

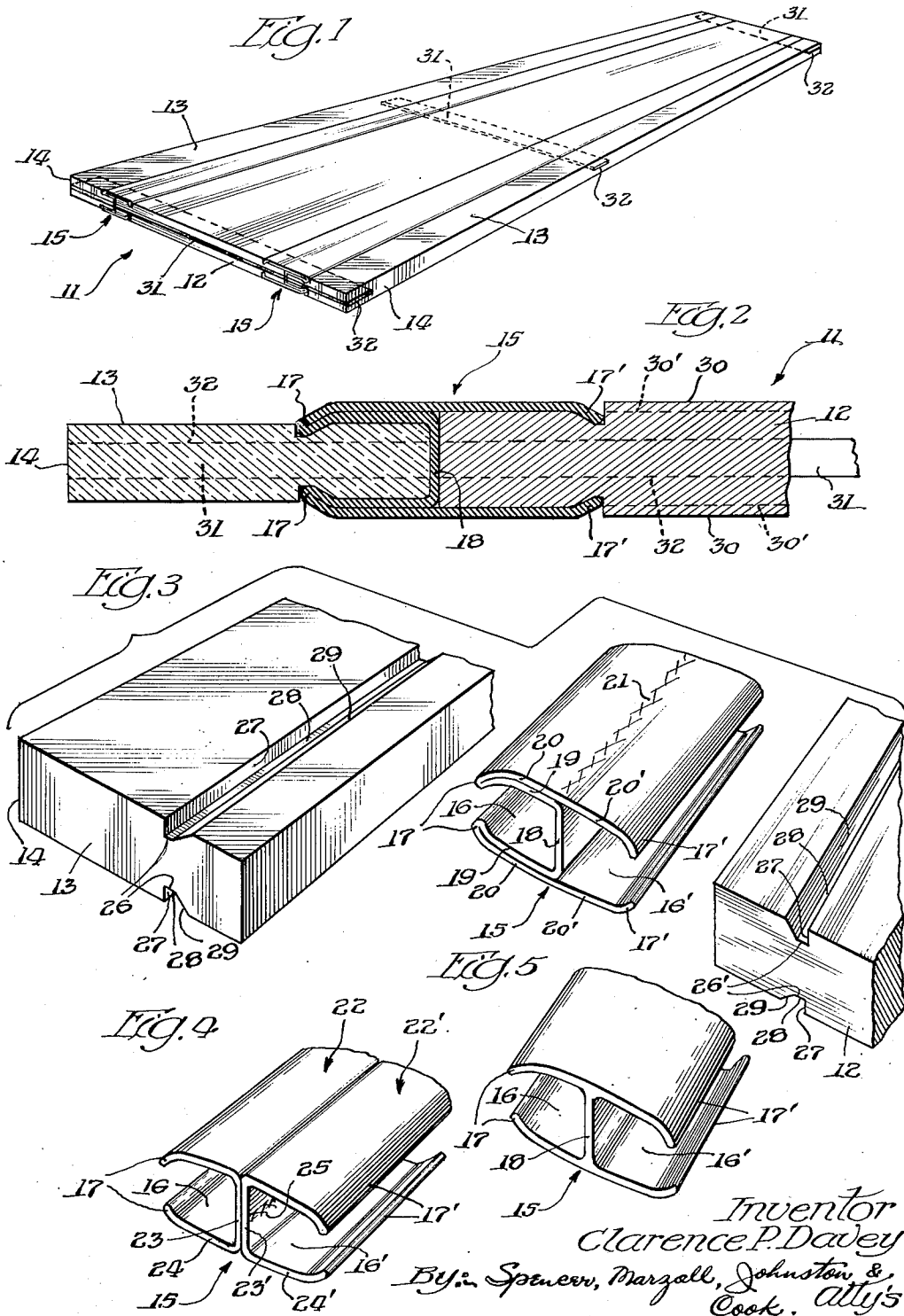
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STRAIGHTEDGE CONSTRUCTION

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STRAIGHTEDGE CONSTRUCTION

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1

The present invention relates in general to drafting equipment and has more particular reference to an improved straightedge structure particularly well adapted for use in T squares, rulers and other straightedge devices.

