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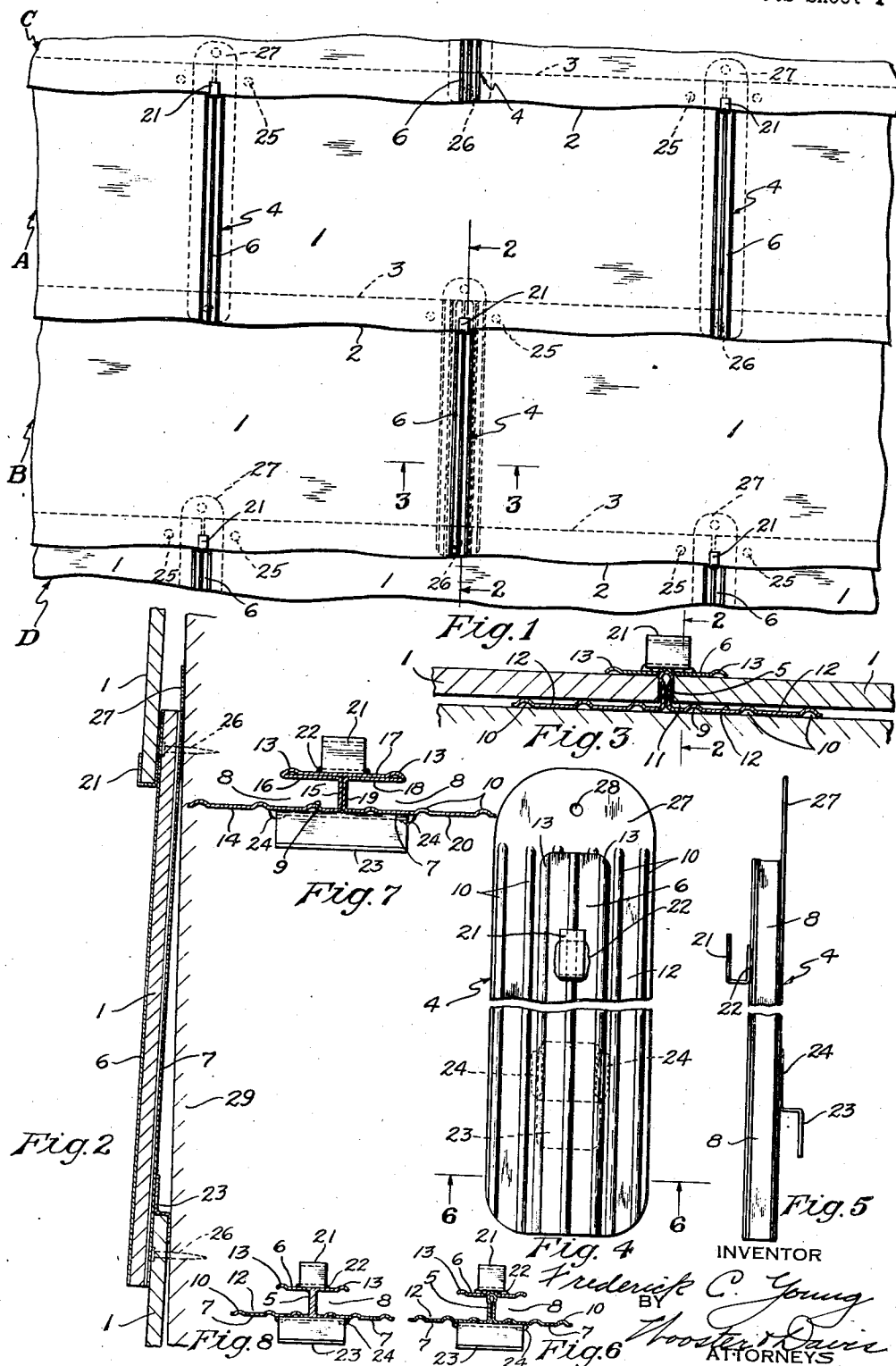
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JOINT FOR ASBESTOS SHINGLES OR SIDING

