Oct. 21, 1958 H. P. ORTH ET AL 2,856,871

TWO-PIECE CAP FLASHING

Filed June 14, 1954 3 Sheets-Sheet 1

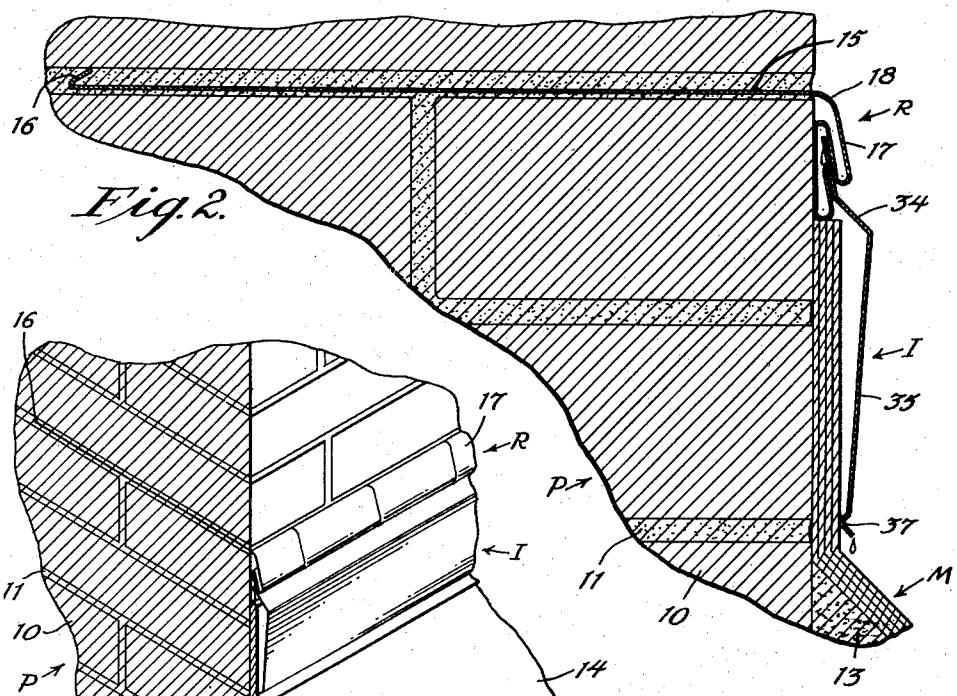



Fig. 2.




Fig. 1.

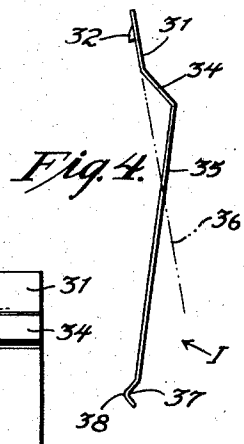



Fig. 4.

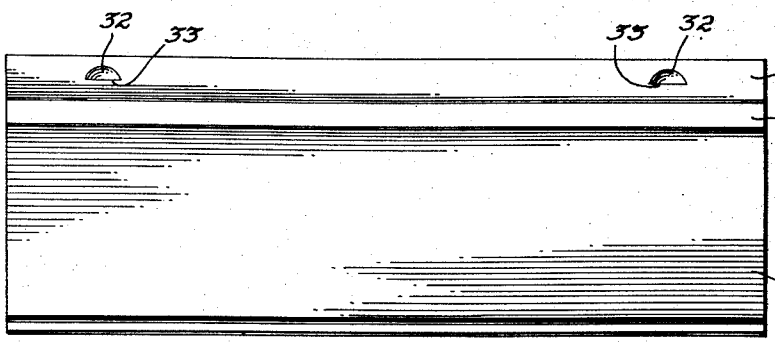



Fig. 3.

