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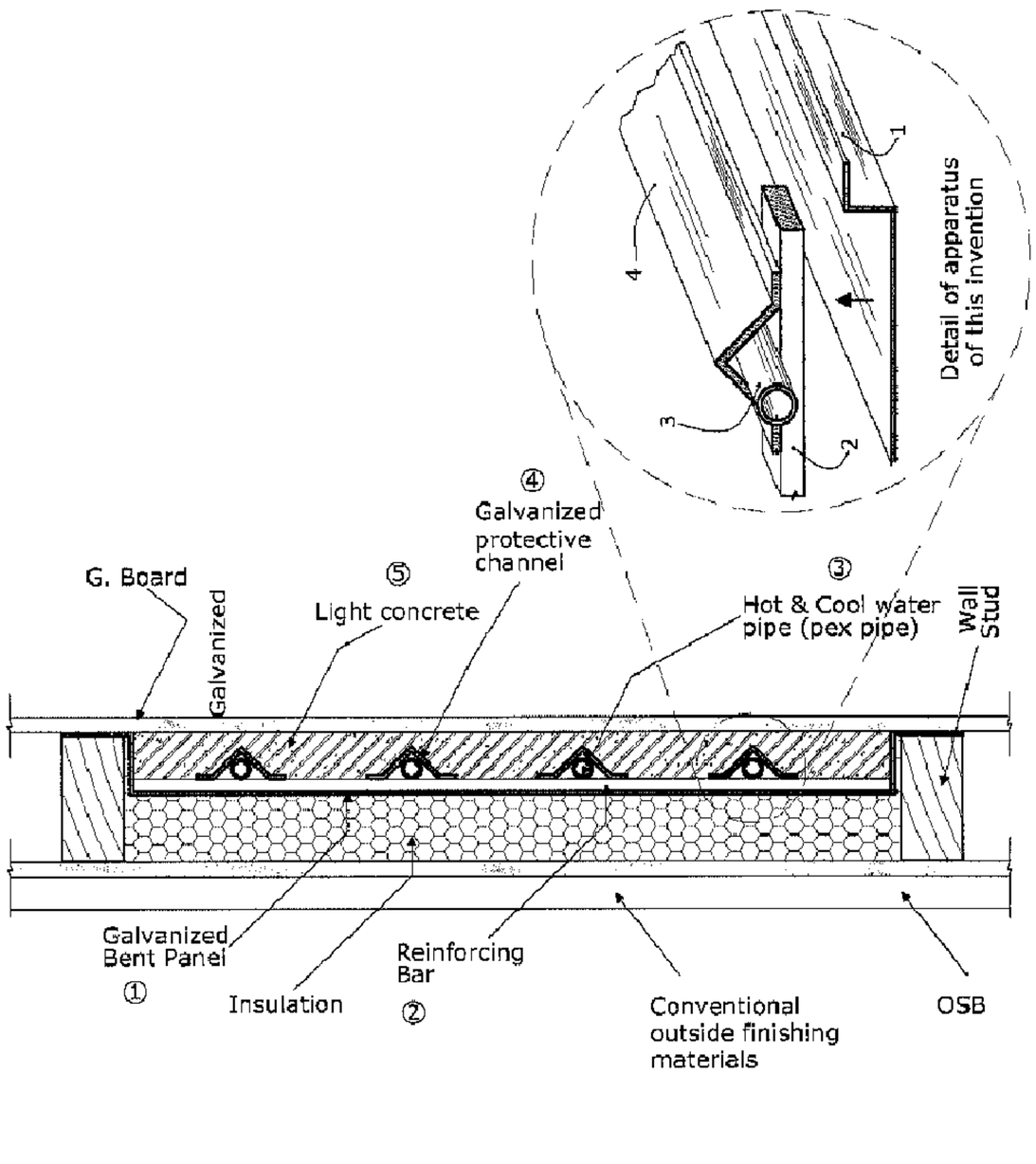
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(54) Titre : PANNEAUX D'ESPACE DE REFROIDISSEMENT ET CHAUFFAGE SOLAIRE ET RADIANT
(54) Title: SOLAR AND RADIANT HEATING AND COOLING SPACE PANELS



Cross Section ②

(57) Abrégé/Abstract:
The invention, Solar and Radiant Heating and Cooling Space Panels, provides for a selective heating and cooling system of space solar panels made to collect energy from the sun and deliver said energy to an underground reservoir for storage. From this

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(57) **Abrégé(suite)/Abstract(continued):**
underground storage tank, emerge coils made of cross-linked polyethylene, heretofore known as pex, pipe for both the reservoir and other structures. The interior heating panel can be installed in interior walls, floors, and ceilings while the exterior heating panel is for exterior walls. The pex pipes deliver either hot or cold water through the coils in each panel with a mixture of antifreeze added to the solution in the exterior panels. The heating system is secured with concrete, which also acts as the radiant material with properties that allow more of the heat or cold to be stored in the wall for longer periods.

Solar and Radiant Heating and Cooling Space Panels

Abstract Of the Disclosure

The invention, Solar and Radiant Heating and Cooling Space Panels, provides for a selective heating and cooling system of space solar panels made to collect energy from the sun and deliver said energy to an underground reservoir for storage. From this underground storage tank, emerge coils made of cross-linked polyethylene, heretofore known as pex, pipe for both the reservoir and other structures. The interior heating panel can be installed in interior walls, floors, and ceilings while the exterior heating panel is for exterior walls. The pex pipes deliver either hot or cold water through the coils in each panel with a mixture of antifreeze added to the solution in the exterior panels. The heating system is secured with concrete, which also acts as the radiant material with properties that allow more of the heat or cold to be stored in the wall for longer periods.

Solar Radiant Heating And Cooling Space Panels

The invention provides for a selective heating and cooling system of space solar and radiant panels made to collect energy from the sun and deliver said energy to an underground reservoir for storage, later to be dispersed to exterior and interior walls, ceilings, and floors through pex pipes and radiated through a concrete outer layer.

Background Of The Invention

Pex pipe heating has been commonly used for in-floor heating to great effect, allowing the pipe to be placed and insulated below the floor's surface. Radiant panels have also been created, as seen in United States of America patents (below) using metal as the radiant surface.

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Though the ability to heat a surface from below has met with great popularity, the metal comprising many of these existing panels heats and cools quickly, requiring more energy. However, concrete as a building material is often overlooked for its energy and cost efficiency.

Summary Of The Invention

The invention, Solar and Radiant Heating and Cooling Space Panels, provides both exterior and interior heating panels for a system of solar and radiant energy. One exterior heating panel, containing a coil of pex pipe with antifreeze, sits on a sunlit surface (example a roof) to which we can apply a solar energy unit, like Lumeta Peel and Stick. Through this energy, this panel is giving us both hot water in the day and cool water at night. Each will go to one of 2 reservoirs, hot and cool, where the water will be stored for use in the structure or building to be climate controlled. The interior heating panels can be installed within the home or structure, in select areas of interior walls, floors, and ceilings where the radiant heat would be most beneficial. The pex pipes deliver either hot or cold water through the coils in each panel, heating not only the metal protective casing but also the concrete covering, which maintains its temperature much longer than the metal.

