Aug. 2, 1938. H. E. VOEGELI 2,125,363

ROOF AND WALL COVERING

Filed Jan. 16, 1936 3 Sheets-Sheet 1

Fig. 2

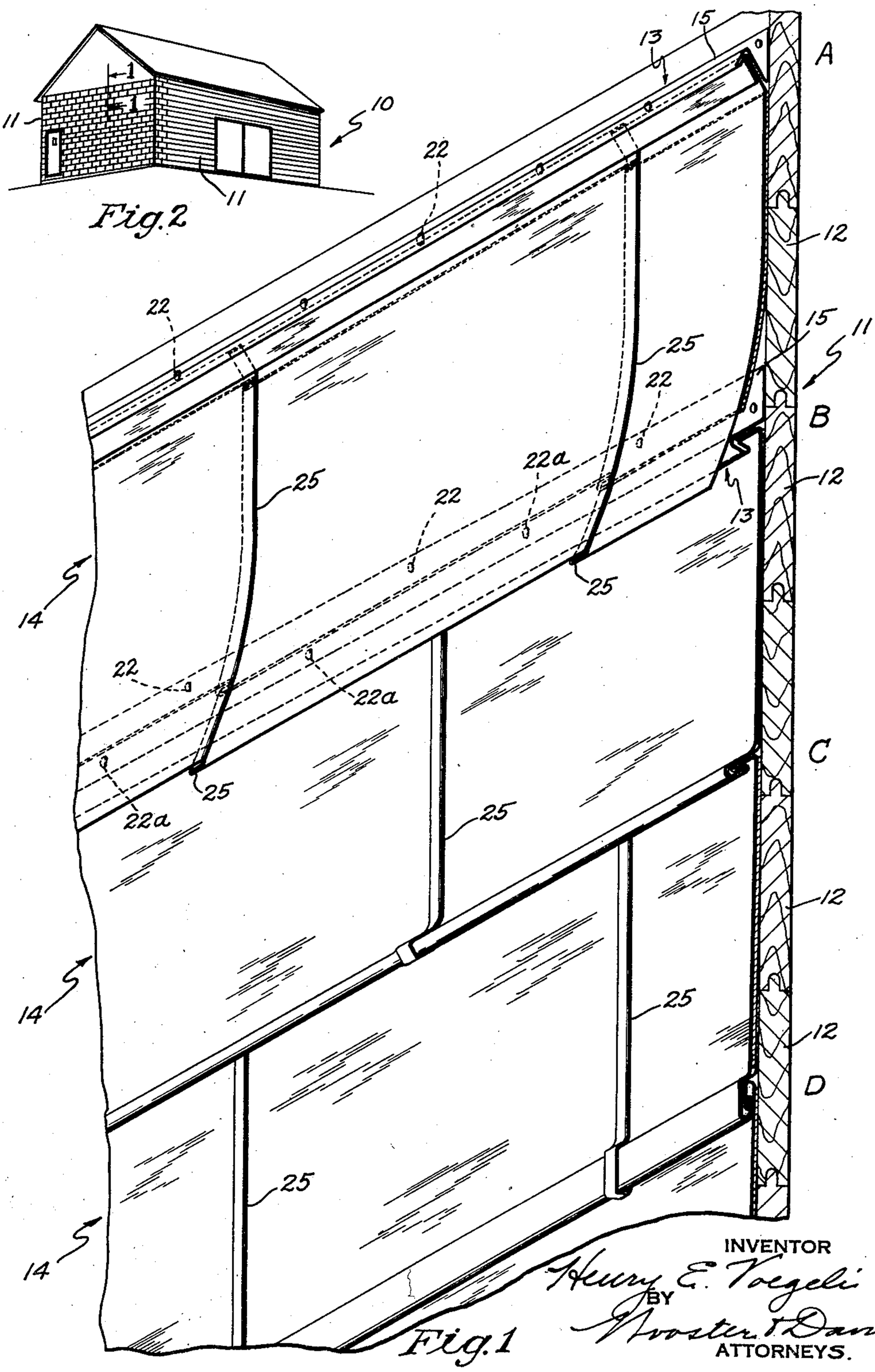

Fig. 1

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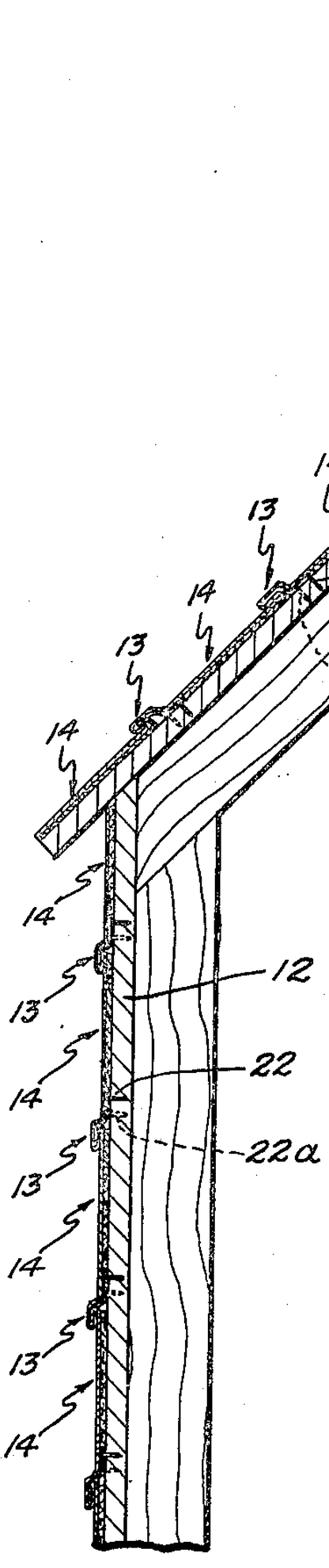

