Feb. 20, 1945. H. C. LINDELOW 2,370,052

SUPPORTING ELEMENT

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Fig. 1.

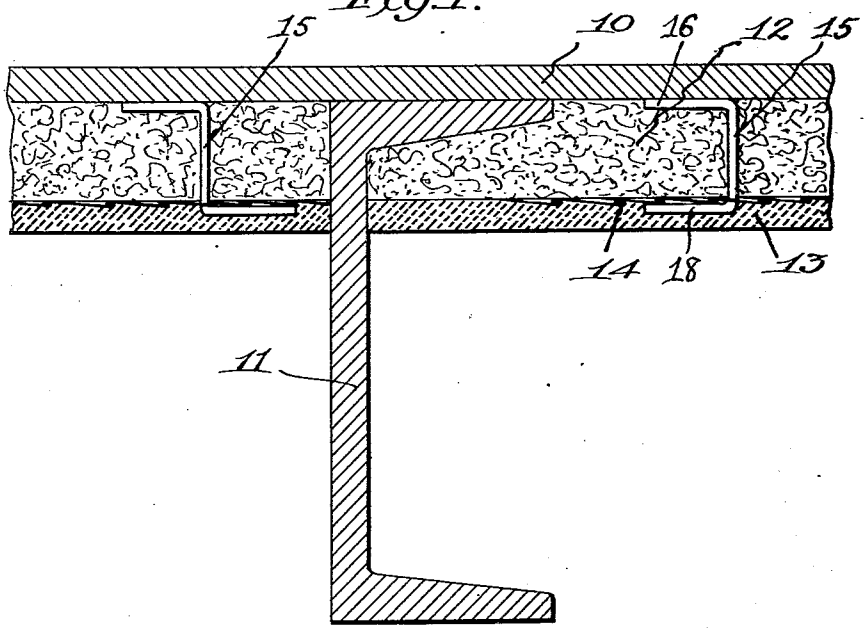
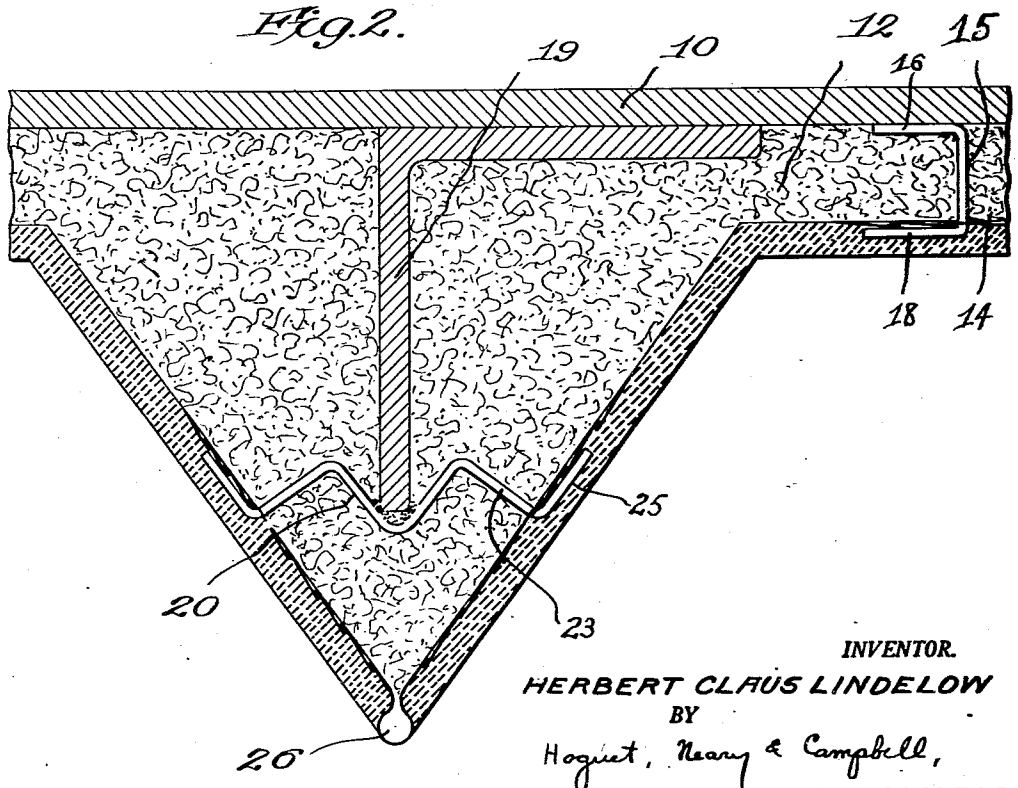


Fig. 2.



