Dec. 30, 1947. W. J. HEINNING 2,433,694

SHEATHING FOR BUILDINGS

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Fig. 1.

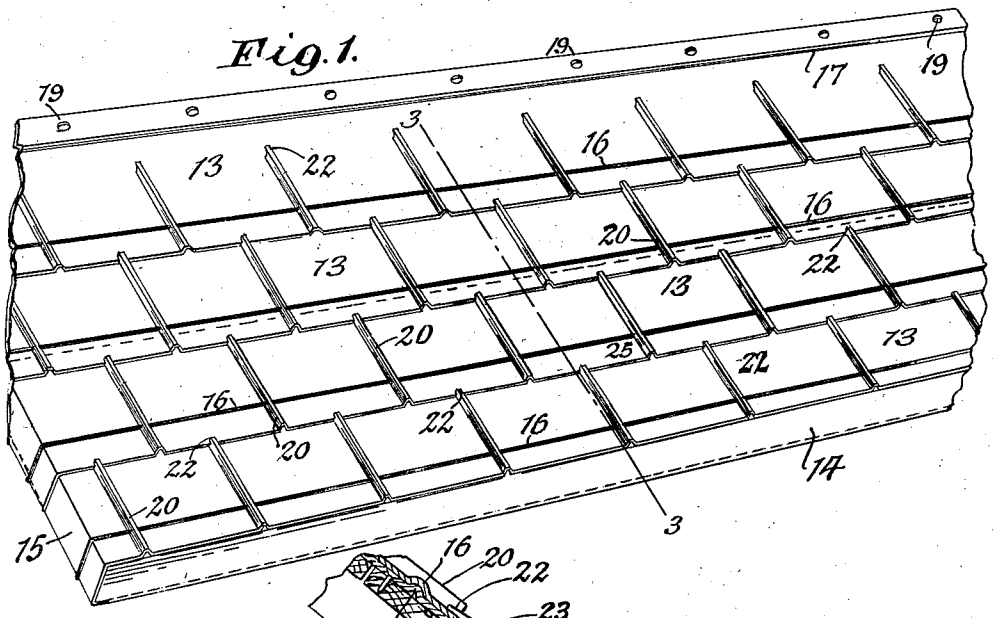


Fig. 2.

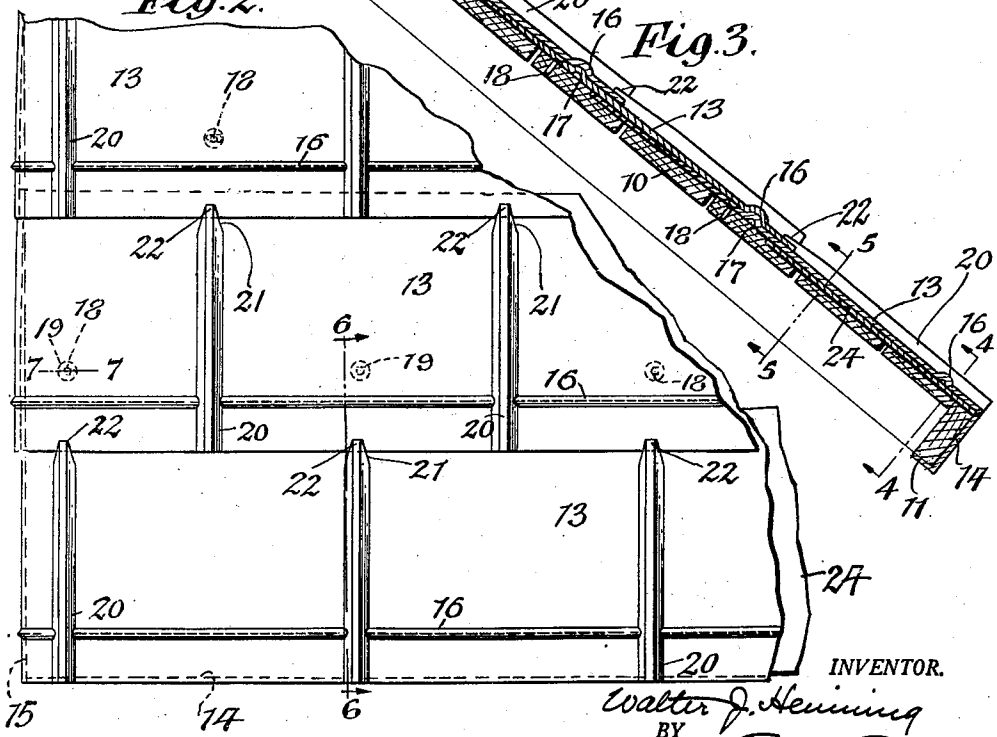


Fig. 3.

