July 3, 1928. 1,676,043

N. G. OLSSON

ROOFING PLATE OR SHINGLE

Filed April 26, 1926 2 Sheets-Sheet 1

Fig. 1.

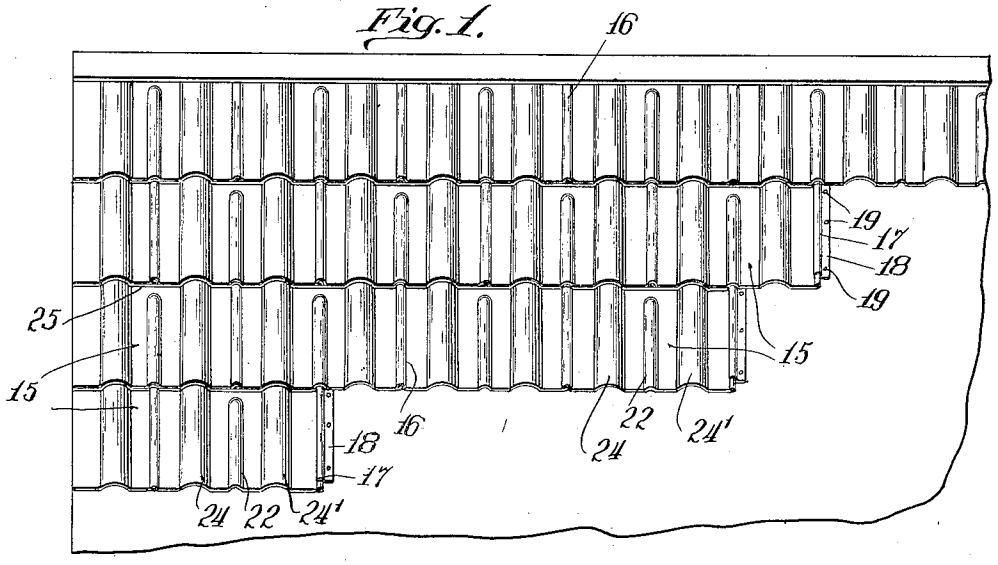


Fig. 2.

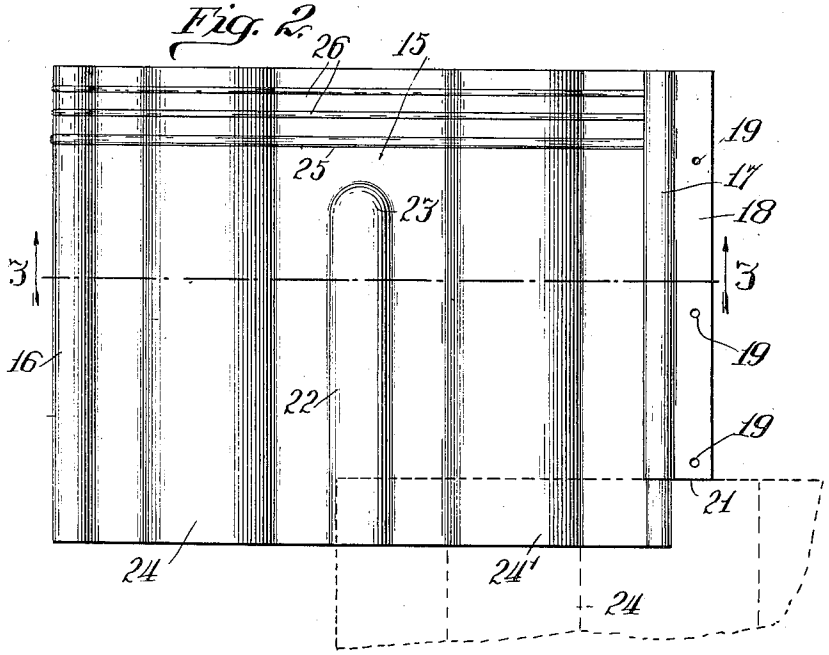


Fig. 4.