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2 Sheets-Sheet 1



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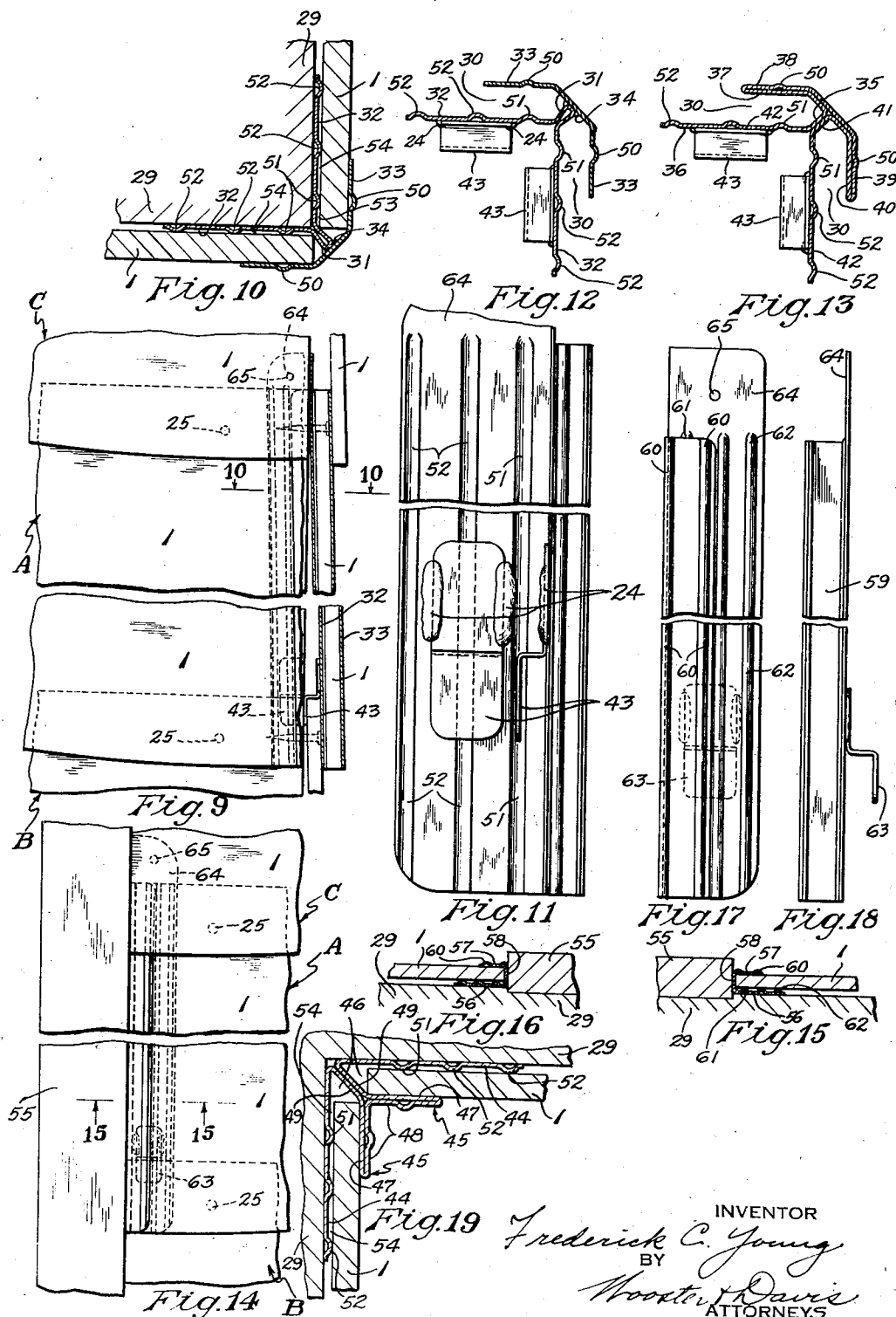
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## UNITED STATES PATENT OFFICE

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## JOINT FOR ASBESTOS SHINGLES OR SIDING

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8 Claims. (Cl. 108—33)

This invention relates to side and roof covering for buildings, and has for an object to provide an improved structure for the joint between adjacent shingles of a siding or roof, which will make a weather and moisture proof joint, will hold the ends of the shingles in alignment, and will tie the shingles to the structure to prevent rattling or breakage by the wind, and in which there is no exposed or face nailing necessary.