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Fig. 4.

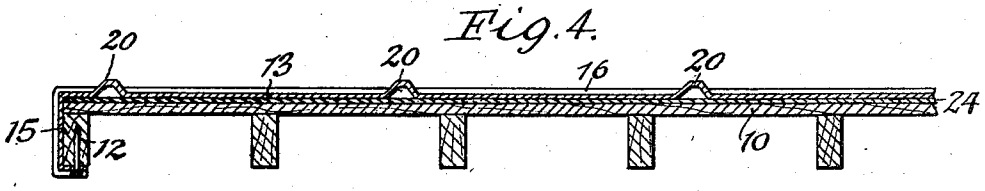


Fig. 5.

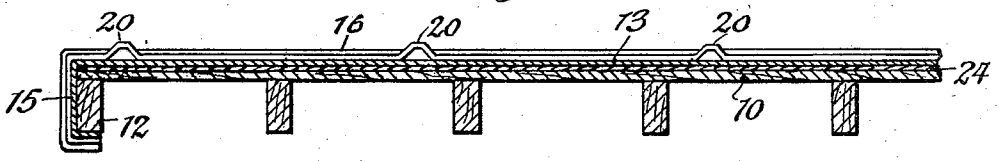


Fig. 6.

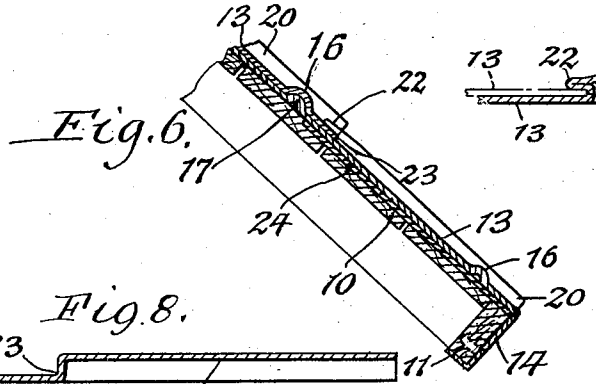


Fig. 10.

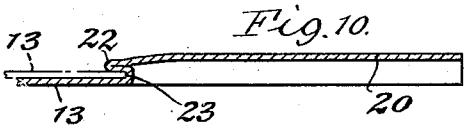


Fig. 8.

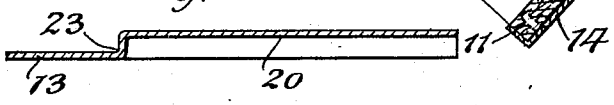


Fig. 7.

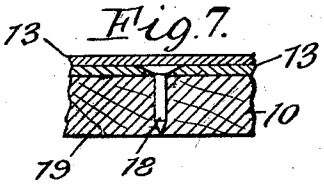
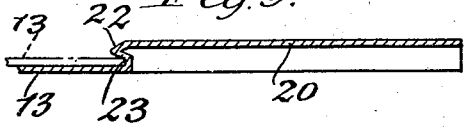


Fig. 9.



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UNITED STATES PATENT OFFICE

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SHEATHING FOR BUILDINGS

Walter J. Heinning, Buffalo, N. Y.

Application January 9, 1945, Serial No. 572,008

1 Claim. (Cl. 108—17)

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This invention relates to a sheathing of sheet metal or other suitable material and more particularly to a structure of this character which is to be used as roofing or siding of a building.

It is the object of this invention to provide a sheathing for this purpose which can be manufactured economically and applied to a building at low cost and which is strong and durable and efficient in covering the building and protecting the same against the effects of weather.

In the accompanying drawings:

Fig. 1 is a fragmentary perspective view of an inclined building roof provided with a sheathing embodying this invention.

Fig. 2 is a fragmentary top plan view of the same.

Fig. 3 is a transverse section, on an enlarged scale, taken on line 3—3, Fig. 1.

Figs. 4 and 5 are longitudinal sections, taken on the correspondingly numbered lines in Fig. 3.

Fig. 6 is a transverse section, taken on line 6—6, Fig. 2.

Fig. 7 is a fragmentary longitudinal section, on an enlarged scale, taken on line 7—7, Fig. 2.

Fig. 8 is a fragmentary section, on an enlarged scale, of a sheathing strip taken lengthwise through one of its transverse ribs and showing the shape of the same after the first step in its formation has been completed.

Fig. 9 is a similar view showing the shape of this transverse rib after the second step in its formation has been completed.

