INTERLOCKING ROOF TILES

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This invention has reference to a set of interlocking roof tiles which are specially well adapted for use for covering roofs of houses and like buildings in geographical location where roofs as heretofore constructed are frequently damaged by wind of high velocity.

The object of the present invention is the provision of a set of interlocking roof tiles and cooperating elements in combination which will withstand wind of hurricane force without being damaged by such wind, while being durable, conveniently installed by unskilled labor and cheap to manufacture.

The novel features of the invention will appear from the following description and by the claims appended thereto, reference being had to the accompanying drawing in which:

Fig. 1 is a partial view in perspective of a roof structure covered by interlocking tiles constructed according to the present invention showing the tiles and cooperating elements assembled;

Fig. 2 is a partial end view in perspective of one of the slopes of the roof structure shown in Fig. 1, a number of tiles being shown nailed in interlocked relation to the roof boards and with a number of tiles shown with portions broken away;

Fig. 3 is a view in perspective of one of the roof tiles constructed according to the invention;

Fig. 4 is a view in perspective of a tile used in cooperation with the tile shown in Fig. 3 at the eaves and at the peak part of the roof;

Fig. 5 is a view of a tile in perspective adapted to be nailed to the roof boards at the side edges thereof following the laying of the tiles, shown in Figs. 2 and 3;

Fig. 6 is a view in perspective of a tile, a number of which are adapted to be nailed to the side edges of the roof boards over the small end of the tiles shown in Fig. 5 and under such tiles which are placed at the eave parts of the roof;

Fig. 7 is a view in perspective of a drip strip adapted to be nailed to the eave board of the roof to serve for assisting in readily locating the tiles, shown in Fig. 4, in rows at equal spaced relation to each other;

Fig. 8 is a view in perspective of a metallic strip, two of which are nailed to the roof a small distance apart from the peak thereof, for preventing wind and rain reaching this point of the roof from the valleys formed between successive rows of tiles in their assembled relation;

Fig. 9 is a view in perspective of a molding strip adapted to engage the ridges formed with the strips, shown in Figs. 1 and 5;

Fig. 10 is a view in perspective of a piece of molding strip adapted to be fitted over the adjacent or meeting ends of two lengths of the molding strip shown in Fig. 9;

Fig. 11 is a partial end view of a number of tiles shown in Fig. 3, two of the tiles being shown nailed in interlocked relation on the board of the roof, and portions of two inverted tiles in engaged relation with the nailed tiles, and

Fig. 12 is a view in perspective of a plate adapted to

be secured to the end portions of the strips, shown in Fig. 8, at the completion of the tiles laying operation.

The set of tiles of the present invention may consist of any number of tiles 14—14a, both of similar channel shaped cross section and, may be constructed, for example, of plastic sheet, metal, aluminum, or any other suitable like sheet material as shown in Figs. 1, 2, 3 and 11. The longitudinal edges of the walls of these tiles are shaped to form inwardly extending projections or ridges 15 and 16 to serve for interlocking these tiles to each other in a manner which will be hereinafter described in detail.

The base or bottom of tiles 14 and 14a are formed with a taper as best shown in Figs. 1, 2, 3 and 5, while the walls themselves form another taper, and both tapers are of such value as to limit their longitudinal sliding engagement into each other with a lap substantially one third of their length. The tiles 14a, Figs. 1 and 2, are longitudinally fitted into each other with their bottom sides resting against the felt F placed over the roof structure, and each is provided, adjacent the edge of its larger end with a hole 17 for securing such tiles, as by nailing to the board RB of the roof, as shown in Fig. 2, as the laying of the tiles proceeds from any one of the eaves to the peak of the roof, while a number of the channel shaped tiles 14 are disposed in an inverted position with the ridges 15—16 of these tiles engaging the under side of the ridges 15—16 of the interengaged tiles 14a which, as above mentioned, are nailed to the boards of the roof.

The tiles 14—14a are disposed in equally spaced rows along the eave board of the roof as defined by a drip strip 18, shown in Figs. 2 and 7 secured to the roof at the eave edge thereof prior to the laying of the tiles, while two strips 19—19a, shown in Figs. 1 and 8, which are of similar construction, are secured to the boards at the peak of the roof structure to serve as wind and rain barrier in the valleys formed by the rows of tiles 14a and the rows of tiles 14 while serving to define the spaced relation of the tiles at that part of the roof.

The strip 18 is formed with lug members 20 extending at an angle relative to the plane surface of the strip, and these lugs are provided at their free ends with drilled holes 21 serving for receiving nails for securing such strip, as above mentioned, to the eave board of the roof.