Another object is to make a construction of this type in which the shingles are self aligning so that no chalk lining is necessary.

A further object is to make a joint which is sealed against moisture and weather so that no felt lining under the shingles is necessary.

A still further object is to provide an improved construction whereby the covering is more rigidly anchored to the support with less cost of laying the covering, and in which if individual shingles are broken they may be removed for insertion of a new shingle to give greater ease in repairing the siding or roof.

With the foregoing and other objects in view I have devised an improved construction the preferred embodiments of which are shown in the accompanying drawings forming a part of this specification. It is, however, to be understood that I am not limited to the specific details shown but may use various changes and modifications within the scope of the invention.

In these drawings:

Fig. 1 is a plan view of a portion of a siding or roofing showing the application of my invention;  
Fig. 2 is a section substantially on the lines 2—2 of Figs. 1 and 3, and enlarged from the scale of Fig. 1;

Fig. 3 is a transverse section substantially on line 3—3 of Fig. 1 on an enlarged scale;

Fig. 4 is a front elevation of the member used at the joint between the ends of two adjacent shingles;

Fig. 5 is an edge view thereof;

Fig. 6 is a transverse section substantially on line 6—6 of Fig. 4;

Figs. 7 and 8 are similar transverse sections showing somewhat modified constructions;

Fig. 9 is a partial side elevation and partial section at the corner of the building showing the construction used at such corner in one row of shingles only, the joint member of the row immediately above and immediately below being omitted to simplify the drawing;

Fig. 10 is a transverse section substantially on line 10—10 of Fig. 9 on an enlarged scale;

Fig. 11 is a rear and side view of the member used at the joint in Figs. 9 and 10;

Fig. 12 is a transverse section thereof substantially on line 12—12 of Fig. 11;

Fig. 13 is a similar section showing a somewhat modified construction;

Fig. 14 is a front elevation showing the construction at the edge of the frame of a wall opening such as a window or door, the joint member, however, being shown on one row of shingles only, the joint member for the next upper and next lower row being omitted to simplify the drawing;

Fig. 15 is a transverse section substantially on line 15—15 of Fig. 14;

Fig. 16 is a similar section showing the joint at the opposite side of the frame of the opening;

Fig. 17 is an elevation of the joint member of Figs. 14 and 15;

Fig. 18 is an edge view thereof; and

Fig. 19 is a transverse section showing the joint at an inner corner.

Although the drawings have been made showing primarily asbestos or rigid shingles, my invention is by no means limited to the use with such shingles but may be used with the other types of shingles such for example as flexible felt and asphalt shingles, or similar shingles.

The present general method of applying asbestos shingles, which are usually of about 80 to 85% Portland cement and the rest asbestos fibre, and generally made in sizes of 12 x 24 inches, 9½ x 22 inches, and 8½ x 22 inches with a thickness of about ⅜ of an inch, is to lay them in horizontal rows with their ends abutting and the lower edge of each row overlapping the upper edge of the next lower row by about 1½ inches. At the up-right or abutting end edges or joints at the ends of the shingles a narrow strip of single ply or cheap light weight roofing strip is applied under the joint. This is merely an asphalt paper or felt which soon becomes deteriorated causing the joint to be no longer water-tight, and also it has been considered to be the cause of stains appearing on the face of the asbestos shingles due to what is referred to as bleeding of the felt or the result of the light oils in the asphalt saturant in the felt. The shingles are each provided with three holes adjacent the upper edge of the shingle, one adjacent each end and a third in the center for nailing to the under support with ordinary galvanized roofing nails, the openings being located so that the heads of the nails are covered by the overlap from the next upper row of shingles. However, to secure the lower edge of

