

July 30, 1940.

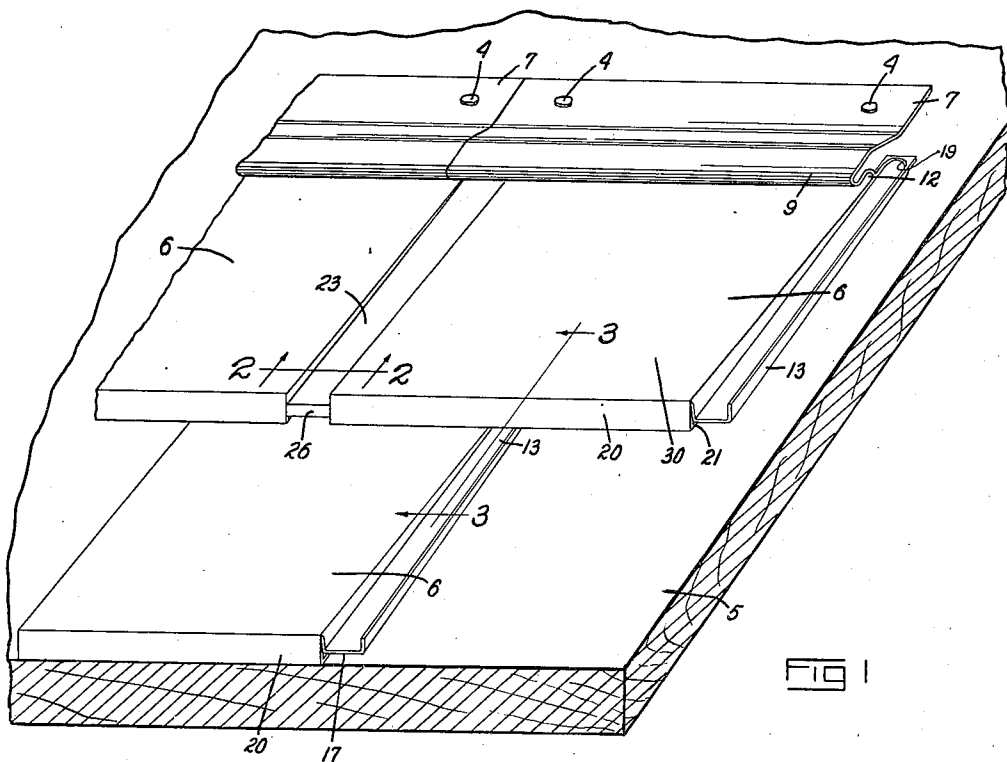
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2,209,704