Fig. 3

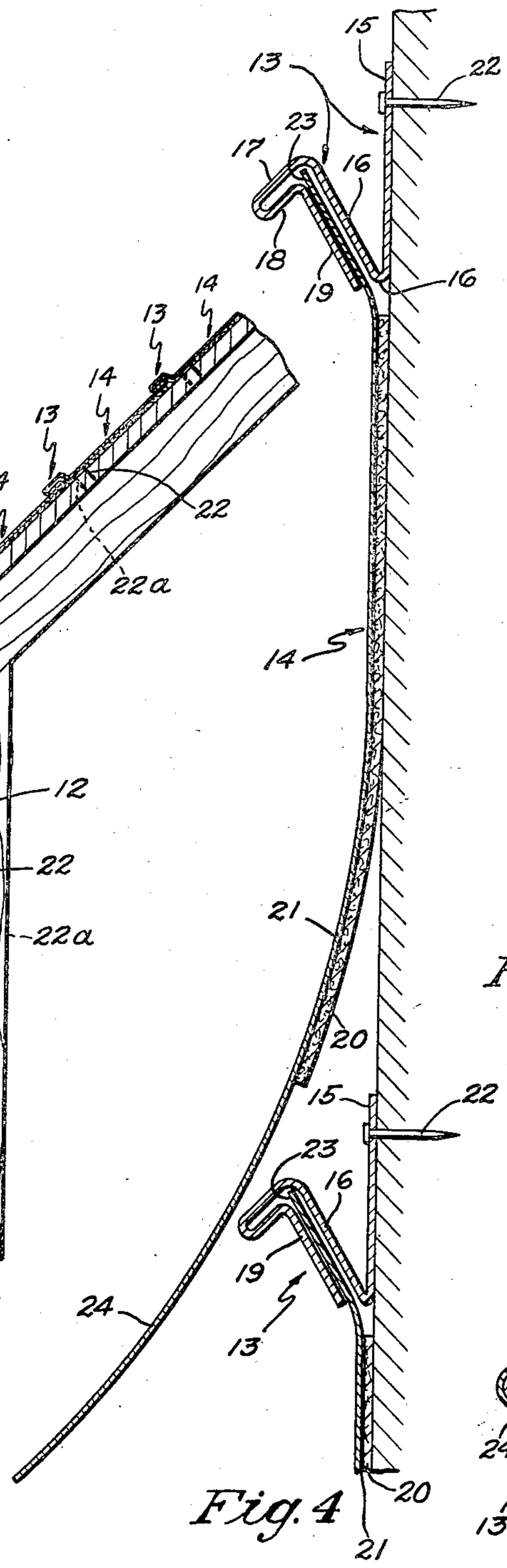

Fig. 4

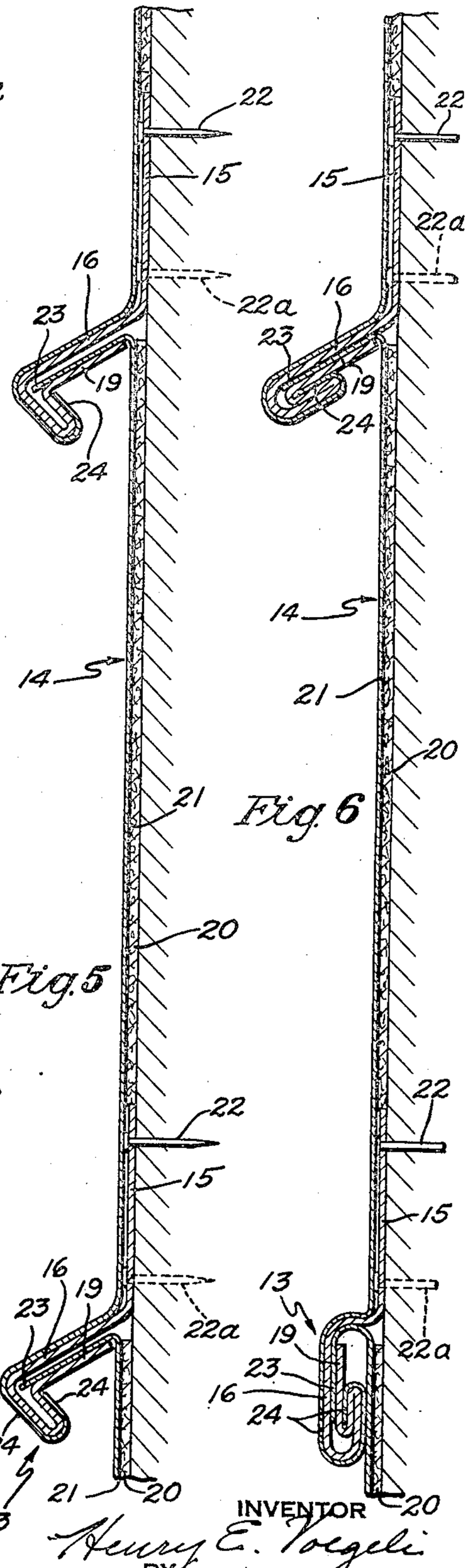

Fig. 5

Fig. 6

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3 Sheets-Sheet 3

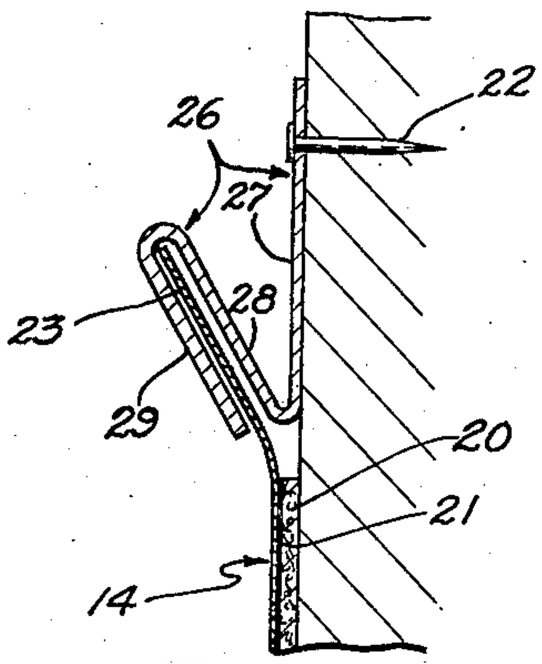

Fig. 7

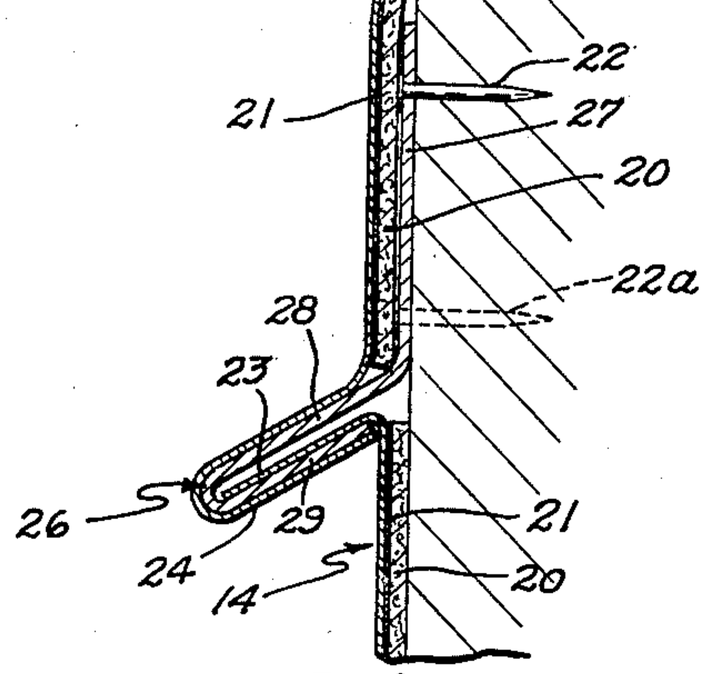

Fig. 9

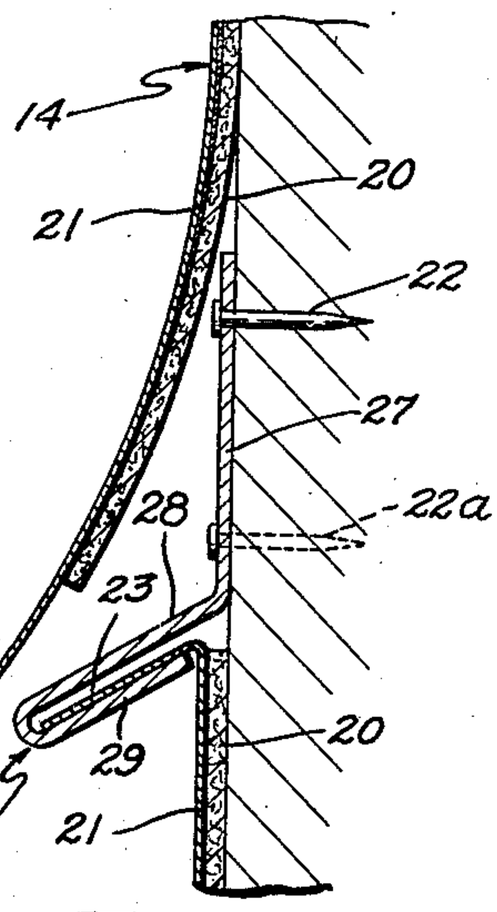

Fig. 8

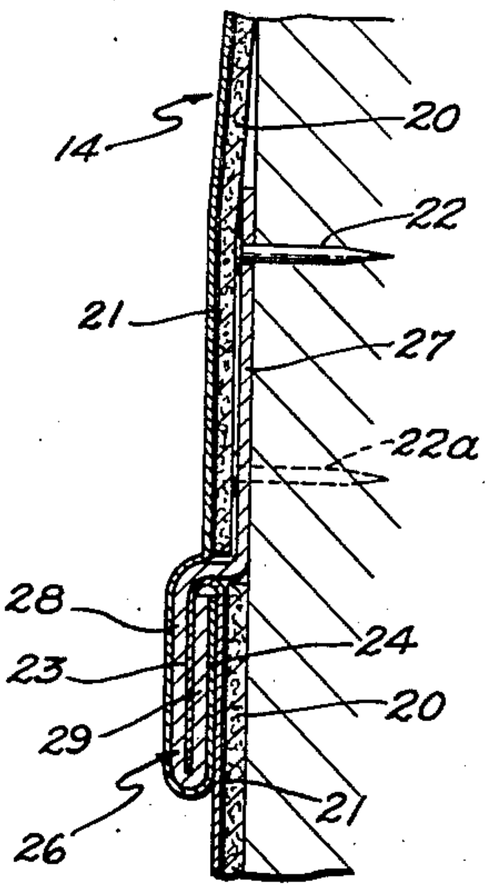

Fig. 10

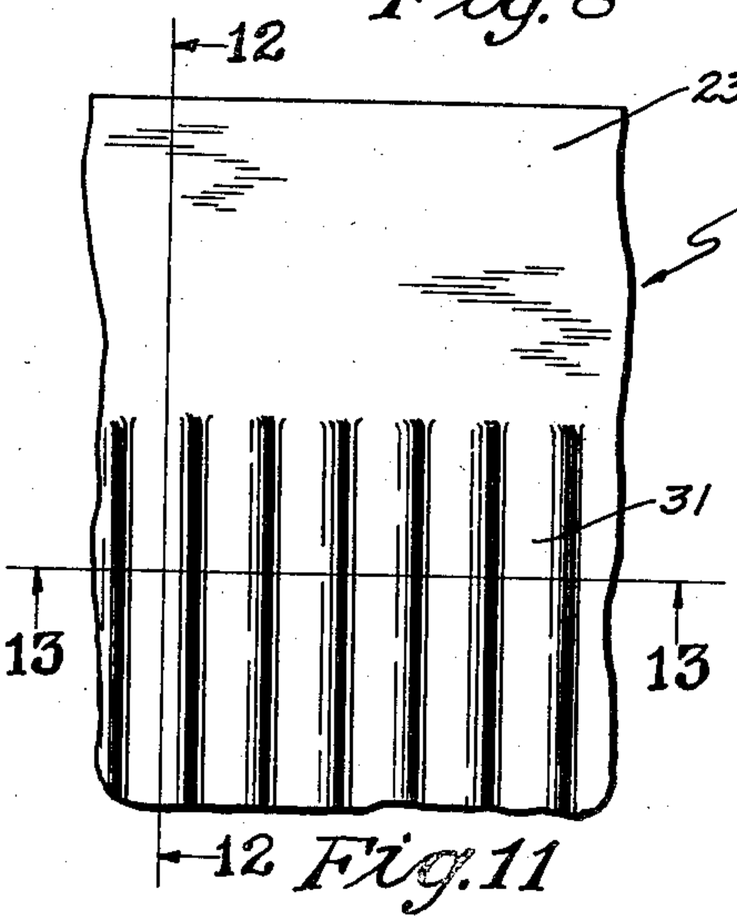

Fig. 11

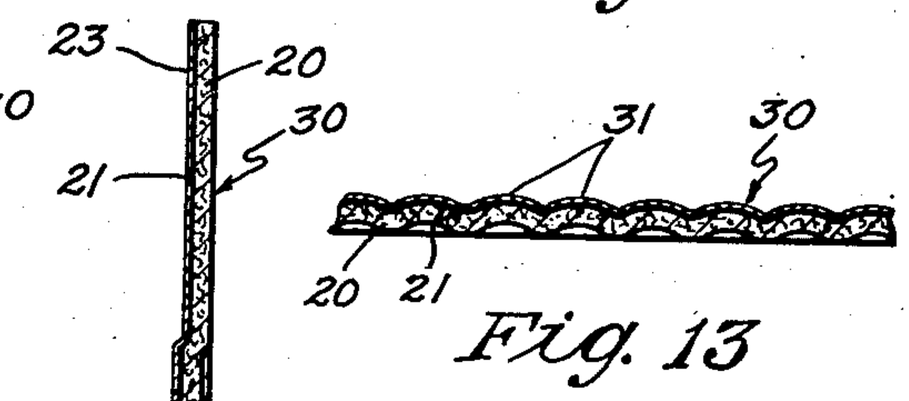

Fig. 13

Fig. 12

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Patented Aug. 2, 1938 2,125,363

UNITED STATES PATENT OFFICE

2,125,363

ROOF AND WALL COVERING

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Application January 16, 1936, Serial No. 59,347

11 Claims. (Cl. 108—6)

This invention relates to new and useful improvements in roof and wall coverings.

