Jan. 6, 1931. R. MURRAY 1,787,453

INSULATOR AND CORE

Filed Oct. 20, 1928

Fig. 1,

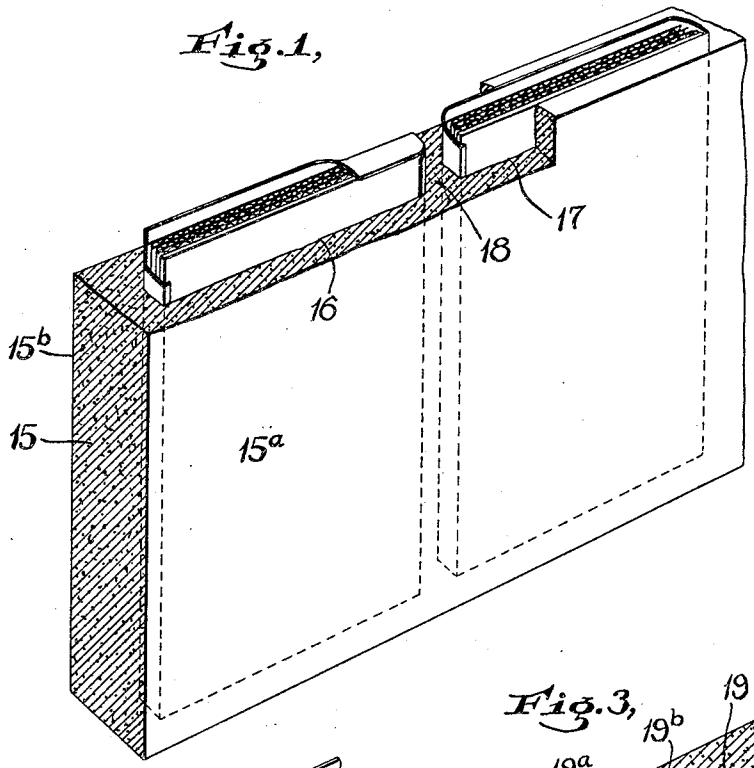


Fig. 2,

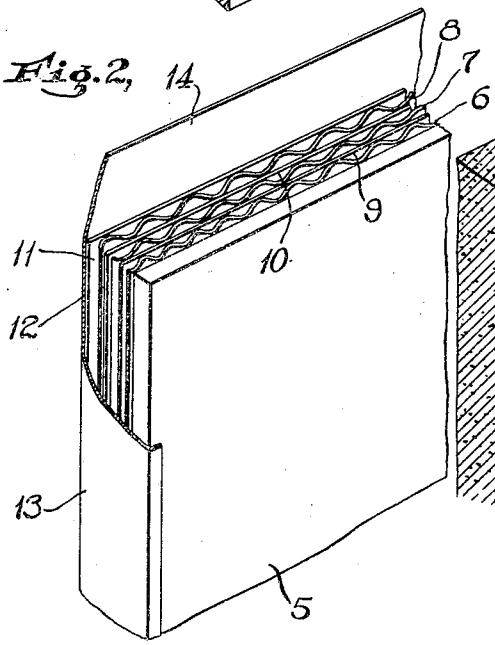
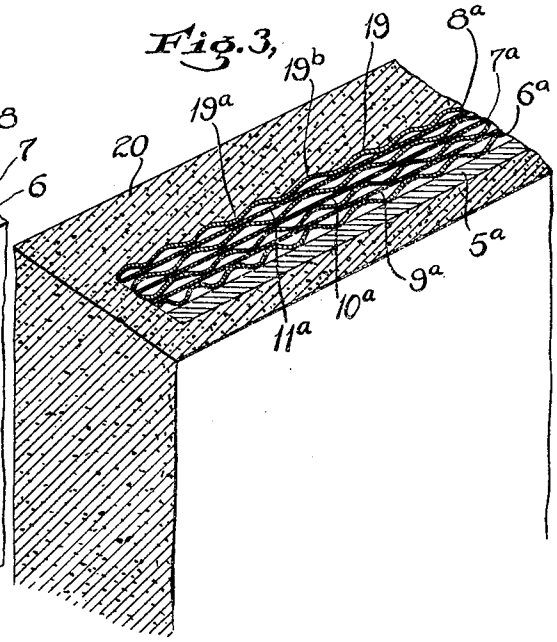