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TWO-PIECE CAP FLASHING

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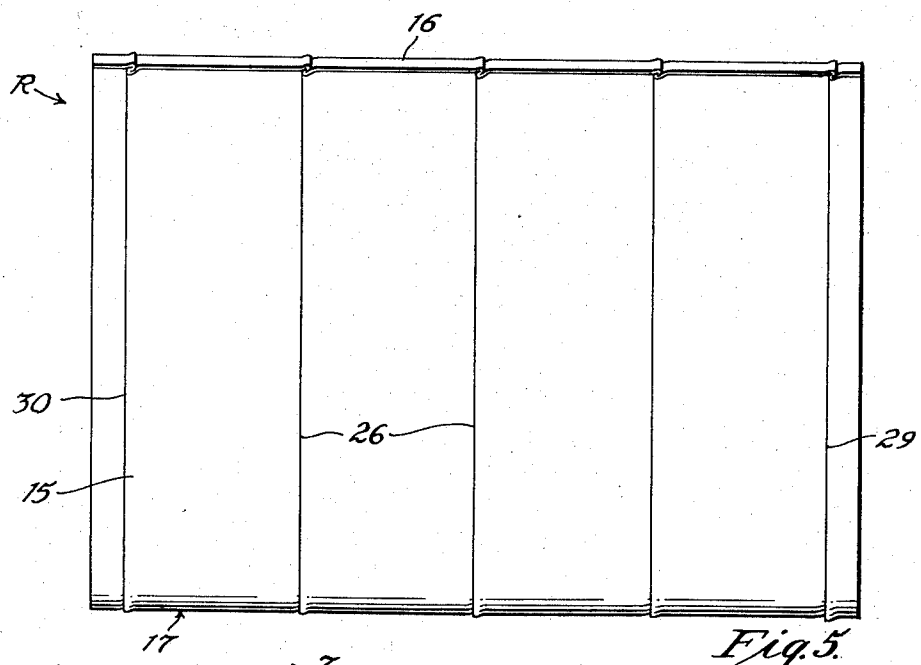



Fig. 5.

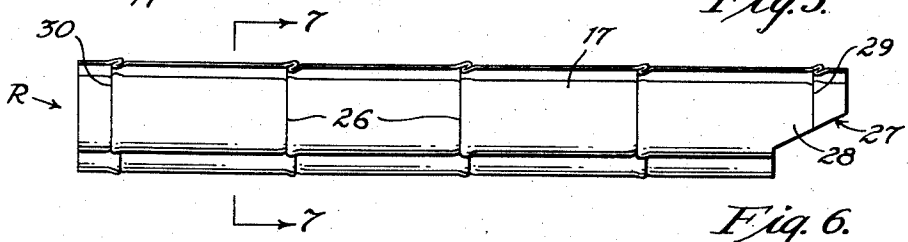



Fig. 6.

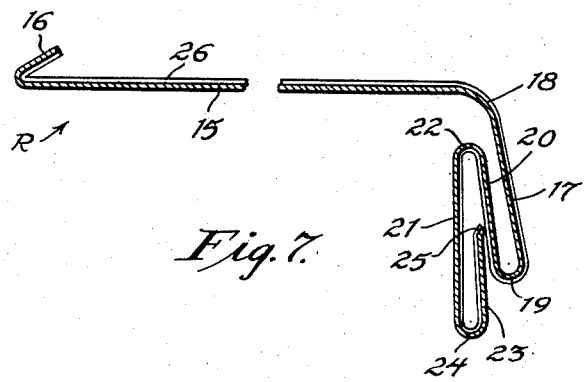



Fig. 7.

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TWO-PIECE CAP FLASHING

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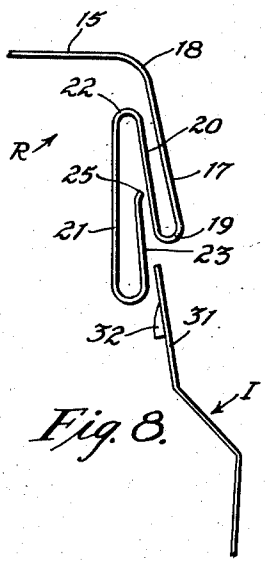



Fig. 8.

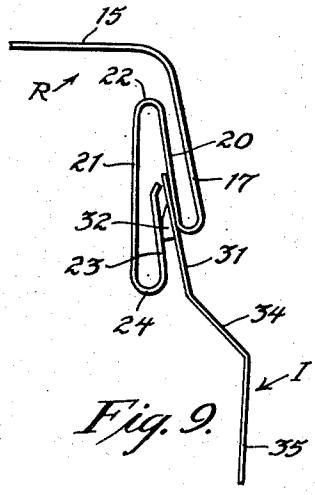



Fig. 9.