SHINGLE

Filed June 14, 1939

2 Sheets-Sheet 1



19

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2 Sheets-Sheet 2

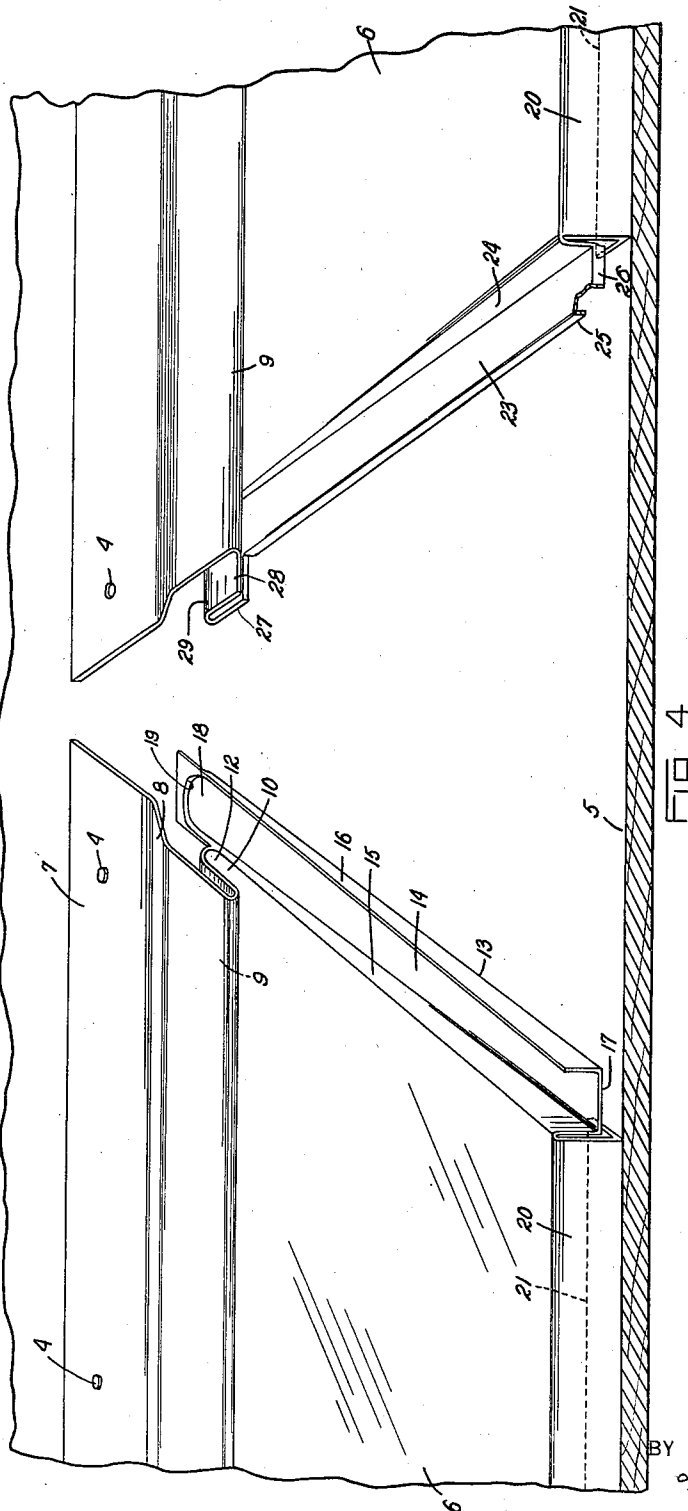


FIG 4

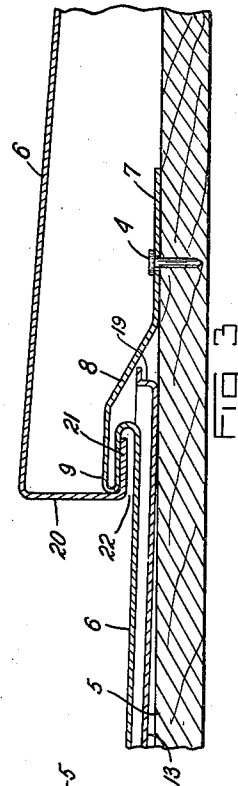


FIG 5

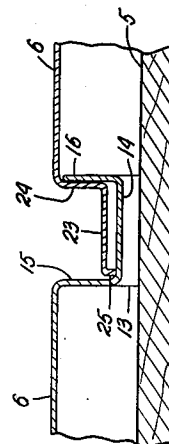


FIG 2

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SHINGLE

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12 Claims. (Cl. 108—17)

The present invention relates to improvements in a metal shingle such as may be used for roofing or siding purposes, or for any other purposes commonly assigned thereto.

5 An object of the invention is to provide a sheet metal shingle which is structurally superior to other devices, so that its durability and effectiveness for the prevention of leakage are greatly enhanced.

10 Another object of the invention is to provide an improved sheet metal shingle which is so formed that it may be easily manufactured with a saving of time and labor, and which may therefore be sold at reduced prices.

15 A further object is to provide a shingle which may easily be applied in a workman-like manner, presenting a pleasant appearance, without the employment of skilled labor.

20 The foregoing and other objects are attained by the means described herein and disclosed in the accompanying drawings, in which:

Fig. 1 is a perspective view of a roof or other support with a plurality of shingles applied thereto.

25 Fig. 2 is an enlarged cross-sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged cross-sectional view taken on line 3—3 of Fig. 1.

30 Fig. 4 is a perspective view showing two adjacent shingles, one of which is attached to a support, and the other of which is in readiness for application thereto.