An object of the invention is to provide an improved covering which may be easily and quickly applied to either or both of the roof and walls of a structure.

Another object is to provide a covering for roofs and/or walls and which completely covers the roof and/or walls, and in addition to being completely weatherproof is attractive in appearance and is free to expand and contract with a minimum of visible distortion, under temperature changes.

A further object is to provide an improved method of applying a covering to a building structure and by which method the roof and/or walls of the structure may be quickly and effectively covered.

Another object is to provide a structure which may be applied by working from the top down so that, in laying a roof for example, it is not necessary for the workmen to walk on the finished roof with consequent danger of damaging it.

Still another object is to provide a metal roof or side wall covering which can be applied without solder so that the metal can expand and contract without breaking the joints.

Other objects and advantages will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings wherein a satisfactory embodiment of the invention is shown. However, it is to be understood that the invention is not limited to the details shown but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawings:

Fig. 1 is a perspective view and section on an enlarged scale showing a wall segment and the steps of covering it in accordance with the present invention, the view being taken substantially along the line 1—1 of Fig. 2;

Fig. 2 is a perspective view of a barn the walls of which are covered according to the invention;

Fig. 3 is a sectional view through a portion of the roof and one wall of a structure showing my improved covering in place thereon;

Fig. 4 is a sectional view on an enlarged scale and showing the first steps of applying the covering;

Fig. 5 is a similar view showing a further step in the applying of the covering;

Fig. 6 is a similar view in its upper portion showing another step in applying the covering and in its lower portion showing the complete seam or joint of the covering;

Figs. 7 to 10 inclusive are detailed sections showing the successive steps in applying a somewhat simplified construction;

Fig. 11 is a plan view of one edge portion of a modified form of facing strip which may be used;

Fig. 12 is a section thereof substantially on line 12—12 of Fig. 11; and

Fig. 13 is a section substantially on line 13—13 of Fig. 11.