the shingles and to prevent rattling a row of three holes is provided adjacent this lower edge, two holes adjacent the ends of the shingles and one in the center, for nailing down this lower edge. For this purpose cadmium plated nails are used which are expensive and have small heads so as to be as inconspicuous as possible. However, these nails are exposed to the weather and moisture may seep through the openings. Also, due to the small heads and wear of the openings the nails may pull through the openings permitting free passage of water. Face-nailing is very bad practice for the reason the nail heads detract from the appearance of the finished job, and also such nails have a tendency to loosen and fall out, leaving exposed holes into which water and moisture can pass to the space between the asbestos shingles and the old siding which, as this siding is generally wood, causes damp rot and other trouble. The applicator in driving the face-nails many times will discover the nail will not hold due to a bad spot in the old siding or a hole or crack. In such cases there is nothing he can do about it as the nail hole, being already punched in the asbestos siding shingle, is a fixed point. Other times the applicator will find he cannot drive the face-nail home due to an obstruction in the old siding. In such cases the nail hole is left open and exposed to the elements, or the nail is badly bent over on the surface of the asbestos shingle. In bending the face-nail many cracked shingles have resulted as the face-nail hole is punched very close to the corners and the lower edge. Further, as the two end openings are closely adjacent the lower corners of the shingles this corner section is often broken during the nailing operation. Home owners have complained for years of their dislike of face nailing, and many have refused to have their homes sided with asbestos shingles because of them.

With my improved construction this lower row of exposed nails with their openings is entirely eliminated, thus eliminating face-nailing, and I also may if I wish eliminate two-thirds of the nails in the upper row. Furthermore, the joints between the adjacent shingles of the row are water and weather-proof and securely anchor the shingles to the underlying support. Also, the underlying strip of asphalt saturated felt or paper is entirely eliminated.

Referring to the drawings, Fig. 1 shows a section of a siding or roof involving two horizontal rows A and B of shingles 1 arranged with the lower edge 2 of the row A overlapping the upper edge 3 of the lower row B. There is also shown the lower edge portions of an upper row C overlapping the upper edge of the upper row A and a lower row D, the upper edge of which is overlapped by the lower edge of the lower row B. It will be noted that the shingles are laid in horizontal rows with their ends substantially abutting at the joints and these joints are in staggered relation so that the joint between two shingles in one row is at substantially the center of two shingles in the next upper and lower rows.

My improved joint construction and its method of use with the shingles is shown more clearly in Figs. 2 and 3. The joint member comprises a metal joint strip 4 of general I-shape in cross section preferably made of stainless steel, aluminum, copper coated with cadmium, or some other metal or alloy, which is corrosion resistant and does not stain the shingles. Or it can be of other metals enameled to protect it and prevent staining of the shingles. The enamel should prefer-

ably be substantially the same color as the shingles. For this cross section of strip it may comprise a central web 5 with laterally extending outer and inner flanges 6 and 7 projecting laterally from the opposite sides of this web in substantially parallel relation, and preferably are spaced from each other substantially the thickness of the shingles with which the strip is to be used so as to grip and hold the shingle with a snug fit, but still permit ready insertion of the end of the shingle. These flanges and web therefore form a groove or channel 8 running for substantially the length of the strip and opening laterally at the side thereof to receive the end edge of the shingle as shown in Fig. 3. Preferably the outer or upper flange 6 is not as wide as the lower or inner flange 7 so that channels may be provided on the top of the lower flange to carry off any moisture that may seep around over the edge of the shingle. Thus the lower flange is provided with one or more longitudinally extending beads or ribs 9 and 10, the bead 9 being spaced from the web 5 to form a channel 11 which will carry off moisture seeping around the edge of the shingle. The additional beads 10 form other channels 12 which will carry off any moisture which might pass over the inner bead 9 thus insuring that no moisture will get to the underlying structure. These beads also strengthen the flange and help keep it to shape. The upper flange 6 is also preferably provided with a longitudinal bead 13 to improve its appearance and also to strengthen it.

The form of channel member shown in Figs. 1 to 6 is made in two pieces of sheet metal bent intermediate its width and folded upon itself to form a web 5 with the two flanges 7 on the opposite sides thereof, and the outer or top flanges 6 are formed by a separate strip welded or otherwise secured to the top or outer edge of the web 5. The outer surface of the outer flanges is enameled with an enamel corresponding to the color of the shingles.