35 In disclosing the present invention, it is appreciated that metallic shingles of one type or another have been proposed for use in place of shingles constructed of other materials, but for various reasons not necessary here to relate, such shingles have not heretofore enjoyed general acceptance and usage. The practicability of any metal shingle is determined chiefly upon its ability to withstand the elements, particularly wind and rain, and to effectively prevent leakage at the joints where the shingles meet or overlap. One of the conditions to be avoided when using metal shingles, is that of the capillary action of water between the metallic parts of the shingles, which might render an otherwise acceptable shingle quite objectionable on account of leakage or the penetration of water and moisture onto the roof, wall or other support for the shingles.

40 It is necessary also that the shingles possess the ability to withstand the crushing effects of walking thereon, or placing against them a ladder or other means ordinarily used in enabling

a workman to scale the shingle roof or wall. Of importance also is the provision of means whereby the shingles easily may be aligned or positioned during application, so as to present a finished pleasing appearance. The metallic shingle of the present invention has been so designed and constructed as to take into account at least the primary considerations above mentioned, along with other considerations of lesser importance.

45 With reference to the accompanying drawings, the character 5 indicates any suitable support to be shingled, for example a roof, wall or other like panel. By preference the support is of wood or other material which will receive nails or other fastening devices to be used in mounting the shingles. The main body portion of the shingle may be appropriately referred to as the weather surface, which is indicated by the reference character 6, and this is the portion which is normally exposed to the elements.

50 Since shingles ordinarily are applied to vertical or sloping supports, they may be considered as having upper and lower, or rear end forward edges, bounded by sides which are normally parallel. At the rear or top, each shingle is furnished with a nailing flange 7 adapted to contact the support 5, and in the particular shingle of this invention, the nailing flange comprises a sloping portion 8 and a forwardly directed extension 9 elevated above and overhanging the rear marginal portion 10 of the weather surface. The forwardly directed extension 9 is integral with the nailing flange and the weather surface, and is constituted of an S-bend which is not tightly closed, but deliberately made loose or open so as to result in the formation of a long channel or pocket 12 disposed transversely of the shingle from one side thereof to the other, for reasons to be explained. The forwardly directed extension 9, as will be noted, overhangs and is spaced above the weather surface of the shingle, and it projects forwardly or toward the lower edge of the shingle without coming into proximity with the weather boarding or support 5. The extension 9 forms one element of a shingle interlock which is particularly designed to avoid leakage and capillary action of water, as will be explained.

55 With reference to Fig. 4, it will be noted that the shingle at the left has along its edge a long and rather deep gutter 13, which is constituted of the bottom 14 and sides 15 and 16 which gradually deepen or taper from the region of the extension 9 toward the forward or lower edge of the shingle. The forward end 17 of the gutter preferably is an open end permitting water

drainage, whereas the rear or upper end 18 of the gutter is confined by a continuous upstanding wall 19 located above or beyond the channel 12, as is best illustrated in Fig. 3. The open forward end of the gutter preferably is located in the plane of the perpendicular wall 20 which closes the lower or forward end of the shingle.

By referring to Figs. 3 and 4, it will readily be observed that the reversely turned flange 21 of wall 20 engages or hooks beneath the spaced extension 9 of an adjacent shingle, thereby to preclude lateral separation of the shingles where they overlap, while at the same time effecting a weather proof seal. The flange 21, it should be noted, does not contact the weather surface of the shingle which it overlies, so that a space 22 is formed, which acts as a capillarity break effective for preventing creepage of water into and through the joint formed by the flange 21 and the intermediate portion of the S-shaped extension 9. By referring to Fig. 3, it will be noted that the upstanding wall 19 of the gutter is located well above or behind the interlock line of the shingles so that passage of water between the shingles and onto the support 5 is rendered impossible.

