieved by applying a coating of bond primer to at least the surface of the strip that will contact the sheet 20, and then bring the primed surface of the strips into contact with the sheet 20 in the uncured state. Preferably the sheet and strips are pressed together such as by passing through rollers to inlay the strips into the sheet with the rubber filling the slots 23, 24 in the strips. The resulting assembly is then cured.

It is to be understood that a flashing strip as shown in Figure 1 may also be made with the metal strips 23 and 24 completely embedded in the marginal edge portions of the rubber sheet 20. This construction is particularly desirable for aesthetic reasons. In many applications of the flashing strip 10 the degree of stretching of the metal strip may vary from one location to another, and the resultant irregular appearance of the metal strips as would be exhibited by the construction shown in Figure 1 may be considered objectionable. This irregularity is concealed if the strips 23 and 24 are completely embedded in the rubber sheet.

The construction of the flashing strip 10 with embedded metal strips 21 may be effected by laying up the primer coated metal strips 21 between layers of uncured rubber and holding them in assembly under pressure and heating to effect curing. An alternative method is to extrude the rubber sheet 20 with the metal strips 23 and 24 embedded in the marginal edge portions of the extruded sheet and then cure the resulting assembly. The extruded assembly can be rolled and cured in an autoclave, and so renders this method of construction advantageous for high volume production.

As previously described the flashing strip 10 has a slotted metal strip 21 in each marginal edge portion, however in some applications a slotted metal strip may be located in only one marginal edge portion, the opposite edge portion may be wholly of rubber or may have a solid un-slotted metal strip therein. The un-slotted strip may be bonded to the surface of or embedded in the rubber sheet in the manner as previously described in relation to the slotted strips.

When the flashing strip 10 as described above with reference to Figures 1 and 2 is in use it is frequently necessary for part of one of the marginal edge portions to be increased in length such as when the flashing strip is required to extend around a corner of a structure projecting from a roof, such as a skylight structure. This use of the flashing strip is illustrated in Figure 6 of the accompanying drawing. The skylight structure 35 (part only shown) projects from the sheet metal roof 36 having a series of stiffening ridges 37 extending up the slope of the roof. It is to be understood that only part of the skylight structure is shown in Figure 6 representing one corner of that structure.

The marginal edge portion 38 of the flashing strip 40 has a continuous unslotted metal strip 41 bonded thereto, as edge portion 38 is not required to be

stretched or compressed in order to be fitted around the perimeter of the skylight structure. The marginal edge portion 38 is secured to the skylight structure 35 at regular intervals by screws 42 so that the rubber is compressed between the strip 41 and to skylight structure 35 to provide a weather tight seal.

The rubber sheet portion 43 of the flashing strip curve outwardly and downwardly from the marginal edge portion 38 to the opposite marginal edge portion 45 which lies on the surface of the roof sheet 36. The metal strip 44 of the edge portion 45 is provided with a series of slots 46 along its inner edge 47 and series of slots 48 along its outer edge 49. The slots 46 and 48 are of the form and are arranged as previously described in respect to the slots 23 and 24 as shown in Figures 1 and 2. In those areas of the edge portion 45 that are straight and lie flat on the roof sheet, as indicated at 50, the slots 46 and 48 are not stretched or compressed and so the slots are of uniform width throughout their length, that is as formed.

In the corner area 51 the marginal portion 45 must be increased in length to accommodate the arcuate path it must follow around the corner of the skylight structure while remaining flat on the surface of the roof sheet. This increase in length is obtained by stretching the metal strip 44 by opening the slots 46 and 48 with the outer slots 48 being opened wider than the inner slots 46 to establish the curved shape. Because of the relative strength of the metal strip 44 and the rubber sheet 43, once the metal strip 44 and the portion of the rubber sheet, attached thereto have been stretched the strip 44 will retain its stretched state and also will hold the attached portion of the rubber sheet in the stretched state.

In order for the marginal portion 45 to pass over the ridge 37 in the area 52 there must also be an increase in the length of the marginal portion 45 by a stretching of the metal strip 44. As the strip is not required to follow a curved path in this area, the inner and outer slots 46 and 48 are each opened by generally the same amount.

The above stretching and bending of the slotted metal strip 46 enables the marginal portion 45 to be shaped to be passed around corners and over ridges or through valleys, and maintain close face to face contact with the roof sheet 36. Accordingly, when appropriately spaced screws 54 are applied to fasten the marginal edge portion 45 to the roof sheet the rubber is compressed between the strip 44 and the roof sheet 36 to provide a weather tight seal therebetween.

The ability to increase the length of the marginal edge portion of the flashing strip in selected location, and to selected degrees, enables the flashing strip to be fitted to non planar and irregular surface and in doing so establish an effective sealing relation therewith. In addition the stretching and bending of the flashing strip is achieved without development of

major folds, pleats or tucks in the rubber sheet that may provide an area for collection of water, and present an untidy appearance.

