June 14, 1960 E. P. RIEHL 2,940,152

CONCRETE FORM AND CHAMFER CORNER STRIP THEREFOR

Filed March 14, 1956

Fig. 1

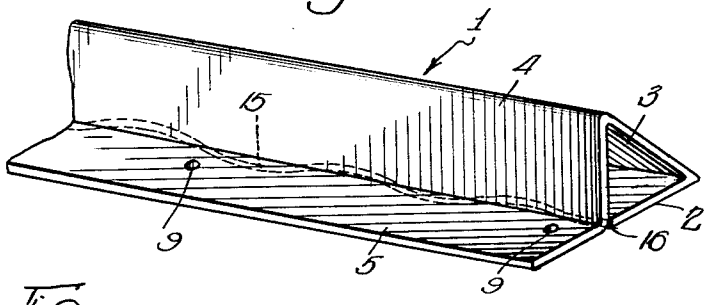


Fig. 2

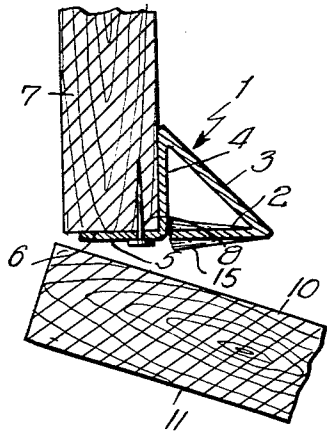


Fig. 3

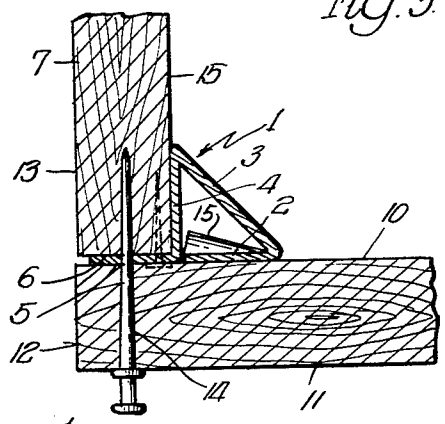


Fig. 4

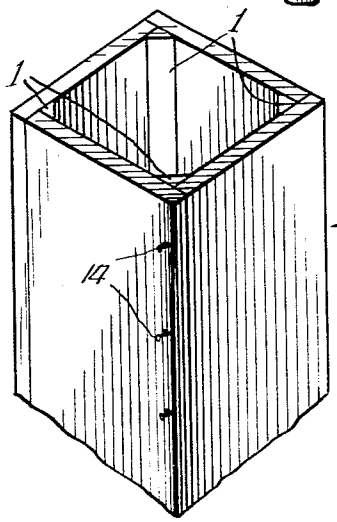
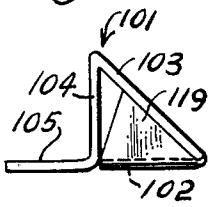


Fig. 5



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2 Claims. (Cl. 25—118)

This invention relates to a concrete form for use in the molding or casting of concrete structures such as columns, beams and the like, and more particularly to a chamfer corner strip for use in assembling such a form.

The mold and chamfer strip which are the subject of this invention are an improvement over the type of corner-form disclosed and claimed, for example, in the Foy Patent 1,129,658, issued February 23, 1915.

It is common practice in the building industry today to fabricate forms for use in casting concrete columns, for example, for wooden panels, and to provide a chamfered corner for the element being molded by the use of a wooden strip of right triangular cross section, which in most instances is nailed to one of the panel sections with the right angle corner of the strip in alignment with one of the edges thereof. Unfortunately, when molds of this construction are stripped from the finished column or the like, this corner strip is very often destroyed, apparently due to the adherence of the wooden chamfer corner strip to the hardened concrete. In modern construction methods concrete columns and beams are used very extensively and this repeated destruction of these woden chamfer corner strips can become an item of substantial expense. The provision of a re-usable chamfer corner strip would therefore effect substantial savings in construction costs in instances where the fabrication of large numbers of columns and beams is required.

