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54 **IMPROVEMENTS IN OR RELATING TO SPACERS.**

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Description

The present invention relates to a spacer intended for applying between the edge part of a sealed insulating glass unit and the surrounding window frame or casement for carrying or steadying the unit in spaced relationship with the frame or casement.

In fitting such units, spacers are used between the edge part thereof and the frame or casement not only for carrying the unit, but for steadying it laterally in the case of side-hung windows. The task of the spacers is to distribute the gravity forces between the unit and frame or casement in a controlled manner so that all the panes included in the sealed insulating glass unit take up substantially equally as great compression forces. The spacers used so far and which are disclosed in SE-A- 432 629 usually comprise an elongate, strip-like part, the width of which somewhat exceeds the thickness of the unit. In this case the spacers have pinning means for retaining the spacer in the place after fitting a glazing strip, so that the spacer does not glide down along the rebate and collect in the vicinity of the lower corner of the unit, there has been the problem that it has not been possible to fit sealing strips after fitting the glazing strip. Since they are substantially uniformly thick in their longitudinal direction, the pinning means have then become bent and have caused gaps in the sealing strip, with consequential leakage. Since the pinning means are upwardly blunt, this fitting of sealing strips with movement parallel to the glass surface in a direction towards the frame has not been able to be carried out. In the cases where these uniformly thick pinning means have retained full height after fitting a sealing strip, they have forced away the sealing material at their tips and gaps have then been formed in the sealing strip with consequential damage to the window structure.

The object of the present invention is to provide a spacer of the kind mentioned in the introduction, in which the drawbacks pertaining to present spacer means have been mitigated without resorting to gluing or other troublesome operations for keeping the spacers in place, while at the same time enabling later fitting of sealing strips after the glazing strips have been fitted. The features distinguishing the invention have been disclosed in the following claims.

In accordance with the present invention, there has been achieved a spacer which excellently meets its objectives, while at the same time it is cheap and simple to manufacture. The inventive spacer is provided with tongue-like retaining means which have tapering or knife-like configuration at their free ends. After glazing strips have been fitted, sealing strips can be very readily pressed down into the gap between the unit and glazing strip, by the tips of the retaining tongues being pressed inwards towards the glass of the unit or the glazing strip so as not to pre-

vent thrusting the sealing strip into the mentioned gap. In addition, the retaining tongues are strongest where the stresses are greatest, i.e. at the junction between tongue and spacer. The greatest thickness of the tongues can be allowed to provide spaced relationship between the unit and the position of the glazing strips. In other words, the compression of the sealing strip can be varied depending on how large a thickness of the lower part of the retaining tongue is selected.

The invention will now be described in more detail below and with reference to the accompanying drawing, where

Figure 1 is a perspective view of a spacer in accordance with a first embodiment of the present invention,

Figure 2 is an end view of the spacer illustrated in Figure 1 and

Figure 3 is a cross section of a second embodiment of a spacer in accordance with the invention, showing the spacer fitted in a frame.

As will be seen from Figures 1 and 2, and according to a first embodiment of the invention, the spacer 1 includes a strip-like body, the width of which is in substantial agreement with the width of a sealed insulating glass unit. This body comprises two longitudinal, parallel ribs 2 and 3, which are connected to each other with the aid of a plurality of transverse members 4 constituting a centrally situated web part. The thickness of the central part 5 of the members 4 is less than the thickness of the ribs 2, 3, thus forming a draining channel 6 for removing moisture or condensation, which can otherwise destroy a window structure.