Fig. 10 is a similar view showing the shape of this transverse rib after its upper end has been pressed downwardly into engagement with the lower edge of the next upper strip of sheathing for retaining the latter in place.

In the following description, similar reference characters indicate like parts in the several views of the drawings.

Although the sheathing embodying this invention is applicable to various parts of a building which are to be protected against weather, such as rain, wind and snow, the same in the drawings is applied to a roof base or backing comprising inclined supporting boards 10, a lower rail 11 arranged horizontally at the lower edge of the roof boards and a side rail 12 arranged along the transverse or substantially vertical edge of the roof boards.

In general, the sheathing which is constructed in accordance with this invention comprises a plurality of sheets or plates of metal 13, such as aluminum, copper or tin, or plastic material which preferably have the form of strips capable

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of being put up in rolls to facilitate storing and shipping of the same and also enable the same to be readily applied to the roof boards. Each of these sheets is laid lengthwise on the roof boards and when a plurality of such sheets are assembled on these boards, each of these sheets, excepting the lowermost and uppermost on the supporting base 10, has its lower part extending over the upper edge of the next lower sheet while its upper edge extends underneath the lower part of the next upper sheet in the manner in which shingles are now laid on a roof.

In the preferred construction, the lowermost sheet is provided at its lower edge with a downwardly turned flange 14 which is secured in any suitable manner against the outer side of the lower roofing rail 11, as shown in Figs. 1, 3 and 6, and each of the sheets is also provided at its transverse end edges with a downwardly turned flange 15 which may be secured in various ways to the outer side of the adjacent transverse rail 12 of the roof, as shown in Figs. 1, 4 and 5.

The new features which are embodied in these roofing sheets or plates in accordance with the present invention are constructed as follows:

The numeral 16 represents a lower rib, corrugation or bead arranged lengthwise on the upper side of each sheet adjacent to the lower edge of the same, and 17 is an upper rib or bead arranged lengthwise on the upper side of this sheet adjacent to the upper edge of the same, both of these ribs being relatively low and formed on the sheet by pressing, stamping or displacing the metal of the sheet upwardly from the underside so that these ribs project a moderate distance above the upper side of the main or body portions of the respective sheet. Each of these ribs is preferably of substantially A or inverted V-shape, in cross section, and the upper and lower ribs 17 and 16 are arranged a suitable distance from the upper and lower edges of the sheet on which they are formed.

When a plurality of such sheets of metal are applied to the base or boards of a roofing, the concave underside of the lower rib 16 of each upper sheet engages over the convex upper side of the upper rib 17 of the next lower sheet so that the respective sheets are interlocked and held against transverse movement relatively to each other. These means for interlocking the overlapping parts of adjacent sheets not only prevents rain, wind and snow from driving upwardly between the same and reaching the base of the roof, but it also facilitates the laying of successive roofing sheets one above the other in

the manner of shingles with ease and facility and also maintains the same in alinement and in properly spaced arrangement without requiring any special care to accomplish this purpose.

Although various means may be employed for securing these roofing sheets of metal to the base of the roof, it is preferable to employ nails 18 for this purpose which extend through openings 19 formed in a longitudinal row adjacent to the upper edge of each of the metal roofing sheets so that these fasting nails will be covered by the lower part of the roofing sheet immediately above the same. In order to permit the sheets of metal to expand and contract without tearing the holes 19 which receive the nails 18, these holes are made larger in diameter than that of the body of the nails passing through the same, as shown in Figs. 1, 2 and 7, thereby providing clearance space between the edges of these openings and the body of the nails and permitting a limited expansion of the roofing sheets without causing any damage.

The longitudinal ribs on the metal sheathing sheets not only permit of alining the several sheets on the roofing base and facilitate laying of the same as well as excluding the passage of weather therebetween, but they also serve to stiffen or strengthen the sheets so that they are not liable to be deformed while being handled and also while lying on the roof and they also improve the appearance of the roof as a whole.