It is therefore an object of this invention to provide a concrete mold or form having a novel corner construction which incorporates a re-usable chamfer corner strip. Another object of this invention is to provide a chamfer corner strip which is self-aligning, in that it can be applied directly to the marginal edge of one of the panel members of the mold, in abutting relation thereto, and it will then be automatically aligned with respect to that panel member and the second panel member which is subsequently brought into abutment therewith to form one corner of the mold.

Still another object of this invention is to provide a chamfer corner strip which will insure a pre-determined angular disposition of the adjacent panels and which will permit the panels to be disposed in overlapping edge relationship so that maximum strength and stability of the mold structure may be obtained. Yet another object of this invention is to provide a corner assembly which may be readily fabricated with the use of a minimum number of retaining members so that the deterioration of the panels is reduced and the assembly and disassembly thereof is facilitated; and which permits the positioning and retention of the chamfer corner strip by brads or the like, while the edges of the panels themselves may be readily secured together by more substantial means such as double headed nails which may be readily removed after the molding operation is completed. Still another object is to provide a chamfer corner strip of the character described which can be repeatedly re-used and which is quite durable, so that it can remain in place on the panel section to which it is initially secured, or may be removed therefrom and separately transported from one job to another without damage.

Still another object of this invention is to produce a chamfer corner strip of relatively simple construction which may be fabricated inexpensively.

All of these objects are designed to overcome the substantial number of disadvantages which are inherent in the use of a conventional wooden strip as a chamfer corner strip as previously mentioned. In addition to the fact that such a wooden strip is often damaged in the dismantling operation by adherence to the hardened concrete and by the action of dismantling tools thereon, it has also been found that a wooden strip will occasionally become unseated from its original position, perhaps due to the use of vibrating mechanisms in the pouring of the concrete. Such a displacement of the strip of course often results in severe damage to the column or beam, particularly if it becomes imbedded therein. Such difficulties cannot occur if a strip incorporating the present invention is utilized since it is securely locked in place and the mold itself must be disassembled before the strip can move out of position.

Furthermore, a chamfer strip incorporating the invention will present only a consistently uniform and smooth molding surface, with no irregularities due to nailheads, wood grain or other surface irregularities. The retaining members used with such a strip, such as nails, are all driven into the lateral edges of the panels rather than into the molding surfaces thereof, which is a further guarantee that the molding surfaces will not be undesirably distorted or damaged as is often the case with wooden strips since with this type nails are driven into the molding surface and are subsequently removed with a claw hammer, crowbar or the like.

Furthermore, not only is a strip incorporating the present invention less likely to cause undesirable damage to the panel members because of its attachment to the lateral edge of the panel but this same feature provides an often very desirable type of accessibility during the assembly operation. For example, if reinforcing steel members have already been put in place and it is necessary to assemble the form around such a core, it will of course normally be impossible to drive retaining members into a strip disposed on the interior of the form, in order to secure the strip in place. When a strip incorporating the present invention is utilized, however, it is not necessary to drive retaining members into the strip from the interior of the form but such work can all be done from the exterior as the panel members are being assembled. The fact that it is difficult to obtain a tight fit between the sides of the wooden corner strip and the inner surfaces of the panel members often requires that the strip be applied to the corner after the panel members are in place, which necessitates working inside the form. With a strip incorporating the present invention, however, a tight joint between the sides of the strip and the interior surface of the panel members is assured, first of all by the self-aligning character of the strip and, secondly, by the fabrication of the strip in such a way that the angle between the sides is slightly greater than 90° so that as the panels are brought into place, a tight seal is assured since the strip is compressed slightly to return the angle to 90°.

It is, therefore, a further object to provide a chamfer corner strip which may be readily assembled as a part of a complete form without the necessity of carrying on any operation in the interior of the form and which, when properly put in place, will remain in proper fixed alignment until such time as the entire mold is dismantled; which presents a smooth, uniform molding surface; and which reduces the possibility of damage to the surfaces of the mold panels.