Detailed Description Of The Invention

The objective of the present invention will become apparent from the following description taken with connection with the accompanying drawings wherein:

FIG. **1** is a broken wall view of installed radiant heating panels of the present invention;

FIG. **2** is a detail view of the interior radiant heating panel;

FIG. **3** is a top view of an interior radiant heating panel;

FIG. **4** is a cross-section 3 of an interior radiant heating panel;

FIG. **5** is a cross-section 2 of an interior radiant heating panel;

FIG. **6** is a cross-section 1 of an interior radiant heating panel;

FIG. **7** is a cross-section 4 top view of an exterior radiant heating panel;

FIG. **8** is a cross-section 4 of an exterior radiant heating panel;

FIG. **9** is a cross-section 4 of an exterior radiant heating panel, similar to FIG. 8;

Referring to the FIG. **1** is a broken front view of an external wall with a window viewed from inside the room in which the various types of radiant heating panels have been installed to the wall;

FIG. **2** is a detailed view of a radiant heating panel of the present invention depicting No 1 elongated galvanized bent metal in pan shape, includes No 2 which is the reinforcing bar placed on the bottom galvanized pan, also No 3 hot and cool water (liquid) pex pipe, embodiment of the No 4 galvanized protective channel covered with light weight concrete;

FIG. **3** is a top view of a radiant heating panel of the present invention depicting No 1 elongated galvanized bent metal in pan shape, includes No 2 which is the reinforcing bar placed on the bottom galvanized pan, also No 3 hot and cool water (liquid) pex pipe;

FIG. **4** is a cross-section of a radiant heating panel with a detail of the apparatus of the present invention, showing No 1 elongated galvanized bent metal in pan shape, includes No 2 which is the reinforcing bar placed on the bottom galvanized pan, No 3 hot and cool water (liquid) pex pipe, No 4 ;

FIG. **5** is a cross-section of a radiant heating panel with a detail of the apparatus of the present invention, similar to No 4, (with more pipes) showing No 1 elongated galvanized bent metal in pan shape, includes No 2 which is the reinforcing bar placed on the bottom galvanized pan, No 3 hot and cool water (liquid) pex pipe, No 4;

FIG. **6** is a cross-section No 1 of FIG. **1** of a wall with a radiant heating panel under a window;

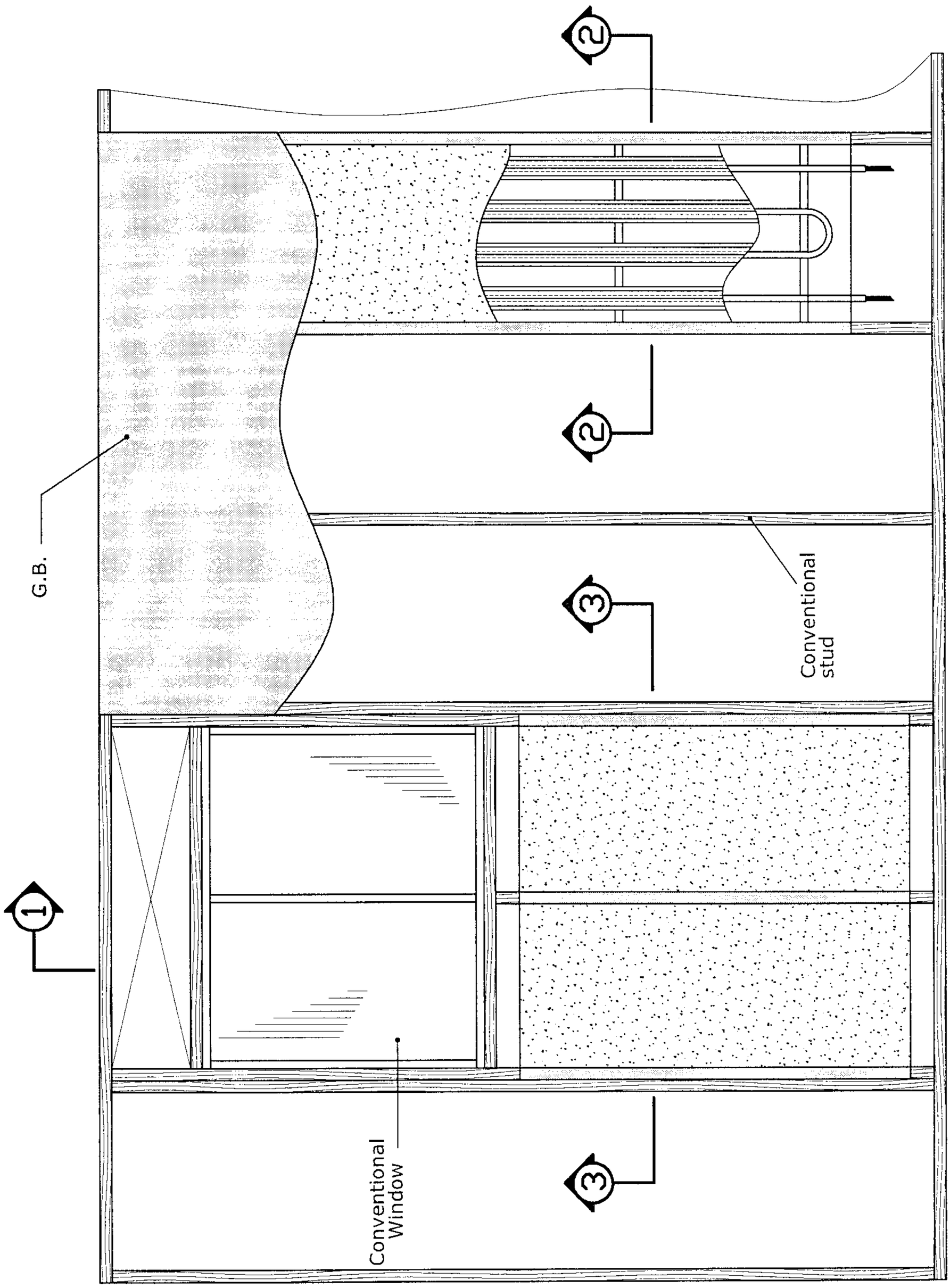
FIG. **7** is a cross-section No 4 of FIG. 8, a top view of a solar and radiant heating panel showing No 1 galvanized bent panel, No 2 reinforcing bar, No 3 hot and cool water (liquid) pex pipe, No 7 hollow core structural steel section;

FIG. **8** is a detailed view of a radiant heating panel of the present invention depicting No 1 elongated galvanized bent metal in pan shape, includes No 2 which is the reinforcing bar placed on the bottom galvanized pan, also No 3 hot and cool water (liquid) pex pipe, embodiment of the No 4 galvanized protective channel covered with light weight concrete, No 5 light concrete, No 6 Peel and Stick solar power film, No 7 hollow core structural steel section, No 9 Rockwool insulation, No 9 outside board;

FIG. **9** is a detailed view of a radiant heating panel of the present invention depicting No 1 elongated galvanized bent metal in pan shape, includes No 2 which is the reinforcing bar placed on the bottom galvanized pan, also No 3 hot and cool water (liquid) pex pipe, embodiment of the No 4 galvanized protective channel covered with light weight concrete, No 5 light concrete, No 6 Peel and Stick solar power film, No 7 hollow core structural steel section, No 9 Rockwool insulation, No 9 outside board; similar to No 8 with more pipes.