The strip 18, in addition, is provided with equally spaced upwardly extending arms 22 which are formed to register with the inner peripheral surface of taper channel shaped tiles 23 which are disposed in the inverted position and the outer disposed surface of tiles 23b, Fig. 2, fitted under the larger ends of tiles 14 which are disposed at the eave of the roof, while a number of tiles 23a, Fig. 1, which are similar in construction to that of tiles 23—23b, Fig. 2, are fitted over the small ends of tiles 14 at the peak of the roof, the tiles 23, 23a, 23b being each provided with inwardly formed longitudinal ridges 15a and 16a cooperating with the ridges 15—16 of tiles 14a to form guiding grooves for receiving the ridges of tiles 14 and ridges of tiles 23 in the assembled relation at the eaves of the roof.

The channel shaped openings 24 in strip 18, which are defined by the sides of the successive arms 22, register with the outer periphery of tiles 23b fitted under the small end of tiles 14a which, as above mentioned, are nailed in position to the boards of the roof at the eave thereof.

The strip 19 which, like all the elements cooperating in the roof construction of the present invention as shown in the several views of applicant's drawing, is formed of thin sheet metal having at its ends arms 25 and 25a and a number of arms 27, shaped as to register with the outer disposed contours of the rows of tiles 23a and 14a assembled, while the free ends 28 of each arm 27 is formed with a lug member 29 bent at an angle thereto, and each of these lugs is provided with a drilled hole as
serving for securing the strip to the board of the roof structure in position, shown in Fig. 1. The strips 19—
19a which, as above mentioned, are of similar sheet material construction, are each provided with a longitudinal ridge 21 which, when these strips are nailed to their respective slope of the roof, a small distance from the peak thereof, cooperate with each other to form guiding elements for receiving the channel shaped grooves 36 and 37 formed by the folds of a molding strip 32, shown in Fig. 9, serving for inserting the space between the strips 19—19a at the peak of the roof, while a molding strip 33 of a relatively short length, shown in Figs. 1 and 10, is fitted over the molding strip 32 in position at the meeting ends thereof whenever two or more lengths of such strip are required so as to extend over the whole length of the roof, the molding strip pieces 33 being held in position onto the molding strip 32 by the medium of its own resiliency with its inwardly bent edge portions 34 and 35 engaging the under side surface of the guiding elements forming the grooves of the molding strip 32, as best seen in Fig. 1.

The arms 38 and 39 formed at the ends of drip strip 18 are shaped to register with the inner periphery of a tile 40, Figs. 2 and 6, disposed at the side edge of the roof. This tile is provided with a ridge 41 for engaging the guiding groove formed by the assembly of tiles 14c and 23b, while the flange shaped side 42 of tile 40 extends downwardly with its lower edge in abutment with the substantially lower edge of the lower edge of drip strip 18, while the side 42 of tile 40 is provided with holes 43 for receiving nails serving for securing this tile to the board of the roof at the side edge thereof.

Tiles 44, shown as Figs. 1, 2 and 5, are of similar construction and each of a length similar to that of tile 14, and, like tile 40, one of its sides, as shown in Fig. 2, is provided with a ridge 45 adapted to engage the under side surface of ridge 16 of the tile 14c at the eave side of the roof, while its downwardly extending flange portion 47 is provided with holes 46 serving for receiving nails for securing such tile to the roof board at the side edge thereof over the tile 40.

A substantially T-shaped plate 48, Fig. 12, is constructed of a width corresponding to the spaced relation between the arms 25—25a of strips 19—19a and one of the plates 45 is secured to the arms 25—25a at each end of the roof, as by means of bolts, not shown, extending through the holes 49 and 50 in the flanges of plate 48 and through registering holes 51—51a in the arms 25—25a of strips 19—19a, while the top disposed portion 52 of the plate 48 is shaped to register with the transverse contour of the inner periphery of strip 32 so as to effectively close the space formed by the strips 19—19a at both ends of the roof at these points.

Tiles of the present invention are conveniently laid by first securing the strip 18 to the eave board RB of the roof a short distance from the eave edge thereof in the position as shown in Fig. 2 by means of ordinary nails, not shown, fitted in respective hole 21 at the end of each lug 20, the upward projecting arms 22 formed with that strip providing means for readily locating the short length tiles 235 which are fitted into the space defined by the channel shaped openings formed by the peripheral edging of the arms 22, while the short inverted tiles 23, which as above mentioned are similar in construction to the tiles 235 and of a taper similar to that of the tiles 14—14a are readily located by their engagement with the enlarged top portion of arms 22.

The small ends of tiles 14a are secured into the tiles 235 that are in position to the board of the roof, and this is followed by placing the required number of tiles 14a successively in engagement with the tiles 235 to form the assembled horizontal row.