Referring in detail to the drawings, in Fig. 2 is shown a barn or other building structure 10 the side walls 11 of which are covered according to the present invention. The same covering may be applied to the roof also. The sheathing of the walls of the structure is designated 12 and the improved covering over the sheathing comprises joint strips 13 and facing sheets 14 covering the building structure between the joint strips.

Preferably the joint strips and the facing sheets are of rolled copper, the joint strips being preferably of about eight ounce copper or about 012 inch thick and four inches wide and the facing sheets being preferably of about three ounce copper or about .004 inch thick and twelve inches wide. However, the dimensions, weight and material may be other than suggested, and I am not confined to the use of copper as other metals may be used, as for example brass, galvanized iron, aluminum or other suitable metal.

The metal should preferably be soft or "dead" with no, or practically no, spring or resiliency so that it may be more easily bent to proper shape and position and will remain there after being bent.

The joint strips 13 each comprise an elongated body including a flat attaching portion 15 along one of its longitudinal edges and having a part including its other edge bent or folded to extend upwardly and outwardly at 16 and then downwardly and outwardly at 17. Then the part is bent back upon itself providing portions 18 and 19 substantially parallel with the portions 17 and 16. Thus the strip includes a double walled upwardly and outwardly directed part having its intermediate portion extending downwardly and outwardly. It is formed with the portions 16 and 19 spaced from each other for insertion of the upper edge of sheet or strip 14.

Facing sheets 14 are also elongated and of relatively thin metal and each has a sheet of felt or other insulating material 20 secured to its rear surface as by an asphalt or other adhesive 21. The insulation 20 stops short of the longitudinal

edges of the metal for a reason presently to appear. This felt is a sound deadener and heat insulator. It also facilitates handling of the thin copper without crinkling.

In applying the covering to a building structure joint strips are secured to the structure as by a row of nails **22** driven through the upper portion of the flat portion **15** of the strip. These strips are spaced a given distance depending on the width of the strips or sheets **14**. If the strips or sheets **14** are 12 inches wide then the joint strips are spaced with their upper edges 9 inches apart. As originally secured in place the strip has its bent or folded portion extending outwardly from the wall of the structure as shown in Fig. 4.

Next a facing sheet **14** is placed against the structure and its upper longitudinal edge portion **23** is inserted into the double wall folded part of the securing strip, being arranged between the portions **16** and **19** thereof as in Fig. 4, and as shown at joint A in Fig. 1. Thereafter the folded part of the joint strip is bent down to the position shown in Fig. 5 and also shown at joint B of Fig. 1. This results in the upper edge portion **23** of the facing sheet being bent downwardly forming a hook-like part in the fold of the securing strip, and it is noted that the bent portion of the facing strip is beyond the felt or insulation **20**. After this folded part is thus bent down a second row of nails **22***a* may be applied just above the fold and below the first row **22**, and preferably staggered in respect to it as shown at joint B in Fig. 1.

Either before or after the facing sheet has its upper edge portion bent into the fold of the upper joint strip a lower joint strip is secured in place in such spaced relation to the upper joint strip that the facing sheet will cover the space between them. Following the securing of the upper edge of the facing sheet its lower edge portion **24** beyond the insulation **20**, is folded or bent about the folded double walled part of the next lower joint strip, extending about the intermediate offset portion thereof as shown in Fig. 5.

Thereafter the intermediate offset portion **17**, **18** of the folded part of the joint strip is folded up against the main portion of the folded part as in the upper portion of Fig. 6 and as shown at joint C in Fig. 1. There it will be seen that the upper edge portion of one facing sheet is folded into the main part of the fold of the joint strip and that the lower edge portion of the upper facing sheet is also folded into the joint, being located at the inner side of the offset portion **17**, **18** of the folded part.

The joint is finished by folding the same down into the position shown in the lower portion of Fig. 6 and at D in Fig. 1. This is the finished joint and attention is directed to the fact that the facing sheet extends over the securing portion **15** of the lower joint strip covering the securing means passing therethrough. It will also be seen that the facing sheets or strips **14** entirely cover the joint strips **13**. The insulation **20** may be stopped either at the upper edge of the securing portion of a lower joint strip as in Figs. 5 and 6 or it may be of greater width so as to extend over such portion as in Fig. 1.