Directing attention now to the right of Fig. 4, it will be noted that the shingle there illustrated has a side which is provided with a gutter closure or cover 23, which may properly be considered an inverted channel. The cover is practically coextensive in length with the gutter 13 of the adjacent shingle, and it is supported from the weather surface of the shingle by means of the vertical tapered wall 24. At the outer edge of the cover, there is provided a downwardly turned flange 25, the purpose of which is to space the cover from the bottom of the gutter, as illustrated by Fig. 2. The full length of the gutter, therefore, is protected against the capillary action of water. To afford further protection against driving rain and wind, the lower end of the gutter closure or cover may be provided with a depending flange 26 adapted to close the open end 17 of the gutter when the cover is superposed thereon in the assembled condition of the shingles. The taper of the wall 24 corresponds to the taper of wall 15 (Fig. 4), so that the cover overlies the gutter preferably with equal spacing along the length of the gutter. As indicated in Fig. 2, the wall 16 which forms one side of the gutter, may by preference extend upwardly so as to substantially contact the underface of the shingle which carries the cover 23, thereby lending support and rigidity to the assembly. It should be noted further that the walls 24 and 25, as best illustrated in Fig. 2, fit within the gutter sides and thereby preclude the possibility of lengthwise shifting of the shingles. This feature enables an unskilled workman to apply the shingles nicely and uniformly, with a resultant perfect and pleasing appearance.

Referring again to Fig. 4, and to the shingle at the right thereof, the character 27 indicates a combination sealing and aligning lug which is integral with the upper end of the cover 23 and the intermediate web 28 of the S-shaped forward extension previously mentioned. By preference, though not of necessity, the upper edge of the lug is turned upon itself as indicated at 29, so as to impart strength and rigidity thereto while at the same time aiding in perfecting a seal against penetration by water. The lug 27 is adapted to be bodily inserted into the end of the channel 12, of the shingle at the left, there-

by to align the forward extensions 9 of both shingles, which results in aligning also the forward end walls 20 of said shingles. When the lug is inserted into the end of channel 12, a permanent and highly effective seal is afforded, which will stop not only water, but wind that would otherwise find its way between the shingles and the support to which they are mounted. As will be readily understood, especially by referring to Fig. 1, the joint formed by the lug 27 entering the pocket 12 at the upper end of the gutter, will be further sealed by the inter-engagement of the flange of the wall 20 on the superposed shingle 30. The flange of wall 20 of course, engages beneath the aligned overhanging extensions 9 of the two shingles subjacent to an overlying shingle which spans them.

It is noteworthy that the lower ends 17 of all gutters in a horizontal row of shingles will rest upon and substantially contact the horizontal row of aligned extensions 9 of subjacent shingles, so that the gutters thereby are furnished substantial support and insurance against downward sagging toward the weatherboarding or roof structure 5.

The covers for the gutters, being in turn supported by the flanges 25 resting within the gutters, will likewise be supported and protected against sagging and deformation that might otherwise close the capillarity breaking space between the cover and the bottom of the gutter. By reason of this construction, the material forming the gutters aids in maintaining an elevated disposition of the shingles with respect to the roof or other support 5, without liability to assume a major portion of any crushing or bending force that might be applied to the shingles incident to painting or repairing of the roof, wall or other shingle support.

By providing the continuous forward extension 9 in overhanging relationship to the weather surface of a subjacent shingle, without exposing the line of contact between the upper and lower shingles at the interlocking region, the shingles may be repainted after application without showing any bare or unpainted areas resulting from friction due to expansion and contraction. To explain further this point of advantage, reference to Fig. 1 is helpful, noting the overhanging extension 9; when a shingle is hooked over the extension 9 so as to overlie the nailing flange 7, no amount of subsequent chafing at the joint will expose any unpainted or chafed surfaces at that location. Repeated expansion and contraction due to temperature changes or other causes, therefore, cannot mar the appearance of the structure, as no chafing can occur upon any area whatever of the weather surface.

The nails or other fastening means 4 are fully protected from the weather, and even though they might possibly rust, there is no opportunity for the rust to reach the weather surfaces of the shingles.