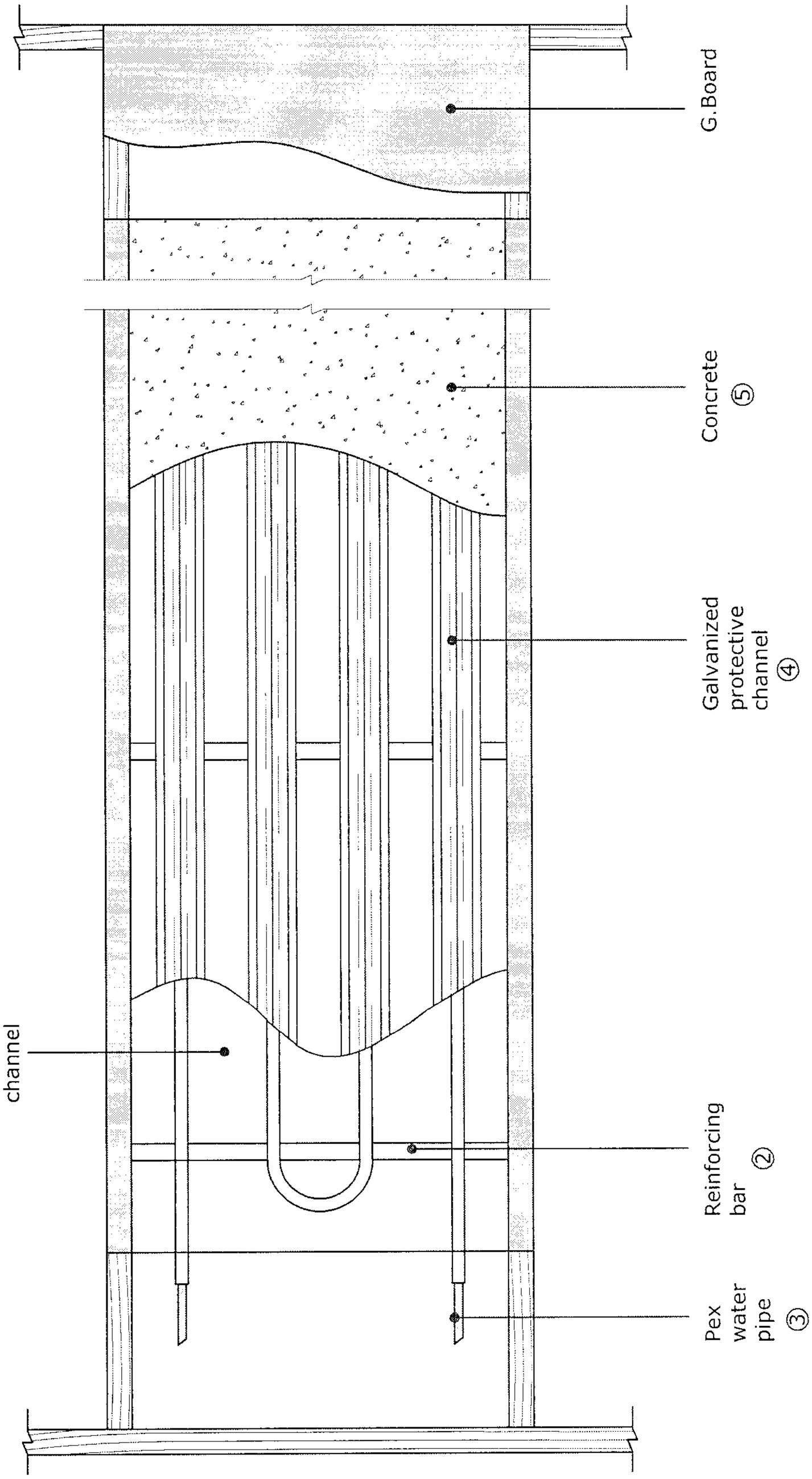
Embodiments Of The Invention In Which An Exclusive Property or Privilege Is Claimed Are Defined As Follows:

1. A radial heating panel comprising an elongated galvanized bent panel shown on FIG. 2 detail view of radial heating panel; also more detail on FIG. 4 and FIG. 5 of cross section 2 and 3 which depicts it in the shape of a pan made of light gauge galvanized metal
2. Reinforced ¼" x ¾" flat bar placed flat on the bottom of the galvanized pan, as seen on FIG. 4 and FIG. 5, and in FIG. 4 cross section as 2
3. Galvanized protective channel to cover the pex pipe shown in FIG. 4 and FIG. 5, in FIG. 4 detail 4 in cross section to be 18 gauge and in the shape shown in FIG. 4 and FIG. 5, and to be covered with concrete
4. Pex pipe to deliver water for interior walls and an antifreeze solution for exterior walls from an underground tank system through to the outdoor panels shown in FIG. 6, FIG. 7, and FIG. 8
5. Fill the No. 1 galvanized bent panel with very light concrete as seen in FIG. 4 and FIG. 5