The metal used is preferably soft copper nonresilient so as to be easily bent and so as to stay in any position into which it is bent. It may be folded by hand or with tongs or other tools as required. Preferably when making the final fold, that is when folding the joint from the position shown in the upper portion of Fig. 6 to the position shown in the lower portion of said figure, a wooden block covered with burlap or the like is used. Such a block would be placed against the joint and hammered so as to bend the joint into place without damaging or denting it.

It will be understood that as each facing sheet is applied its upper edge portion is first secured and thereafter its lower edge portion is secured. Such being the case a workman can start the job from the top and work down and therefore is not required to work on the finished part of the covering and will not damage it.

The covering is applied without the use of solder, the facing sheets being secured by having their edge portions folded into portions of the joint strips forming weathertight seams. Since no solder is used in the seams the covering can expand and contract with temperature changes. The joint strips may be arranged in abutting relation at their ends if necessary as they are entirely covered by the facing sheets, but it is preferred that the facing sheets be of sufficient length to extend from one end to the other of a roof or wall.

The felt **20** is a sound deadener, and to facilitate handling of the thin copper without having it crinkle. At spaced intervals along its length each facing sheet is provided with folds **25** extending transversely thereof as shown best in Fig. 1. They are formed by merely folding the metal over on itself as shown. Primarily these folds are for architectural effect to break up unsightly reflections, due to buckling of a long continuous sheet, resulting in a better appearance. Also the folds tend to absorb expansion and contraction.

As shown in Figs. 1 and 2 the facing sheets are preferably so arranged that the transverse folds **25** of each sheet are in staggered relation to those of the adjacent sheets. This breaks up the surface and gives a much better appearance.

In Figs. 7 to 10 is shown a somewhat simplified construction which may be used for side walls, and also roofing, particularly on steep slopes. The principle is the same as that of the previous figures but the joint strip is somewhat simplified while the facing strip or sheet is the same as that of the first form. It will be seen that in this modified construction the joint strip **26** includes a flat attaching portion **27** along its upper longitudinal edge and is bent outwardly and upwardly to form an inclined wall **28** which is looped or folded outwardly and downwardly upon itself to form a downwardly and inwardly inclined outer wall **29** spaced from the wall **28** for insertion of the upper edge portion **23** of the facing sheet **14**. The joint strips are attached at the proper spacing as in the first form with the nails **22** and then the upper edge **23** of the facing sheet **14** is inserted as indicated in Fig. 7. Then the looped portion **28**, **29** is bent downwardly to the position shown in Fig. 8. This also bends the upper edge portion **23** of the facing sheet downwardly to form a sort of hook to support the sheet as shown. While in this position the second row of nails **22***a* may be applied. Then the lower edge portion **24** of the facing sheet **14** next above may be folded around the looped portion **28**, **29** of Fig. 8 to cover and enclose it as shown in Fig. 9. Then to finish the joint the loop **28**, **29** enclosed in the folded portion **24** is bent down to the position of Fig. 10 to complete the application, the folding operation being by the same means as

suggested in connection with the first form. It will be seen that in this simplified form as in the first form the joint strips **26** are completely enclosed by the face sheets **14**.

In Figs. 11 to 13 is shown a somewhat modified construction of the facing sheets. These sheets indicated as a whole by numeral **30** are the same as sheets **14** except that the central or body portion between the upper plane portions **23** and the lower plane portions **24** (not shown) is corrugated with vertical corrugations as shown at **31**. These corrugations are carried down to about the lower edge of the felt backing **20** leaving the lower portion **24** plain to be folded around the next lower joint strip. These corrugations relieve the plane surface and break up unsightly reflections and also allow for expansion and contraction. The folds **25** of the first form are ordinarily not needed with this form but may be used if desired. The felt **20** is used on the back of the facing sheets in this form the same as the first form and may be secured to it by the same means such as cement **21**.

Having thus set forth the nature of my invention, what I claim is:

1. A structure covering comprising a pair of horizontally extending vertically spaced joint strips secured to the structure, the upper of said strips having its lower part folded inwardly upon itself with its free edge portion extending upwardly providing substantially parallel spaced portions, a facing sheet extending between said joint strips and having its upper edge portion bent outwardly and downwardly disposed between the spaced folded portions of the upper joint strip and with its free edge adjacent the fold of said folded portions, said upper joint strip having its folded portion bent down and substantially parallel with the outer surface of the facing sheet, said lower joint strip having an inwardly and upwardly folded portion, and said facing sheet having its lower edge portion bent inwardly and upwardly about the folded portion of the lower joint strip.