In devices of the character mentioned, especially T squares, it is desirable to apply, at the line ruling or working edge of the device, a strip of relatively hard wearing material, which may be and preferably is transparent, in order that the surface being worked upon may be viewed through such transparent edge portion. Strips of transparent plastic material are commonly used for this purpose. The transparency of plastic material of the sort commonly used for edge strips in T squares depends to some extent upon the maintenance of absolute smoothness and the avoidance of even microscopic scratches on the opposite faces thereof. The occurrence of surface scratches imparts a "frosted" condition impairing visibility therethrough.

It has heretofore been the practice to apply such transparent edge portions to the usually opaque body of the device by gluing, or otherwise cementing, the transparent edge strip to the body which in T squares usually comprises a wooden slat. After the edge strip has been attached to the body of the straightedge, it is the practice to retain the assembly in suitable clamps until the glue or cement has set. Thereupon, the opposite faces of the device are buffed, honed, scraped or otherwise finished to remove the excess glue that may have been squeezed out along the joint between the body and the transparent edge strip. Finally, the surface may be polished or varnished, or both.

Considerable difficulty has been encountered in the past in applying transparent working edge strips, in devices of the character mentioned, because of the difficulty of restoring transparency to the edge strip after the same has been scraped or honed for the removal of excess glue at the joint, and polished to impart a smooth finish in the surfaces of the device. It is almost impossible to restore the transparency of plastic strips, by any polishing operation for the removal of surface scratches such as occur therein as a result of any scraping or buffing operation.

It is also desirable in straightedge constructions to recess or undercut slightly the ruling edge of the device with respect to the body thereof inwardly of said edge, in order to avoid contact of the device with a surface on which used, at the working edge, thereby facilitating the ruling of ink lines without danger of smearing through

2

contact of any portion of the straightedge with the inked line before the same becomes dry. Undercutting the edge of the strip in this fashion also serves to prevent the scratching of the surface of the strip, at the undercut portions thereof, since said surface, when the device is in use, is not in contact with a surface on which the device is applied and over which it is slidably moved when in use.

An important object of the present invention is to provide improved means for attaching transparent edge strips at and along the working edges of straightedge devices while preserving the original surface finish and consequent transparency of the edge strips; a further important object being to mount edge strips on a straightedge body with at least one and preferably both surfaces of the edge strip offset inwardly of the surface of the body.

Another important object is to provide novel means for and method of mounting edge strips on a supporting body without the employment of glue or cement, thereby avoiding the necessity of scraping and polishing the device and marring the surface of the edge strips in finishing the device.

Another important object is to provide improved means for and method of mounting edge strips on a supporting body whereby the body may be fabricated in finished condition prior to the mounting of the edge strips thereon, thereby accomplishing manufacturing economies without in any way sacrificing the finished appearance of the straightedge device.

Another important object is to provide means for mounting edge strips in a straightedge device whereby the edge strips may be readily removed and replaced by new strips, in the event that they should become nicked, marred or otherwise injured in service.

Another important object resides in providing novel clip means for mounting edge strips in straightedge devices; a further object being to provide a channel-like clip adapted for interlocking engagement with an edge strip and with a body on which the strip is to be mounted, to secure the strip to the body, substantially entirely throughout the length of the mounted strip; a further object being to form the channel-like clip as a substantially flat element providing oppositely opening clip channels for the respective reception of the mounting edges of the strip and of the body in abutting relationship; a still further object being to utilize a substantially flat clip having overall width slightly greater

3

than the vertical distance between the opposed faces of the strip to be mounted therein.

Another important object is to provide mounting clip means of the character mentioned adapted for assembly on a member having dove-tailed sectional configuration along an edge thereof for interlocking engagement with the clip.

Another important object is to provide mounting clip means adapted for assembly on the dove-tailed edge portions of the member either by relative longitudinal sliding movement of the clip and member, or by snapping the member and clip together by relative transverse assembly thereof.

