April 1, 1930. W. J. YOUNG 1,752,827

ROOFING CONSTRUCTION

Filed Jan. 16, 1929

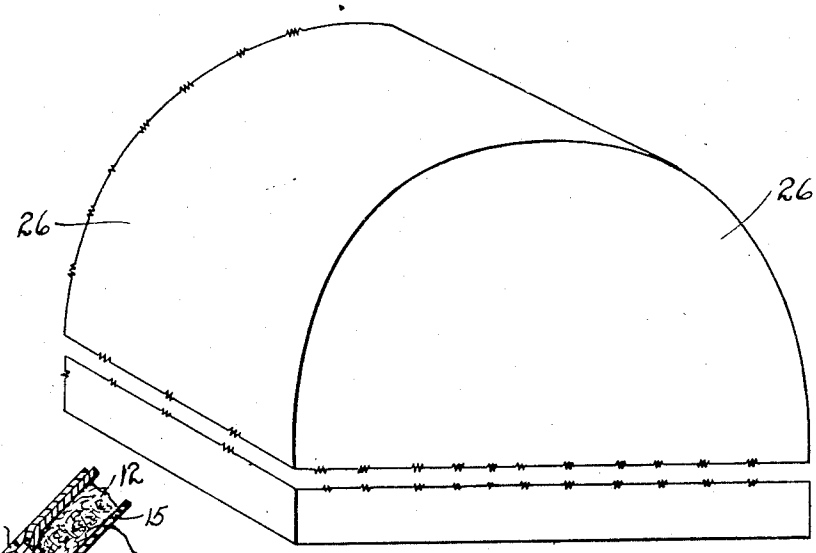



FIG_1

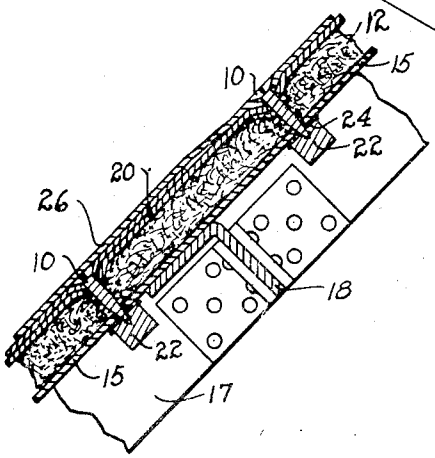



FIG_8

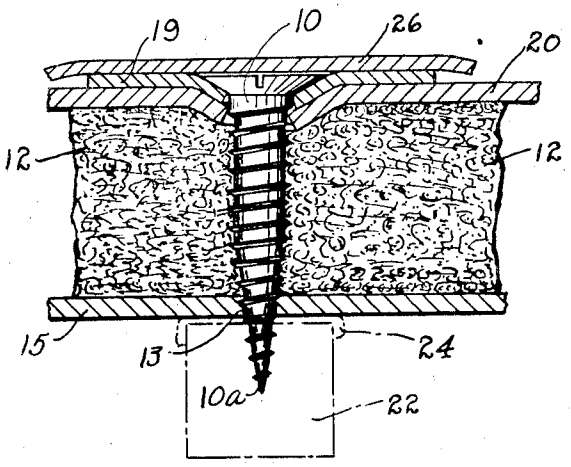



FIG_3

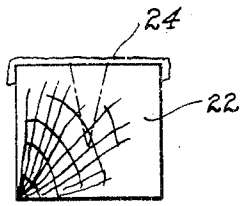



FIG_4

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# UNITED STATES PATENT OFFICE

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## ROOFING CONSTRUCTION

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This invention is concerned with insulated roofing constructions and more particularly with roofing constructions which embody steel sheathing or decking that is exteriorly insulated and the general object of my present invention is to provide an insulation construction for roofs which may be readily applied to steel buildings.

A further object of my invention is the provision of a novel manner of securing fibrous insulating material to the exterior side of metal sheathing or roofing decks, whereby the insulating material may be definitely safely secured to the metal sheathing and the securing means may be completely insulated relative to the under-surface or inner face of the roofing construction to thereby prevent the formation of condensate.

Other objects of my invention will hereinafter become apparent from the following description which refers to the accompanying drawings illustrating a preferred embodiment thereof. The essential characteristics are summarized in the claims.