2. The method of covering a roof or wall comprising providing a joint strip including a part folded upon itself and providing portions having a downwardly and inwardly directed space between them open at its inner lower edge, securing the strip to the surface to be covered so as to extend horizontally thereon, inserting the upper edge portion of a facing sheet into said space, and then folding said portions of the joint strip and the inserted edge portion of the facing sheet down against the outer surface of the facing sheet.

3. A structure covering comprising spaced upper and lower joint strips and a facing sheet covering the structure between said strips, each of said joint strips including a part folded inwardly and upwardly upon itself and with an intermediate portion of the folded part folded against the inner side thereof, said facing sheet having its upper edge portion folded over the upper edge of the folded part of the upper joint strip and with its edge in the first fold thereof, said facing sheet having its lower edge portion bent about the intermediate folded portion of the folded part of the lower joint strip, and said joint strips having their folded parts bent into substantially parallel relation to the structure whereby to dispose the folded lower edge portion of each sheet against the outer surface of the next lowermost sheet.

4. A structure covering comprising spaced upper and lower joint strips and a facing sheet covering the structure between said strips, each of said joint strips including a part folded inwardly and upwardly upon itself and with an intermediate portion of the folded part folded against the inner side thereof, said facing sheet having its upper edge portion folded over the upper edge of the folded part of the upper joint strip and with its edge in the first fold thereof, and said facing sheet having its lower edge portion bent about the intermediate folded portion of the folded part of the lower joint strip.

5. In a structure covering, a horizontally extending joint strip secured to said structure, upper and lower facing sheets, and a seam connecting the adjacent edges of the facing sheets with the joint strip, said seam comprising a part of the joint strip folded inwardly and upwardly upon itself and having an intermediate portion of the folded part similarly folded inwardly and upwardly upon itself at the inner side thereof, said lower facing sheet having its upper edge portion bent over the free edge of the inner folded part of the joint strip, and said upper facing sheet having its lower edge portion bent about the first folded part of the joint strip and interlocked with the intermediate portion thereof.

6. A preformed joint strip for a structure covering comprising an elongated metal strip having a flat securing portion, and said strip having a part folded upon itself and providing substantially flat separated portions inclined to the securing portion at an angle less than a right angle defining a narrow downwardly and inwardly inclined space open at its lower end to receive the edge of a covering strip between said portions.

7. A preformed joint strip for a structure covering comprising an elongated metal strip having a flat securing portion, and said strip including a double walled upwardly and outwardly inclined part inclined to the securing portion at an acute angle and carrying at its outer end a downwardly and outwardly directed portion, said double walls being substantially flat and spaced slightly more than the thickness of a covering strip so as to receive the edge of said strip between them.

8. A preformed joint strip for a structure covering comprising an elongated metal strip having a flat securing portion, and said strip including an easily bendable double walled upwardly and outwardly inclined part inclined to the securing portion at an angle less than a right angle and carrying at its outer end a downwardly and outwardly directed portion, the walls of the double walled portion being spaced sufficiently to receive the edge portion of a covering strip.

9. A structure covering comprising horizontally extending upper and lower spaced joint strips secured to the structure and upper and lower facing sheets, the upper facing sheet covering the structure between said joint strips, said upper joint strip and the upper edge portion of this facing sheet being folded into interlocking relation with the edge of the facing sheet within the folded portion of the joint strip and folded against and lying substantially parallel with the facing, the free edge portion of the facing sheet being directed downwardly and the folded free edge portion of the joint strip being directed upwardly, and said lower joint strip and the lower edge portion of the upper facing sheet being folded into interlocking relation and with the

edge of the facing sheet within the joint strip and lying substantially parallel with the lower facing sheet with the free edge portion of the joint strip directed upwardly.

10. In a structure covering, a horizontally extending joint strip secured to the structure, facing sheets at the upper and lower sides of the joint strip, the adjacent edges of said facing sheets being folded into interlocking relation with said joint strip with the free lower edge portion of the joint strip directed upwardly and the upper free edge portion of the lower facing sheet directed downwardly, and the interlocked portions of the joint strip and the facing sheets being folded against the face of the lower sheet and substantially parallel therewith.

11. The method of covering a structure comprising providing a joint strip having a flat securing portion and a part including spaced portions inclined to the securing portion at an acute angle, securing said first portion to the structure, inserting an edge portion of a facing sheet into the space between said spaced portions, and then folding said part and the inserted portion of the facing sheet down against the outer surface of the facing sheet to bend said facing sheet over the free edge of the joint strip to support the sheet from said strip.

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