The shingles may readily be formed in a press at low cost, and any weight or character of metal may be employed in the manufacture. Due to the improved structural design of the shingle, however, a light gauge metal used in the manufacture will be found to serve as effectively as heavier gauge metal in other forms of metal shingles. It should here be mentioned that each shingle comprises a weather surface bounded at its upper and lower edges by the elements 7, 9, 12, 20 and 21, and at its opposite sides by a gutter, and a gutter cover or closure, respectively. In

other words, the shingle at the right of Fig. 4 will be provided, at the side edge thereof which is not shown, with a gutter of the character illustrated at 13. This obviously results in an inverted shallow pan or box formation. The horizontal rows of shingles formed by securing a series of shingles together end to end, automatically furnishes a guide for mounting a superposed horizontal row of shingles, so that calculations and measurements are completely dispensed with if desired.

It is to be understood that various modifications and changes in minor structural details may be made, within the scope of the appended claims, without departing from the spirit of the invention.

I claim:

1. A sheet metal shingle which comprises in combination: a shallow pan-like body portion having a weather surface, and side, top, and bottom edges, depending walls on the body portion at the side edges and the bottom edge, said bottom edge wall including a flange directed toward the top edge in substantial parallelism with the body portion, a gutter formed along one of the side edges, and a gutter closure formed along the other side edge, dimensioned for reception wholly within the gutter, said gutter being channel shaped and of a width approximating the width of the gutter closure, said gutter including a bottom disposed at an elevation intermediate the bottom wall flange and the plane of the weather surface, and means on the gutter closure for spacing said closure above the bottom of the gutter a distance substantially less than the depth of the gutter.

2. A sheet metal shingle which comprises in combination: a shallow pan-like body portion having side, top, and bottom edges, depending walls on the body portion at the side edges and the bottom edge, said bottom edge wall including a flange directed toward the top edge in substantial parallelism with the body portion, a gutter formed along one of the side edges, and a gutter closure formed along the other side edge, said gutter being channel shaped and of a width slightly less than the width of the gutter closure, said gutter being at an elevation intermediate the bottom wall flange and the plane of the body portion, and means on the gutter closure for spacing said closure from the bottom of the gutter when received therein, for effecting a capillarity breaking space along a side of the shingle, and a flange depending from an end of the gutter closure for shielding one end of the gutter from water directed at said end, but without completely closing said end of the gutter.

3. A sheet metal shingle which comprises in combination: a shallow pan-like body portion having side, top, and bottom edges, depending walls on the body portion at the side edges and the bottom edge, said bottom edge wall including a flange directed toward the top edge in substantial parallelism with the body portion, a longitudinal gutter formed along one of the side edges, and a gutter closure shaped to fit wholly within the gutter, and formed along the other side edge of the body portion, said gutter being channel shaped and of a width approximating the width of the gutter closure, establishing a snug fit between the closure and the gutter to preclude relative shifting of the shingles and consequent change in the effective width of the gutter, and baffle means disposed adjacent to an end of the gutter closure transversely thereof for intercept-

ing foreign materials directed endwise of the gutter closure.

4. A sheet metal shingle which comprises in combination: a shallow pan-like body portion having a weather surface, and side, top, and bottom edges, depending walls on the body portion at the side edges and the bottom edge, said bottom edge wall including a flange directed toward the top edge in substantial parallelism with the body portion, a longitudinal gutter wholly disposed at a level below that of the weather surface and formed along one of the side edges, and a gutter closure formed along the other side edge dimensioned to fit wholly within the gutter, said gutter being channel shaped and of a width approximating the width of the gutter closure, establishing a snug fit between the closure and the gutter to preclude relative shifting of the shingles and consequent change in the effective width of the gutter, and means spacing the gutter closure from the bottom of the gutter when received therein, to provide a capillarity breaking space along the gutter.

5. In a sheet metal shingle assembly, a shingle comprising a weather surface, side edges, and a flanged lower edge, with the flange portion of said lower edge turned beneath the shingle in substantial parallelism with said weather surface, a subjacent second shingle comprising a weather surface and a continuous flange overhanging the latter near the top thereof in spaced relationship from the weather surface for a distance greater than is required for reception of the flange of the first shingle to form an interlock therewith, a gutter cover along one side edge of the first mentioned shingle, and a gutter along the opposite side edge thereof extending below the level of the weather surface and to the flanged lower edge thereof, said gutter in the region of the flanged lower edge being elevated above the flange a distance approximating the thickness of the overhanging flange of the subjacent second shingle, so as to contact and rest upon said overhanging flange of the subjacent shingle when the flanges are interlocked, thereby to establish and maintain a substantial space between the lower edge flange of the first shingle and the weather surface of the subjacent second shingle, beneath the overhanging flange of the latter.