In the drawings, Fig. 1 is a diagrammatic representation of a building employing a large expanse of roofing sheathing, such for example, as a dirigible airship hangar; Fig. 2 is a cross-sectional view of such a roof construction and embodying the features of my invention; Fig. 3 is an enlarged cross-sectional detail taken through the roofing construction, while Fig. 4 is a form of insulating means utilizable to interiorly insulate or cover the insulation sheathing securing means.

My invention contemplates the provision of a simple efficient means for securing insulating sheathing to the metal sheathing comprising the deck or foundation of a metal roofing construction. It is now customary to construct roofs of mill buildings and the like by placing a metal sheathing or decking over the roof trusses and connecting struts and then applying to the metal sheathing slabs of insulating material formed of fibers of various sorts, the slabs usually being of considerably greater thickness than the thickness of the metal sheathing. However, on roofing constructions where the roof surfaces have a considerable slant, it is necessary to secure these insulation slabs positively to the metal sheathing in order that the outside weather proofing part of the roofing construction will not be destroyed due to shifting of the insulating material under varying weather conditions.

Various means have been proposed for mechanically securing the insulating slab to the metal sheathing, such for example, as wiring extending through perforations formed in the sheathing, etc., but all such securing means have had the characteristic of cross-sectional conductivity in so far as the entire roofing construction is concerned, thus causing undesirable local conditions to arise where the securing means pass through the metal sheathing part of the roofing construction. For example, when weather conditions are such that the outer side of the roofing is exposed to a temperature considerably less than the inner metallic sheathing, condensation takes place upon the inner face of the roofing construction about the insulation slab securing means, and this condensation brings about annoyances, such as the formation of rust, water drippings, frost, etc., all of which heretofore have made an otherwise simple and efficient insulation construction securing means undesirable.

I propose to use in the roofing construction illustrated, namely, the construction suitable for the roof of a hangar, an insulation slab securing means which may comprise ordinary metal screws 10 of suitable strength and length to pass through perforations formed in the insulation slabs 12 and extend through the perforations shown at 13, (see Fig. 3) formed in the metal sheathing or decking 15 of the roofing construction, the decking 15 being secured in any desired manner to the cross-struts 17 and top angles 18 of the roof trusses.

The screws 10 are provided with washers 19 having a considerable gripping area to engage and hold roofing shingles or roll covering 20 in clamping relation to the fibrous insulation slabs 12 and in order to prevent any conductivity between the air within the building and the exterior atmosphere, I completely cover the inner protruding end $10^a$ of the

securing means with an insulating material 22 which may comprise wooden blocks, cork or any suitable material. As shown in Fig. 4, the members 22 are first coated with asphalt or other suitable sealing means 24, whereby when the plugs or blocks 22 are attached to the inner ends of the securing means or screws 10, the metallic screw body is completely insulated relative to the air within the building and a final covering, such as overlapping composition shingles or tarred roll material 26 serves to protect the outer exposed surfaces of the screws 10 and washer members 19.

It is to be understood that other securing means may be utilized than the metal screws 10 illustrated, my invention not residing in the particular choice of securing means but in the idea of insulating the securing means at the inner face or the inside exposed face of the metal sheathing or decking comprising the base of the roofing construction.

It will be apparent also that the present construction can be utilized advantageously for securing insulation slabs, which have a tendency to warp or buckle, to flat roof constructions.

I claim:—

1. A roofing construction comprising metal sheathing or decking, an insulating slab or layer of material placed thereover, weather proofing material laid over the insulation material, a securing means for the insulation slabs and the weather proofing material extending through the weather proofing material and insulation material in clamped relation thereto and secured to and extending through the metal sheathing, and an insulating covering means disposed over the inner portion of the insulating slab securing means.

2. A roofing construction comprising metal sheathing or decking, an insulating slab or layer of fibrous material placed thereover, a securing means for the insulation slabs extending through the insulating slab or layer of fibrous material and through the metal sheathing, and an insulating covering means disposed over the inner exposed portion of the insulating slab securing means, and serving to surround and seal the opening in the metal sheathing through which the securing means extends.

In testimony whereof, I hereunto affix my signature.

WILLIAM J. YOUNG.