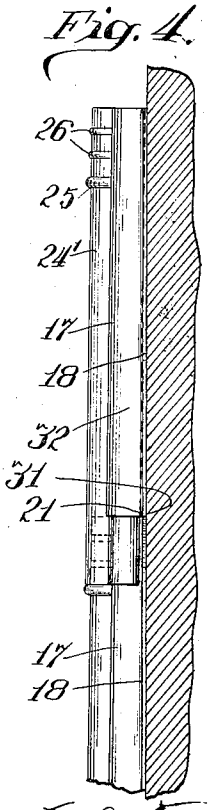
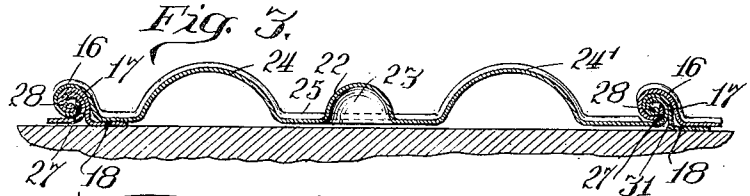


Fig. 3.

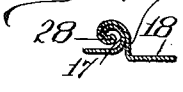


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Fig. 5.



Fig. 6.



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Filed April 26, 1926 2 Sheets-Sheet 2

Fig. 7.

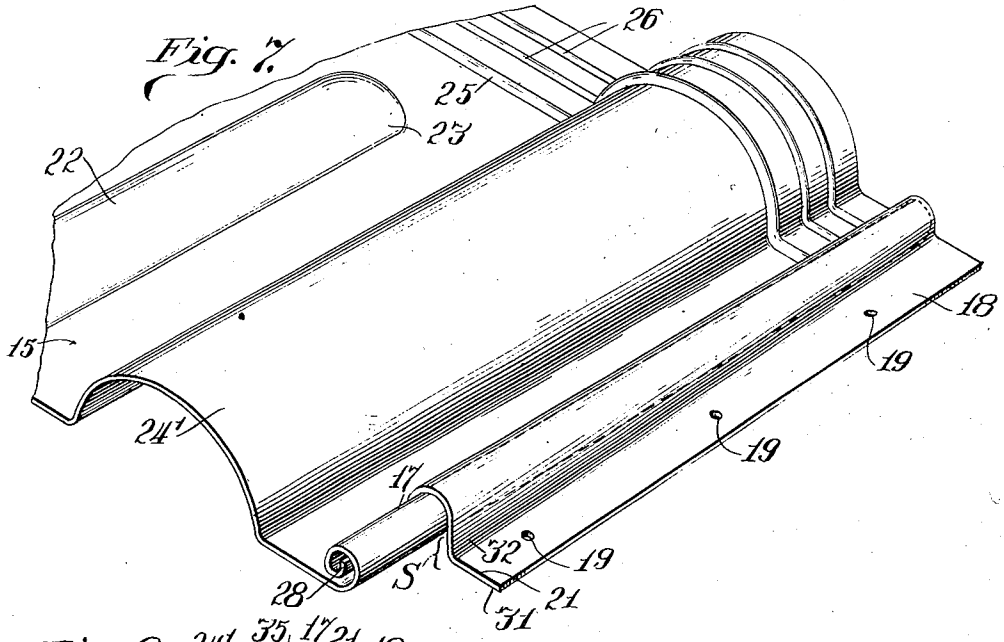


Fig. 9.

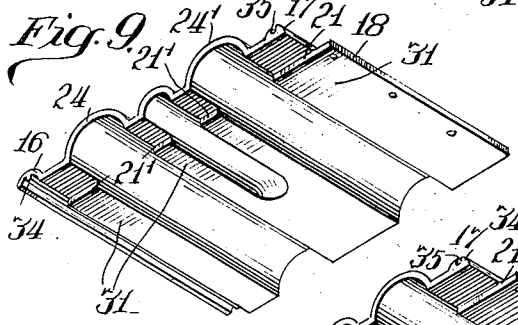


Fig. 8.

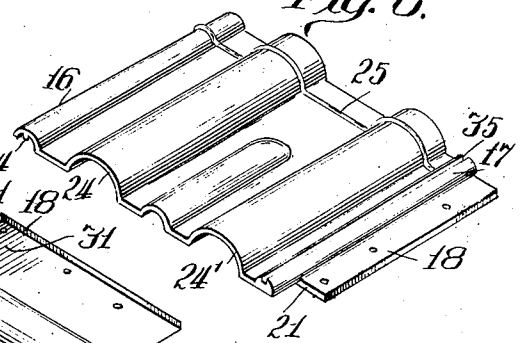


Fig. 10.