6. In a sheet metal shingle assembly, a shingle comprising a weather surface, side edges, and a flanged lower edge, with the flange portion of said lower edge turned beneath the shingle in substantial parallelism with said weather surface, a subjacent second shingle comprising a weather surface and a continuous flange overhanging the latter near the top thereof in spaced relationship from the weather surface for a distance greater than is required for reception of the flange of the first shingle to form an interlock therewith, a gutter cover along one side edge of the first mentioned shingle, and a gutter along the opposite side edge thereof extending below the level of the weather surface and to the flanged lower edge thereof, said gutter in the region of the flanged lower edge being elevated above the flange a distance approximating the thickness of the overhanging flange of the subjacent second shingle, so as to contact and rest upon said overhanging flange of the subjacent shingle when the flanges are interlocked, thereby to establish and maintain a substantial space between the lower edge flange of the first shingle and the weather surface of the subjacent second shingle, beneath the overhanging flange of the latter, and

an upstanding vertical wall on the second shingle defining one side of its gutter, said wall being elevated to a height slightly lower than the plane of the weather surface, to provide a support for the under face of the weather surface of a similar third shingle interlocked side-edge to side-edge with the second shingle.

7. In a sheet metal shingle assembly, a shingle comprising a weather surface, side edges, and a flanged lower edge, with the flange portion of said lower edge turned beneath the shingle in substantial parallelism with said weather surface, a subjacent second shingle comprising a weather surface and a continuous flange overhanging the latter near the top thereof in spaced relationship from the weather surface for a distance greater than is required for reception of the flange of the first shingle to form an interlock therewith, a gutter cover along one side edge of the first mentioned shingle, and a gutter along the opposite side edge thereof extending below the level of the weather surface and to the flanged lower edge thereof, said gutter in the region of the flanged lower edge being elevated above the flange a distance approximating the thickness of the overhanging flange of the subjacent second shingle, so as to contact and rest upon said overhanging flange of the subjacent shingle when the flanges are interlocked, thereby to establish and maintain a substantial space between the lower edge flange of the first shingle and the weather surface of the subjacent second shingle, beneath the overhanging flange of the latter, an upstanding vertical wall on the second shingle defining one side of its gutter, said wall being elevated to a height slightly lower than the plane of the weather surface, to provide a support for the under face of the weather surface of a similar third shingle interlocked side-edge to side-edge with the second shingle, and a downturned flange along an edge of the gutter cover of the third shingle, to rest lengthwise within the gutter of the second shingle, for permanently spacing said cover from said gutter to provide a capillarity-breaking space along the length of the gutter.

8. A sheet metal shingle which comprises in combination: a shallow pan-like body portion having side, top, and bottom edges, depending upright walls on the body portion at the side edges and the bottom edge, said bottom edge wall including a flange directed toward the top edge beneath the body portion and in spaced substantial parallelism with the body portion, the depending upright wall at one side edge of the body portion being at all points progressively narrower than the bottom edge wall, with the narrowest portion disposed adjacent to the top edge of the body portion, a lateral extension and an upright flange on said one side edge wall forming an angular gutter extending from the bottom edge to the top edge of the body portion, said flange along its length being at an elevation slightly lower than the plane of the body portion by an amount approximating the thickness of the body portion, and a lateral extension and a narrow downturned flange on the other upright depending wall at the other side edge of the body portion, all dimensioned for reception within the width of a gutter as specified above, the last mentioned lateral extension furnishing a gutter cover maintained in spaced parallel relationship to the gutter by the narrow downturned flange aforesaid, and by the upright flange when constituting part of the gutter of

an adjacent similar shingle, a nailing flange along the top edge of the body portion, and a longitudinal forwardly directed extension intermediate the nailing flange and the body portion, disposed in an elevated and overhanging relationship to the body portion of the shingle for interlocking with a top edge flange of a similar adjacent shingle.