BROKEN WALL VIEW

FIG. 1



DETAIL VIEW OF A HEATING PANEL

FIG. 2

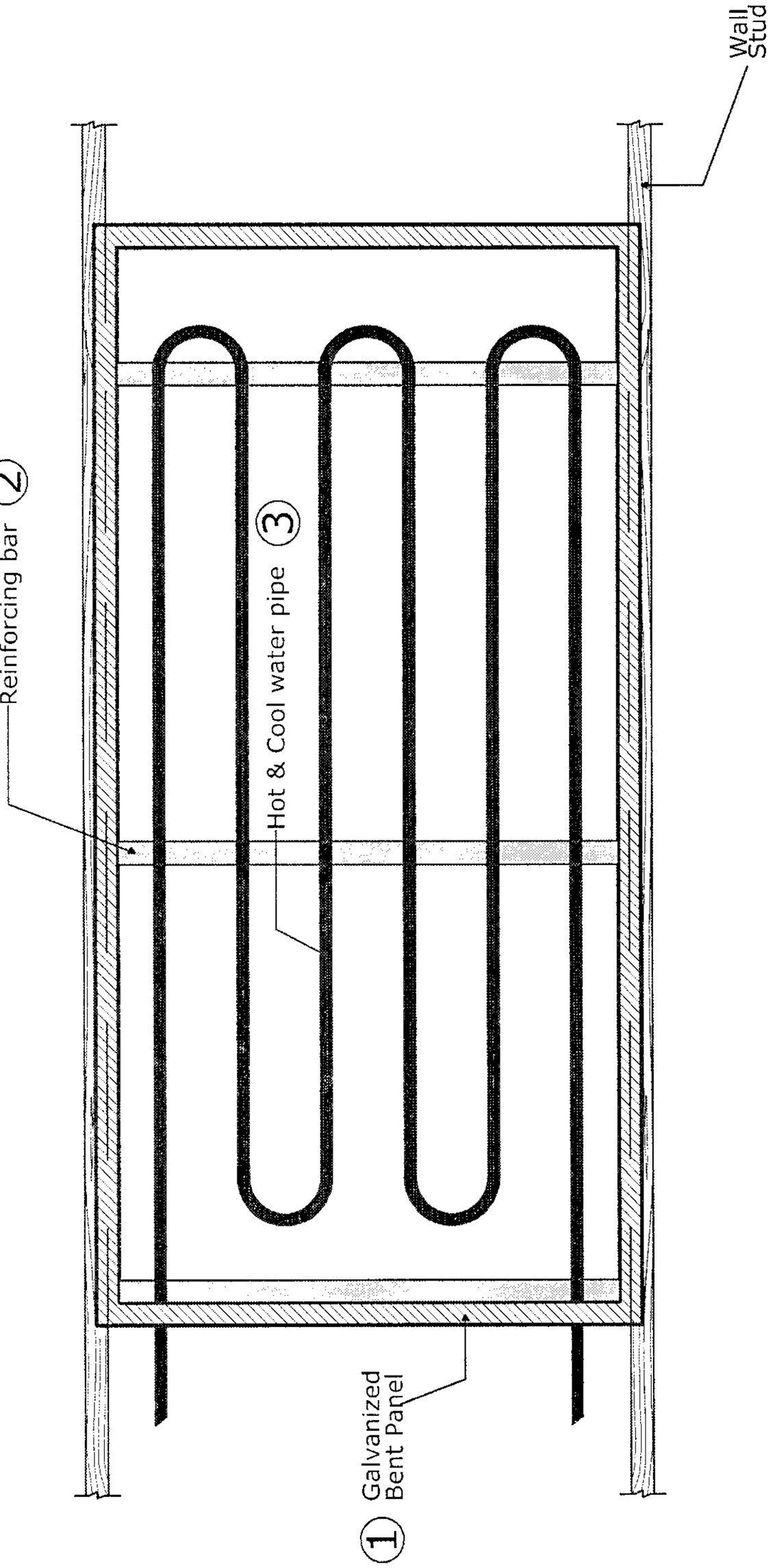
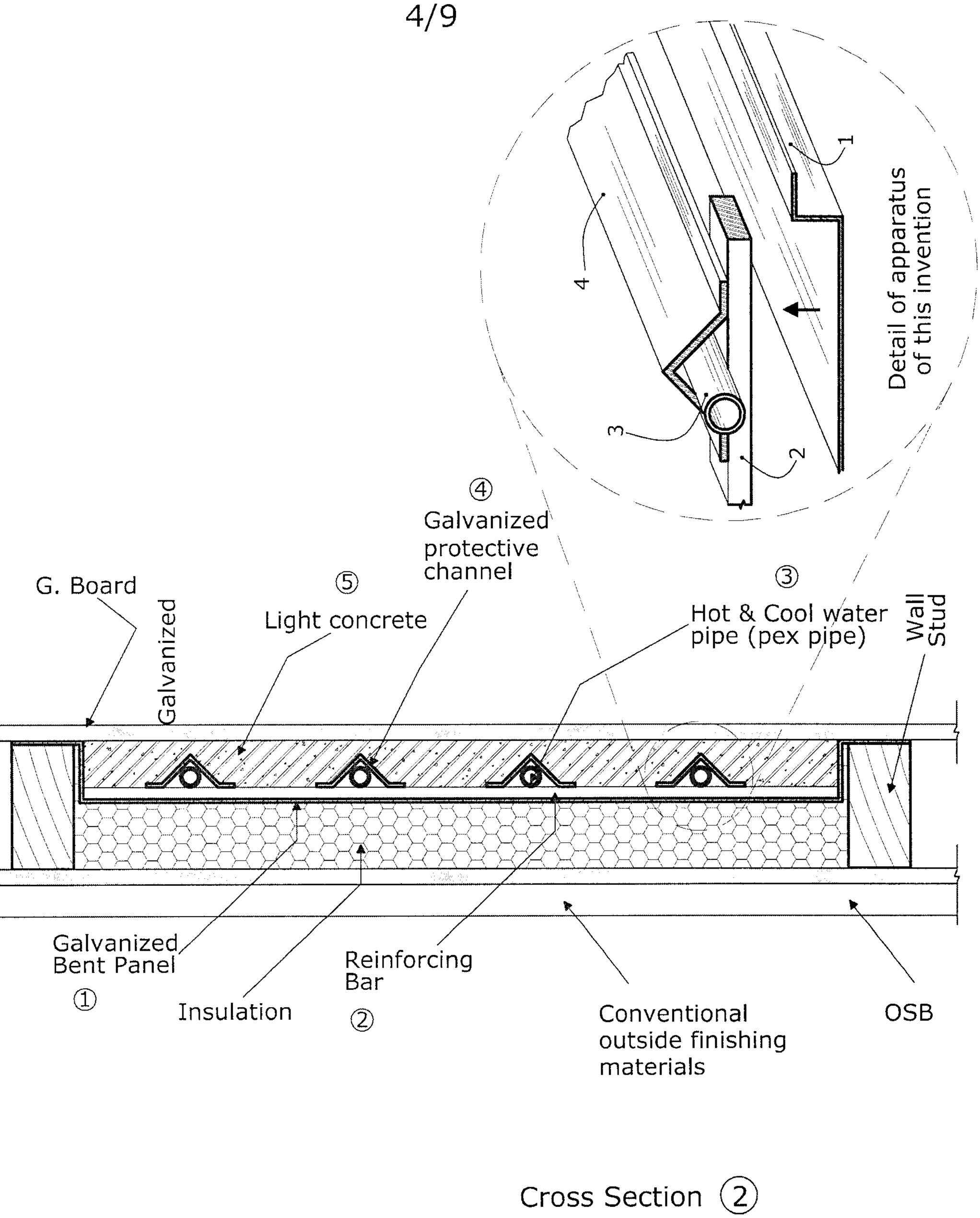

Wall Stud
Reinforcing bar ②
Hot & Cool water pipe ③
Galvanized Bent Panel
①
Top View of Heating Panel