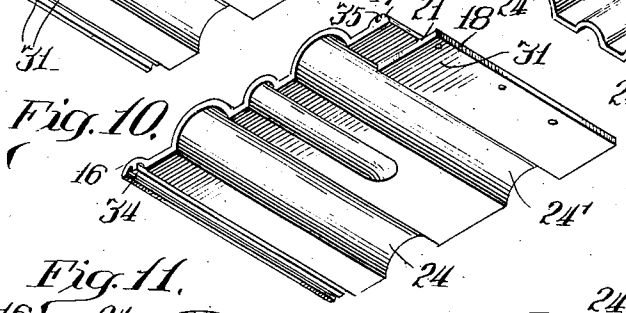


Fig. 11.

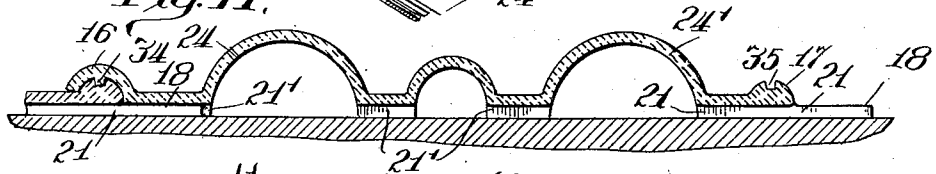
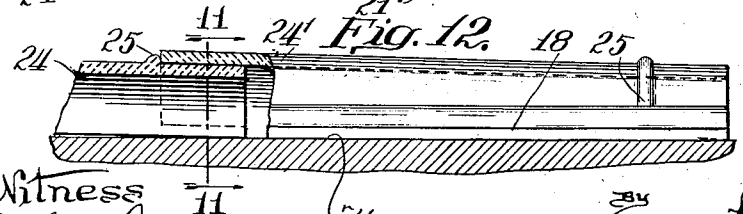


Fig. 12.



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UNITED STATES PATENT OFFICE.

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ROOFING PLATE OR SHINGLE.

Application filed April 26, 1926. Serial No. 104,508.

The present invention relates to roofing plates or shingles of that type usually constructed of metal, cement or other material, applied to the roof individually and having flanges, interlocking beads and the like preformed therein for joining the adjacent shingles together.

Heretofore, in the majority of cases, the prior shingles of this general type have been so constructed that they could only be laid from the eaves or valley of the roof upwardly. That is to say, with the majority of these prior shingles it is necessary to start laying the shingles at the eave or lower portion of the roof and to then work progressively upwards by successive rows of shingles up to the ridge of the roof. Laying the shingles in this manner has been subject to a decided objection which has impaired the popularity of this type of shingle. This objection is the necessity of building scaffolding or frame-work to support the workman for the laying of the shingles in this manner. These shingles are ordinarily quite fragile and will not support the weight of the workman without liability of injury to the shingles. Consequently when the shingles are laid from the eaves or valley of the roof in an upward direction it is necessary to erect such scaffolding or frame-work to support the workman, which is a source of considerable expense and difficulty.

It is the general object of the invention to provide a roofing shingle of the general character described above, embodying improvement whereby the shingle can be laid on the roof from the ridge down.

It is a further object of the invention to provide such a shingle in which there will be a considerable saving of material over the prior shingles which have been devised in attempting to secure this same general object.

It is a further object to provide a shingle of this general type having an improved arrangement of interlocking beads for joining the lateral edges of the adjacent shingles in each horizontal row; and to provide an improved overlapping relation between the upper and lower edges of the shingles in successive rows.

Other objects and advantages of my invention will be apparent from the following description of a preferred embodiment thereof, taken in connection with the accompanying drawings wherein:

Fig. 1 is a fragmentary side elevational view of a typical roof, showing my improved shingles in the process of being laid thereon.

Fig. 2 is a top plan view of one of the shingles, this figure illustrating the metallic type of shingle.

Fig. 3 is a transverse sectional view taken on the plane of the line 3—3 of Fig. 2.

Fig. 4 is a side or edge view of this shingle shown in Figure 2, a shingle of the next lower row being also shown in this figure to illustrate the overlapping relation.

Fig. 5 is a detail sectional view through the left hand interlocking bead of the metallic type of shingle.

Fig. 6 is a similar view through the right hand bead and attaching flange of this same type of shingle.

Fig. 7 is a fragmentary perspective view of the metallic type of shingle.

Fig. 8 is a top perspective view of my improved shingle constructed of clay, tile, cement or other equivalent material.