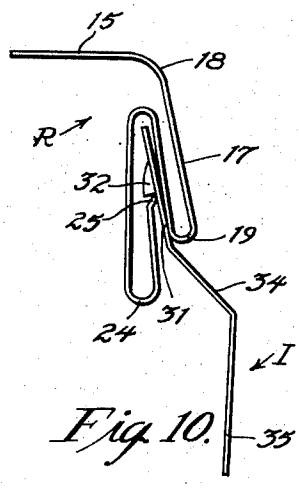



Fig. 10.

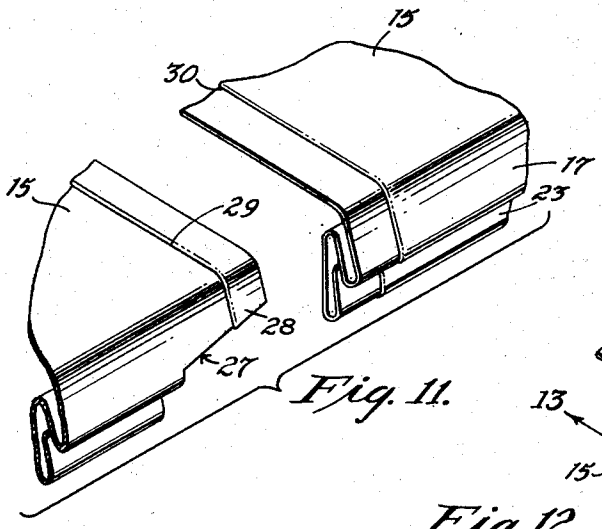



Fig. 11.

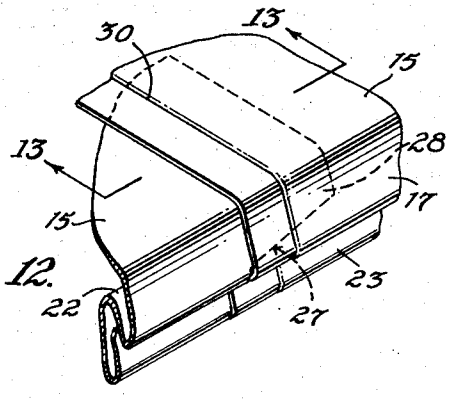



Fig. 12.

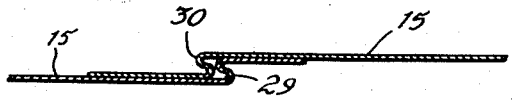



Fig. 13.

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United States Patent Office 2,856,871
Patented Oct. 21, 1958



2,856,871

# TWO-PIECE CAP FLASHING

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Application June 14, 1954, Serial No. 436,411

4 Claims. (Cl. 108—26)

The present invention relates to cap flashings such as are commonly employed in providing a water-tight seal about the edges of roof base flashings at parapet walls, and is concerned primarly with so-called two-piece cap flashings.

The present invention provides several novel features in a two-piece cap flashing and while each of these features presents an advantage in itself, all of the several features are mutually interrelated to provide a highly satisfactory device that will do the job required of it; namely, provide an effective seal about the edge of the roof base flashing.

A two-piece cap flashing ordinarily comprises a receiver and an insert. The receiver consists of a top panel that is embedded in the masonry structure of the parapet wall and to the outer free edge of which is integrally joined a downwardly extending facing. Integrally joined to the lower edge of this facing is an inverted U-shaped channel structure which receives the upper edge of the insert or counter flashing. This insert has a main body portion that extends downwardly and overlaps the roof base flashing which is continued up the side of the parapet wall an appreciable distance. In some instances this roofing is of sheet metal. However, in the majority of cases it is of asphalt, being a built-up construction of multi-layer thickness with the thicknesses varying with different roofs. Thus, in some cases the roofing material proper might consist of a single layer of sheet metal, while in other cases it comprises several integrated layers of roofing material.

With the arrangement which prevailed before the advent of this invention, the insert or counterflashing consists of nothing more than a straight piece of sheet metal with the upper edge being received in the channel of the receiver and the remainder extending downwardly in overlapping relation with respect to the roof base flashing. This arrangement presents several disadvantages. In the first instance, it is difficult to obtain a good water-tight seal between the insert and the roofing material. Moreover, there is nothing in the construction of the cap flashing itself which accommodates roofs a various thicknesses. Thus it has been the usual practice to resort to malletting, or some other metal deforming operation to achieve a snug engagement of the insert with the roofing material. Then again, when the roofing material approaches the maximum thickness employed there is a tendency for the insert to spring outwardly and destroy the seal.