FIG. 3



Cross Section ②

FIG. 4

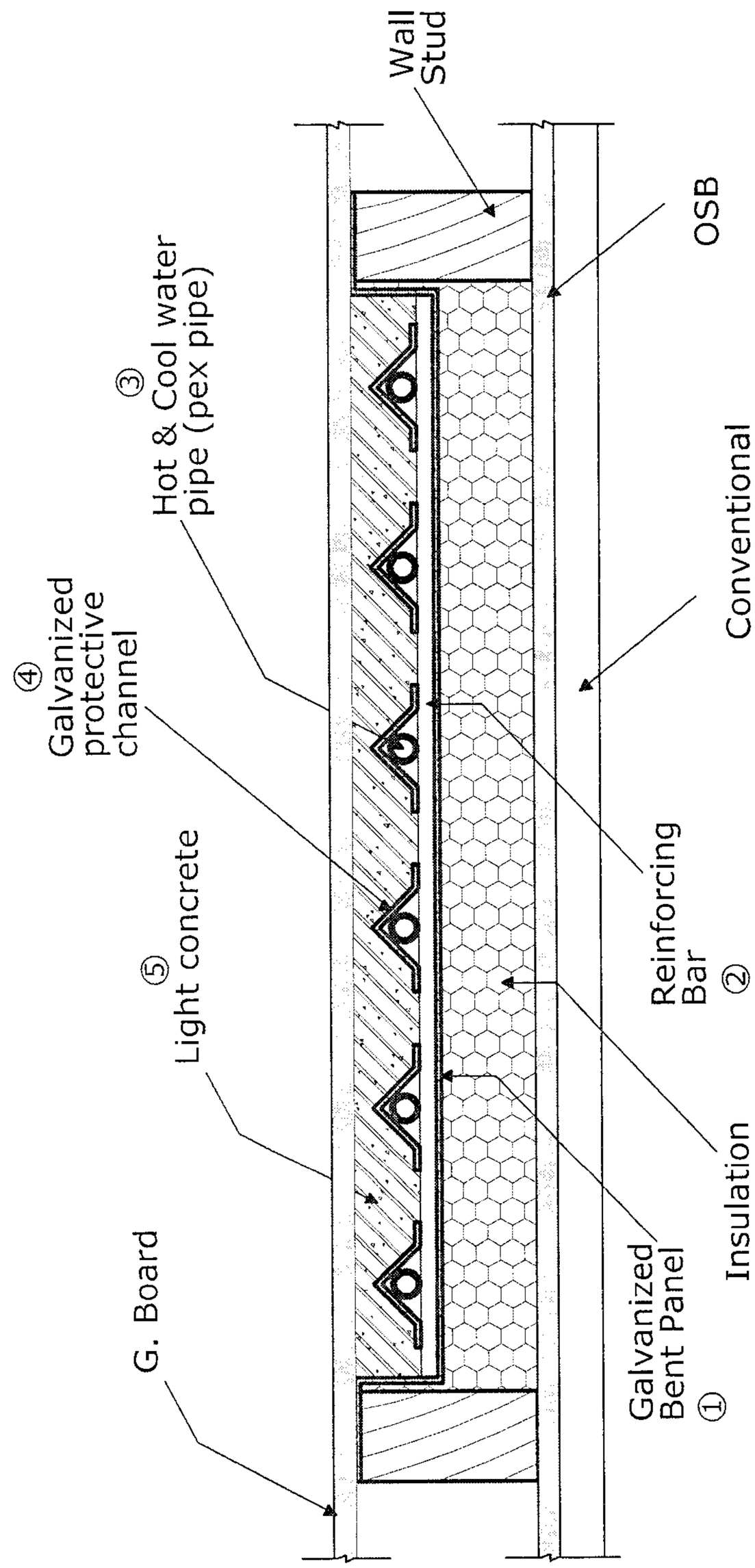


FIG. 5 Cross Section ③ (similar to FIG. 4, with more pipes)