Further objects and advantages of this invention will become evident as the description proceeds and from an examination of the accompanying drawing which illustrates one embodiment of the invention and in which similar numerals refer to similar parts through the several views.

In the drawings:

Figure 1 is a perspective view of one form of chamfer corner strip embodying the invention.

Figure 2 is a view in cross section of a panel with the chamfer corner strip shown in Figure 1 secured thereto with a second panel being moved into place.

Figure 3 is a view in cross section of the complete corner assembly of a mold embodying the invention.

Figure 4 is a view in perspective of a completely assembled form for a concrete column having corner construction of the type shown in Figure 3.

Figure 5 is an end view of a modified form of chamfer corner strip embodying the invention.

Referring now to Figure 1, a chamfer corner strip is shown therein indicated generally by the numeral **1** preferably formed of suitable sheet metal. This strip has a cross sectional configuration substantially in the form of a **4**, as best shown in Figures 2 and 3. The triangular portion is formed by the flanges **2**, **3** and **4**, being substantially in the form of a right triangle and having a projecting flange **5** disposed substantially in the same plane as the flange **2** and formed integrally with and at right angles to the flange **4**. The flanges **2** and **4** form the sides of a substantially right triangle, while the flange **3** forms the hypotenuse thereof.

As shown in Figures 2 and 3, the flanges **4** and **5** are adapted to receive the edge **6** of a panel member or board **7** within their included angle, which is preferably a right angle. The strip **1** may be secured in this position by suitable retaining members such as the brad **8** shown in Figgure 2, suitable holes **9** preferably being provided in the flange **5** as shown in Figure 1. By this means the chamfer strip **1** can be secured in aligned relation with the edge **6** of the panel board **7** where it is adapted to have the inner surface **10** of a second panel member or board **11** brought into abutment therewith, with the edge **12** of the panel board **11** being disposed in substantial alignment with the outer surface **13** of the panel board **7**. The panel board **11** may be retained in this position by driving a suitable retaining member such as the double headed nail **14** through the panel board **11** into the edge **6** of the panel board **7**.

In such a position the flanges **2** and **5** of the strip **1** form a substantially flat supporting and aligning surface for the inner surface **10** of the panel board **11**.

As best shown in Figures 1 to 3, inclusive, the free edge **16** of the flange **2** which terminates adjacent the juncture of the flanges **4** and **5** may be given a laterally displaced configuration in order to aid in preventing possible inward collapse of the edge **16** of the flange **2**. This displacement may take the form of fan-shape undulations **15** which impart to the free edge **16** a generally sinuous or wavy form, in effect, increases the width of the edge **16** of the flange **2** so that inward displacement thereof along the flange **4** is resisted by abutment of the edge **16** therewith. Such a feature is advantageous both in creating a resistance to forces tending to collapse flange **2** which might be created by the exertion of heavy pressures on the flange **3** from the material with which the mold is filled, and which also might be brought to bear on flange **3** during transportation and handling of the strips.

After four panels have been assembled at the corners in the manner illustrated in Figure 3, a form such as that indicated generally by the numeral **17** will result. The form, when so assembled, has substantial rigidity and stability so that it may be used without further reinforcement.

In the modified form of the invention shown in Figure 5, the chamfer corner strip **100** remains substantially the same as the corner strip **1** shown in Figures 1 to 3, inclusive, and, to avoid needless repetition of description, similar reference numerals but of a higher order have been applied to the corresponding parts in Figure 5. In this form of the invention the extremities of the flange **102** are bent along a diagonal line inwardly toward the flange **103** to form a partial closure **119** for the channel formed by the flanges **102**, **103** and **104**. The closure so formed will serve to prevent the material being molded from being deposited within this channel and subsequently becoming hardened so that it is impossible to remove.

It may thus be seen that by the use of either form of chamfer strip disclosed herein, a very satisfactory type of form may be readily assembled, which form can be subsequently dismantled equally readily by removal of the double headed nails **14**, without damage to the chamfer strips, and then subsequently re-assembled for use with a minimum of effort. A saving is thus effected both in the cost of materials and also in labor since the chamfer strips when once applied may be left in place on the panels.