Fig. 9 is a perspective view illustrating the under side of this same shingle.

Fig. 10 is a similar view illustrating the under side of a modified form of shingle.

Fig. 11 is a transverse sectional view through one of these non-metallic shingles of the form shown in Fig. 9, and

Fig. 12 is a side or edge view of one of these latter shingles, a portion thereof being broken away to illustrate the overlapping relation between upper and lower rows of shingles.

Devices of this type are variously designated as shingles, plate, roofing members etc. but for clarity of description I shall employ the term shingle in its more generic sense in referring to each of these individual units.

Each shingle consists of a substantially rectangular plate 15, preferably wider than it is long, although the particular dimensions thereof can be varied as desired. An interlocking bead 16 is formed along one vertical edge of the plate, this preferably being the left hand edge of the plate. A companion interlocking bead 17 is formed adjacent the opposite vertical edge, this latter bead being set back from the edge of the plate, however, leaving an outer attaching flange 18 extending from this edge.

This attaching flange is provided with a plurality of nail holes 19 for receiving the fastening nails. The upper edge of this attaching flange 18 extends up to the upper edge of the plate, but the lower edge thereof terminates short of the lower edge of the plate, forming a stop edge or abutment surface 21, which predetermines the degree of overlap between upper and lower rows of shingles, as I shall presently describe.

Formed substantially in the center of the plate is a vertically extending raised rib 22 which starts at the lower edge of the plate with a semi-circular contour (Fig. 3) and then gradually merges into the plane of the shingle, at approximately the point 23. The lower portion of this rib is just of sufficient diameter snugly to engage over the interlocked joining beads of the two lower shingles, as will presently appear.

Where it is desired that the completed roof simulate the general appearance of a tile roof, each shingle is also formed with two large ribs or corrugations 24—24′ disposed one on each side of the central joint covering rib 22. In the completed roof, these large corrugations 24—24′ will match vertically, one with the other, between upper and lower rows of the shingles, and will give the attractive appearance of the conventional tile roof.

Formed across the upper portion of the plate is a sealing rib or bead 25, which is set down from the upper edge of the plate a distance corresponding to the spacing of the stop edge 21 from the lower edge of the shingle. This sealing bead is adapted to engage the lower edges of the shingles in the next higher row when nailed to the roof, so that a weather tight joint is secured between the overlapping edges of the shingles.

The foregoing characteristic features of the shingle are common to both the metallic construction and the non-metallic construction i. e. one constructed of cement, tile, asbestos, clay, composition material etc. When the shingle is constructed of metal the interlocking beads can be given particular formations not possible when constructing the shingle of other materials, and when constructing the shingle of metal it is desirable to provide means for spacing or so relating the overlapping portions of the shingles so as to prevent sweating between these overlapping portions. The shingle illustrated in Figures 2 to 6 inclusive is representative of the metallic type of shingle constructed in accordance with my invention, and I shall now describe these additional features embodied in this metallic construction.

To avoid the likelihood of sweating of the metal between the overlapping portions of the shingles, which is likely to result in objectionable corrosion, I form one or more spacing beads 26 across the upper portion of the shingle above the sealing bead 25, this being the portion which lies under the lower edge or edges of the shingles in the next higher row. These spacing beads serve to space the overlapping portions of the shingles across the greater portions of their overlapping areas, permitting air to penetrate between these overlapping portions and avoiding the objectionable sweating referred to above. The sealing bead 25 and the spacing bead or beads 26 extend almost entirely across the width of the shingle, being formed in the two large corrugations 24—24′ and also in the upper side of the left hand interlocking bead 16. These transverse beads are not, however, formed in the right hand interlocking bead 17, nor in the attaching flange 18, nor are they formed in the inwardly curved portion of the left hand interlocking bead 16. In the metallic construction of shingle, reference being made to Figures 5 and 6, the lateral interlocking beads 16 and 17 are rolled inwardly or upon themselves to form co-operating flanges which hook or slide together into interlocking engagement between laterally adjacent shingles. As shown in Fig. 5, the left hand bead 16 is formed with an inwardly and upwardly turned flange 27, and as shown in Fig. 6, the right hand bead 17 is also formed with an inwardly turned flange 28. The bead 16, together with its flange 27, is so constructed that it is adapted to engage over and nest within the bead 17 and flange 28, the parts being preferably constructed so that in joining laterally adjacent shingles, it is necessary to match the upper edge of the bead 16 with the lower edge of the bead 17 and to then slide these beads into interlocking engagement. This provides a joint which is fully weather proof and which securely interlocks the shingles against stresses tending to separate them either laterally or upwardly. In forming the attaching flange 18 an extending lip or flange of metal is left along this portion of the blank, this extending portion of metal being folded back over the flange 28 and thence downwardly and laterally to form the attaching flange 18. It will be evident that by this construction only a comparatively small area of metal is necessary for the formation of this attaching flange. In other types of shingles of this same general type, with which I am familiar, the formation of this attaching flange has required a considerable area of metal, no part of which serves as a roof covering.