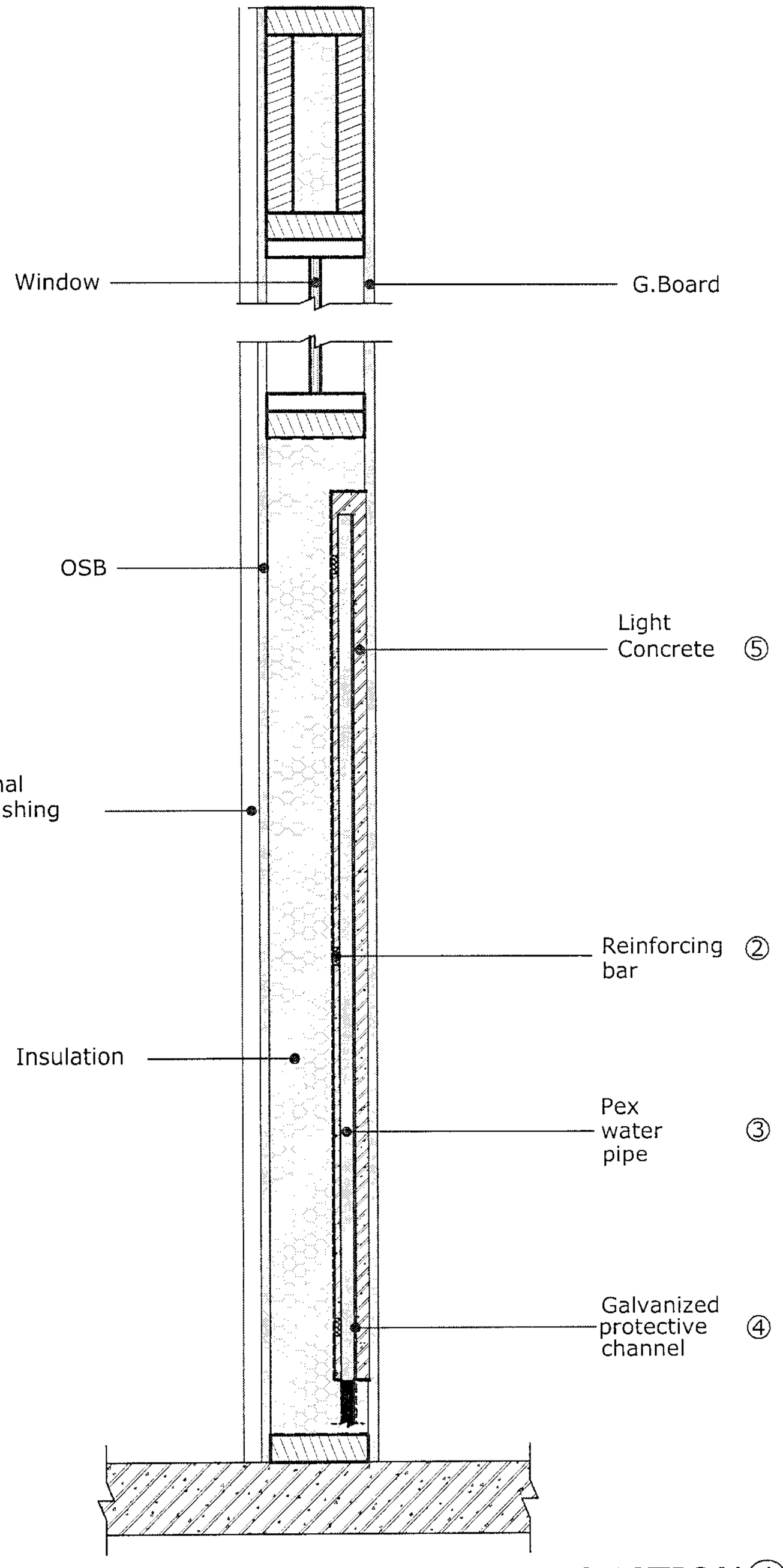
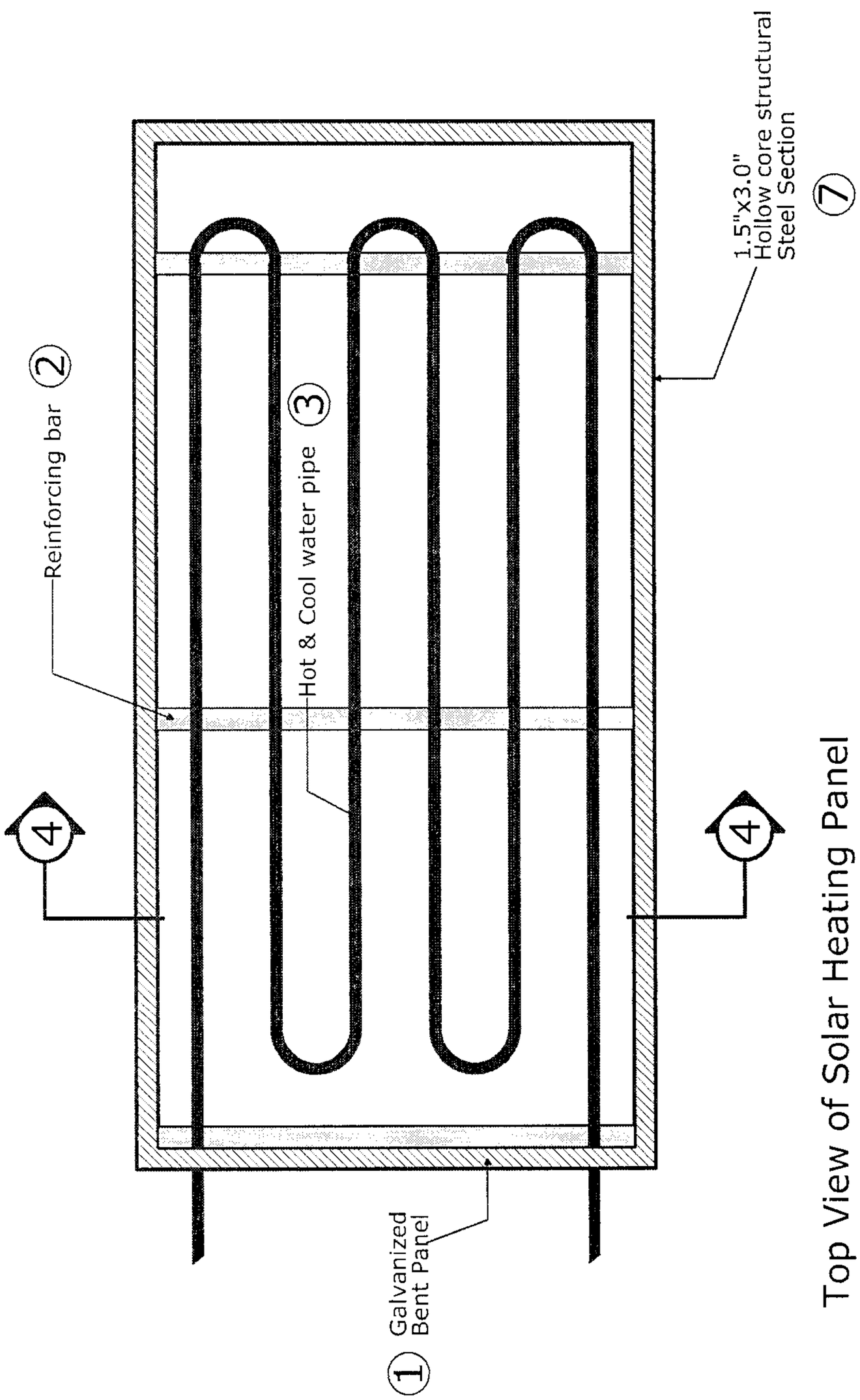