This substantially I-shaped strip, however, may be formed in other ways. Thus as shown in Fig. 7 it is preferred that the strip be formed in one piece of sheet metal. Beginning with one lower horizontal flange 14 corresponding to the flange 7 of the first form the metal is bent laterally to form one side 15 of the central web and then bent again at substantially right angles to this web to extend substantially parallel to the flange 14 as shown at 16. It is then bent backwardly upon itself to provide the top portion 17 extending across and to the other side of the web 15 and then backwardly upon itself at 18, inwardly and downwardly at 19 to form the other half of the central web and then outwardly to form the other web 20. Thus is formed upper and lower, outer and inner flanges corresponding to flanges 6 and 7 of the first form spaced substantially the distance of the thickness of the shingle with which it is to be used and providing the laterally opening side channels 8 to receive the end edges of the shingles. The upper flange may be provided with the longitudinal beads 13 as in the first form and the lower flanges may be provided with beads 9 and 10 to provide the channels the same as in the first form.

Adjacent the upper end of the strip and to the outer surface of the outer flanges there is secured an upwardly extending hook 21 adapted to receive the lower edge 2 of the shingles in the next upper row as shown in Figs. 1 and 2. This hook is preferably a flat strip of metal but may be of,

wire or other shape and is secured to the top flange 6 by any suitable means such as welding or soldering 22. The metal strip is preferably of a length equal to substantially the width of the shingles and the hook 21 is spaced from the upper end thereof the distance of the overlap desired between the adjacent rows of shingles. These hooks therefore provide a self locating or aligning means to properly locate the lower edge of a row of shingles, doing away with the necessity of providing a chalk line for locating this edge.

On the back or lower surface of the lower flanges 7 is mounted a downwardly directed hook 23 spaced from the lower edge of the strip the distance of the overlap to seat over the upper edge of the shingle in the next lower row as shown in Fig. 2. This is also preferably a flat strip of metal and is secured to the back of the lower or inner flange 7 by any suitable means such as solder or welding 24. It will thus be seen that in laying the shingles the ends of the shingles are inserted in the grooves or channels 8 and the hook 23 placed over the upper edge of the shingle in the next lower row. Then the shingles may be nailed along their upper edges as indicated at 25 and 26. Then the next upper row of shingles may be applied in the same way with the lower edges of the shingles of this row seated in the hooks 21 of the metal joints of the next lower row and the shingles nailed in the same way.

At the upper end of the metal joint, and either secured to or forming an extension of the lower flanges 7, the metal joint strip may be provided with a nailing tab 27 having a nailing opening 28 whereby this strip may be nailed to the underlying supporting structure 29. If this joint strip is nailed down by this flap then the two end nails 25 through the shingles may be omitted thus reducing the nailing operation and the quantity of nails required by one-third, or if preferred the nailing extension 27 may be omitted and the two end nails 25 through the shingles used in the usual manner. It will, however, be seen that in either case the ends of the shingle are rigidly anchored or secured to the lower support 29 and held against warping for their entire width as the lower end of the joint strip is locked to the upper edge of the next lower row of shingles by the hook 23 and this lower row of shingles has already been nailed to the underlying supporting structure 29. Also, the intermediate or central portion of the lower edge of each shingle is rigidly held by the hook 21 of the joint strip in the next lower row of shingles so that not only are the ends of the shingles locked to the support but also the central portion thereof, effectively preventing any rattling or raising of the free edge of the shingles and eliminating the necessity of using any exposed or face nailing as is usually employed.

In laying the first or lowermost row of a siding or roof there is of course no lower row of shingles for the rear hook 23 to be placed over. Therefore for this row of shingles staples are driven into the underlying support spaced up about an inch and a half above the lower edge of the shingles in which the hooks 23 of the joints of the lower row of shingles can be placed to tie down and support these joint members.