Figure 4 in the drawing illustrates a sealing device specifically designed to provide a seal between a pipe or duct projecting through a roof made of ridged sheet material. The seal device comprises a flange 9 of resilient readily deformable material, such as natural or synthetic rubber, having an integral sleeve 11 extending from the upper face of the flange. The sleeve 11 has a tapered portion 18 tapering toward the upper free end 12, and at the lower end has a generally cylindrical portion 13 that connects the tapered portion 18 to the flange 9. The flange 9 has an aperture therein, (not shown) that is co-axial with and communicates with the bore of the sleeve 11. In use the pipe or duct will pass through the aperture and sleeve.

The wall of the cylindrical portion 13 is preferably somewhat thicker than the adjacent portion of the flange 9 and tapered portion 18 to provide greater resistance to distortion in use.

The junction areas between the cylindrical portion 13 and the flange 9 and tapered portion 19 are sufficiently flexible to accommodate misalignment of the cylindrical portion relative to the other parts of the seal device, as may be necessary in normal use. Spaced along the tapered portion 19 are a plurality of external ridges 14 denoting where the sleeve may be cut off to suit elongate members of different diameters. The ridges also provide a reinforcement about the edge of the open end of the sleeve so formed.

The general construction of the sleeve 11 with another form of flange has been proposed in U.S. Patent Application No. 723035 and which was developed within the same corporation as the present invention.

The opposite marginal edge portions 15 and 16 of the flange 9 have bonded thereto the metal strips 17 that extend the length of the flange. The metal strips 17 are each of the construction of the strips 21 as previously described with reference to Figures 1 and 2 of the drawing and may be stretched, compressed, or contoured in the same manner.

The metal strips 17 are bonded to the upper surface of the flange 9 in the embodiment as shown, however if desired may be embedded within the flange as previously referred to in respect of other embodiments.

In use the seal device as shown in Figure 4 is fitted to a pipe or duct extending through a roof sheet by cutting the sleeve 11 off at the ridge 14 appropriate to the size of the pipe or duct, and inserting the pipe or duct through the flange 9 and sleeve 11 so the flange will lie on the upper surface of the roof sheet. As is known, roof sheets have spaced longitudinal ribs or ridges to impart the required strength thereto, and the flange 9 of the sealing device must be attached in a sealed relation thereto. The metal strips 17, which

extend across these ribs when the seal device is assembled to the pipe or duct, may be stretched and contoured so that the edge portions 15 and 16 of the flange 9 may closely follow the contour of the roof without resulting in substantial folds and disturbances in the area of the flange between the edge portions 15 and 16 and the sleeve 11. Screws, rivets or like fastenings are applied to attach the edge portions to the roof sheet so the rubber of the flange 9 is compressed between the respective strips 17 and the roof sheet to establish the weather tight seal therebetween.

No metal strip is attached to the edge portions 7 and 8 of the flange 9 so as to contribute to the freedom of movement of the flange material to avoid the formation of folds during installation. However, separate metal strips not shown are preferably fitted using suitable fastenings to compress the edge portions 7 and 8 adjacent the roof sheet after fixing of the metal strips 17 to the roof sheet has been completed.

An alternative form of seal device is shown in Figure 5, which is similar to that described above with reference to Figure 4, but has a relatively narrow annular flange 55 and is an adaption of the present invention to the seal device the subject of U.S. Patent No. 4,333,660. The sleeve 56 is of the same general form as described with reference to Figure 4 and will not be further described. Between the lower end of the sleeve 56 and the flange 55 is a re-entrant skirt 57 which provides a substantial degree of flexibility between the sleeve and the flange to accommodate misalignment encountered when fitting the seal device to a pipe projecting through a roof. This flexibility reduces the degree of distortion of the sleeve and flange that may otherwise be necessary to accommodate such misalignment.

The annular flange 55 has a lower portion 59 of rubber formed integral with the skirt 57 and an upper metal strip 58 bonded to the upper face of the lower portion 59. In an alternative construction the metal strip 58 may be embedded in the rubber of the lower portion. The metal strip 58 is of an annular shape complementary to the lower portion 59 and has slots 60 extending in from each of the inner and outer edges of the strip. The form and arrangement of the slots 60 are the same as previously described in respect of the metal strips illustrated in Figures 1 and 2, and provide the same capacity to be stretched or compressed to impart a desired shape or contour to the flange 55 when being installed to a non-planar roof or other surface. The flange is secured in position by suitably located fastenings such as screws, bolts or rivets that pass through the flange 55.

The metal strip 58 as incorporated in the seal device shown in Figure 5 may be stamped from a flat sheet of metal with the slots 60 being formed in the same operation as the profile of the straight form and then further worked into the annular shape. The rubber flange 55 may have the metal strip 58 bonded

thereto as a separate operation after final forming of the flange, or the metal strip 58, in an annular form, may be located in a die and the flange 55 and sleeve 56 then moulded in that die to thereby bond the metal strip to the flange.

