June 17, 1930. L. A. BANTA 1,765,255

BUILDING WALL

Filed May 11, 1927 2 Sheets-Sheet 1

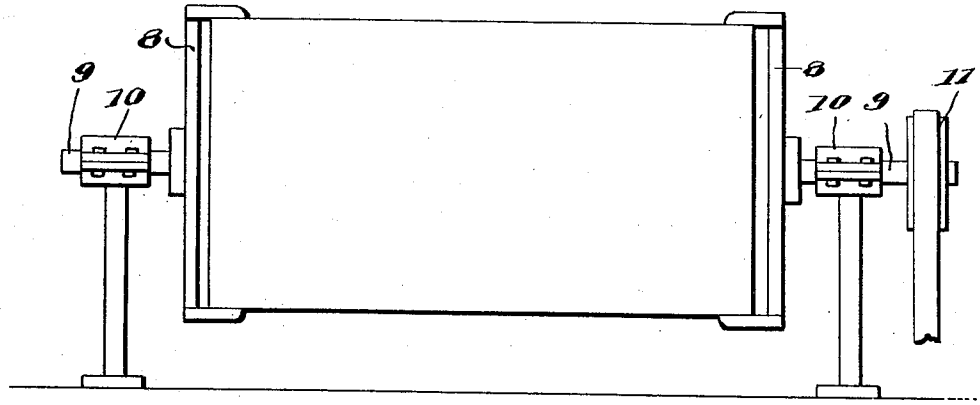


Fig. 1.

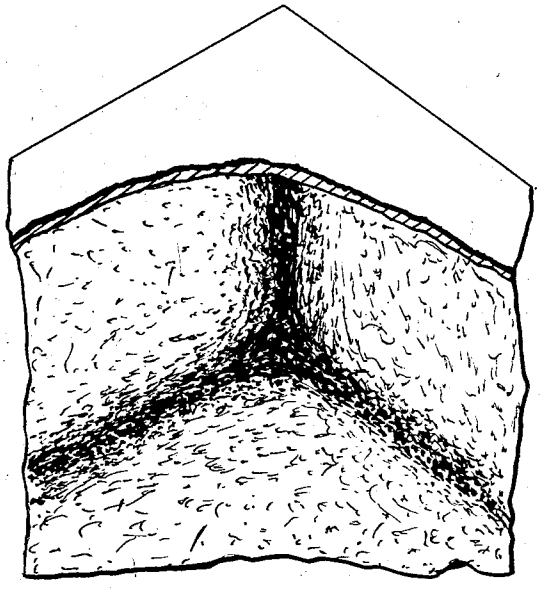


Fig. 4.

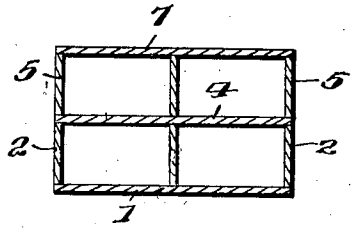


Fig. 3.