In Figs. 1 to 8 has been shown the joint on the flat side of the siding or roof. This same principle of joint construction can also be used at the outer and inner corners and also at the joints at

the edges of the frames for openings in the wall, such as window and door openings. These are shown in Figs. 9 to 19. In Figs. 9 to 13 is shown a construction for use on exterior corners of the underlying support 29. The ends of two rows of shingles is indicated at 1 coming up to the corner. The joint member is provided with two laterally extending channels 30 corresponding to the channels 8 of the first form to receive the end edges of the shingles, but instead of extending laterally in the same plane as in the first form they are substantially at right angles to each other as shown in Figs. 10, 12 and 13. As in the first form these channels are on opposite sides of central web 31 and are formed by inner and outer flanges 32 and 33 corresponding to the flanges 7 and 6 of the first form, which flanges form the inner and outer walls of the channels 30. In the form shown in Figs. 10 and 12 the outer flanges 33 are formed as a separate strip and are fastened to the outer edge of the web 31 by any suitable means such as welding or soldering 34, but, although it requires more metal, it is preferred that the joint member be formed from one piece of sheet metal as shown in Fig. 13. Thus beginning from one side a strip of sheet metal is bent laterally to form one side of the central web 35 at one edge of the inner flange 36 and is then bent backwardly and laterally at 37 to form the outer wall of the channel 30. It is then bent backwardly upon itself at 38, the two portions 37 and 38 forming the outer flange corresponding to the flange 33. This is extended to the other side of the web 35 and bent backwardly upon itself to form a similar flange 39 35 and 40 at the other side of the outer channel 30, and is extended in to the web 35 to form the outer side 41 thereof and then outwardly at right angles to the flange 36 to form the other inner flange 42. The flanges 36 and 42 correspond to the flanges 32 of Figs. 10 and 12. As in the first form the inner flanges 32, 36 and 42 are provided with downwardly extending hooks 43 spaced upwardly from its lower end the distance of the shingle overlap to seat over the upper edges of the next lower row of shingles the same as the hook 23 in the first form, to tie the joint to this row of shingles and support it, and effectively tie the ends of the shingles to the underlying support 29. However, in this corner joint as the joints for all the rows are in alignment one over the other it will not be necessary to use a hook adjacent the upper end corresponding to the hook 21 of the first form to receive the lower edges of the shingles, although such a hook may be used if desired. In Fig. 9, which is a view looking toward the bottom of Fig. 10 with part of the joint broken away, the joint for one row of shingles A only is shown, the joint for the rows C and B being omitted so as to make the drawing easier to read. It will, however, be understood that there will be one of these metal joint strips used for each horizontal row of shingles.

In Fig. 19 is shown how this metal joint strip is employed for an interior corner of the underlying support 29. This is really the reverse of the exterior corner construction of Figs. 9 to 13, and comprises the inner flanges 44 and outer flanges 45 extending substantially parallel to each other and spaced substantially the thickness of the shingles 1 to form the laterally opening channels 46 to receive the ends of the shingles, these channels corresponding to the channels 30 of Figs. 12 and 13. This corner strip

can also be formed from a single strip of sheet metal as shown in Fig. 19, the outer flanges being formed by the portions 47 and 48 bent upon themselves with the inner edges of the portions 47 connected with the inner flanges 44 by the central web portions 49. The lower hooks 43 are provided on the rear surfaces of the inner flanges 44 spaced from the lower end of the joint strip the distance of the shingle overlap to seat over the top edges of the shingles of the next lower row the same as in the form of Figs. 9 to 13. In both forms of Figs. 9 to 13 and Fig. 19 the outer flanges may be provided with the longitudinal beads 50. Also, the inner flanges 32, 36, 42 and 44 may be provided with the longitudinal beads 51 and 52 spaced from the central webs 31, 35 and 49 to form the channels 53 and 54 to carry off any moisture which may seep around the end of the shingle, the same as described in the first form in connection with Figs. 1 to 8.