The metal strip 21 as previously described may be produced in a stamping operation, or by suitable rolls that will form the series of slots of the shape and formation previously described. Alternatively, a wire or rod of the suitable metal may be formed into a sinuate shape and then the wire or rods is pressed flat such as by passing through rollers to form a strip as described with reference to Figure 2. The pitch and amplitude of the sinuate shape is selected, having regard to the wire or rod diameter, to give the required slot form and spacing after being flattened. In some constructions the sinuate wire or rod may be used in an un-flattened state.

It will be appreciated that the metal strip may be formed by other known metal working techniques and the invention is not limited to the specific techniques discussed herein. Also the form of the strip and the interruption therein may take forms, other than those specifically referred to herein, that will impart the non-resilient deformability to the strip to permit the manual stretching and compressing thereof.

Figure 7 of the drawings show a rubber strip 65 having two strips 66 of non-resilient material bonded to one face thereof. The strips 66 are each of a sinuate form and are arranged in a nesting relationship, but spaced so that the strips are not in contact with each other, thus forming a sinuate band 67 of rubber between the two metal strips 66. In this construction, in addition to each strip 66 being stretchable in the direction of the length of the strip, by appropriate variation in the deformation of each strip 66 a degree of shaping of the rubber strip 65 in the transverse direction can be obtained. It is also to be understood that the number of metal strips arranged in the nested relation may be increased so as to form a sheet rather than a strip of rubber, that may be manually deformed and will retain that deformed condition.

## Claims

1. A building flashing product comprising an elongate member of a flexible resiliently deformable material, and a strip of non-resilient manually deformable material extending and intimately secured thereto throughout the length of the strip, characterised in that the strip is generally planar and extends along one longitudinal edge portion of the elongate member, said strip being of a construction to permit in use non-resilient manual stretching in the longitudinal direction of said edge portion of the member so that when stretched the strip will maintain said edge portion of the member correspondingly stretched.

2. The flashing product as claimed in claim 1 characterised in that the strip is non-resiliently deformable in a direction substantially normal to the plane of the strip to impart a contour to said edge portion of the member.

3. The flashing product as claimed in claim 1 characterised in that the strip is non-resiliently deformable in the plane thereof in a direction substantially transverse to the longitudinal direction of stretch of the strip to impart a contour to said edge portion of the member.

4. The flashing product as claimed in claim 1, 2 or 3 characterised in that the strip is embedded in the member and bonded thereto.

5. The flashing product as claimed in claim 1, 2, 3 or 4 characterised in that the strip is a metal strip having slots formed therein extending from an edge of the strip in a direction across the direction of stretch of the strip.

6. The flashing product as claimed in claim 1, 2, 3 or 4 characterised in that the strip is a metal strip having slots extending from each of two opposite edges of the strip in a direction across the strip from one edge of the strip being offset in the direction of the length of the strip from adjacent slots from the other edge of the strip.

7. The flashing product as claimed in claim 6 characterised in that the slots extend across the strip more than an half the width of the strip.

8. The flashing product as claimed in claim 6 characterised in that the slots extends across the strip more than 75% of the width of the strip.

9. The flashing product as claimed in any one of the preceding claims characterised in that there is one said strip secured to each marginal edge portion of the two opposite elongate edges of the member strip.

10. The flashing product as claimed in any one of claims 1 to 8 characterised in that the opposite edge portion of the member has a further planar strip of non-resiliently deformable material secured thereto throughout the length of the strip and extending in the direction of the elongation of the member, said further strip being stretchable in the direction of elongation of the member.

11. A building flashing product to provide a weather seal between an elongate member and a non-planar surface of a building roof or wall sheet which the elongate member projects, comprising an apertured substantially planar base member of resiliently deformable material, a sleeve of resiliently deformable material integral with the base member and projecting from one side thereof, said sleeve enclosing the aperture in the base member so that in use the elongate member extends through said aperture and sleeve, the sleeve having an end remote from the base member adapted to in use sealably engage the exterior of the elongate member, said base member having a marginal edge portion to be

located in use in superimposed relation to the non-planar surface, characterised in that a substantially planar strip of a non-resilient material is intimately secured in overlaying relation to said marginal edge portion along the length of the strip, said strip being of a construction to permit in use non-resilient manual stretching in the direction of said edge portion of the member so that when stretched the strip will maintain said edge portion of the member correspondingly stretched.

12. A flashing product as claimed in claim 11 characterised in that the base member is an annular flange co-axial with the sleeve and the strip is of annular shape extending along the marginal edge portion of the annular flange.

13. A flashing product as claimed in claim 11 characterised in that the base member is a generally rectangular shape and said strip extends along the marginal edge portion of at least one side of said rectangular base member.

14. A flashing product as claimed in claim 11 characterised in that the base member is a generally rectangular shape with respective strips extending along the marginal edge portion of two opposite sides of said rectangular base member.

15. The use of a flashing product in accordance with any one of Claims 1 to 14 to provide a weather seal between an elongate member and a non-planar surface of a building wall or roof sheet through which the elongate member projects.