In the drawing and specification, there has been set forth two illustrative embodiments of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation. Changes in form and in the proportion of parts, as well as the substitution of equivalents are contemplated, as circumstances may suggest or render expedient, without departing from the spirit or scope of this invention as further defined in the following claims.

What is claimed is:

1. In a concrete column form, the combination with a first panel board presenting a planar inside face and a planar edge surface extending at a right angle to said inside face, and a second panel board presenting a planar inside face extending at a right angle to the planar inside face of the first panel board with the planar edge surface of the first panel board in close juxtaposition to and parallelism with the planar inside face of the second panel, of an elongated chamfer strip for aligning and retaining said panel boards in operative position in the column form and for effecting a 45° chamfer along an edge of the completed concrete column, said chamfer strip comprising a single elongated sheet of metal stock folded along three straight parallel spaced lines to provide a main tubular body portion which is of substantially isosceles right triangular cross section and has a first planar side wall, a second generally planar side wall extending at a right angle to said first planar side wall, and a third planar side wall connecting said first and second side walls by integral 45° angular corner bends respectively, said second generally planar side wall having its free edge abutting against the extreme inside edge region of said first planar side wall, and a planar flange extending outwardly of the tubular body portion from the free edge of said first planar side wall of the tubular body portion and at a right angle to said first planar side wall, said second generally planar side wall and said outwardly extending planar flange lying substantially in a common plane, said second generally planar side wall being formed with a series of tapering fan-shape undulations whereby the free edge region of said second generally planar side wall is of long pitch undulatory character with the axes of the undulations extending in parallelism and transversely of the second generally planar side wall thereby increasing the effective width of the free edge of said second generally planar side wall, said planar flange being interposed between said planar edge surface of said first panel board and said planar inside face of the second panel board, a series of brads extending through said planar flange and into said first panel board and serving to maintain said planar flange in coextensive face-to-face contact with said planar edge surface, and a series of nails extending through said second panel board and

through said planar flange and serving to maintain said planar flange coextensively clamped between said planar edge surface of the first panel board and the inside face of the second panel board.

2. In a concrete column form, the combination with a first panel board presenting a planar inside face and a planar edge surface extending at a right angle to said inside face, and a second panel board presenting a planar inside face extending at a right angle to the planar inside face of the first panel board with the planar edge surface of the first panel board in close juxtaposition to and parallelism with the planar inside face of the second panel, of an elongated chamfer strip for aligning and retaining said panel boards in operative position in the column form and for effecting a 45° chamfer along an edge of the completed concrete column, said chamfer strip comprising a single elongated sheet of metal stock folded along three straight parallel spaced lines to provide a main tubular body portion which is of substantially isosceles right triangular cross section and has a first planar side wall, a second generally planar side wall extending at a right angle to said first planar side wall, and a third planar side wall connecting said first and second side walls by integral 45° angular corner bends respectively, said second generally planar side wall having its free edge abutting against the extreme inside edge region of said first planar side wall, and a planar flange extending outwardly of the tubular body portion from the free edge of said first planar side wall of the tubular body portion and at a right angle to said first planar side wall, said second generally planar side wall and said outwardly extending planar flange lying substantially in a common plane, said second generally planar side wall being formed with a series of tapering fan-shaped undulations whereby the free edge region of said second generally planar side wall is of long pitch undulatory character with the axes of the undulations extending in parallelism and transversely of the second generally planar side wall thereby increasing the effective width of the free edge of said second generally planar side wall, the corner regions of said second generally planar side wall at the opposite ends of the tubular body portion being bent laterally out of the plane of the second planar side wall and providing at least partial end closures for the tubular body portion, said planar flange being interposed between said planar edge surface of said first panel board and said planar inside face of the second panel board, a series of brads extending through said planar flange and into said first panel board and serving to maintain said planar flange in coextensive face-to-face contact with said planar edge surface, and a series of nails extending through said second panel board and through said planar flange and serving to maintain said planar flange coextensively clamped between said planar edge surface of the first panel board and the inside face of the second panel board.

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