This metal joint may also be employed at the sides of the frames of such openings as door and window openings. This is shown in Figs. 14 to 18. In this form, as the joint butts up against the outer edge of the door or window frame 55 the strip is provided with only one laterally opening channel to receive the end edge of the shingle as shown clearly in Figs. 15 and 16. In other words at this joint the metal strip comprises only one-half the section used in the other form shown. Fig. 14 is a view looking toward the siding and the frame showing the joint member on the end shingle of the row A. The same joint will be used on the shingles of the other rows, but in this figure they are not shown on adjacent rows B and C in order to simplify the drawings. As shown in Figs. 15 to 18 it comprises an inner flange 56 at the inner side of the shingle 1 and the outer flange 57, which flanges correspond to the inner and outer flanges 7 and 6, 32, 33, etc. of the other forms and are connected by the web 58, the joint member being formed from a single strip of sheet metal. These flanges are substantially parallel and spaced substantially the thickness of the shingle to form a laterally opening channel 59 to receive the end of the shingle the same as in the other forms. The flanges are provided with the longitudinally extending ribs or beads 60, 61 and 62 corresponding to the beads of the other forms, the lower beads 61 and 62 being spaced from the web 58 to form water channels as in the other forms. These joint members are made in right and left hand as shown in Figs. 15 and 16, for the right and left hand edge of the frame 55 of the opening, and are placed with the web 58 up against the edge of the frame 55. The rear or inner flange 56 is also provided with a downwardly projecting hook 63 on its rear surface the same as in the other forms, and spaced from its lower end the distance of the overlap of the shingles so as to seat over the upper edge of the next lower shingle, the same as in the other forms. This strip and the corner strips of Figs. 9 to 13 and 19 may or may not be provided with a nailing extension 64 for nailing to the underlying structure as desired. If this is provided it has a nailing opening 65.

It will be clear from the above that this joint construction includes a member which receives and holds the ends of the shingle and securely fastens the same to the underlying structure; that should the shingles shrink and draw away from each other their end edges would merely be drawn away from the central web 5, 15, etc., of the

joint member without opening up the visible joint between the shingles. Also, the joint is weather and water-proof and any water which does seep around the end of the shingle is carried off by the channels formed between the inner flange and the underside of the shingle. Should the building settle, which would open up the lower end of the joint the lower end portions of the shingles are merely drawn out somewhat in the laterally opening channels 8 and similar channels in the other form without exposing the separation of the shingles. It does away with the use of the asphaltic felt or paper used under the joint in the old construction, which paper or felt quickly deteriorates making a leaking joint. This joint will last as long and remain weather-proof as the full life of shingles. Also, in laying the shingles they are self-aligning as the shingles are located automatically by the hooks 23 and 21 and the similar hooks of the other forms. As the lower edges of the shingles are tied down by these hooks 23 and 21 the exposed or face-nailing of the old types is done away with, eliminating the corresponding holes in the shingles and the serious objections of this face-nailing. If a shingle becomes broken it can be easily removed by first bending out the free end portion of the hook 21, which is made of a material to permit this bending without breaking, and then the nails 25 and 26 may be cut by a slater's ripper permitting withdrawal of the broken shingle and the insertion of a new one. It will not be necessary to re-nail the new shingle because it will be sufficiently supported by the joint structures. It will be seen it locks the shingles to the underlying supporting structure at both perpendicular end edges and also at the center of the exposed butt edge. It definitely increases the insulation value of asbestos shingle siding as well as for asbestos roofing. All perpendicular edges are covered which eliminates the need of filling such edges for butting the shingles, especially when the applicator cuts the shingles on the job for openings, etc. It does not matter if a number of the nails, which are used to nail on the shingles, miss a firm hold, become loosened or rust away as the joint strips will hold all shingles firmly in place.

With this joint strip asbestos or other shingles can now be applied over old stucco. This will be a great benefit to a large number of homeowners on whose houses were applied stucco exteriors, especially where the stucco was applied over certain sheathings which will not permit nailing a new material over them. These constructions have not stood the test of time and owners of such jobs have not heretofore been able to repair their houses with new sidings as it would require the tearing off of the present material and re-sheathing before any new materials could be applied. My new joint strip can be made secure in the old stucco surface with the use of lag screws, expansion bolts or other special fasteners, and as it is not necessary to depend upon the nails ordinarily used to nail on the shingles the asbestos shingles can now be safely used over stucco. With this construction asbestos shingles can now also be applied over such sheathings as "Cellotex," plaster boards, etc., for the abovementioned reasons.