16. A method providing a weather seal between an elongate member and a non-planar surface of a building wall or roof sheet through which the elongate member projects, which method comprises flashing with a building flashing product in accordance with any one of Claims 1 to 14 by non-resiliently manually stretching the strip in the longitudinal direction of the edge portion of the member so that, when stretched, the strip maintains the edge portion of the member correspondingly stretched.

17. A weather seal between an elongate member and a non-planar surface of a building wall or roof sheet through which the elongate member projects, formed with a building flashing product in accordance with any one of Claims 1 to 14 and/or by the method of Claim 16.

## Revendications

1. Produit formant un joint d'étanchéité pour bâtiment, comprenant un élément allongé en un matériau souple déformable élastiquement, et une bande ou un matériau non-élastique déformable manuellement s'étendant le long de cet élément allongé et intimement fixée à ce dernier sur toute la longueur de la bande, caractérisé en ce que la bande est d'une manière générale plane et s'étend le long d'un bord

longitudinal de l'élément allongé, la bande ayant une structure telle qu'elle permet en cours d'utilisation un étirement manuel non-élastique selon la direction longitudinale de ce bord de l'élément de sorte que, quand elle est étirée, la bande maintient étiré de façon correspondante ledit bord de l'élément.

2. Produit formant joint d'étanchéité conforme à la revendication 1, caractérisé en ce que la bande est déformable de façon non-élastique selon une direction sensiblement normale au plan de la bande pour communiquer un certain contour audit bord de l'élément.

3. Produit formant joint d'étanchéité conforme à la revendication 1, caractérisé en ce que la bande est déformable de manière non-élastique dans son plan selon une direction sensiblement perpendiculaire à la direction longitudinale d'étirement de la bande pour communiquer un certain contour audit bord de l'élément.

4. Produit formant joint d'étanchéité conforme à l'une des revendications 1, 2 ou 3, caractérisé en ce que la bande est noyée dans l'élément et est liée à celui-ci.

5. Produit formant joint d'étanchéité conforme à l'une des revendications 1, 2, 3 ou 4, caractérisé en ce que la bande est une bande métallique dans laquelle sont formées des rainures s'étendant depuis un bord de la bande dans une direction transversale par rapport à la direction d'étirement de la bande.

6. Produit formant joint d'étanchéité conforme à l'une des revendications 1, 2, 3 ou 4, caractérisé en ce que la bande est une bande métallique présentant des rainures s'étendant à partir de chacun des deux bords opposés de la bande dans une direction transversale par rapport à cette dernière, les rainures partant d'un des bords de la bande étant décalées selon la direction longitudinale de la bande par rapport aux rainures adjacentes partant de l'autre bord de la bande.

7. Produit formant joint d'étanchéité conforme à la revendication 6, caractérisé en ce que les rainures s'étendent transversalement par rapport à la bande sur plus de la moitié de la largeur de celle-ci.

8. Produit formant joint d'étanchéité conforme à la revendication 6, caractérisé en ce que les rainures s'étendent transversalement par rapport à la bande sur plus de 75% de la largeur de celle-ci.

9. Produit formant joint d'étanchéité conforme à l'une quelconque des revendications précédentes, caractérisé en ce qu'il y a une bande précitée fixée à la partie marginale de chacun des deux bords allongés opposés de la bande de l'élément.

10. Produit formant joint d'étanchéité conforme à l'une quelconque des revendications 1 à 8, caractérisé en ce que le bord opposé de l'élément présente une autre bande plane en matériau déformable de façon non-élastique fixée à l'élément sur toute la longueur de la bande et s'étendant dans la direction lon-

gitudinale de l'élément, cette autre bande étant étirable selon la direction longitudinale de l'élément.

11. Produit formant joint d'étanchéité pour bâtiment afin de constituer un joint d'étanchéité contre les intempéries entre un élément allongé et une surface non plane du toit ou d'un mur d'un bâtiment à travers laquelle l'élément allongé fait saillie, ce produit comportant un élément de base sensiblement plan et muni d'une ouverture, réalise en matériau déformable de façon élastique, un manchon en matériau élastiquement déformable faisant partie intégrante de l'élément de base et faisant saillie par rapport à un côté de celui-ci, ledit manchon entourant l'ouverture de l'élément de base de sorte que, en service, l'élément allonge traverse ladite ouverture et ledit manchon, le manchon présentant une extrémité éloignée de l'élément de base et adaptée à s'appuyer de manière étanche sur l'extérieur de l'élément allongé, l'élément de base présentant une partie marginale du bord destinée à se superposer, en service, à la surface non plane, caractérisé en ce qu'une bande sensiblement plane en matériau non-élastique est intimement fixée en position de recouvrement par rapport à ladite partie marginale de bord sur toute la longueur de la bande, ladite bande ayant une structure telle qu'elle permet en service un étirement manuel non-élastique selon la direction dudit bord de l'élément de sorte que quand elle est étirée, la bande maintient étiré de façon correspondante ledit bord de l'élément.