It being one of the principal objects of the invention that these shingles can be laid from the ridge down, each shingle must necessarily be so constructed, or means must be so provided that the lower edge of each shingle will be held slightly raised from the

surface of the roof with the shingle secured thereto, in order that the next lower shingle or shingles can be inserted under the bottom edge of the higher shingle to secure the necessary overlapping relation. In the metallic construction of shingle, I preferably accomplish this by dropping the attaching flange 18 below the general plane of the shingle at the lower edge thereof. That is to say, the under side 31 of the attaching flange 18 does not lie in parallelism with the under side of the main body of the shingle, but gradually recedes or drops below the general plane of the shingle, starting from the upper edge of the shingle and extending down with a gradual taper toward the lower edge. This construction is perhaps best illustrated in Fig. 7, wherein it will be observed that an appreciable space designated *s* exists between the under side 31 of the attaching flange 18 and the under side of the bead 17 or main body portion of the shingle. This space *s* results in a narrow web 32 of metal extending between the laterally extending flange portion 18 and the under side of the interlocking bead 17. This web 32 tapers down to an inappreciable depth or terminates adjacent the upper edge of the shingle so that the under surface 31 of the attaching flange 18 will lie in substantially the same plane as the main body portion of the shingle at the upper edge thereof. The result of this construction will be that as each shingle is nailed to the roof, the attaching flange 18 will function as the main supporting surface for the shingle, holding the lower edge of the shingle in slightly raised position ready to receive the upper edge of the next lower shingle or shingles. The space *s* is proportioned so that it will just receive with a snug engagement the upper edge of the next lower shingle, permitting the spacing beads 26 to pass under this raised edge, but holding the sealing bead 25 in abutting relation against the upper edge of the upper shingle.

In laying the shingles on a roof, the shingles are laid in successive horizontal rows, starting at the ridge and working downwardly. Each horizontal row is preferably completed before starting the next lower row, although this is not essential as lower rows may be partially extended across the roof as shown in Fig. 1. After the first shingle has been nailed to the roof in the upper row the interlocking bead 16 of the next adjacent shingle is matched with the interlocking bead 17 of the secured shingle and is slid up into interlocking engagement with this secured shingle. It will be noted that this latter shingle will now cover the attaching flange 18 of the first shingle. The interlocking bead 16 is so proportioned that it can be readily slid into interlocking engagement in this manner without interference by striking the edge of the metal which is folded back over the bead 17 in forming the attaching flange 18. After this upper row of shingles has been laid in this manner, or a portion of this row has been thus laid, the next lower row is started with these lower shingles offset or staggered with respect to the upper shingles. That is to say, in starting the next lower row the corrugation 24 will be matched with the corrugation 24′ of the upper shingle, these lower shingles being thrust up under the raised lower edges of the upper shingles until the lower shingles strike the stop surface 21. This will dispose the sealing beads 25 in pressure contact with the lower edges of the upper shingles, as shown in Fig. 4. The large corrugations 24—24′ may be formed with a slight taper so that their upper ends are slightly narrower than their lower ends, to facilitate thrusting the lower shingle up under the overlapping edge of the upper shingle, although this tapered construction is not essential because the ductility or spring of the metal will permit the lower corrugations to be started under the upper corrugations without any difficulty. In joining the adjacent shingles of this lower row, the resulting joint formed by the two engaging interlocking beads, will take into the lower end of the central rib 22 of the upper shingle. The result will be that the joints in successive horizontal rows will be broken or offset relative to each other, which is a desirable characteristic. It will also be noted that it is impossible to lay these shingles in a wrong relation. For example, if the workman should endeavor to lay each lower shingle in exact alinement with the next upper shingle he would find it impossible to force the lower shingle up under the edge of the upper shingle, because the upper edge of the interlocking bead 16 would not join with the corresponding interlocking bead of the upper shingle and likewise, the upper edge of the interlocking bead 17 would not match with the corresponding bead of the upper shingle.