Another important object is to provide a straightedge device comprising a medial base slat or body member and edge strips of transparent material clipped to the opposed longitudinal edges of said body member including one or more transverse anchor strips extending between and secured to the edge strips; said anchor strips extending each in a slot formed in the edge strips and through the body member therebetween; a further object being to provide a transverse anchor strip at each of the opposite ends of the straightedge device; a still further object being to provide a transverse anchor strip intermediate the ends of the device whereby to aid in securing the edge strips against longitudinal movement on the body member.

The foregoing and numerous other important objects, advantages, and inherent functions of the invention will become apparent as the same is more fully understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment of the invention.

Referring to the drawings:

Fig. 1 is a perspective view of a straightedge device having transparent edge strips mounted in accordance with the teachings of the present invention;

Fig. 2 is an enlarged sectional view taken substantially along the line 2—2 in Fig. 1;

Fig. 3 is an enlarged assembly view illustrating essential parts of the mounting structure shown in Fig. 2; and

Fig. 4 and Fig. 5, respectively, are perspective views showing modified forms of mounting clips.

To illustrate the invention, the drawings show a straightedge device 11 comprising a T square blade having a body portion 12 and strips 13 of transparent material mounted along edges of the body portion 12 to provide line drawing or working edges 14 along the outer or body remote edges of the strips.

The present invention, of course, is not necessarily limited to T square blades but may be applied in any device having a working edge. As shown, however, the body portion 12 may comprise a slat or strip, preferably of wood, although other suitable material than wood may be employed if desired. The edge strips 13 may comprise any suitable or preferred edge strip material, including plastic material, it being particularly desirable to utilize transparent plastic material in blades for T squares and other line ruling straightedge devices in order to reveal to view therethrough the portions of a surface being worked on adjacent and behind the line being ruled when the device is in use.

In accordance with the present invention the edge strips 13 are secured to the body portion 12, each by means of a mounting clip 15 which preferably comprises a relatively flat elongated

4

member providing a pair of oppositely opening channels 16, 16', the opposed walls, defining said channels, being preferably curved inwardly to the outer end edges, and said outer end edges being turned inwardly to provide locking lips 17, 17'. The clips 15 may be made of any suitable preferably resilient material such as springy metal, although the present invention is not necessarily limited to metal clips but contemplates the possibility of using a resilient clip material including plastic material. Accordingly, the clips may be produced in any preferred manner as by casting, moulding, machining or stamping. In the interests of manufacturing economy, it is preferable to make the clips of sheet metal by bending, stamping or rolling operations.

As shown more particularly in Figs. 2 and 3, each clip 15 may comprise a strip of sheet metal bent at its medial portions to provide a central longitudinally extending partition 18; the sheet metal strip on opposite sides of the partition 18 being bent to form spaced inner walls 19 of the channel 16 and being rebent to form the locking lips 17 and outer wall portions 20 of the channel 16; said outer wall portions extending past and outwardly of the partition 18 to form walls 20' of the channel 16', the marginal edges of the strip being bent inwardly to form the locking lips 17'. If desired, the strip portions 20 and 20' may be attached to the underlying opposed edges of the partition portion 18 as by spot or roll welding 21.

As shown in Fig. 4, the clip 15 may comprise a pair of channel members 22 and 22', each formed from a sheet metal strip bent to provide medial or partition forming portions 23 and 23' and spaced wall portions 24 and 24' terminating in the locking lips 17 and 17' at the outer edges of said spaced channel forming wall portions. The channels 22 and 22' may be assembled in back-to-back relationship with their medial partition portions 23 and 23' in registering engagement, and said medial portions may be welded together as by spot or strip welding 25 in order to provide the clip 15.

As indicated in Fig. 5 of the drawings, the clip 15 may be formed as an integral member as by die-casting, moulding, or machining operations, and the clip may thus be made of metal or plastic or other suitable material having adequate resilience.

In order to assemble an edge strip 13 along an edge of the body member 12, both the body and the edge strip to be attached thereto are formed with a dovetailed sectional configuration along the edges thereof to be joined. To this end, the strip and body member may be formed, respectively, with locking grooves 26 and 26' preferably in vertical registration on the opposite sides thereof, said grooves preferably also extending longitudinally throughout the lengths of the parts and being disposed inwardly of the mounting edges of said parts that are to be joined.