12. Produit formant joint d'étanchéité conforme à la revendication 11, caractérisé en ce que l'élément de base est une collerette annulaire coaxiale avec le manchon, et en ce que la bande a une forme annulaire et s'étend de long de la partie marginale du bord de la collerette annulaire.

13. Produit formant joint d'étanchéité conforme à la revendication 11, caractérisé en ce que l'élément de base a une forme générale rectangulaire et en ce que la bande s'étend le long de la partie marginale du bord d'un côté au moins de l'élément de base rectangulaire.

14. Produit formant joint d'étanchéité conforme à la revendication 11, caractérisé en ce que l'élément de base a une forme générale rectangulaire et présente des bandes respectives s'étendant le long de la partie marginale du bord de chacun de deux bords opposés de l'élément de base rectangulaire.

15. Utilisation d'un produit formant joint d'étanchéité conforme à l'une quelconque des revendications 1 à 14 pour constituer un joint d'étanchéité contre les intempéries entre un élément allongé et la surface non-plane d'une plaque du toit ou d'un mur d'un bâtiment à travers laquelle l'élément allongé fait saillie.

16. Procédé pour constituer un joint d'étanchéité contre les intempéries entre un élément allongé et la surface non-plane d'une plaque du toit ou d'un mur d'un bâtiment à travers laquelle l'élément allongé fait

saillie, ce procédé comportant l'étape qui consiste à appliquer un produit formant joint d'étanchéité pour bâtiment conforme à l'une quelconque des revendications 1 à 14 en étirant la bande manuellement de façon non-élastique selon la direction longitudinale du bord de l'élément de telle sorte que, quand elle est étirée, la bande maintient étirée de façon correspondante le bord de l'élément.

17. Joint d'étanchéité contre les intempéries entre un élément allongé et une plaque du toit ou d'un mur d'un bâtiment à travers laquelle l'élément allongé fait saillie, réalisé au moyen d'un produit formant joint d'étanchéité pour bâtiment conforme à l'une quelconque des revendications 1 à 14 et/ou en utilisant le procédé de la revendication 16.

## Ansprüche

1. Gegenstand zum Verfugen von Gebäuden mit einem länglichen Element aus einem flexiblen elastisch deformierbaren Material und einem Streifen aus nicht elastischem mit der Hand verformbaren Material, der aus diesem hervorsticht und unmittelbar mit diesem über die Länge des Streifens verbunden ist, gekennzeichnet dadurch, daß der Streifen im wesentlichen eben ist und sich entlang einer Längskantenseite des in die Länge gezogenen Elementes erstreckt, wobei der Streifen so aufgebaut ist, daß er bei Benutzung nicht-elastische Streckungen mit der Hand in der longitudinalen Richtung der Seitenkante des Elementes erlaubt, so daß der Streifen, wenn er gestreckt wird, das Kantenteil des Elementes entsprechend gestreckt halten wird.

2. Gegenstand zum Verfugen nach Anspruch 1, dadurch gekennzeichnet, daß der Streifen nicht elastisch in einer Richtung im wesentlichen rechtwinklig zu der Ebene des Streifens deformierbar ist, um dem Kantenteil eine Kontur aufzuprägen.

3. Gegenstand zum Verfugen nach Anspruch 1, dadurch gekennzeichnet, daß der Streifen nicht elastisch in der Ebene in einer Richtung im wesentlichen quer zu der Längsrichtung des Zuges des Streifens deformierbar ist, um der Seitenkante eine Kontur aufzuprägen.

4. Gegenstand zum Verfugen nach Anspruch 1, 2 oder 3 dadurch gekennzeichnet, daß der Streifen in das Element eingebettet ist und mit ihm verbunden ist.

5. Gegenstand zum Verfugen nach Anspruch 1, 2, 3 oder 4, dadurch gekennzeichnet, daß der Streifen ein Metallstreifen ist, der Einschnitte besitzt, die darin geformt sind und von einer Kante des Streifens ausgehend in einer Richtung quer zur Richtung der Dehnung des Streifens verlaufen.

6. Gegenstand zum Verfugen nach Anspruch 1, 2, 3 oder 4, dadurch gekennzeichnet, daß der Streifen ein Metallstreifen ist, der Einschnitte besitzt, die

jeweils von zwei gegenüberliegenden Seiten des Streifens in einer Richtung über den Streifen hinweg, von einer Kante des Streifens ausgehen, wobei sie in der Richtung der Erstreckung des Streifens von benachbarten Einschnitten auf der anderen Seite des Streifens versetzt sind.

7. Gegenstand zum Verfugen nach Anspruch 6, dadurch gekennzeichnet, daß die Einschnitte sich über mehr als die Hälfte der Breite des Streifens über den Streifen hinweg erstrecken.

8. Gegenstand zum Verfugen nach Anspruch 6, dadurch gekennzeichnet, daß die Einschnitte sich über mehr als 75% der Breite des Streifens erstrecken.

9. Gegenstand zum Verfugen von Gebäuden nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß ein Streifen an jedem der sich am Rand befindenden Kantenteile der beiden gegenüberliegenden verlängerten Kanten des Element-Streifens befestigt ist.