Fig. 3,



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UNITED STATES PATENT OFFICE

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INSULATOR AND CORE

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This invention relates to insulators or cores used in the construction of concrete walls of buildings; and the object of the invention is to provide a device of the class specified which is composed of inexpensive material and which is of a built up structure in the form of a plurality of corrugated sheets to give the required strength thereto to maintain the body of concrete in proper position in the setting of such body in the formation of walls of any kind or class and in fact in the formation of concrete structures of any description; a further object being to provide a device of the class described on one side of which is arranged a sheet of comparatively rigid material preferably having temperature resisting properties such for example as a sheet of asbestos; a still further object being to provide the other side face of the device with a sheet of material treated to render the same substantially moisture proof; and with these and other objects in view, the invention consists in a device of the class and for the purpose specified which is simple in construction, efficient in use, and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Fig. 1 is a perspective view of a part of a concrete body showing one method of arranging my improved core and insulating devices therein.

Fig. 2 is a perspective view of a part of one of the devices with part of the construction broken away; and,

Fig. 3 is a perspective view of a concrete body with one of my improved devices arranged therein and showing a modified form of device.

My improved core forming and insulating device consists in the construction shown in Figs. 1 and 2 of the drawing, of a side facing sheet 5 of temperature insulating material of a substantially rigid nature and preferably composed of asbestos or an asbestos compound, or other materials having similar properties may be employed. Arranged on one face of the sheet 5 is a plurality of corrugated sheets 6, 7 and 8. The sheet 6 rests directly upon the sheet 5 whereas the sheets 6 and 7 are spaced apart by a straight sheet 9, the sheets 7 and 8 spaced apart by another straight sheet 10, and arranged on the outer face of the sheet 8 is another sheet 11, outwardly of which is a facing sheet 12.

The sheets 6 to 11 inclusive may be composed of heavy paper, cardboard or any suitable and preferably inexpensive material which will be of such texture as to produce the required strength and pressure resisting properties to suit the particular uses required of the device. The facing sheet 12 is preferably composed of a material treated or saturated to render the same substantially moisture proof such for example by a treatment of wax, paraffin or similar compounds or treated with pitch, tar or the like.

The sheet 12 extends beyond the contour of each of the devices to form side flap portions 13 and top flap portions 14. The flap portions 13 are wrapped around the sides of each device whereas the flap 14 normally rests upon the top of each device in the operation of pouring the concrete and may be torn off in whole or in part when the concrete has become set and in the operation of placing one device upon the other in forming a continuous chamber or core through the concrete body.

While my invention has many uses, its primary use is in the construction of concrete walls of buildings, and in this use, the devices may be placed directly one upon the other and spaced laterally in the wall to form continuous chambers or cores extending vertically through the wall structure.

In Fig. 1 of the drawing, I have shown at 15 a part of a concrete wall with two of my improved devices arranged therein to form two separate chambers or cores 16 and 17 extending vertically through the wall and spaced apart by columns of concrete designated at 18 which join the inner face portion 15*a* with

the outer face portion 15*b* thereof. These columns will be arranged between the spaced devices employed in the complete wall structure.

In the construction shown, my improved core forming and insulating devices are made rectangular in form and preferably of a height equal to the height of a cast to be made in forming the concrete wall structure. However, it will be understood that two or more of these devices may be placed one upon the other in forming one cast or mold of the wall structure, and furthermore it will be apparent that my invention is not necessarily limited to any particular contour of the separate devices employed nor to any particular arrangement thereof in the wall structure. This phase of my invention is more specifically covered in a companion application filed by me of equal date herewith.