The grooves also preferably each comprise a shoulder 27 facing the mounting edge of the part in which formed, said shoulder 27 being preferably disposed in a plane extending at right angles with respect to the opposed faces or surfaces of the part in which formed. Each groove also preferably comprises a flat bottom surface 28 extending at right angles with respect to the shoulder 27, and an inclined groove surface 29 preferably lying in a plane making an angle of about 135° with the plane of the groove bottom 28; said inclined groove surface 29 sloping to-

5

ward the mounting edge of the part, in which formed, which is to be connected with the other part.

It will be noted that the clip channels 16 are sized to receive the mounting edges of the strips 13; and each clip may be applied to its edge strip either by inserting the mounting portion of the strip into the end of the channel 16 of the clip and then relatively sliding the parts together, with the clip lips 17 extending in locking engagement in the strip grooves 26, or the strip may be assembled in the clip by spreading the walls of the channel 16 sufficiently to receive the mounting edge of the strip therebetween and then snapping the mounting portion of the strip into position in the clip to receive the lips 17 in interlocking engagement in the strip grooves 26. After a strip 13 has thus been interlockingly assembled in its clip 15, the strip and clip may be mounted on the body 12 either by moving the clip and the body 12 relatively in a longitudinal direction with the clip lips 17 riding, in interlocking engagement in the grooves 26', or the parts may be assembled by spreading the walls 26' of the clip sufficiently to allow the mounting portion of the member 12 to be inserted between the locking lips 17' and to be pressed inwardly into the clip into position allowing the locking lips 17' to snap into interlocking engagement with the grooves 26' of the body member 12.

Edge strips 13 may thus be firmly anchored on the support body 12. If desired, the body, at the central portions thereof between the spaced mounting grooves 26', may have its opposite surfaces 30 extending in planes common to the outer surface of the clips 15 or, if desired, said surfaces may be cut back as at 30' to lie in planes common to the planes defining the opposite surfaces of the clip mounting portions of the member 12. The surfaces 30 thus may form a continuation of the sliding surfaces of the clips 15 and may thus rest upon and aid in supporting the straightedge on any surface upon which it is used. Where the surfaces of the body 12 are cut back as at 30', they will, of course, not engage any surface on which the straightedge is used, but the straightedge will be supported entirely on such surface by the outer surfaces of the clips 15. The cut back arrangement of the surfaces, as indicated at 30', affords a manufacturing advantage in that body stock material need only be formed with the locking grooves, whereas in fabricating the body member 12 with flush faces 30, it is not only necessary to form the groove 26 but also to undercut the opposite surfaces of the body at the clip mounting portions thereof. In either case, however, the opposite faces of the body stock material may be finished to final condition prior to the cutting of the grooves 26' and the undercutting of the faces of the clip mounting portions where the flush surface construction is employed.

It will be seen also that by merely forming locking grooves 26 in edge strip stock, and without otherwise cutting, honing, buffing or polishing the strip, it may be mounted on the finished body member 12 in position with the opposite faces of the edge strip offset inwardly with respect to the opposite faces of the mounting clip. Accordingly, when mounted the surface of the edge strip will always be supported in position slightly above any surface on which the straightedge device is applied and moved when in use. Consequently, the original smooth, unmarred surface finish of the edge strip member will be

6

preserved not only during the fabrication of the straightedge device, but also throughout its service life.

If desired, transverse anchoring strips 31 may be applied in order to permanently secure the edge strips in mounted position on the straightedge device. These transverse strips 31, if desired, may comprise material similar to the material of which the edge strips are fabricated. These transverse strips may be applied at each end of the straightedge device where the same is of the blade type, or the transverse anchor strips may be applied intermediate the ends of the device. The anchor strips preferably are mounted in slots or grooves 32 cut transversely through the edge strips and the body member 12, the medial portions of the anchor strips extending through the body portion 12, and the ends thereof extending through and being cemented or otherwise attached to the edge strips. Where anchor strips are thus attached as at the opposite ends of a straightedge device in the form of a T square blade, the grooves 32 may comprise saw cuts formed in the end edges of the blade element. The anchor strip mounting grooves 32, of course, may be formed through the partition portions 18 of the mounting clips, or the mounting clips may terminate short of the anchor strips.