With the foregoing conditions in mind, the present invention has in view as a highly important objective the provision of a two-piece cap flashing which is so designed and constructed as to always exert a yielding tendency to urge the lower edge of the insert inwardly against the roofing material. In attaining this end a receiver is employed having the usual top panel that is embedded in the masonry wall, together with the downwardly extending facing which carries the inverted U-shaped channel. This channel structure includes an outer channel wall that is disposed at an angle with respect to the top panel. The channel structure also includes an inner channel wall to the lower edge of which is integrally joined an anchoring flange. The insert comprises a vertically extending locking flange that is received in the channel of the receiver with the upper edge portion thereof being forced towards the outer channel wall by the anchoring flange of the receiver. Integrally joined to the lower edge of this locking flange and extending outwardly and downwardly is a cap portion which is intended to bridge or span the several layers of material in the roof base flashing and terminates at a point spaced from the exposed face of the roof base flashing. Integrally joined to the lower edge of this cap portion and extending downwardly and inwardly is a main body portion or apron which is continued downwardly and inwardly sufficiently far so that its effective lower edge lies within and spaced from the plane of the locking flange.

In most of the two-piece cap flashings which have actually gone into use, no provision has been made for locking an insert in the receiver. Thus removal of the insert by unauthorized persons is made easy and theft of copper on a large scale has often occurred. Some attempt has been made to provide an interlocking between the insert and the receiver but the arrangements heretofore provided have not proven satisfactory because of certain basic defects. It may be stated as a general rule that if a device of this type is to be practical the insert must be susceptible of being snapped into the receiver to establish the interlock. In the known devices of this type, this snap action is accommodated by tongues, or comparable structure, on the insert yielding, under the theory that they will snap back into effective locking position after they have passed the locking flange on the receiver. However, there is such a small amount of metal present in these tongues, and this is inevitably true, in many cases, the desired resilient or elastic action will not take place.

With the foregoing conditions in mind, another highly important object of this invention is to provide, in a two-piece cap flashing of the character indicated, an interlock of the snap type in which all the resiliency, elasticity and yielding action takes place in the receiver rather than in the insert. Thus, in the receiver the anchoring flange is spaced an appreciable distance from the inner channel wall so that it may flex inwardly towards this inner channel wall. Moreover, the inner channel wall itself is susceptible of elastic movement relative to the outer channel wall and the outer channel wall itself can move relative to the facing.

In achieving this object the locking flange of the insert is provided with spaced so-called "thumbnail projections." These projections are formed by slitting the metal at the places indicated and deforming the metal above the slits into the shape of a thumbnail. This shape has some of the characteristics of a wedge so that as the locking flange is inserted between the anchoring flange and outer channel wall of the receiver the thumbnail projections function as a wedge to spread the anchoring flange and outer channel wall and thus permit the thumbnail projections to be moved past the upper edge of the anchoring flange after which the latter, due to its inherent resiliency and elasticity, springs back into effective locking position in which its edge engages the lower edges of the thumbnail projections.

Another important object of this invention is to provide, in a two-piece cap flashing of the type indicated, a receiver in which the upper edge portion of the anchoring flange is formed as an outer extending inclined lip. This structure presents certain advantages. In the first instance it adds rigidity to the structure of the anchoring flange. Secondly, it eliminates any wavyness which might

be created when the receiver takes the form of a keyed thru-wall flashing. And finally, it presents the edge at the angle most advantageous for engaging the lower edges of the thumbnail projections.

Under conditions of actual construction the receiver is installed in sections. Likewise the insert is of sectional construction. This means that in actual installation an insert spans or bridges the joint between adjacent sections of the receiver. Such an arrangement obviously requires that the channels in these sections of the receiver be accurately aligned so that the interlock is properly established. Thus, another highly important object of the invention is to provide new and improved means for aligning adjacent sections of the receiver as they are installed in a masonry wall. In carrying out this objective the facing at one end of each receiver is continued out beyond the channel structure in a tapered or wedge shaped formation. The top panel is continued out a corresponding distance. This structure in the face forms a guide tongue which is received immediately behind the facing of the next adjacent section.

Various other more detailed objects and advantages of the invention, such as arise in connection with carrying out the above-noted ideas in a practical embodiment, will in part become apparent and in part be hereinafter stated as the description of the invention proceeds.