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Fig. 3.

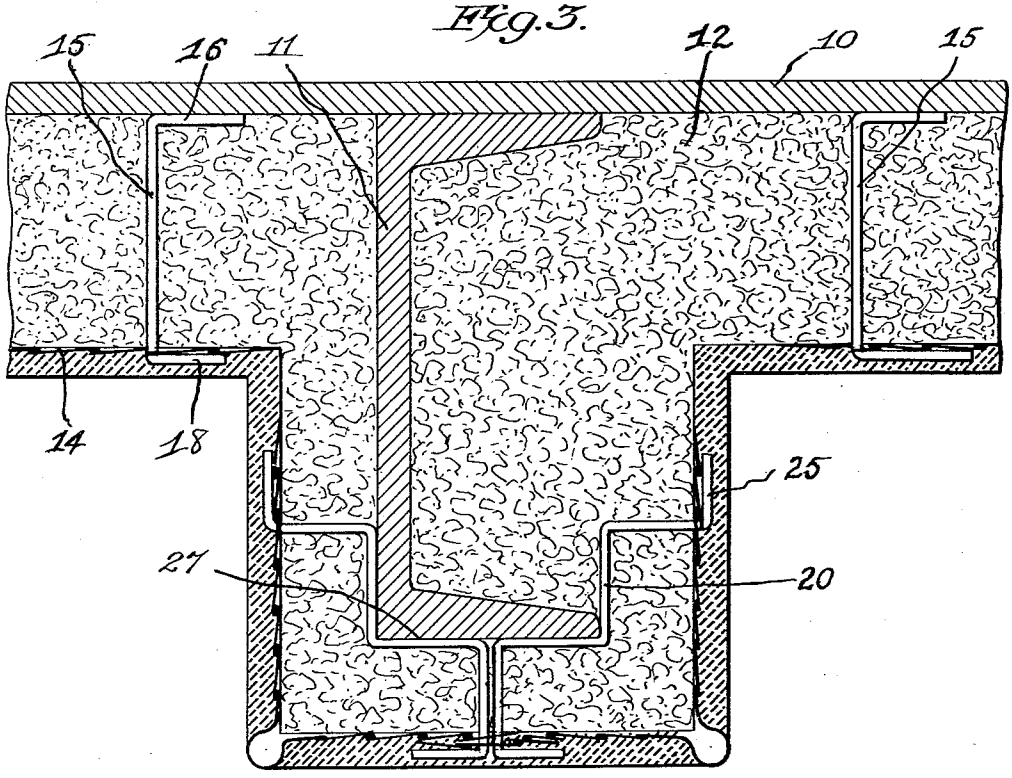


Fig. 4.

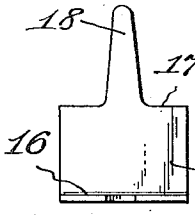


Fig. 5.

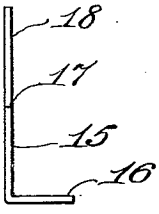


Fig. 7.

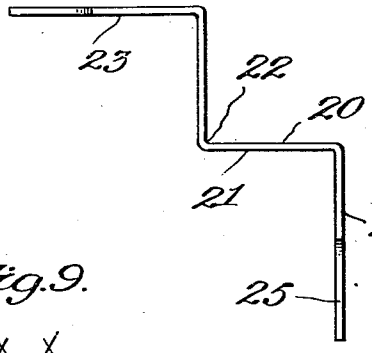


Fig. 8.

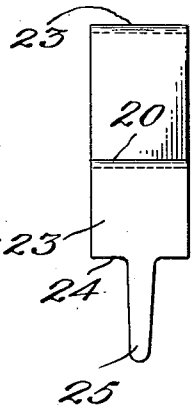
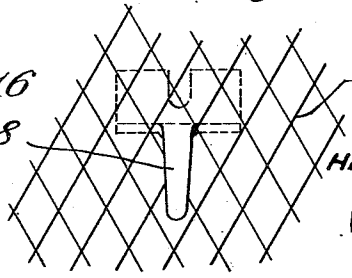


Fig. 6.