In Fig. 3 of the drawing, I have shown a slight modification in the form of the devices employed, and in this construction 5*a* represents the asbestos sheet similar to the sheet 5; 6*a*, 7*a*, 8*a*, 9*a*, 10*a* and 11*a* represent sheets similar to the sheets 6 to 11 inclusive, and instead of employing the sheet 12 as shown in Fig. 2 of the drawing, I employ another rectangular sheet 19. With this construction in molding the concrete of a wall 20 around the devices, the body of concrete will extend into the recesses 19*a* of the sheet 19 to form a multiplicity of vertical concrete ribs which will be of the cross section of the recesses 19*a*, and in like manner, the projecting portions 19*b* of the sheet 19 will form corresponding recesses intermediate said ribs.

At this time, it will be understood that my invention is not necessarily limited to any particular number of the corrugated or other sheets employed in the separate devices nor to any particular curvature or cross sectional form of the corrugated sheets as this will largely depend upon the size of the core required and the size of the wall structure to be formed and the amount of pressure which must be resisted by said devices. While I have shown certain details of construction for carrying my invention into effect and have referred to a specific use of the invention, it will be understood that I am not necessarily limited in these respects and various changes in and modifications of the construction herein shown and described may be made within the scope of the appended claims without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A device for forming cores or chambers in concrete bodies consisting of a plurality of sheets having irregular cross sectional contour arranged side by side, straight sheets interposed between said first named sheets, all of said sheets being composed of fibrous material, and a facing sheet at one side of the device involving a compound having heat resisting properties.

2. A device for forming cores or chambers in concrete bodies consisting of a plurality of sheets having irregular cross sectional contour arranged side by side, straight sheets interposed between said first named sheets, all of said sheets being composed of fibrous material, a facing sheet at one side of the device involving a compound having heat resisting properties, and a facing sheet on the other side of the device including moisture proof material.

3. A device for forming cores or chambers in concrete bodies consisting of a plurality of sheets having irregular cross sectional contour arranged side by side, straight sheets interposed between said first named sheets, all of said sheets being composed of fibrous material, a facing sheet at one side of the device involving a compound having heat resisting properties, a facing sheet on the other side of the device including moisture proof material, and said last named sheet having flaps adapted to lie over predetermined edge portions of said device.

4. A core forming device for concrete structures comprising a member adapted to be arranged and imbedded in a body of concrete to form a chamber or core therein, said member consisting of a plurality of corrugated sheets arranged side by side with flat spacing sheets arranged therebetween to form a unit structure, and said member including a facing sheet having waterproof characteristics arranged upon one side face of said member.

5. A core forming device for concrete structures comprising a member adapted to be arranged and imbedded in a body of concrete to form a chamber or core therein, said member consisting of a plurality of corrugated sheets arranged side by side with flat spacing sheets arranged therebetween to form a unit structure, said member including a facing sheet having waterproof characteristics arranged upon one side face of said member, and another comparatively thick facing sheet of fireproof material arranged on the other face of said member.

6. A core forming device for concrete structures comprising a member adapted to be arranged and imbedded in a body of concrete to form a chamber or core therein, said member consisting of a plurality of corrugated sheets arranged side by side with flat spacing sheets arranged therebetween to form a unit structure, said member including a facing sheet having waterproof characteristics arranged upon one side face of said member, another comparatively thick facing sheet of fireproof material arranged on the other face of said member, and said first named facing sheet including side flaps adapted to lie over and

cover predetermined side edges of said member.

7. In concrete structures of the class described, a core forming device adapted to be imbedded in the concrete structure in forming the same, said member comprising outer facing sheets of moistureproof material preventing the passage of concrete into said member, and the central body portion of said member being formed from a plurality of sheets placed side by side, alternate sheets being of corrugated cross sectional form and the intermediate sheets being flat.

8. In concrete structures of the class described, a core forming device adapted to be imbedded in the concrete structure in forming the same, said member comprising outer facing sheets of moisture-proof material preventing the passage of concrete into said member, the central body portion of said member being formed from a plurality of sheets placed side by side, alternate sheets being of corrugated cross sectional form and the intermediate sheets being flat, and one facing sheet of said member being comparatively thick and composed of fireproof material.

In testimony that I claim the foregoing as my invention I have signed my name this 11th day of October, 1928.

RICHARD MURRAY.