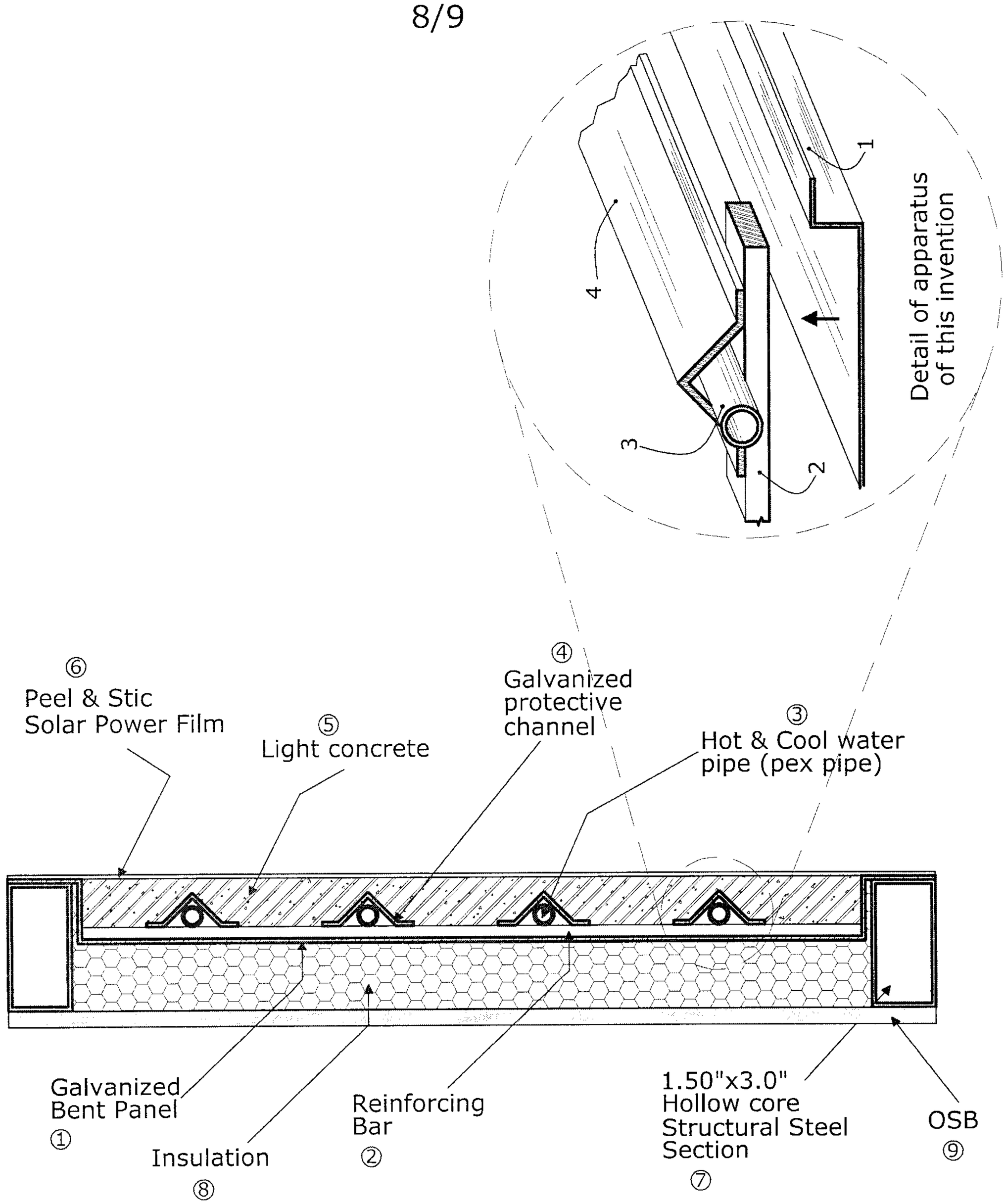
FIG. 6

CROSS SECTION①



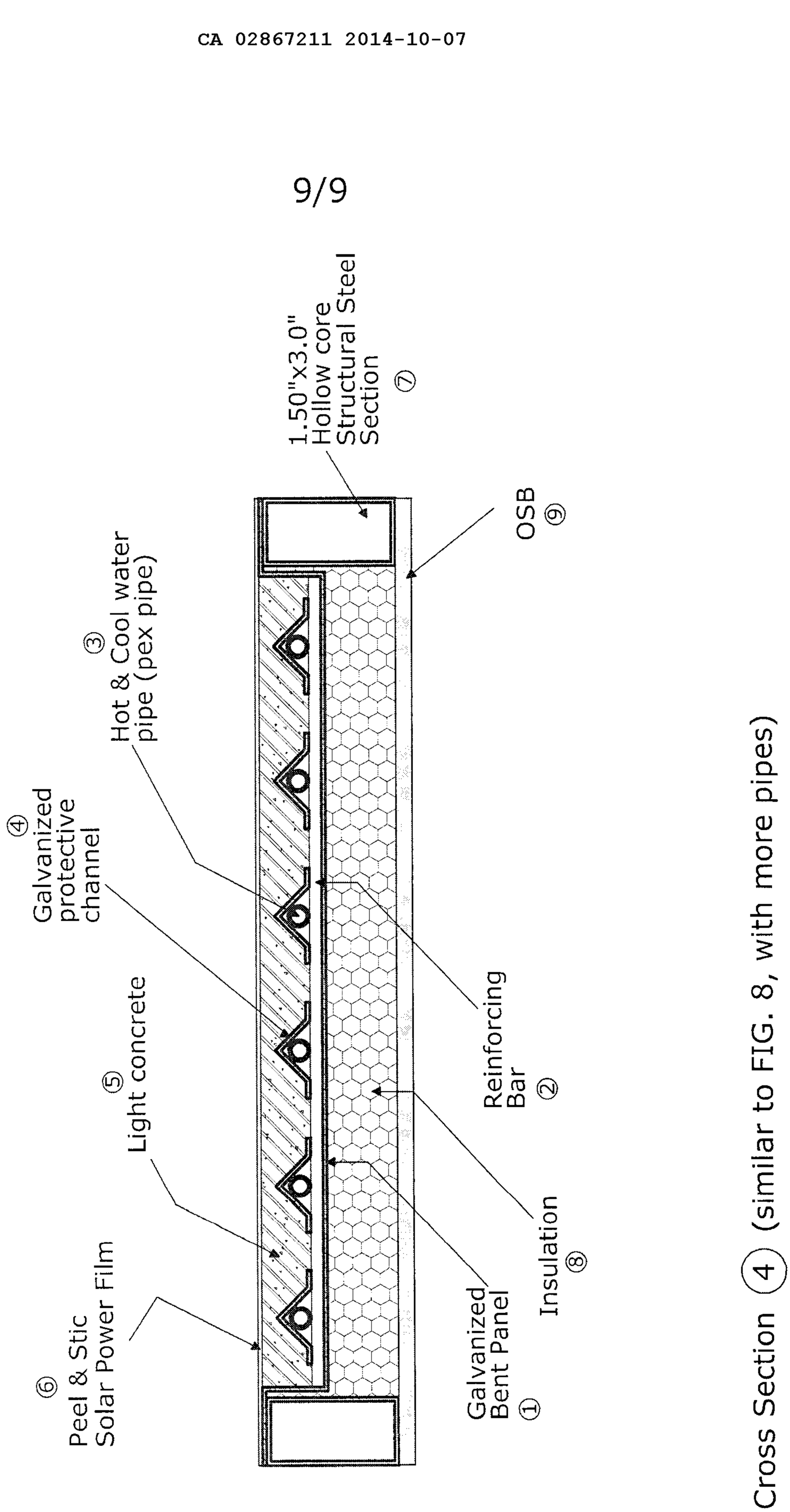
Top View of Solar Heating Panel

FIG. 7