Fig. 9.



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UNITED STATES PATENT OFFICE

2,370,052

SUPPORTING ELEMENT

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Application January 18, 1943, Serial No. 472,739

3 Claims. (Cl. 72—118)

The present invention relates to insulating structures and embodies, more specifically, an improved structure having insulating properties and secured effectively to the surface which is desired to be insulated. The invention relates further to positioning and securing mechanism by means of which insulation may be held in a desired position with respect to the surface to be insulated.

It has heretofore been the practice to apply insulation to walls and ceilings of building structures and to surfaces such as the sides, bulkheads, decks, and overhead of ships by retaining the insulation in position by the use of expanded metal lath, the lath being impaled on securing elements of various types. Various objections and difficulties have heretofore existed in connection with these known insulating structures, typical of which difficulties consist in the difficulty of securing the expanded metal lath in a suitable position with respect to the surface to be insulated, particularly where there are irregularities or projections on such surface. An object of the present invention is to provide an improved insulating structure wherein insulation is secured to the desired surface in an improved fashion.

A further object of the invention is to provide insulating structure of the above character in which the insulation is formed about an irregularity or projection on the surface to be insulated.

A further object of the invention is to provide a supporting element by means of which insulating structure may be secured effectively in a desired position.

A further object of the invention is to provide a supporting element of the above character which serves effectively to support the insulating structure in a desired position without interfering with the application of the insulation to the surface to be insulated.

Yet another object of the invention is to provide supporting mechanism of the above character which is capable of being used upon any desired surface and thus avoids the necessity of providing a plurality of supporting elements to accommodate conditions of varying character.

Yet another object of the invention is to provide an improved supporting element for insulating structure by means of which the insulation may be secured effectively to and about projections formed upon surfaces to be insulated.

Yet another object of the invention is to provide a supporting device of the last-named character wherein the element is capable of being used upon the projections regardless of the shape thereof.

Further objects and advantages of the invention will be apparent as it is described in greater detail in connection with the accompanying drawings, wherein

Fig. 1 is a view in cross-section, taken through insulating structure formed in accordance with the present invention and showing the manner in which the insulation is secured to a surface such as the side of a ship;

Fig. 2 is a view similar to Fig. 1 showing the manner in which insulation is applied to projections formed on the surface to be insulated;

Fig. 3 is a view similar to Fig. 1 showing a further modified insulating structure in which a projection of a different character is formed upon the surface to be insulated;

Fig. 4 is a view in elevation showing an insulating support or clip formed in accordance with the present invention;

Fig. 5 is a view in side elevation showing the clip of Fig. 4;

Fig. 6 is a bottom view showing the clip of Figs. 4 and 5;

Fig. 7 is a side view showing a modified form of supporting device or clip;

Fig. 8 is an end view showing the device of Fig. 7; and

Fig. 9 is a partial view showing the manner in which the supporting device or clip is used to secure the insulating structure in position.

Referring to the above drawings, and particularly to Figs. 1, 4, 5, 6, and 9, the surface to be insulated is shown at 10. This surface may be the side of the ship or may be a wall or ceiling or any other element upon which insulation is to be applied. In order to illustrate more fully the manner in which this invention may be utilized, the element 10 upon which the insulation is to be applied is shown as being formed with a projection 11 which in Fig. 1 is shown as a channel beam which, in the case of a ship's hull, may constitute a reinforcing and rigidifying element.

The insulation to be applied to the side 10 may be of various forms and, for the purpose of illustration herein, the insulation is shown as being asbestos fibre 12 over which a hard-finished plaster or other suitable composition 13 is applied. In order that the asbestos fibre may be retained in position and, at the same time, the finish applied thereto, expanded metal lath 14 is provided. It is to be understood that the particular details of the insulating material form no part of the present invention.