As will also be seen from Figure 3, although this Figure illustrates a second embodiment of the present invention, the spacer has at least on one long side 7 at least one retaining tongue 8 for locating the spacer 1 in its position between a sealed insulating glass unit 9 and a frame 10 by clamping the tongue 8 between the unit 9 and a surrounding frame 10 or between the unit 9 and a glazing strip 11, depending on how the spacer 1 is fitted, or whether the tongues 8 are only along one long side 7 of the spacer 1. The tongue 8 has optional width in the longitudinal direction of the spacer 1, but a thickness which decreases towards its free end 12 to terminate in a knife-like configuration. The lower part 14 of the tongue 8 can be given optional thickness, thus enabling determination beforehand of the spaced relationship between glazing strip and unit or unit and surrounding frame 10. A sealing strip 13 can then be thrust between the glazing strip 11 and unit 9. The tongue 8 can be formed such that one side of it is flat while the other curves inwardly such that the tongue has a knife-edge configuration at its free end 12. In addition, the tongue can be angled in either direction just before the knife-edge, depending on whether it shall come tightly against the unit 9 or

the glazing strip 11, and its tip can have a chisel-like configuration.

The embodiment of the spacer 1 illustrated in Figure 3 has the tongue 8 with a knife-edge configuration leaning towards the unit 9. The glazing strip 11 is here formed with a recess 15 for coaction with a bead 16 projecting from a sealing strip 13 which can be thrust down against the unit 9. How spaced relationship is achieved between the glazing strip 11 and unit 9 is also apparent from the thickness 17 of the tongue 8 at its lower part 14. The lower part 14 of the tongue 8 also serves here as a spacer between the unit 9 and glazing strip 11. It is also possible for the tongue 8 to pierce the sealing material in the sealing strip 13 or enter a gap in the glazing strip 11, if so desired, but this was quite impossible with previously known structures.

By the implementation of the retaining tongue 8, a movement in fitting the glazing strip obliquely or straight from above is permitted both when the glazing strip has integrally formed sealing strips and when it does not. This is the case, particularly in special section structures which are formed into window frames. The inventive concept for the implementation of the spacer 1 is thus that it is retained by the retaining tongues 8 through contact with a glazing strip and/or a sealing strip insertable from the glazing strip or between the strip and the unit 9, while the retaining tongue 8 is kept intact after fitting.

Claims

1. Spacer intended for mounting between the edge part of a sealed insulation glass unit and a surrounding frame or casement for carrying or steadying the unit (9) in space relationship with the frame (10), said spacer (1) comprising an elongate strip-like body the width of which is in substantial agreement with the width of the unit (9) and which has at least along one long side (7) at least one retaining tongue (8) extending for a predetermined length in a direction at right angles to the upper or lower side of the spacer (1) for positionally fixing the spacer (1) by clamping the tongue (8) between the unit (9) and the surrounding frame (10), or between the unit (9) and a glazing strip (11), characterized in that the retaining tongue (8) has an optional width in the longitudinal direction of the spacer (1), but a thickness which decreases towards its free end to terminate in a knife-like configuration to make a fastening of the glazing strip (11) possible before fitting of a sealing strip (13) thrustable between the glazing strip (11) and the unit (9) and said sealing strip (13) is inserted passing the knife-like configuration.

2. Spacer as claimed in claim 1, **characterized** in

that the tongue (8) has the form of a tongue or lip, one side of which is preferably flat, while the other is curved inwardly in a direction towards the free end (12) of the tongue (8), such as to form a knife-edge configuration.

3. Spacer as claimed in claim 2, **characterized** in that just before the knife-edge formation the tongue is somewhat angled in its longitudinal direction.

4. Spacer as claimed 1, **characterized** in that the knife-edge or tip formation of the tongue (8) is given a bullet-like or chisel-like configuration.