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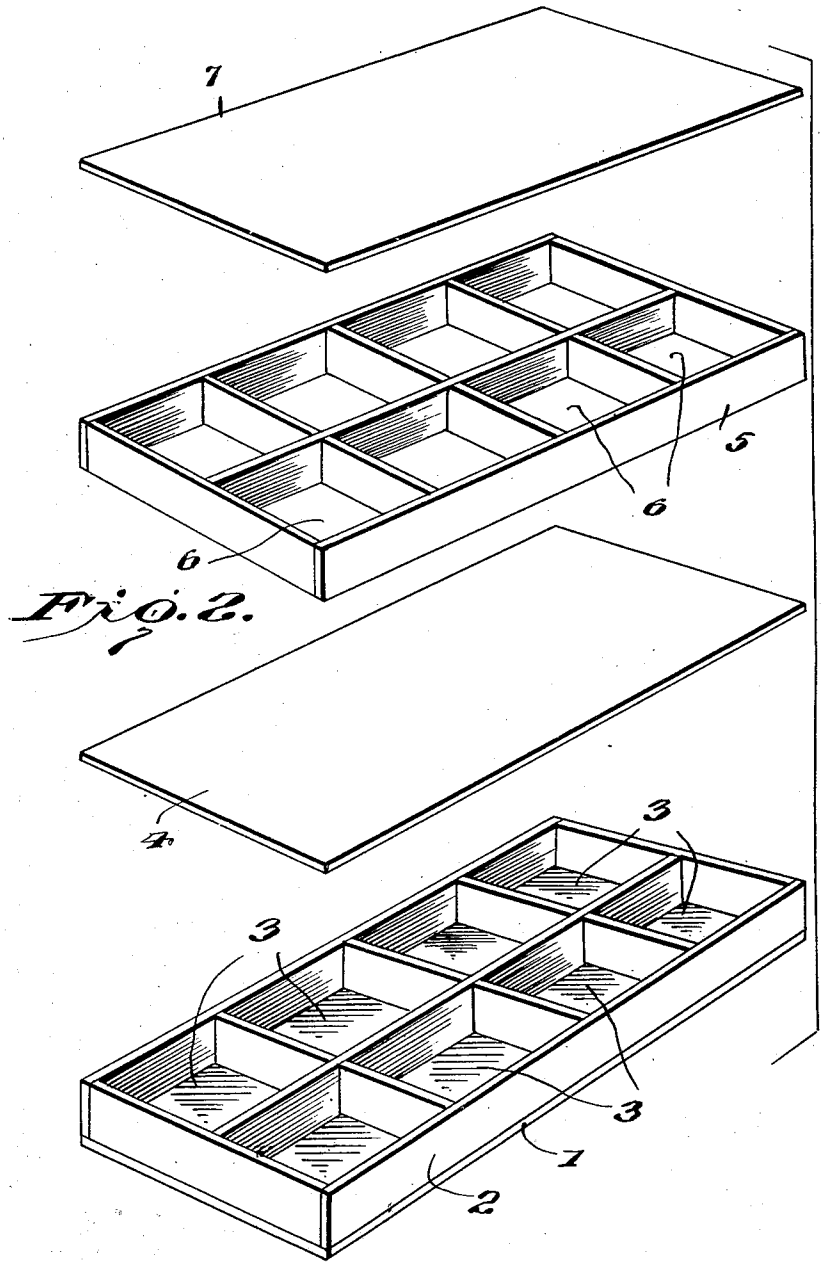


Fig. 2.

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Patented June 17, 1930 1,765,255

UNITED STATES PATENT OFFICE

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BUILDING WALL

Application filed May 11, 1927. Serial No. 190,606.

This invention relates to an improvement in building walls.

The object of the invention is to provide an improved insulating wall which may be used in buildings or wherever desired and of a construction such that it will be a good insulator for heat, cold or sound, and is particularly adapted for refrigerators, refrigerator cars, etc., or wherever it is desired to provide an insulating wall or partition either for a building or an article of manufacture.

The invention relates to the formation of a wall of a series of dead-air spaces which are made air-tight by means of liquid or plastic cement, covering the entire inner surfaces of the dead-air spaces. The wall is formed in a section by constructing a series of cells inclosing the sides thereof by means of a sheet or board, after which a predetermined quantity of plastic or liquid cement is poured into each of the cells and they are covered over by another sheet, upon which is built and likewise filled any number of additional cells to provide a wall of the desired thickness. It may be of one cell thickness or any number as desired. After the section is thus closed and formed with the top board or sheet secured over the cells, the entire section is mounted upon a shaft and rotated slowly in order to allow the cement to run into and fill all of the crevices or air openings, as well as over all of the internal surfaces of each cell, and in that way providing an air-tight dead-air space within each cell of the entire section, thus forming a section which provides a good insulator for heat, cold, or sound, and may be used in any suitable manner for building.

The coating on the inner surfaces of the dead-air spaces is preferably water-proof and air-proof, making the construction comparatively inexpensive and practical as well as forming an efficient and well insulated wall that is water-proof and air-proof.

In the accompanying drawings:

Fig. 1 is a side elevation of a section of wall made in accordance with this invention and mounted on the rotating shaft;

Fig. 2 is a disassembled view of the section of wall;

Fig. 3 is a transverse section through a portion of the wall; and

Fig. 4 is an interior perspective view of a portion of one of the cells.