10. Gegenstand zum Verfugen von Gebäuden nach Anspruch 1 bis 8, dadurch gekennzeichnet, daß das gegenüberliegende Kantenteil des Elementes einen weiteren ebenen Streifen aus nicht-elastisch verformbaren Material über die Länge des Streifens an sich gebunden hat und sich in Richtung der Verlängerung des Elementes erstreckt, wobei dieser weitere Streifen in der Richtung der Verlängerung des Elementes streckbar ist.

11. Gegenstand zum Verfugen von Gebäuden, um eine Wetterdichtung zwischen einem länglichen Element und einer nicht ebenen Oberfläche eines Gebäudedaches oder einer Wandfläche zu schaffen, durch das ein längliches Element hindurchragt, und daß ein geöffnetes im wesentlichen ebenes Grundelement aus einem elastisch deformierbaren Material beinhaltet, wobei eine Manschette eines elastisch deformierbaren Materials einteilig mit dem Grundelement ausgeführt ist und aus einer Seite aus diesem hervorsteht, wobei die Manschette eine Öffnung in dem Grundelement umschließt, so daß bei Verwendung das längliche Element durch die Öffnung und die Manschette hindurchragt, wobei die Manschette ein Ende distal zu dem Grundelement besitzt, das dazu ausgebildet ist, bei Verwendung mit dem Äußeren des länglichen Elementes abdichtend in Verbindung zu treten, wobei das Grundelement ein seitliches Kantenteil besitzt, das bei Verwendung so angeordnet wird, daß es in überlagernder Zusammenwirkung mit der nicht ebenen Oberfläche ist, dadurch gekennzeichnet, daß ein im wesentlichen ebener Streifen von nichtelastischem Material eng in einer überlagernden Verbindung zu dem seitlichen Kantenteil längs der Länge des Streifens befestigt ist, wobei der Streifen so aufgebaut ist, daß er im Betrieb eine nicht elastische Streckung mit der Hand in der Richtung des Kantenteils des Elementes erlaubt, so daß der Streifen wenn er gestreckt wird, das Kantenteil des Elementes

entsprechend gestreckt halten wird.

12. Gegenstand zum Verfugen nach Anspruch 11, dadurch gekennzeichnet, daß das Grundelement ein ringförmiger Flansch in gleicher Richtung wie die Manschette ist, und daß der Streifen eine ringförmige Form hat, die sich entlang des seitlichen Kantenteils des ringförmigen Flansches erstreckt.