Patentansprüche

1. Abstandhalter, der für eine Anordnung zwischen dem Kantenteil einer abgedichteten Isolierglaseinheit und einem umgebenden Rahmen oder einem Fensterfutter für ein Tragen oder Stützen der Einheit (9) in einer beabstandeten Beziehung zu dem Rahmen (10) vorgesehen ist, wobei der Abstandhalter (1) einen länglichen streifenförmigen Körper aufweist, dessen Breite im wesentlichen mit der Breite der Einheit (9) übereinstimmt und der wenigstens entlang einer Langseite (7) wenigstens eine Haltezunge (8) hat, die über eine vorbestimmte Länge in einer Richtung rechtwinklig zu der oberen oder unteren Seite des Abstandhalters (1) verläuft, um den Abstandhalter (1) durch ein Verkleben der Zunge (8) zwischen der Einheit (9) und dem umgebenden Rahmen (10) oder zwischen der Einheit (9) und einem Verglasungsstreifen (11) positionsmäßig zu befestigen, dadurch gekennzeichnet, daß die Haltezunge (8) eine fakultative Breite in der Längsrichtung des Abstandhalters (1) hat, jedoch eine Dicke, die gegen ihr freies Ende hin abnimmt und in einer messerähnlichen Form endet, um eine Befestigung des Verglasungsstreifens (11) zu ermöglichen, bevor ein zwischen den Verglasungsstreifen (11) und die Einheit (9) verschiebbarer Abdichtstreifen (13) eingepaßt wird, und daß der Abdichtstreifen (13) mit einer Bewegung an der messerähnlichen Form vorbei eingesetzt wird.

2. Abstandhalter nach Anspruch 1, dadurch gekennzeichnet, daß die Zunge (8) die Ausbildung einer Zunge oder Lippe hat, von welcher eine Seite vorzugsweise flach ist, während die andere nach innen in einer Richtung gegen das freie Ende (12) der Zunge (8) gekrümmt ist, sodaß eine Messerkantenform ausgebildet wird.

3. Abstandhalter nach Anspruch 2, dadurch gekennzeichnet, daß die Zunge kurz vor der Mes-

serkantenausbildung in ihrer Längsrichtung etwas abgewinkelt ist.

de la languette (8) est en forme de balle de fusil ou de ciseau.

4. Abstandhalter nach Anspruch 1, dadurch gekennzeichnet, daß die Messerkante oder die Ausbildung der Spitze der Zunge (8) eine kugelähnliche oder meißelförmige Formgebung hat. 5

Revendications 10

1. Pièce d'espacement destinée à être montée entre le bord d'une vitre d'isolation hermétique et un bâti ou châssis entourant celle-ci pour porter ou maintenir la vitre (9) en relation d'espacement par rapport au châssis (10), ladite pièce d'espacement (1) comportant un corps allongé en forme de bande dont la largeur correspond sensiblement à l'épaisseur de la vitre (9) et qui présente le long d'au moins un grand côté (7) au moins une languette de retenue (8) s'étendant sur une longueur prédéterminée dans une direction perpendiculaire à la face supérieure ou inférieure de la pièce d'espacement (1) pour fixer en position la pièce d'espacement (1) par serrage de la languette (8) entre la vitre (9) et le châssis (10) entourant celle-ci, ou entre la vitre (9) et une baguette de vitre (11), caractérisée en ce que la languette de retenue (8) présente une largeur optionnelle dans la direction longitudinale de la pièce d'espacement (1), mais une épaisseur qui décroît vers son extrémité libre pour se terminer suivant une configuration en forme de couteau de manière à rendre possible une fixation de la baguette de vitre (11) avant la mise en place d'une baguette d'étanchéité (13) qui peut être enfoncée entre la baguette de vitre (11) et la vitre (9), ladite baguette d'étanchéité (13) étant introduite en franchissant la configuration en forme de couteau. 15
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2. Pièce d'espacement telle que revendiquée dans la revendication 1, caractérisée en ce que la languette (8) présente la forme d'une languette ou d'une lèvre dont une face est de préférence plane, tandis que l'autre face est courbée vers l'intérieur dans une direction allant vers l'extrémité libre (12) de la languette (8), de manière à former une configuration en forme de couteau. 45
3. Pièce d'espacement telle que revendiquée dans la revendication 2, caractérisée en ce que, juste avant la configuration en forme de couteau, la languette est sensiblement inclinée dans sa direction longitudinale. 50
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4. Pièce d'espacement telle que revendiquée dans la revendication 1, caractérisée en ce que la conformation en forme de couteau ou de pointe