It is thought that the invention and its numerous attendant advantages will be fully understood from the foregoing description, and it is obvious that numerous changes may be made in the form, construction and arrangement of the several parts without departing from the spirit or scope of the invention, or sacrificing any of its attendant advantages, the form herein disclosed being a preferred embodiment for the purpose of illustrating the invention.

The invention is hereby claimed as follows:

1. A ruler construction comprising a body member having oppositely facing substantially parallel surfaces and a support edge at and along a side of said member, said surfaces of said member being undercut at and inwardly of said support edge to form a tongue of lesser thickness than the spacing between said surfaces, an edge strip having opposite edges respectively forming a ruling and a mounting edge, and being of substantially uniform thickness not greater than the thickness of said tongue, and a relatively flat elongated clip for securing said edge strip on said tongue, said clip providing a pair of spaced side walls and a medial partition web normal to and extending between said side walls to form a pair of oppositely opening channels respectively adapted to receive and resiliently grip said tongue and the mounting edge of said strip, whereby to support the clip and edge strip on said body member entirely between the spaced planes of the surfaces of said body member.

2. A ruler construction comprising a body member having oppositely facing substantially parallel surfaces and a support edge at and along a side of said member, said surfaces of said member being undercut at and inwardly of said support edge to form a tongue of lesser thickness than the spacing between said surfaces, an edge strip having opposite edges respectively forming a ruling and a mounting edge, and being of substantially uniform thickness not greater than the thickness of said tongue and a relatively flat elongated clip for securing said edge strip on said tongue, said clip comprising a pair of sheet metal channel members having

flat bottom walls secured together to provide a pair of oppositely opening channels in said clip and adapted respectively to receive said tongue and the mounting edge of said strip therein, whereby to secure said edge strip and said clip on said body member in position disposed entirely between the spaced planes of the surfaces of said body member.

3. A ruler construction comprising a body member having oppositely facing substantially parallel surfaces and a support edge at and along a side of said member, said surfaces of said member being undercut at and inwardly of said support edge to form a tongue of lesser thickness than the spacing between said surfaces, an edge strip having opposite edges respectively forming a ruling and a mounting edge, and being of substantially uniform thickness not greater than the thickness of said tongue, and a relatively flat elongated clip for securing said edge strip on said tongue, said clip comprising a pair of spaced apart sheet metal plates and a medial partition extending between and normal of said plates and integrated therewith at and along the opposite edges of said partition, thereby forming a pair of oppositely open channels in said clip and adapted respectively to receive and resiliently grip said tongue and the mounting edge of said strip to secure said strip and the clip on said body member in position disposed entirely between the spaced planes of the surfaces of said body member.

4. A ruler construction comprising a body member having oppositely facing substantially parallel surfaces and a support edge at and along a side of said member, said surfaces of said member being undercut at and inwardly of said support edge to form a tongue of lesser thickness than the spacing between said surfaces, an edge strip having opposite edges respectively forming a ruling and a mounting edge, and being of substantially uniform thickness not greater than the thickness of said tongue, and a relatively flat elongated clip for securing said edge strip on said tongue, said clip comprising an integral strip of metal bent longitudinally to provide spaced side walls and a bottom wall, in the medial portions of the strip of metal, said strip of metal having marginal portions rebent upon said side walls, in spaced parallel relation, in position overlying said side walls and projecting on the side of said bottom wall remote from said side walls, to form a pair of oppositely opening channels in the clip on opposite sides of said bottom wall and adapted respectively to receive and resiliently grip said tongue and the mounting edge of said strip whereby to mount the clip and edge strip upon said tongue in position disposed entirely between the spaced planes of the surfaces of said body member.