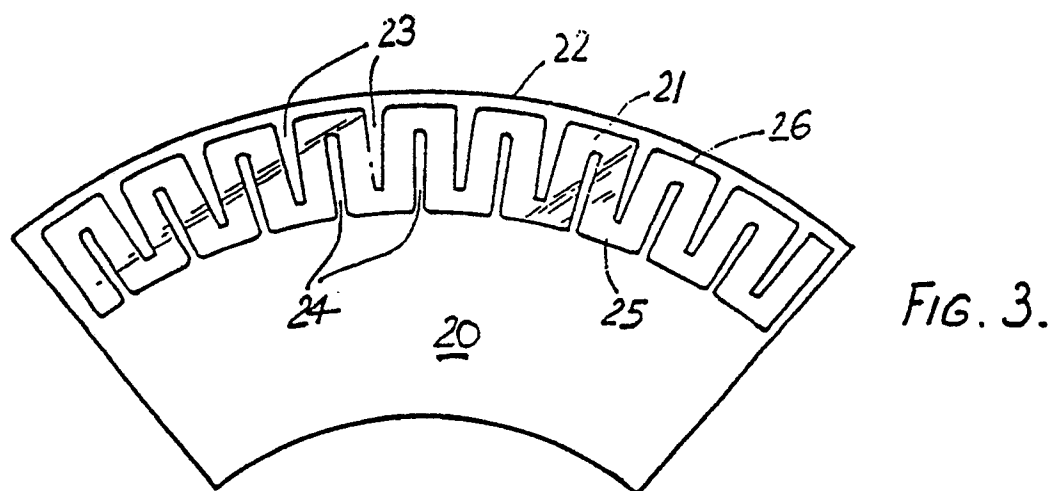
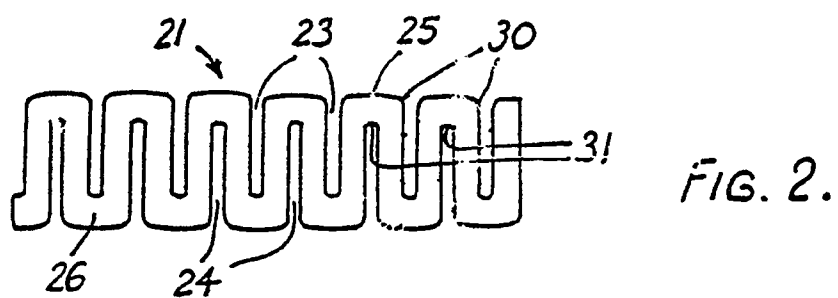
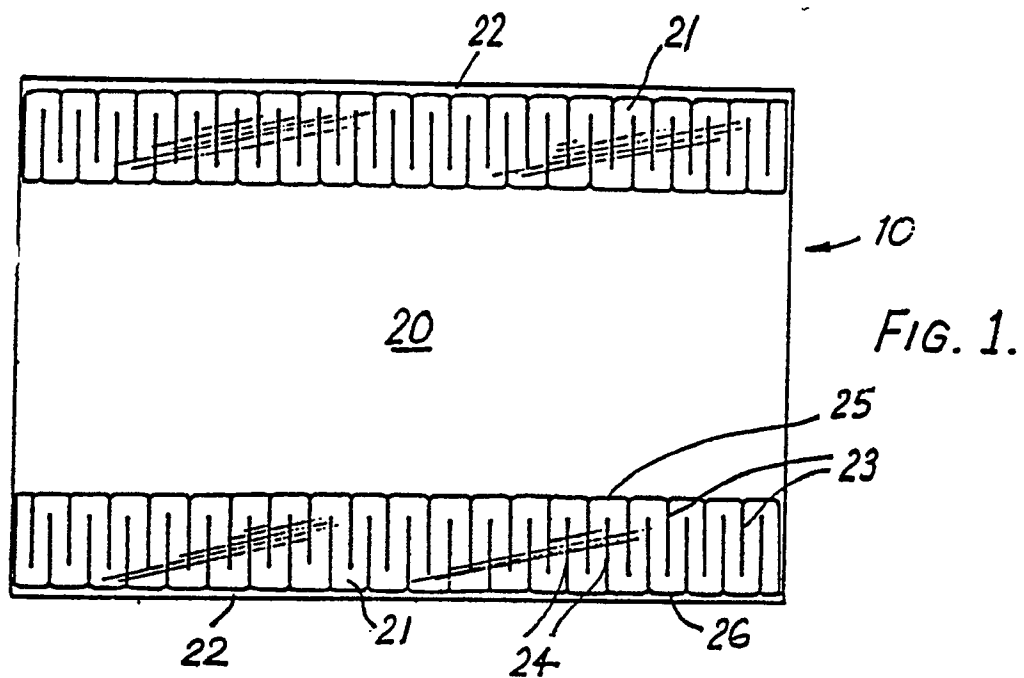
13. Gegenstand zum Verfugen nach Anspruch 11, dadurch gekennzeichnet, daß das Grundelement eine im wesentlichen rechteckige Form besitzt und daß der Streifen sich entlang der seitlichen Kantenteile von mindestens einer Seite des rechteckigen Grundelementes erstreckt.

14. Gegenstand zum Verfugen nach Anspruch 11, dadurch gekennzeichnet, daß das Grundelement eine im wesentlichen rechteckige Form besitzt mit entsprechendem Streifen, die sich entlang der seitlichen Kantenteile der zwei gegenüberliegenden Seiten des rechteckigen Grundelementes erstrecken.

15. Verwendung eines dichtenden Gegenstandes nach einem der Ansprüche 1 bis 14, um eine Wetterdichtung zwischen einem länglichen Element und einer nicht ebenen Oberfläche eines Gebäudewand oder einer Dachfläche durch die das längliche Element hindurchragt, zu erzeugen.

16. Verfahren, um eine Wetterdichtung zwischen einem länglichen Element und einer nicht ebenen Oberfläche einer Gebäudewand oder einer Dachfläche durch die ein längliches Element hindurchragt zu schaffen, wobei das Verfahren beinhaltet, daß mit einem Gebäudedichtungsgegenstand nach mit einem der Ansprüche 1 bis 14 durch nicht-elastisches Strecken des Streifens mit der Hand in der Längsrichtung des Kantenteils des Elementes abgedichtet wird, so daß, wenn er gestreckt wurde, der Streifen das Kantenteil des Elementes entsprechend gestreckt hält.

17. Wetterdichtung zwischen einem länglichen Element und einer nicht-ebenen Oberfläche einer Gebäudewand oder einer Dachfläche, durch die ein längliches Element hindurchragt, die mit einem Gebäudedichtungsgegenstand in Übereinstimmung mit einem der Ansprüche 1 bis 14 und/oder durch das Verfahren des Anspruches 16 erzeugt wurde.