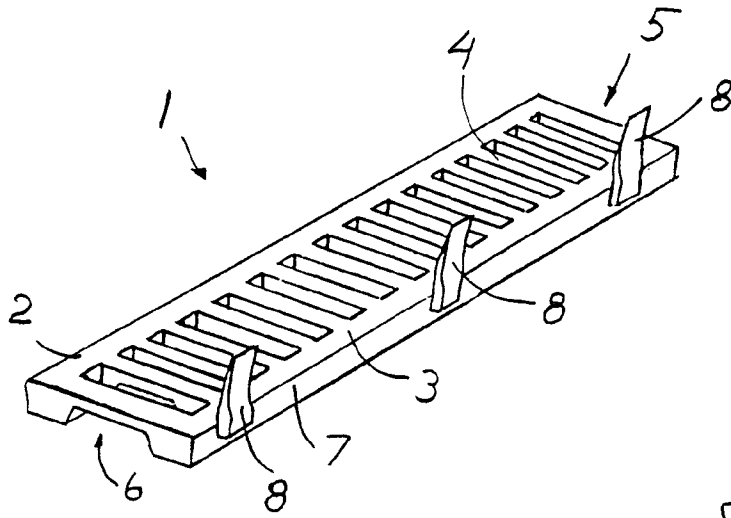


Fig 1

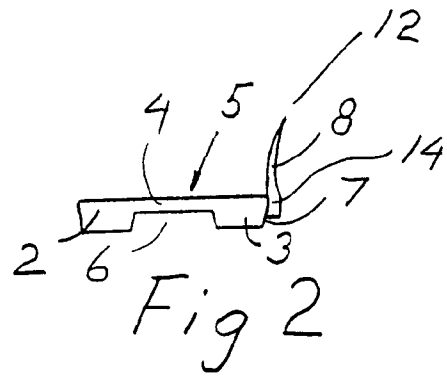


Fig 2

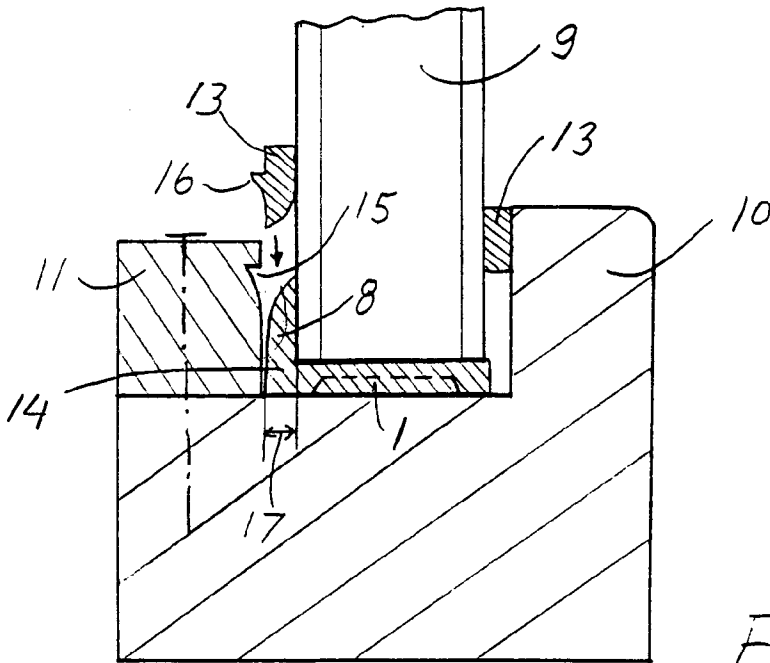


Fig 3