Attention is directed to the fact that the engagement of the sealing bead 25 with the lower edge of the upper shingle affords a sloping or deflecting surface at this joint. I have discovered that with a driving rain the force of the rain drops striking on the roof and spattering in all directions is oftentimes sufficient to drive water up under the ordinary overlapping joint. The provision of the sealing bead 25, however, interposes a deflecting surface which will deflect these particles of water up over the top of the next higher shingle so that there will be no possibility of these spattering drops of water being forced up under the overlapping edge.

The preceding construction of shingle is preferably constructed of aluminum, zinc or copper.

Figures 8 to 12 inclusive illustrate what I may term a non-metallic form of my shingle, this type of shingle being capable of construction from cement, clay, tile, asbestos, or any other composition material. The construction is generally similar to that hereinbefore described, the principal difference residing in the interlocking beads for joining the lateral edges of adjacent shingles. In this type of shingle the left hand interlocking bead 16 is of arcuate section, as best shown in Fig. 11, preferably having a ridge or rib of material 34 formed in the under side of this bead 16 and extending longitudinally throughout the entire length of the bead. The right hand interlocking bead 17 is molded in the form of a raised, semi-cylindrical projection, having a notch or slot 35 therein, extending throughout the length of the bead 17, and proportioned to receive the rib or lug 34 of the bead 16. This shingle is preferably formed with the sealing bead 25, described in the preceding embodiment, for securing the water proof joint between the overlapping edges of the shingles, but I do not find it necessary to provide the spacing beads 26 in this type of shingle.

In the construction shown in Fig. 10 the under surface 31 of the attaching flange 18 extends downwardly or recedes from the general plane of the rest of the shingle, in substantially the relation previously described, for supporting the lower edge of this shingle in raised relation. This downwardly tapering under surface 31 may be formed across the width of the attaching flange 18 and across the under side of the interlocking bead 17, terminating at the edge of the corrugation 24'. This construction will provide a relatively wide stop shoulder 21 at this side of the shingle.

In Figures 9 and 11 this downwardly tapering under surface 31 is formed across the entire width of the shingle, Fig. 9 illustrating this construction most clearly. This will provide stop shoulders 21—21' across the entire width of the shingle, and, moreover, by this construction the shingle will have firm bearing support across its entire width. The large corrugations 24—24' may be slightly tapered to facilitate the nesting of the corrugations of each lower shingle within those of the next higher shingle, although this is not essential.

These shingles are laid in the same manner as the metallic shingles previously described. With either of these embodiments, the ridge of the roof and the gable edges thereof are covered or completed in any suitable manner, such as by special plates or covering members which constitute no part of the present invention. Where the shingles project from these gable ends at the alternate rows, these shingles may be cut off, or special shingles may be provided for these ends.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A roofing shingle adapted for laying from the ridge down comprising a plate having a first interlocking bead formed along one vertical edge of said plate, a second interlocking bead formed adjacent the opposite vertical edge of said plate, said first interlocking bead being adapted to engage with the second interlocking bead of an adjacent shingle, and an attaching flange extending along one vertical edge of said plate, the under surface of said attaching flange extending at an angle to the general plane of the shingle to support the lower edge of the shingle in raised position for receiving the upper edge of the next lower shingle, said plate being further provided with a central raised rib extending from its lower edge and adapted for reception of the interlocked beads of a pair of shingles of the next lower course of shingles.

2. A roofing shingle adapted for laying from the ridge down comprising a plate having a first interlocking bead formed along one vertical edge thereof, a second interlocking bead formed adjacent the opposite vertical edge thereof, an attaching flange extending laterally from said latter bead, and a tapering web portion joining said attaching flange to said latter bead.

3. A roofing shingle adapted for laying from the ridge down comprising a plate having a first interlocking bead formed along one vertical edge thereof, a second interlocking bead formed adjacent the opposite vertical edge thereof, an attaching flange extending laterally from said latter bead, and a tapering web portion joining said attaching flange to said latter bead, said tapering web portion disposing said flange at an angle to the main body portion of said plate for holding the lower edge of said plate in raised position, said flange terminating short of the lower edge of said plate to define a stop shoulder for limiting the degree of overlap between upper and lower rows of shingles.

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