The invention, therefore, comprises a two-piece cap flashing consisting essentially of a receiver and an insert, with the receiver and insert having the structural features whereby a bead at the lower edge of the insert is constantly urged inwardly against the roof base flashing by the engagement of the locking flange at the upper edge of the insert in the channel of the receiver, together with a new and improved interlock between the receiver and insert, and a guide tongue for aligning the channels of adjacent sections of the receiver.

For a full and more complete understanding of the invention, reference may be had to the following descriptions and accompanying drawings wherein:

Figure 1 is a perspective view illustrating a portion of parapet wall roof base flashing and cant with the two-piece cap flashing, of this invention, installed to seal the upper edge of the roof or base flashing.

Figure 2 is a vertical section through the wall, base flashing of roofing material and two-piece cap flashing.

Figure 3 is a view in front elevation of the insert per se.

Figure 4 is a view in end elevation of the insert.

Figure 5 is a top plan view of the receiver per se.

Figure 6 is a view in front elevation of the receiver per se.

Figure 7 is a transverse vertical section taken about on the plane represented by the line 7—7 of Figure 6 through the receiver.

Figure 8 is a diagrammatic view illustrating the first step of inserting the locking flange of the insert into the channel of the receiver.

Figure 9 is a similar view of an intermediate position showing the anchoring flange as forced into spaced relation with respect to the outer channel wall by the thumbnail projections.

Figure 10 is another view similar to Figure 8 and 9 showing the position of the parts after the interlock has been established.

Figure 11 is a perspective view illustrating end portions of adjacent sections of the receiver in spaced relation and prior to establishment of the interlock therebetween.

Figure 12 is a perspective view depicting the two sections of the receiver with the keys interlocked; and

Figure 13 is a detailed vertical section taken about on the plane represented by the line 13—13 of Figure 12.

Referring now to the drawings, and first more particularly to Figures 1 and 12, a parapet wall is therein illustrated and referred to in its entirety by the reference character P. This wall P ordinarily comprises bricks **10** which are secured together in the conventional manner by mortar **11**. Extending inwardly from one side of the parapet wall P is a roof supporting structure such as represented at **12**. Ordinarily a cant **13** is included in the construction. As shown in Figure 1, a piece of roofing material **14**, which in the single layer construction illustrated, would ordinarily be of sheet metal, overlaps the roof **12** and cant **13** and extends along the inner face of the wall P above the corner piece to provide the roof base flashing. As shown in Figure 2, roofing material M, which is an integrated multi-layer structure of asphalt, is substituted for the single layer **14** of Figure 1. In both cases the problem is to provide an effective water seal at the upper edge of the roof base flashing whether it be the single layer **14** of Figure 1 or the integrated multi-layer construction of Figure 2. For this purpose the two-piece cap flashing of this invention is provided.

This two-piece cap flashing comprises a receiver which is referred to in its entirety by the reference character R and which is shown in detail in Figures 5, 6 and 7 and an insert which is identified in its entirety by the reference character I and which is shown in detail in Figures 3 and 4.

Before describing the receiver R which is illustrated in Figures 5, 6 and 7, it is to be clearly understood that this receiver may be either a keyed thru-wall flashing of the so-called saw-tooth type, as illustrated, as well as other type of keyed flashing or may be a flat panel construction which is commonly used when the receiver does not extend entirely through the wall. Referring now more particularly to Figures 5, 6 and 7, the receiver R is shown as comprising a top panel **15** which, together with the other parts now to be described, is made of an appropriate sheet metal such as copper of appropriate thickness.

Formed on the inner edge of this top panel **15** is a hook dam **16** which, as is clearly illustrated in Figure 7, comprises a flange that is bent backwardly beyond **90** degrees into an acute return angle. Integrally joined to the outer edge of the top panel **15** is a facing **17** and it is important to note that this joinder is effected by a bend **18** of wide radius. Integrally joined to the lower edge of the facing **17** by a bend **19** is an outer channel wall **20**. This outer channel wall **20** is integrally joined to an inner channel wall **21** by a top channel bend **22**. An anchoring flange **23** is integrally joined to the lower edge of the inner channel wall **21** by a bend **24**. The upper edge of this anchoring flange **23** is turned outwardly to form a lip **25**.