5. A ruler construction comprising a body member having oppositely facing substantially parallel surfaces and a support edge at and along a side of said member, the said surfaces of said member being undercut at and inwardly of said support edge to form a tongue of lesser thickness than the spacing between said surfaces, said tongue on its opposite sides being formed with locking grooves therein inwardly of and parallel to said support edge, an edge strip having opposite edges respectively forming a ruling and a mounting edge and anchor grooves formed on the opposite sides thereof, inwardly of and in parallelism with respect to said mounting edge, and a relatively flat elongated clip of sheet metal

for securing said edge strip on said tongue; said clip providing a pair of spaced side walls and a medial partition web extending between said side walls to form a pair of oppositely opening channels adapted respectively to receive said tongue and the mounting edge of said strip therein, said spaced side walls having inwardly offset portions for resilient interlocking engagement in said locking and anchoring grooves, whereby to support said clip on said tongue in position entirely between the spaced planes of the surfaces of said body member, and to support said strip with its opposite faces in offset relationship inwardly of said spaced planes.

6. A ruler construction comprising a body member having oppositely facing substantially parallel surfaces defining the substantially uniform thickness of said member, and a support edge at and along a side of said member, the said surfaces of said member being undercut to form a tongue of lesser thickness than the spacing between said surfaces at and along said support edge, said tongue on its opposite sides being formed with registering locking grooves therein, an edge strip of substantially uniform thickness not greater than the thickness of said tongue and having opposite edges respectively forming a ruling and a mounting edge, said edge strip being formed with anchor grooves in the opposite sides thereof and inwardly of and in parallelism with respect to said mounting edge, and a relatively flat elongated clip of sheet metal for securing said edge strip on said tongue, said clip providing a pair of spaced side walls and a medial partition web extending between said side walls to form a pair of oppositely opening channels adapted respectively to receive said tongue and the mounting edge of said strip therein, said spaced side walls having inwardly offset lips for resilient interlocking engagement in said locking and anchoring grooves, whereby to support said clip on said tongue in position disposed entirely between the spaced planes of the surfaces of said body member, and to support said strip with its opposite faces in offset relationship inwardly of said spaced planes.

7. A ruler construction comprising a body member having oppositely facing substantially parallel faces and a substantially straight support edge at and along a side of said member, the said surfaces of said member being undercut to form a tongue of lesser thickness than the spacing between said surfaces, at and along said support edge, said tongue on its opposite sides being formed with locking grooves therein at the base of said tongue, an edge strip of substantially uniform thickness not greater than the thickness of said tongue and having straight opposite edges respectively forming a ruling and a mounting edge, said edge strip having registering anchor grooves formed in the opposite sides thereof and in parallelism with respect to said mounting edge, and a relatively flat elongated clip of sheet metal for securing said edge strip on said tongue, said clip comprising a pair of spaced side walls and a medial partition extending between said side walls to form a pair of oppositely opening channels adapted respectively to receive said tongue and the mounting edge of said strip therein and to hold the same in edge to edge facing relationship on opposite sides of said partition, with said clip disposed entirely between the spaced planes of the surfaces of said body member, said spaced side walls having inwardly offset portions

9

for resilient interlocking engagement in said locking and anchoring grooves.

8. A ruler construction comprising a body member having oppositely facing substantially parallel surfaces and a support edge at and along a side of said member, said surfaces of said member being undercut at and inwardly of said support edge to form a tongue of lesser thickness than the spacing between said surfaces, an edge strip having opposite edges respectively forming a ruling and a mounting edge, and being of substantially uniform thickness not greater than the thickness of said tongue, and a relatively flat elongated clip for securing said edge strip on said tongue, said clip providing a pair of spaced side walls and a medial partition web normal to and extending between said side walls to form a pair of oppositely opening channels respectively adapted to receive and resiliently grip said tongue and the mounting edge of said strip, whereby to support the clip and edge strip on said body member entirely between the spaced planes of the surfaces of said body

10

member, and a transverse tying strip extending in a mounting channel having aligned portions formed in the edge strip, the medial partition web of the clip and the body member including said tongue formed therein, whereby to secure the edge strip, clip and body member against relative longitudinal movement.

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