March 21, 1967 A. MISCH ET AL 3,309,831

PLASTIC SHINGLE WITH INTERFITTING MEANS

Filed Dec. 9, 1964 2 Sheets-Sheet 1

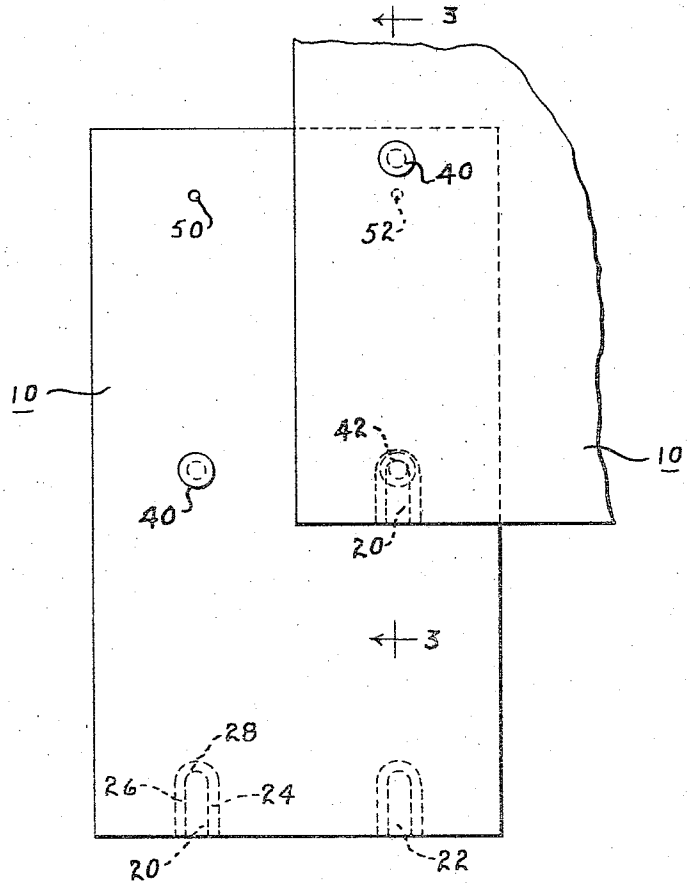



FIG. 1

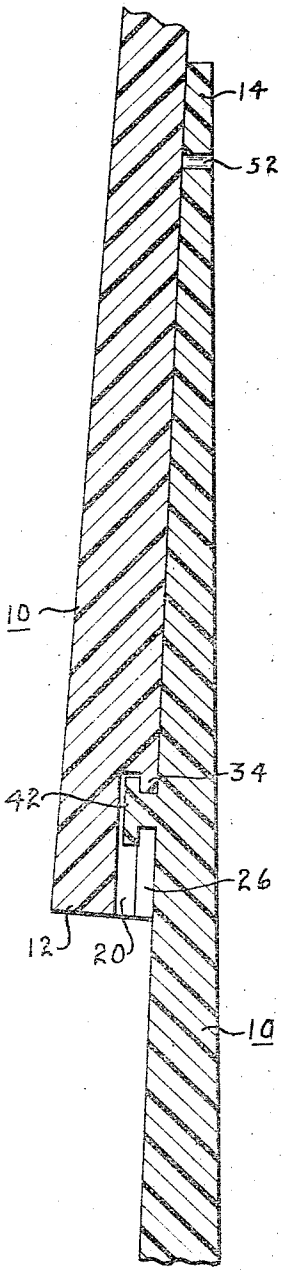



FIG. 3

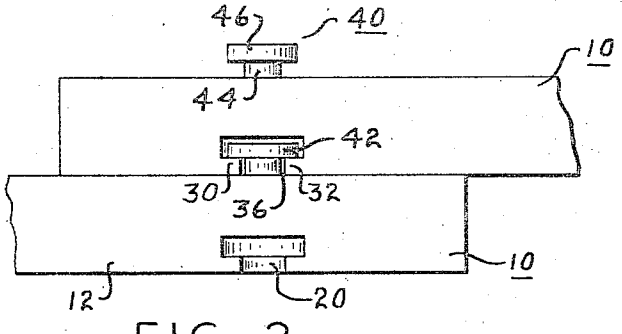



FIG. 2

INVENTORS
ARTHUR MISCH
RAMON W. MESSNER
BY
ATTORNEY

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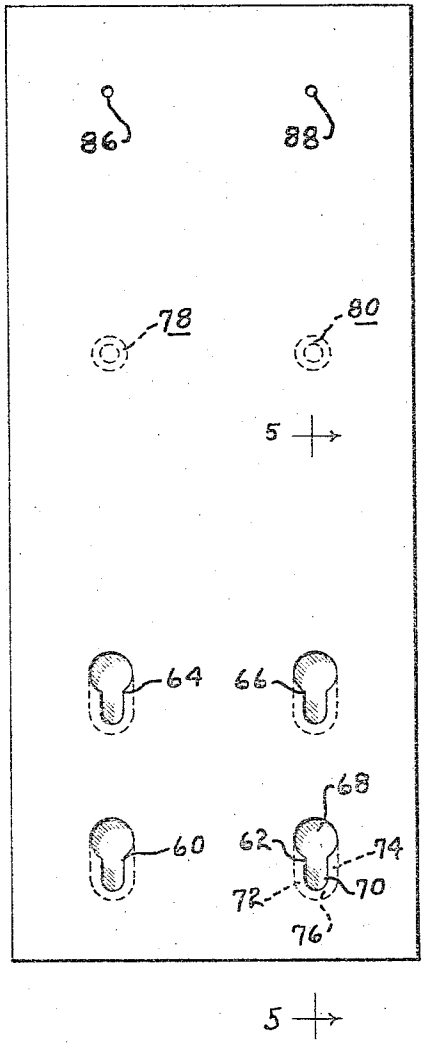



FIG. 4

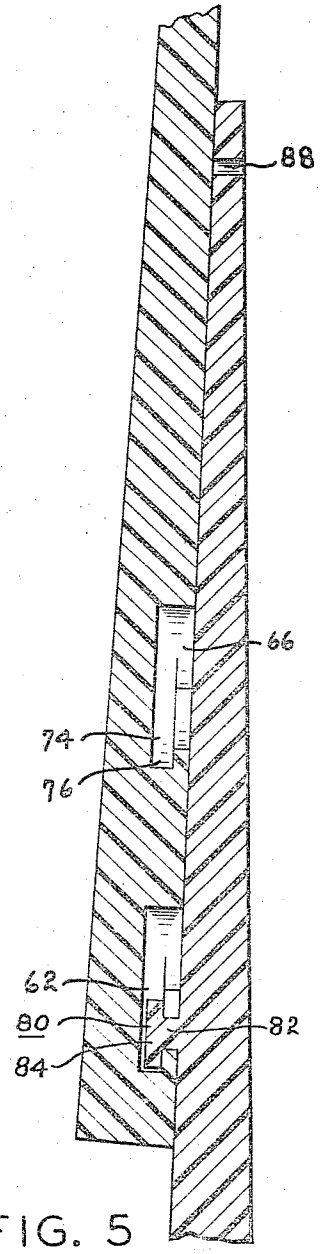



FIG. 5

INVENTORS
ARTHUR MISCH
RAMON W. MESSNER
BY
m a Hobbs
ATTORNEY

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# PLASTIC SHINGLE WITH INTERFITTING MEANS

Arthur Misch, St. Joseph County, Mich. (2101 Peachtree Lane, South Bend, Ind. 46617), and Ramon Wayne Messner, St. Joseph County, Ind. (525 S. Washington St., Constantine, Mich. 49042)

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8 Claims. (Cl. 52—546)

The present invention relates to a roof covering and siding, and more particularly to a plastic shingle structure.

In recent years plastics have been developed which have remarkable resistance to weather conditions, including sun, wide variations in temperature, and rain and snow; however, these durable materials are flexible, particularly at elevated summer temperatures, and hence, may be distorted extensively temporarily and, at least to a smaller extent, permanently. The plastic materials are particularly suitable for shingles or clapboard for roofing and a siding resembling the heavier, larger and thicker natural wood shingles and clapboard structures. However, the flexibility and the tendency to become distorted, particularly when warm, have prevented extensive use of these durable plastics in the siding and roofing fields. Further, clips and nails for securing the shingles and simultaneously holding them down firmly against the adjacent shingles are unsatisfactory in that to do an effective job, they are visible or prevent the shingles from remaining firmly against the respective lower layers. It is therefore one of the principal objects of the present invention to provide a shingle or clapboard constructed of durable plastic material which is so interlocked with the adjacent shingle layers that it remains in place regardless of temperature and/or wind and will retain the desired shape without distortion for an indefinite period of time.

Another object of the invention is to provide a shingle or clapboard construction which has interlocking means to hold it firmly in place against the immediate lower layer and which can be laid or secured in place as readily as conventional wood or composition shingles, and which, when secured in place, has the appearance of shingles or clapboard of natural wood.

Still another object of the invention is to provide a plastic shingle having an interlocking securing structure which is completely concealed when the shingles are in place on the roof or siding and which can easily be locked in place without the use of any tools, fixtures or compositions, such as cement or roofing tar.

A further object is to provide a roofing and siding structure of the aforementioned type which can be fabricated using conventional equipment and know-how, and made in a large variety of shapes, designs and colors.