9. A sheet metal shingle which comprises in combination: a shallow pan-like body portion having side, top, and bottom edges, depending upright walls on the body portion at the side edges and the bottom edge, said bottom edge wall including a flange directed toward the top edge beneath the body portion and in spaced substantial parallelism with the body portion, the depending upright wall at one side edge of the body portion being at all points progressively narrower than the bottom edge wall, with the narrowest portion disposed adjacent to the top edge of the body portion, a lateral extension and an upright flange on said one side edge wall forming an angular gutter extending from the bottom edge to the top edge of the body portion, said flange along its length being at an elevation slightly lower than the plane of the body portion by an amount approximating the thickness of the body portion, and a lateral extension and a narrow downturned flange on the other upright depending wall at the other side edge of the body portion, all dimensioned for reception within the width of a gutter as specified above, the last mentioned lateral extension furnishing a gutter cover maintained in spaced parallel relationship to the gutter by the narrow downturned flange aforesaid, and by the upright flange when constituting part of the gutter of an adjacent similar shingle, a baffle at the forward end of the gutter for shielding the lower end of the gutter from water directed at said end, a nailing flange along the top edge of the body portion, and a longitudinal forwardly directed extension intermediate the nailing flange and the body portion, disposed in an elevated and overhanging relationship to the body portion of the shingle for interlocking with a top edge flange of a similar adjacent shingle.

10. An interlocking sheet metal shingle which comprises in combination: a generally flat body portion having a weather surface and top, bottom and opposed side edges bounding the weather surface, a gutter formed along one side edge, and a gutter cover formed along the other side edge, the top edge of the body portion including an S-bend, with the upper leg of the S-bend providing an extended nailing flange, the lower leg of the S-bend being substantially in the plane of the gutter cover, and the intermediate portion of said bend lying in spaced substantial parallelism with the weather surface, a sealing and aligning lug extending from a side edge of the body portion beyond the gutter cover and integrally therewith, constituting a straight lateral extension of the lower leg of the S-bend and a straight lateral extension of the intermediate portion of the S-bend joined together in correspondence with the lower leg and the intermediate portion of the S-bend, and a pocket at the gutter side of the shingle formed by the S-bend along the top of the body portion, for reception of a sealing and aligning lug of a similar adjacent shingle.

11. An interlocking sheet metal shingle which comprises in combination: a body portion having a weather surface and top, bottom and opposed

side edges bounding the weather surface, a gutter formed along one side edge, and a gutter cover formed along the other side edge, the top edge of the body portion including an S-bend, with the upper leg of the S-bend providing an outwardly extended nailing flange along the top edge of the body portion, the lower leg of the S-bend being a continuation of the weather surface, and the intermediate portion of said bend lying in spaced relationship over and above an upper margin of the weather surface to provide a channel extending from the gutter to and across the gutter cover, an extension on the lower leg and the intermediate portion of the metal that forms the S-bend, to project as a lug into the channel of a similar shingle upon registration of the gutter of such similar shingle with the gutter cover of the shingle specified, said extension lug being disposed laterally outwardly beyond all parts of the gutter cover.

12. An interlocking sheet metal shingle which comprises in combination: a body portion having a weather surface and top, bottom and opposed side edges bounding the weather surface, a gut-

ter formed along one side edge, and a gutter cover formed along the other side edge, the top edge of the body portion including an S-bend, with the upper leg of the S-bend providing an outwardly extended nailing flange along the top edge of the body portion, the lower leg of the S-bend being a continuation of the weather surface, and the intermediate portion of said bend lying in spaced relationship over and above an upper margin of the weather surface to provide a channel extending from the gutter to and across the gutter cover, an extension on the lower leg and the intermediate portion of the metal that forms the S-bend, to project as a lug into the channel of a similar shingle upon registration of the gutter of such similar shingle with the gutter cover of the shingle specified, said extension lug being disposed laterally outwardly beyond all parts of the gutter cover, and means associated with the gutter and the gutter cover for maintaining a capillarity-breaking space between them and for precluding relative shifting movement thereof laterally.

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