Keys shown at **26** extend transversely throughout the entire structure. Thus these keys **26** appear in the hook dam **16**, top panel **15**, bend **18**, facing **17**, bend **19**, outer channel wall **20**, bend **22**, inner channel wall **21**, bend **24**, anchoring flange **23** and lip **25**. They serve to provide a good bond between the top panel **10** and mortar **11**. At the same time insuring level drainage channels to the front.

As illustrated in Figure 6, the facing **17** is continued out at the righthand side beyond the channel structure and has an inclined edge **27** which defines a guide tongue **28**. The top panel **10** has a comparable extent. The upper portion of the top panel **15**, above the guide tongue **27**, is formed with an undercut key **29** which interlocks with a similar key **30** at the other end of the next adjacent section of receiver. This being clearly illustrated in Figure 11. It is to be understood that the keys **29** and **30** are present even when the flat type of flashing is employed and the keys **26** omitted. The purpose of the keys **29** and **30** is to interlock two adjacent sections of the receiver and at the same time provide an effective water dam that inhibits longitudinal travel of water along the top face of the panel **15**.

With the receiver R installed in a parapet wall, it is intended that the inner channel wall be substantially

vertical and in face-to-face engagement with the outer face of the parapet wall. This is important for reasons later to become apparent.

Referring now more particularly to Figures 3 and 4, the insert I is shown as including a locking flange **31**. This locking flange **31** is formed at spaced intervals with inwardly extending so-called thumbnail projections **32**. The projections **32** are formed by slitting the metal along a line such as indicated at **33** and then deforming the metal inwardly above these slits in the manner depicted. Integrally joined to the lower edge of the locking flange **31** and extending outwardly and downwardly is a cap portion **34**. This cap portion has an extent sufficient to bridge or span the multi-layer roofing material M of the roof base flashing regardless of its thickness, with the lower edge of the cap still being spaced at least some distance from the outer-most layer of the roof base flashing.

Integrally joined to the lower edge of the cap **34** and extending inwardly and downwardly is a main body portion or apron **35**. Referring now more particularly to Figure 4, the plane of the locking flange **31** is represented by the broken line **36**. It will be noted that the main body portion or apron **35** is continued downwardly and inwardly sufficiently far so that its lower edge lies on the inner side of the line **36**, which is representative of the plane of the locking flange **31**. The lower edge portion of the apron **35** is formed with an outwardly opening V-shaped groove **37**, which, by its formation in the metal presents an inner bead **38**. It is this bead **38** which is urged into sealing engagement with the roofing material by the resiliency of the metal in the channel structure of the receiver as rendered effective on the locking flange **31**.

Referring now more particularly to Figures 8, 9 and 10, it will be noted that with the receiver R and insert I disassembled the lip **25** of the anchoring flange **23** engages the outer channel wall **20**. As the locking flange **31** of the insert is inserted between the anchoring flange **23** and outer channel wall **20**, the thumbnail projections **32** function as a wedge and serve to spread and separate the anchoring flange **23** from the outer channel wall **20**. This condition is clearly depicted in Figure 9.

As the upward movement is continued the thumbnail projections **32** finally clear the top edge of the lip **25** after which the inherent resiliency of the metal in the bends **24** and **22** causes the lip **25** to engage the inner face of the locking flange **331**. Thus this edge of the lip **25** is in abutting engagement with the lower edges of the thumbnail projections **32** to prevent withdrawal of the insert.

It will be noted that the combined effect of the lip **25** forcing upper edge portion of the locking flange **331** towards the outer channel wall **20**, coupled with the tendency of the lower edge of this wall to act as a fulcrum, the tendency is to rotate the insert in a clockwise direction (speaking with reference to the showing of the drawings) to urge the bead **38** inwardly into engagement with the roofing material.

While a preferred specific embodiment of the invention is hereinbefore set forth, it is to be clearly understood that the invention is not to be limited to the exact constructions, materials and designs illustrated and described because various modifications of these details may be provided in putting the invention into practice within the purview of the appended claims.

What is claimed is:

1. In a two-piece cap flashing, a receiver comprising a top panel, a facing angularly disposed to said panel and integrally joined to one edge thereof, an outer channel wall integrally joined to the lower edge of said facing by a bend, an inner channel wall integrally joined to said outer wall by a top bend, said channel walls providing a downwardly opening channel substantially normal to said top panel an anchoring flange integrally joined to the lower edge of said inner wall by a bend, an insert having a locking flange received in said channel and in engagement with said outer wall, said anchoring flange engaging the upper portion of said locking flange to force the latter towards said outer channel wall, an outwardly and downwardly extending cap portion integrally joined to the lower edge of said locking flange, and an inwardly and downwardly extending apron integrally joined to the lower edge of said cap portion, the lower edge of said apron being spaced from and disposed on the inner side of the plane of said locking flange.