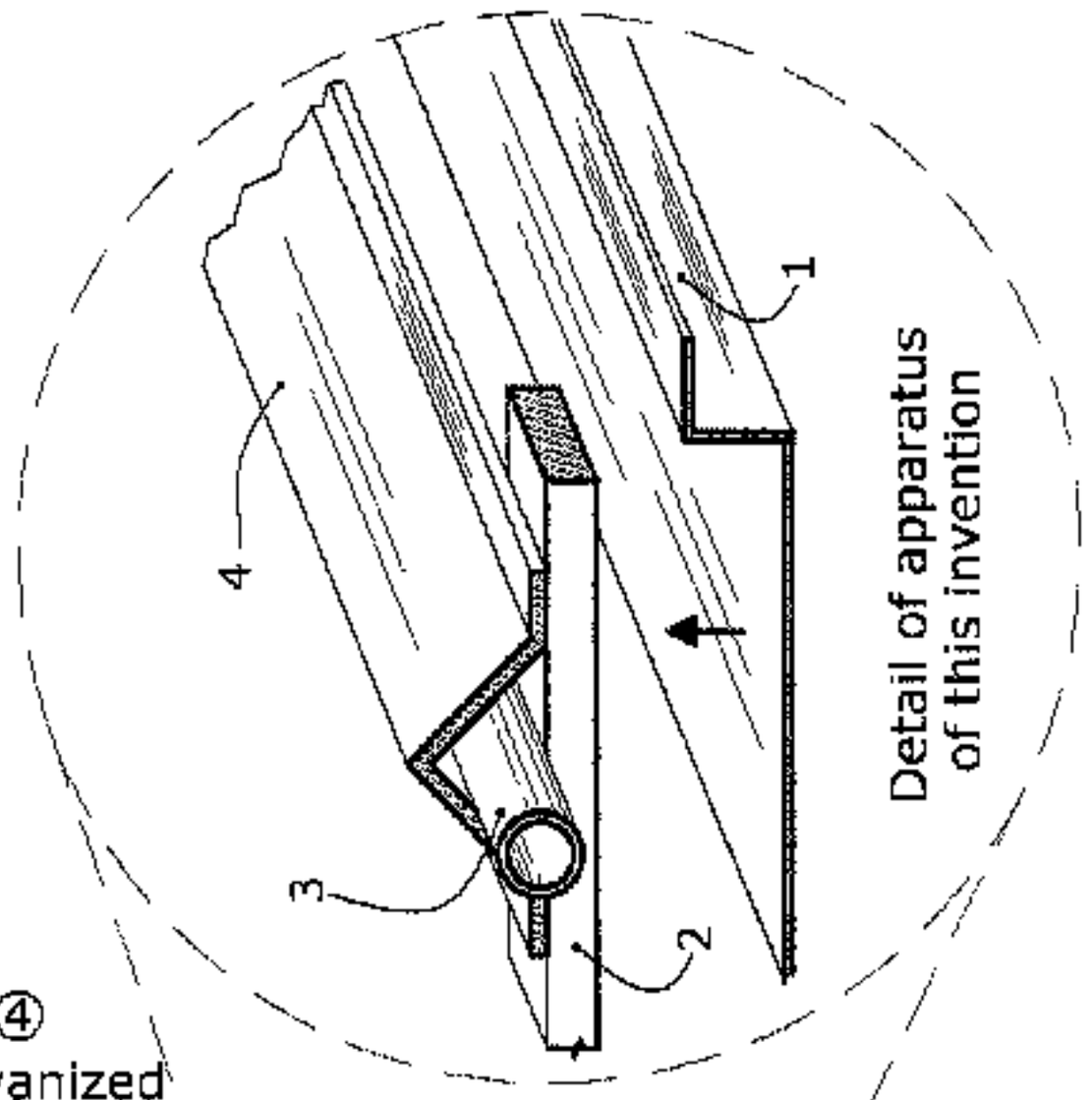
Cross Section ④

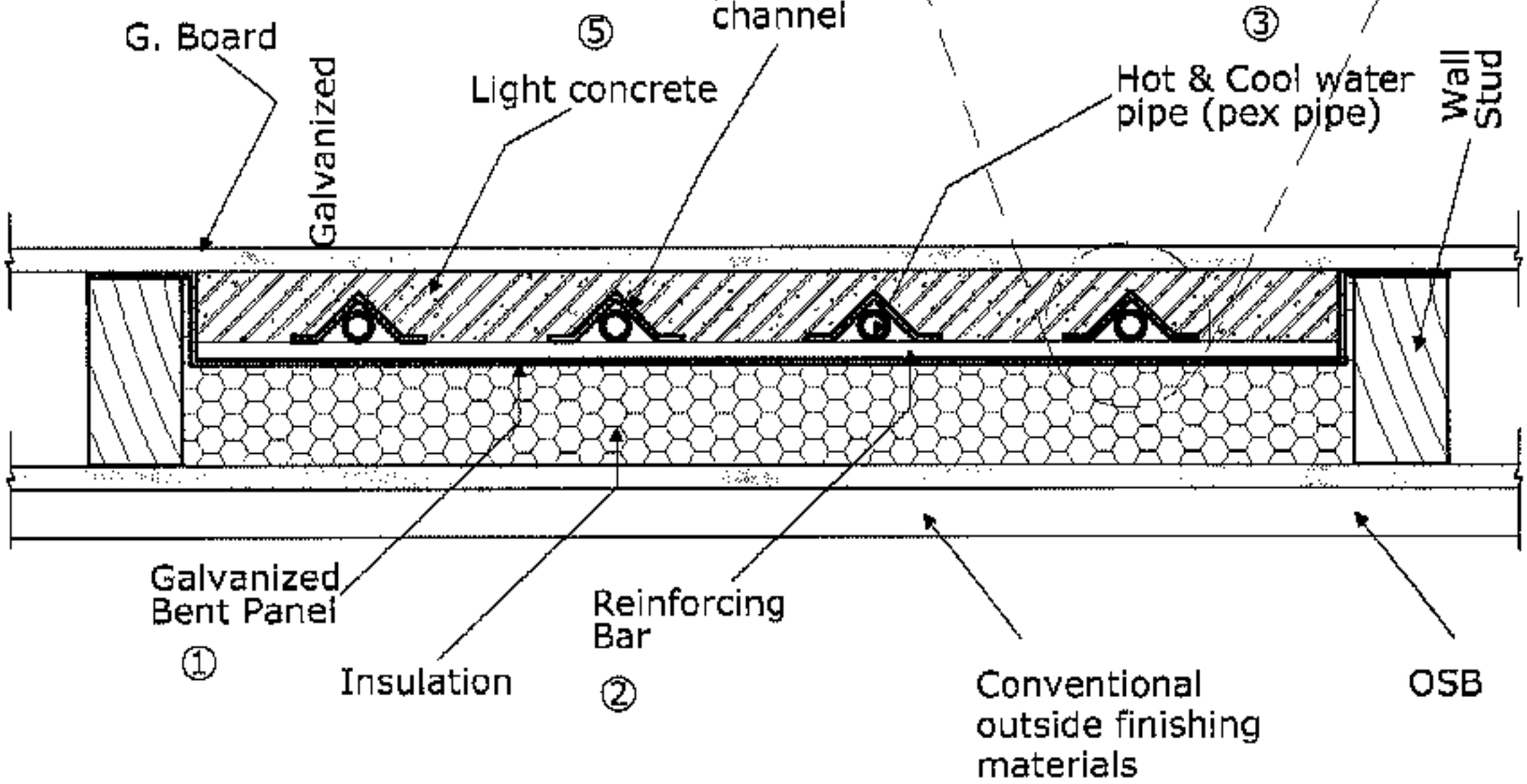
FIG. 8



Cross Section ④ (similar to FIG. 8, with more pipes)

FIG. 9





Cross Section ②