Additional objects and advantages of the present invention will become apparent from the following description and accompanying drawings, wherein:

FIGURE 1 is a plan view of two shingles, showing the interlocking relationship thereof;

FIGURE 2 is a fragmentary view of the shingles shown in FIGURE 1, looking at the shingles from the lower edge thereof;

FIGURE 3 is a fragmentary cross sectional view of the shingles shown in FIGURES 1 and 2, the section being taken on line 3—3 of FIGURE 1;

FIGURE 4 is a bottom plan view of a modified form of a shingle embodying the present invention; and

FIGURE 5 is a vertical cross sectional view of the shingle shown in FIGURE 4 in combination with the shingle on the layer immediately below, illustrating the manner in which the shingles interlock to secure them firmly in place on the roof, the section of FIGURE 5 being taken on line 5—5 of FIGURE 4.



Referring more specifically to the drawings and to the embodiment of the invention illustrated in FIGURES 1 through 3 in particular, numeral **10** designates a shingle constructed of plastic material and having a tapered form of the same configuration as conventional shingles, tapering throughout its length from a thick lower edge **12** to a thin upper edge **14**. The shingles overlap one another in the same manner as conventional shingles, as illustrated in FIGURE 3, and, in the illustration of the drawings, the shingle is of heavy, thick construction similar to that used on rustic houses, being similar to the wood clapboard type siding.

One of the primary features of the present invention is the structure for holding the shingles flat and firmly against one another, as illustrated in FIGURES 1 through 3. The embodiment of the present invention shown in these figures consists of two grooves **20** and **22** extending upwardly from the lower edge of the shingle. These grooves may extend up various distances; however, they would normally not be more than one to two inches from the lower edge. Each groove is provided with inner recess portions **24** and **26** along the sides and at the end **28**, thus providing inwardly extending shoulders **30** and **32** along the sides and an arcuate shoulder **34** at the inner end of the groove. The groove has a restricted opening **36**.

Each shingle is provided with two upstanding lugs **40** and **42**, each having a neck **44** and head **46**, the neck and head being substantially the same diameter as the width of the restricted groove **36** and the distance between the external edges of recesses **24** and **26**, so that the head and neck of the lug can slip into the groove and firmly interlock the two shingles together. While two slots and two lugs are shown in each shingle, the number may be varied to suit requirements, particularly when the size of the shingle is varied, so that some shingles may have only one groove and lug, whereas larger and wider shingles may have three or more grooves and lugs. In this embodiment of the invention the inter-locking securing structure is partially visible only at the lower edge of the shingle, such that it merely appears to be an inwardly extending channel at the locations of grooves **20** and **22**.

While the present shingle is not limited to any particular plastic composition, since a large number of plastic materials can be used satisfactorily, those having good durability in outdoor weather conditions are of course preferred. Some of these compositions suitable for long lasting beauty are those sold under the names "Vinyl" and "Polyethylene."

When the shingles have been fabricated to form the previously described structure, the shingles are easily applied to the side of a house or on the roof by securing a lower row of shingles by driving nails through holes **50** and **52** into the sheathing and then securing the next layer of shingles by slipping the grooves **20** and **22** of each shingle over lugs **40** and **42** of two side-by-side shingles in the manner illustrated in FIGURE 1, thus interlocking the lower and upper shingles firmly together. The second shingle is then nailed in place using holes **50** and **52**. The entire roof is laid in this manner, each layer being firmly secured by the interlocking lug and groove structure previously described.

Referring to the modified form shown in FIGURES 4 and 5, the shape and composition of the shingle may be the same as those described above; however, the interlocking structure is somewhat different. In this structure, there are upper and lower pairs of slots, the lower pair consisting of slots **60** and **62** and the upper pair consisting of slots **64** and **66**, the four slots being the same in construction. Each slot consists of an enlarged opening **68** and a narrow groove **70** connected to the lower surface of the shingle, and each is provided with lateral

recesses **72** and **74** extending from opening **68** along the sides of slot **70** and connected to one another by the arcuate recess **76** at the lower end of the slot. The shingles are provided with lugs **78** and **80** on the opposite and upper sides of the shingles, each lug consisting of a neck **82** and head **84**, the head and neck being only slightly smaller than opening **68** and slot **70**, respectively, so that the head may pass through opening **68** and seat in recesses **72**, **74** and **76**, as neck **82** passes downwardly along slot **70**. Since the top shingle overlaps laterally two lower shingles, lug **78** seats in slot **62** and lug **80** seats in slot **60** of the shingle immediately to the right of the one shown in FIGURE 4. The purpose of slots **64** and **66** is to provide a variation in the overlap of the shingles, particularly at either the lower or upper edges of the roof. The manner in which the shingles are secured is the same as that described previously, using nails in holes **86** and **88**.