Having thus set forth the nature of my invention, what I claim is:

1. In a roof or siding, individual shingles laid in horizontal rows with the lower edge of the upper row overlapping the upper edge of the lower row, a metal joint member at the adjacent

ends of shingles in the same row of general I-shape in cross section arranged with the end edges of the shingles received between the upper and lower laterally extending flanges, an upwardly directed hook on the top of the upper flange to receive the lower edge of a shingle in the next upper row, and a downwardly directed hook on the back of the lower flange adjacent the lower end of the member to engage over the upper edge of a shingle in the next lower row.

2. In a roofing or siding, individual shingles laid in horizontal rows with the lower edge of the upper row overlapping the upper edge of the lower row, and a metal joint member at the end of the shingle comprising a web at the end edge of the shingle having laterally extending flanges spaced substantially the thickness of the shingle and receiving the end of the shingle between them, and a downwardly directed hook on the rear wall of the inner flange engaging over the upper edge of a shingle in the next lower row.

3. In a roofing or siding, individual shingles laid in horizontal rows with the lower edge of the upper row overlapping the upper edge of the lower row, and a metal joint member at the end of a shingle comprising a web at the end edge of the shingle having laterally extending flanges spaced substantially the thickness of the shingle and receiving the end of the shingle between them, said inner flange having a longitudinally extending outwardly projecting bead spaced from the web to form a channel to carry off moisture passing around the end of the shingle, and a downwardly directed hook on the rear wall of said inner flange engaging over the upper edge of a shingle in the next lower row.

4. In a siding or roofing, a plurality of shingles laid in horizontal rows, and a metal joint between ends of adjacent shingles comprising a central web and outer and inner flanges extending laterally from opposite sides of said web spaced from each other to form laterally opening channels in which the ends of the shingles are seated, and a downwardly directed hook at the back of the inner flange to seat over the upper edge of a shingle in the next lower row.

5. A metal joint for a shingle siding or roofing, comprising a web and an outer and an inner flange projecting laterally from said web in substantially parallel relation and spaced from each

other substantially the thickness of a shingle to form a laterally opening channel to receive the end edge of the shingle, and a downwardly directed hook at the rear wall of the inner flange adjacent the lower end of said member to seat over the upper edge of a shingle in the next lower row.

6. A metal joint member for adjacent shingles in a shingle siding or roofing comprising shingles in horizontal rows, said member comprising a web, outer and inner flanges extending laterally from opposite sides of said web and spaced from each other to form laterally opening channels to receive the end edges of adjacent shingles, and a downwardly directed hook at the back of an inner flange adjacent the lower end of the member to seat over the upper edge of a shingle in the next lower row.

7. A metal joint member for adjacent shingles in a shingle siding or roofing comprising shingles in horizontal rows, said member comprising a web, laterally extending flanges on opposite sides of said web spaced substantially the thickness of the shingles to provide laterally opening channels to receive the end edges of the shingles, an upwardly directed hook on an outer flange adjacent the upper end of the member to receive the lower edge of a shingle in the next upper row, and a downwardly directed hook at the rear side of an inner flange and adjacent the lower end of the member to seat over the upper edge of a shingle in the next lower row.

8. A metal joint member for a shingle siding or roof, said member being substantially I-shape in cross section with the laterally extending flanges on opposite sides of the web spaced substantially the thickness of the shingles to provide laterally opening channels to receive the end edges of adjacent shingles, said inner flanges being each provided with a longitudinal bead on its inner surface spaced from the web to form a channel for carrying off moisture passing around the edges of shingles seated in the first channels, an upwardly directed hook on the outer flange adjacent its upper end to receive the lower edge of a shingle in the next upper row, and a downwardly directed hook on the inner flange adjacent its lower end to seat over the upper edge of a shingle in the next lower row.

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