2. In a two-piece cap flashing, a section of a receiver that is intended to be joined to adjacent sections, said receiver section comprising a top panel, a facing angularly disposed to said panel and integrally joined to an edge thereof, channel structure integrally joined to the lower edge of said facing and presenting a downwardly opening channel substantially normal to said top panel, said top panel and facing being continued out beyond the channel structure at one end of the section with the facing being gradually diminished to form a guide tongue that is adapted to be fitted inside the facing of the next adjacent section to align the channel structure of said sections, an insert having a locking flange received in said channel and in engagement with the lower edge of the outer wall thereof, a flange included as a part of said receiver and engaging said locking flange to force the latter towards said outer channel wall, an outwardly and downwardly extending cap portion integrally joined to the lower edge of said locking flange and an inwardly and downwardly extending apron integrally joined to the lower edge of said cap portion, the lower edge of said apron being spaced from and disposed on the inner side of the plane of said locking flange.

3. In a two-piece cap flashing, a receiver comprising a top panel, a facing disposed at an angle to said top panel and joined thereto by a bend, an outer channel wall underlying said facing in spaced relation thereto and integrally joined to the lower edge of said facing by a bend, an inner channel wall opposite to and spaced from said outer channel wall and integrally joined thereto by a top bend, said channel walls providing a downwardly opening channel substantially normal to said top panel, and an anchoring flange integrally joined to the lower edge of said inner channel wall by a bottom bend and having a portion extending upwardly between said channel walls, said anchoring flange having a free edge that is normally urged towards said outer channel wall by said top and bottom bends; and an insert having a locking flange inserted between said channel walls, an outwardly and downwardly extending cap portion integrally joined to the lower edge of said locking flange, and an inwardly and downwardly extending apron integrally joined to the lower edge of said cap portion, the lower edge of said apron being spaced from and disposed on the inner side of the plane of said locking flange, said locking flange engaging the bend at the bottom of said facing as a fulcrum and being engaged along a line spaced above said fulcrum by a free edge of said anchoring flange to force the upper portion of said locking flange outwardly under the influence of the resiliency and elasticity of said top and bottom bends, with said fulcrum being urged inwardly by the bend joining said panel and facing whereby the lower edge of said apron is urged inwardly against a roof base flashing with which the two-piece cap flashing is installed.

4. In a two-piece cap flashing, a receiver comprising a top panel, a facing disposed at an angle to said top panel and joined thereto by a bend, an outer channel wall underlying said facing in spaced relation thereto and integrally joined to the lower edge of said facing by a bend, an inner channel wall opposite to and spaced from said outer channel wall and integrally joined thereto by a top bend, said channel walls providing a downwardly opening channel substantially normal to said top panel,

and an anchoring flange integrally joined to the lower edge of said inner channel wall by a bottom bend and having a portion extending upwardly between said channel walls, said anchoring flange having a free edge that is spaced from said top bend and normally urged towards said outer channel wall by said top and bottom bends; and an insert having a locking flange inserted between said channel walls, an outwardly and downwardly extending cap portion integrally joined to the lower edge of said locking flange, and an inwardly and downwardly extending apron integrally joined to the lower edge of said cap portion, the lower edge of said apron being spaced from and disposed on the inner side of the plane of said locking flange, said locking flange engaging the bend at the bottom of said facing as a fulcrum and being engaged along a line spaced above said fulcrum by a free edge of said anchoring flange to force the upper portion of said locking flange outwardly under the influence of the resiliency and elasticity of said top and bottom bends, with said fulcrum being urged inwardly by the bend joining said panel and facing whereby the lower edge of said apron is urged inwardly against a roof base flashing with which the two-piece cap flashing is installed, said locking flange being formed with spaced thumbnail projections of wedge-like formation having rounded points at the top and curved edges at the bottom, said locking flange with said projections being adapted to have been inserted between said anchoring flange and said outer channel wall whereby said thumbnail projections functioned as wedges to separate said anchoring flange and outer channel wall so that said projections rode past the free edge of said anchoring flange and catch thereon.




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