After the lugs have been seated in slots **60** and **62** or **64** and **66**, the shingle is secured in place by nails placed in holes **86** and **88** and extending into the sheathing or siding of the building structure. With the foregoing structure, even though the plastic material of the shingle should become substantially flexible or limp, the lugs and interlocking slots hold the shingle firmly in place until the temperature is reduced to the point where the shingle becomes relatively rigid. Regardless of the flexibility of the shingle, the interlocking lugs and slots hold each shingle firmly against the surface of the layer immediately below, preventing the shingles from curling or being raised or loosened by the wind.

While only two embodiments of the present invention have been described in detail herein, various changes and modifications in detail may be made without departing from the scope of the invention.

We claim:

**1.** A shingle, clapboard and the like, comprising a tapered panel of flexible plastic material with a thick lower end and a thin upper end, a plurality of grooves extending inwardly from said lower end and having lateral recesses and shoulders on each side of the grooves and a curved recess at the end of the groove, and a lug for each groove, said lug being nearer the upper end than said groove and being in longitudinal alignment with said groove on the opposite side of the shingle, and said lug having a neck and head for slipping into said groove and recesses, respectively, when the shingle is applied to a supporting structure.

**2.** A shingle, clapboard and the like, comprising a tapered panel of plastic material with a thick lower end and a thin upper end, a plurality of grooves extending inwardly from said lower end and having lateral recesses and shoulders on each side of the groove and a curved recess at the end of the groove, and a lug for each groove projecting outwardly from the side of said panel opposite said groove nearer the upper end than said grooves and being in longitudinal alignment with said grooves, said lug having a neck and a head for slipping into said groove and recesses, respectively, when the shingle is applied to a supporting structure.

**3.** A shingle, clapboard and the like, comprising a tapered panel with a thick lower end and a thin upper end, a plurality of grooves extending inwardly from the lower end and having lateral recesses and shoulders on each side of the groove, and a lug for each groove projecting outwardly from the side of said panel opposite said groove nearer the upper end than said groove and being in longitudinal alignment therewith, said lug having a neck and head for slipping into said groove and recesses, respectively, when the shingle is applied to a supporting structure.



**4.** A shingle, clapboard and the like, comprising a tapered panel with a thick lower end and a thin upper end, a groove extending inwardly from the lower end and having lateral recesses and shoulders on each side of the groove, and a lug projecting outwardly from the side of said panel opposite said groove nearer the upper end than said groove and being in longitudinal alignment therewith, said lug having a neck and head for slipping into said groove and recesses, respectively, when the shingle is applied to a supporting structure.

**5.** A shingle, clapboard and the like, comprising a tapered panel of plastic material, a plurality of grooves spaced an equal distance from the lower end and having an enlarged opening near the upper end and having lateral recesses along each side extending from said opening to the other end of said groove and a curved recess at the end of said groove opposite said opening, and a lug corresponding to each of said grooves projecting outwardly from the side of said panel opposite said groove and being in longitudinal alignment with one of said grooves but spaced toward the upper end of the panel therefrom, each of said lugs having a neck and head for slipping into said groove and recesses, respectively, when the shingles are applied to a supporting structure.

**6.** A shingle, clapboard and the like, comprising a tapered panel of plastic material, a groove having an enlarged opening near the upper end and having lateral recesses along each side extending from said opening to the other end of said groove and a curved recess at the end of said groove opposite said opening, and a lug projecting outwardly from the side of said panel opposite said groove and being in longitudinal alignment with said groove but spaced toward the upper end of the panel therefrom, said lug having a neck and head for slipping into said groove and recesses, respectively, when the shingles are applied to a supporting structure.

**7.** A shingle, clapboard and the like, comprising a tapered panel, a plurality of grooves having an enlarged opening near one end and having lateral recesses along each side extending from said opening to the other end of said groove and a curved recess at the end of said groove opposite said opening, and a lug corresponding to each of said grooves projecting outwardly from the side of said panel opposite said groove and being in alignment with one of said grooves, each of said lugs having a neck and head for slipping into said groove and recesses, respectively, when the shingles are applied to a supporting structure.

**8.** A shingle, clapboard and the like, comprising a tapered panel, a groove having an opening near one end and having lateral recesses along each side extending from said opening to the other end of said groove, and a lug projecting outwardly from the side of said panel opposite said groove and being in longitudinal alignment with said groove, said lug having a neck and head for slipping into said groove and recesses, respectively, when the shingles are applied to a supporting structure.


**References Cited by the Examiner**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 989,328 | 4/1911 | De Witt et al. | 52—519 |
| 1,775,930 | 9/1930 | Bosquet | 52—522 |
| 2,260,446 | 10/1948 | Fooks et al. | 52—550 X |
| 3,239,983 | 3/1966 | Sedelmayer | 52—552 X |

FOREIGN PATENTS

| | | |
|---|---|---|
| 54,377 | 1912 | Austria. |



FRANK L. ABBOTT, *Primary Examiner.*

A. C. PERHAM, *Assistant Examiner.*