In order to further increase the strength of these roofing sheets and also give the same the appearance of longitudinal courses of shingles, as are now commonly laid on roofs, each of the roofing sheets of metal is provided with a plurality of relatively high transverse ribs or beads 20 which are spaced equidistant from each other and each of which extends from the lower edge of a roofing sheet upwardly across the lower rib 16 on the respective sheet and terminates at a point between the lower and upper ribs of this roofing sheet so that when several of these sheets are assembled in a shingle-like position relative to each other, the upper ends of the several transverse ribs 20 will terminate adjacent to the lower edge of the next upper sheet, as shown in Figs. 1, 2, 3 and 6. The upper edge of each lower sheet extends above the upper ends of the transverse ribs of the next upper sheet so that the underside of these ribs are closed throughout the entire length of the same, whereby rain and wind are prevented from driving upwardly through the lower end of these hollow ribs and underneath the sheathing and possibly injuring the roofing or covering. In order to prevent any rain, snow or wind entering the lower ends of transverse ribs 20 of the lowermost sheathing strip from getting between the underside of this strip and the roofing boards a protecting strip 24 of sheet metal is placed on the lower part of the roof boards as a starting sheet, this protecting strip preferably extending from the lower edge of the lowermost sheathing strip 13 and terminating at its upper edge above the upper ends of the transverse ribs 20, thereby completely closing the underside of the latter, as shown in Figs. 3 and 6.

Each of the transverse ribs 20 is preferably of substantially A or inverted V-shape, in cross section, and stamped or bent upwardly from the underside of the respective roofing sheet so as to project above the upper surface of the same, similar to the longitudinal ribs 16 and 17. The height of the transverse ribs 20 of each roofing sheet

is somewhat greater than the height of the longitudinal ribs 16 and 17 so that in addition to stiffening or strengthening the roofing sheet, the same also simulates the appearance of individual shingles which are laid in horizontal courses. The upper part of each transverse rib 20 is also tapered or pointed upwardly, as shown at 21, so that rain will be directed downwardly along opposite sides of the same and the tendency for snow to lodge on the upper ends of these ribs is also reduced to a minimum.

By making the transverse ribs 20 comparatively high and the longitudinal ribs 16 and 17 relatively low, the roofing sheet is materially strengthened and still can be put up in rolls for convenience in storage, transportation and laying.

Means are provided whereby the lower edges of the several roofing sheets, excepting the lowermost one, are prevented from being lifted by wind from the underlying parts of adjacent sheets and thus exclude the passage of weather between the same as well as preventing the sheets from vibrating and producing a chattering noise. The means shown in the drawings for this purpose which embody the present invention are constructed as follows:

The numeral 22 represents a plurality of fastening lips which are arranged in a longitudinal row on the upper side of each roofing sheet below the upper rib 17 thereof and at such a distance therefrom so that when these lips are engaged by the lower edge of the next upper roofing sheet 13, as shown in Figs. 3 and 6, these lips operate as stops for locating each upper roofing sheet relative to the companion lower sheet preparatory to completing the assemblage of the same on the base or boards of a roof.

Each of these lips is preferably formed on the upper end of one of the transverse ribs 20 by first stamping the upper end of each rib 20 upwardly at right angles to the plane of the sheet 13 of which it forms a part, and thereby produce an upwardly facing stop shoulder 30 on this rib, as shown in Fig. 8. Thereafter the upper part of each rib 21 above the stop shoulder 30 thereon is swaged upwardly so as to produce a hollow lip 22 which projects upwardly from this rib and overhangs the shoulder 30 therein, as shown in Fig. 9. While the lip is in this preformed shape, the next upper roofing sheet is laid with its lower part over the companion lower roofing sheet so that the longitudinal ribs 16 and 17 of the same engage one another and the lower edge of the upper sheet engages with the stop shoulder 23 on the lower sheet, as shown in Fig. 9. After the parts have been thus partly assembled, the lip 22 is pressed downwardly by means of a hammer or otherwise so that the same overhangs the lower edge portion of the next upper roofing sheet and engages firmly therewith, as shown in Figs. 1, 2, 3 and 10, thereby securing the lower edge portion of the upper roofing sheet down on the upper edge of the next lower roofing sheet. The overlapping parts of the roofing sheet are thus prevented from becoming separated by wind so as to exclude the entrance of weather between the same.

As a whole, this sheathing can be manufactured and applied at a relatively low cost. It forms a durable and effective protection for buildings, and it also presents an attractive and finished appearance.

I claim as my invention:

A sheathing for buildings comprising a plurality of deformable longitudinal metal sheets

which are arranged to form a plurality of horizontal courses disposed one above another in a vertical row, each of said sheets being provided at intervals with transverse ribs extending across that portion of the sheets which are exposed and which are formed by displacing the metal of the sheet upwardly so that the hollow underside of each rib opens downwardly and its upper side is closed, and hollow deformable lips formed integrally on the upper ends of said ribs, each of said lips overhanging the lower part of the next upper sheet and providing a rear stop shoulder which is engaged by the lower edge of the next upper sheet and a hollow tip which overhangs the lower part of the next upper sheet and is bent downwardly into engagement therewith to prevent relative vertical movement of the adjacent upper and lower parts of the respective sheets.

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