In order that the insulation may be secured in position and with a uniform thickness thereof applied over the entire surface of the side 10, clips 15 are provided, the clips being formed of a body portion such as a plate having a flange 16 formed at the foot thereof and adapted to be secured as by welding to the side 10. The flange 16 may be bifurcated, as illustrated, and the plate is formed with at least one shoulder 17 against which the expanded metal lath 14 is seated or located when it is placed in position. A tab or ear 18 is formed on the plate or clip 15 adjacent to the shoulder 17 and, when the expanded lath is in the position illustrated in Figs. 1 and 9, the tab is upset or deformed as illustrated in Fig. 9. This serves to impale and secure the lath in position. It will be understood, of course, that the shoulders 17 of the clip 15 serve as a convenient measuring device or marker to insure a uniform depth of insulating material to the surface 10 during the application thereof. It is frequently the practice to apply the asbestos fibre by spraying operations and the clips or plates 15 thus present no obstruction to the application of the material inasmuch as the only surface facing the spray is the edge of the clip at the end containing the tab 18 and shoulder 17.

With reference to the structure shown in Figs. 2, 7, and 8, the element to which the insulation is applied is shown as being provided with an angle beam 19 about which the insulating material 12 is to be applied. To accomplish the application of the insulation effectively to the angle beam, which constitutes a projection on the surface 10, supporting elements 20 are provided, the structure of the supporting elements being illustrated more particularly in Figs. 7 and 8. The elements 20 comprise clips, each of which has a central or intermediate portion formed by arms 21 defining a reentrant portion 22. The arms 21 terminate in angularly extending plates 23, the extremities of which are provided with at least one shoulder 24 which is similar in construction and function to the shoulders 17 of the clip structure shown in Fig. 4. The extremity of each extension 23 is likewise formed with a tab 25 similar to the tab 18 and functions in the manner described in connection with the tab 18.

In using the clips 20 the reentrant portion 22 receives the extremity of the flange of the angle member 19 and the clip is secured as by welding to the angle member, as illustrated in Fig. 2.

After the clips 20 are thus secured in position, corner beads 26 are secured by impaling them on the clips 20 and the outer or finishing coat 13 applied in a manner which will be readily understood.

To illustrate the adaptability of the clips 20 for use with various forms of projections, the structure shown in Fig. 3 illustrates the manner in which insulation can be applied about a projection of the character shown in Fig. 1, wherein the projection consists of a U-shaped channel. Accordingly, in Fig. 3, the U-shaped channel 11 is provided at its outer extremity with a plurality of clips 20, the latter being secured thereto as by welding and preferably in staggered relationship longitudinally of the channel. In this insulating structure, the reentrant portions 22 of the clips receive the appropriate outer edges of the channel member U with one of the arms 21 abutting along its entire length against the outer surface of the channel member. The important feature of the insulating structure shown in Fig. 3 comprises the application, to each outer edge of the projecting element, of one or more clips in such fashion that each such edge is received in the reentrant portion of such clips applied thereto. In this fashion, the arms 23 of the clips thus function as spacing members for securing the corner beads 26 in position.

It will be observed that the dimensions of the supporting members or clips and the outline or shape thereof may be varied considerably from the specific forms shown in the drawings, and the invention is not to be limited save as defined in the appended claims.

I claim:

1. A supporting element adapted to position insulating material upon a member to be insulated, consisting of a W-shaped strip of metal having an angular mid-portion adapted to engage said member, and angularly related diverging arms on opposite sides of said mid-portion, each arm having at its outer end a tab of less width than said arm adapted to impale and support insulation retaining means, and a shoulder at the junction of said tab and said arm adapted to engage the insulation retaining means and maintain it in spaced relationship to said member.

2. A supporting element adapted to position insulating material upon a member to be insulated consisting of a W-shaped strip of metal having a right-angular mid-portion adapted to engage said member, and right-angularly related diverging arms on opposite sides of said mid-portion, each arm having at its outer end a tab of less width than said arm adapted to impale and support insulation retaining means, and a shoulder at the junction of said tab and said arm adapted to engage the insulation retaining means and maintain it in spaced relationship to said member.

3. A supporting element adapted to position insulating material upon a member to be insulated consisting of a W-shaped strip of metal having a right-angular mid-portion adapted to engage said member, and right-angularly related diverging arms on opposite sides of said mid-portion, each arm having at its outer end a bendable, pointed tab of less width than said arm adapted to impale and support insulation retaining means, and a shoulder at the junction of said tab and said arm adapted to engage the insulation retaining means and maintain it in spaced relationship to said member.

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