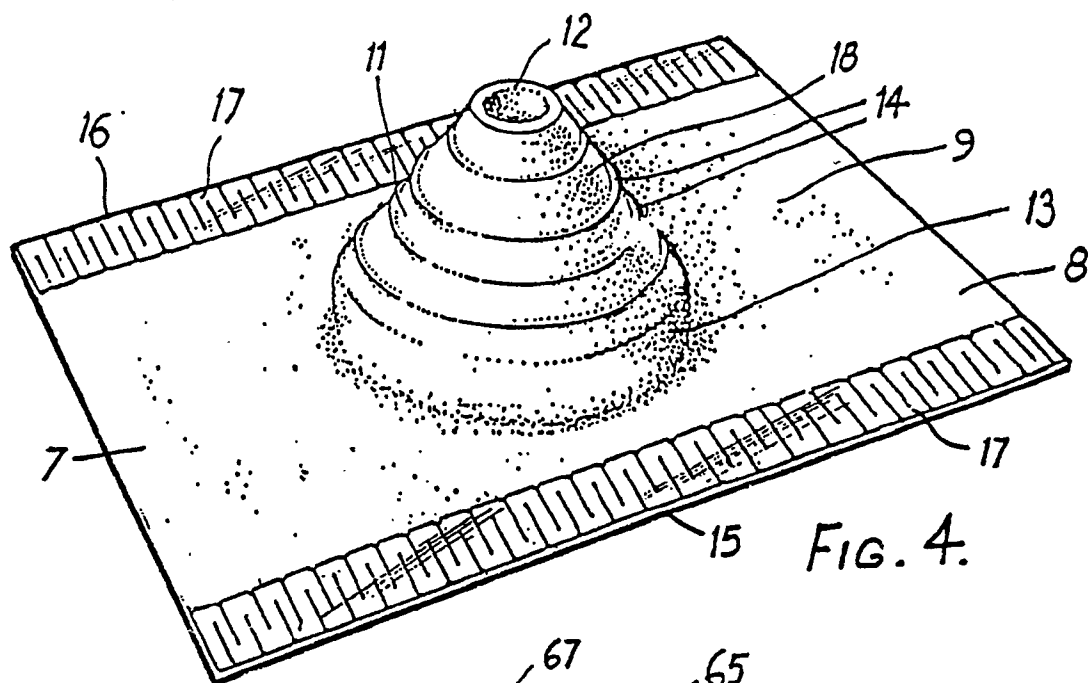


FIG. 4.

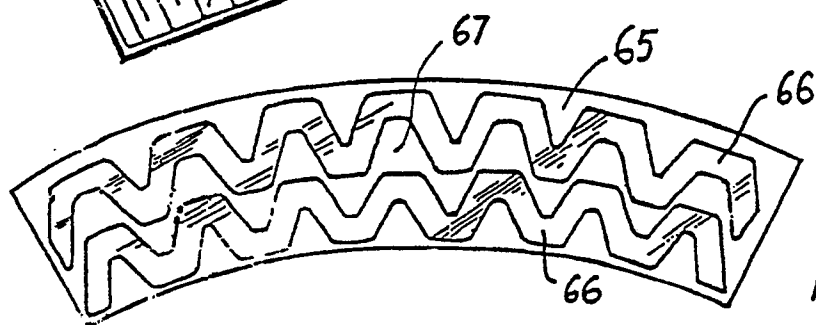


FIG. 7.

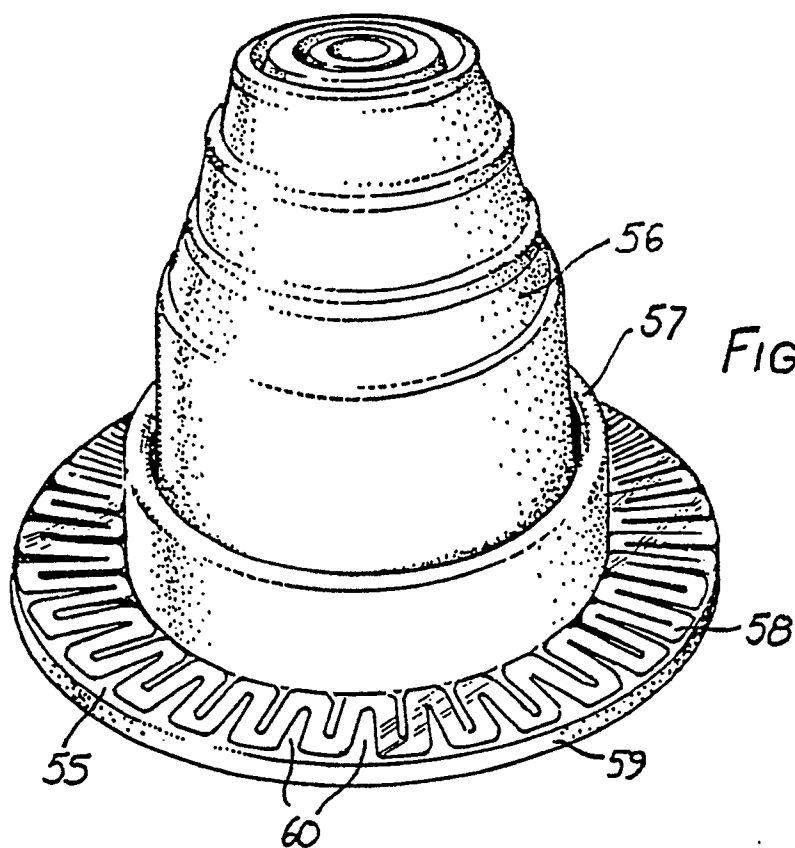


FIG. 5.