The wall is preferably formed or constructed as shown more particularly in Fig. 2, in which one side 1 of the wall is placed in a flat position and upon this is secured the framework 2, which may be formed of longitudinal and transverse members suitably crossed at intervals in order to reinforce the wall as well as to form cells 3. A suitable quantity of liquid or plastic cement is then poured into each of the cells 3 and another board or sheet 4 is secured over the tops of the cells entirely closing them. This provides a wall of one air space or cell thickness and may be used if desired, although the wall may be of two or more cells thickness, the one shown in the drawings being of two cells thickness. In this form, another frame 5 is secured upon the board or sheet 4 in order to form additional cells 6 therein, and these cells are likewise closed by a similar sheet or board 7, after they have received the desired or predetermined quantity of plastic cement. The sheet 7 forms one side of the wall while the sheet 1 forms the other.

As thus constructed, the section of the wall is then secured in suitable clamps 8 of any desired construction and mounted on a shaft or shafts 9, journaled in suitable bearings 10. The construction and mounting of the clamps 8, shafts 9 and bearings 10 may be of any desired form, and the one shown in Fig. 1 is merely for the purpose of illustration.

Any suitable means, as the pulley 11, may be used for rotating the shafts 9 with the section of wall carried thereby, and in this way the wall is slowly rotated allowing the plastic or liquid cement to run over all of the internal surfaces of the cells 3 and 6, filling the cracks and crevices and truly forming closed dead-air spaces or cells within the wall. Attention is called to Fig. 4 as showing the manner in which the plastic cement fills the cracks and covers the surfaces of the cells.

After removal from the clamps 8, the section of wall may be fitted into place wherever it is desired to be used. The wall may be

built of any desired size and shape, according to its use, and it is not desired to limit the invention to the exact form shown.

The building wall thus formed provides a water-proof and air-proof structure and is a good insulator for heat, cold or sound, this being accomplished by the closed, dead-air spaces of which the wall is formed. The wall is particularly adaptable for refrigerators, refrigerator cars, and suitable structure, or wherever it is desired to provide an insulating wall or partition for a building or an article of manufacture. The wall as thus formed is inexpensive and thoroughly practical. The cost of such a wall would be about fifteen (15¢) cents per square foot as compared with sixty (60¢) per square foot, for the ordinary refrigerator wall, and is more efficient because it is a better insulator than is usually thus obtained in the ordinary refrigerator wall.

The wall may be constructed of any suitable material desired, as for instance wood or a composite material, or whatever it may be found advantageous to use. The use of the word "cement" in the claims is intended to cover not only all forms of cements but also glues and other plastic or liquid substances which may be used for coating the interior of the air spaces or cells to render these substantially air-tight.

I claim:—

1. The method of forming a section of building wall, which includes forming internal cells by securing a frame upon a side sheet, pouring a predetermined quantity of fluid cement into the cells thus formed, covering the cells by permanently securing an opposite side sheet over the frame and slowly rotating the section of wall thus formed to cause the fluid cement to flow into and close the crevices within the cells and to cover the internal surfaces thereof.

2. The method of forming a section of building wall which includes forming a plurality of dead-air spaces or cells therein by securing a reticulated frame upon a side sheet, pouring a predetermined quantity of fluid cement into each of the cells or air spaces, securing an opposite side sheet over the reticulated frame permanently closing the cells therein, super-posing additional cells similarly formed and closed upon said first-mentioned sheets and frame, and slowly rotating the section of wall thus formed to cause the cement to flow into and fill the crevices and to cover the internal surfaces of the dead-air spaces or cells.

3. The method of forming a building section including therein, introducing a fluid coating material into a cellular section, permanently closing the opening through which the coating material was introduced, and moving said section to cause the coating material to be distributed over the interior walls of the cellular section.

4. The method of forming a building section, including, introducing predetermined quantities of liquid or plastic coating material into the cells of the section, permanently closing the openings through which said coating material was introduced, and rotating the section for distributing the coating material over the interior walls of the cells, rendering said cells approximately air tight.

In testimony whereof I affix my signature.

LEN A. BANTA.