The longitudinal distance engagement of the tiles 14—
14a inside each other is limited to substantially one third of their length by the height of the side wall taper and

the taper of the base or bottom of these tiles, such tapers being of such value as to produce a clearance space between the ridges of any two engaged tiles, which clearance is maintained by the elongated upper lateral edges of the ridges, as 15—16 and 15a—16a, formed along the inwardly extending edges of the tiles for permitting their longitudinal engagement as shown in Figs. 1 and 2. The tile 40 which also has a taper similar to that of tiles 14—14a, but of a shorter length is then placed in position with its taper engaged into the flange strip formed by the engagement of tiles 23b and 14a at that point with the flange portion 42 of tile 40 extending downwardly in a vertical direction in line with the lower edge of strip 18 and secured in that position by nails engaging the holes 43, this being followed by placing the tile 44 in position at the edge of the roof over the tile 40 with its ridge portion 45 placed under the ridge of tile 14a disposed at the left end of the first horizontal row of tiles at the eave of the roof, the tile 44 is then nailed to the board of the roof and the tile laying operation is continued in an identical manner from the eave of each slope to the peak of the roof. A roof covered with tiles constructed according to the present invention is of light weight, economical, and because of the tight fit of the tiles throughout their engaged length, produce a roof which is leak-proof under the most severe weather condition.

The strips 19—19a are nailed to the inner periphery of the roof board in parallel spaced relation to each other, as defined by the edge of the end plates 48 which are secured to the ends of the arms 25—25a of strips 19—19a by a number of ordinary bolts, not shown, engaging the holes 51—51a in the strips and in the registering holes 49 and 50 in the flanges of the end plates, the molding strip 32 being placed in position wherein the guiding grooves 36 and 37 of this molding strip engage the ridges 31—31a of the strips 19—19a, followed by inserting the short length of molding strip 33 over the meeting ends of two molding strips 32, the strip 33 being held in position thereon by its ridges 34 and 35 engaging the under side of the guiding elements formed with this strip by the medium of its own resiliency.

It is understood that minor changes may be made to the roof tiles and cooperating elements of the present invention without departing from the scope of the appended claims.

What is claimed is:

1. A set of lengthwise interlocking tiles, each tile constructed of sheet metal shaped to form a tapered channel of rectangular cross section, the side walls of said channel decreasing in height from one end to the other end to form another taper, said tapers cooperating with each other for limiting the interengagement of said tiles to a distance substantially one third of their length when in the assembled relation in parallelly disposed rows, a drip strip, lug members carried by said drip strip for securing the latter to the eave part of the roof, said drip strip having means for interengaging the outer disposed periphery of a number of said tiles and the inner disposed periphery of another number of said tiles for defining the spaced interengaged relation of said tiles in said rows, a pair of parallelly disposed strips, each of said strips having plurality of arms for engaging the inner periphery of a number of said tiles and the outer disposed periphery of another number of said tiles, means carried by the arms formed with said strips in said pair for securing the latter to the room board in spaced relation to each other adjacent the peak part of the roof, said strips in use with said having ridge elements formed along their length, a molding strip having guiding means for engaging the ridges formed with said parallelly disposed strips to form a closure therebetweent, an arm member formed at the opposed end of each of said strips in said pair, and a plate secured to similarly disposed arms at the ends of said strips in said pair to form closures therebetweent at the top sides of the roof.
2. A set of lengthwise interlocking roof tiles, each constructed of sheet metal shaped to form a tapered channel of rectangular cross section, ridges formed at the edge of the side walls of said channel inwardly thereof, said side walls decreasing in height along their length to form another taper, the first and second mentioned taper cooperating with each other for limiting the engaging relation of a number of said tiles to a distance substantially one third of their length, guiding grooves formed by the ridges of said tiles in said relation, said grooves serving for receiving the ridges of another number of said tiles for interlocking therewith, a drip strip, arm members carried by said drip strip having means for interengaging the outer disposed periphery of a number of said tiles and the inner disposed periphery of another number of said tiles, a pair of parallelly disposed strips secured to the peak part of the roof in spaced relation to each other, each of said strips in said pair having a ridge formed lengthwise thereof, arm members carried by said strips in said pair for engaging the inner periphery of a number of said tiles and the outer periphery of another number of said tiles in said engaged relation, means carried by the arm members of each of said strips in said pair for securing the latter to respective slope of the roof, a molding strip having lengthwise formed guiding grooves at its edge portions for engaging the ridges formed with each of said strips in said pair, an arm member formed at each end portion of the last mentioned strips, and a substantially T-shaped plate secured to each of the two similarly disposed arms of said strips in said pair, said plates cooperating with said molding strip and the strips in said pair to form closures at the peak and top sides of the roof.

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