

Aug. 30, 1932.

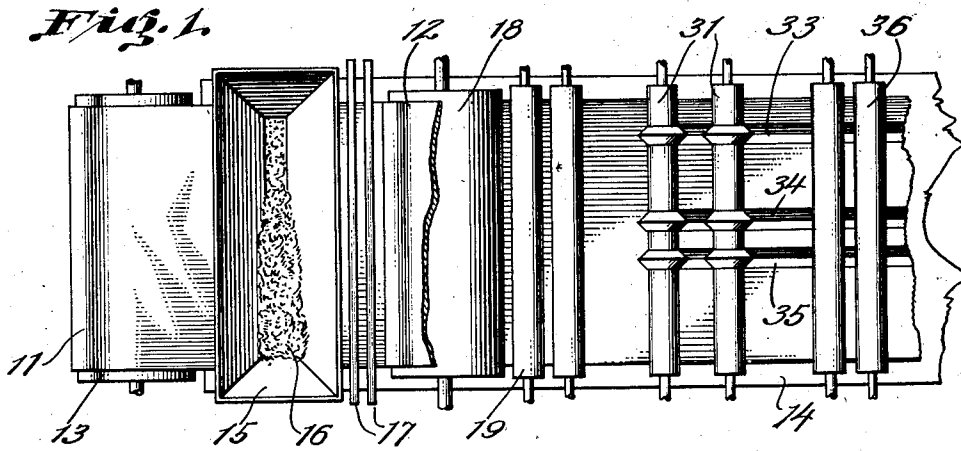
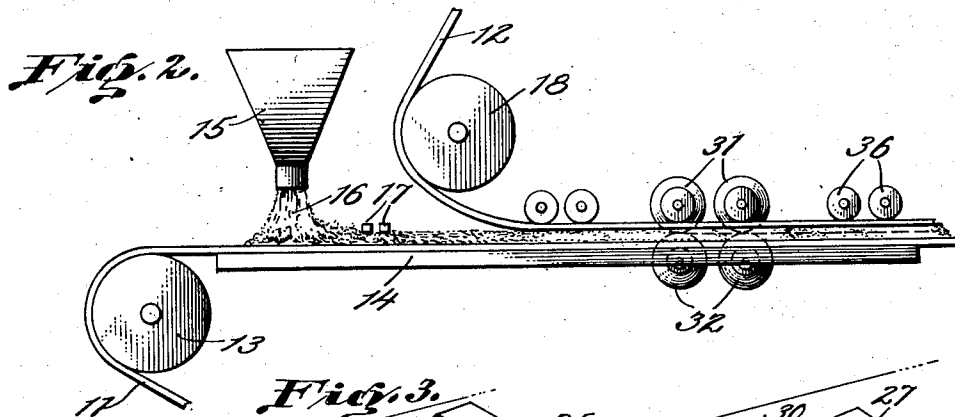
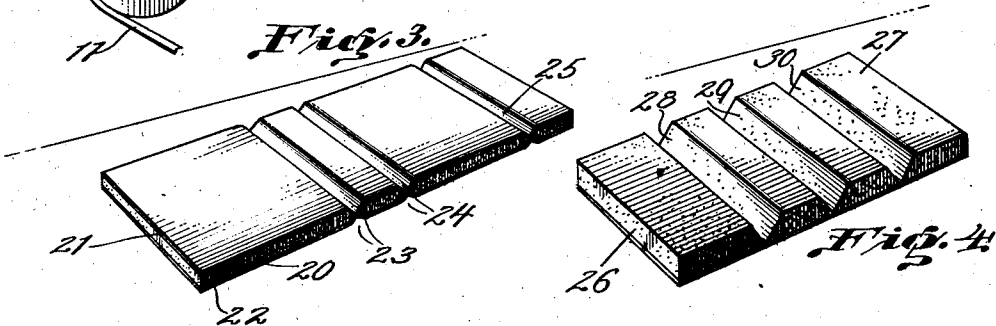
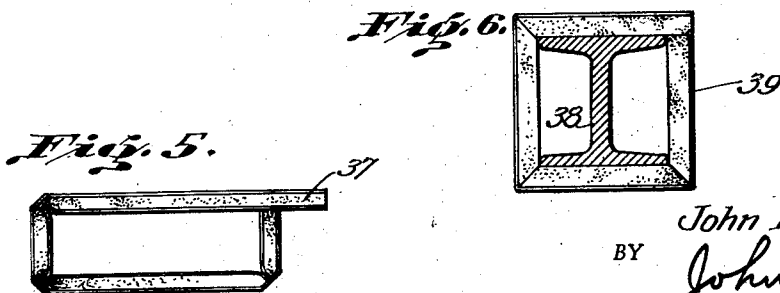
J. H. DELANEY

1,874,922

BUILDING MATERIAL

Filed July 10, 1929

2 Sheets-Sheet 1



INVENTOR.
John H. Delaney
BY John Flam
ATTORNEYS.

Aug. 30, 1932.

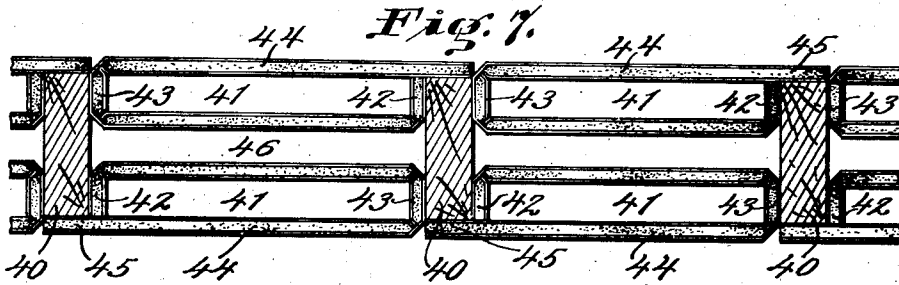
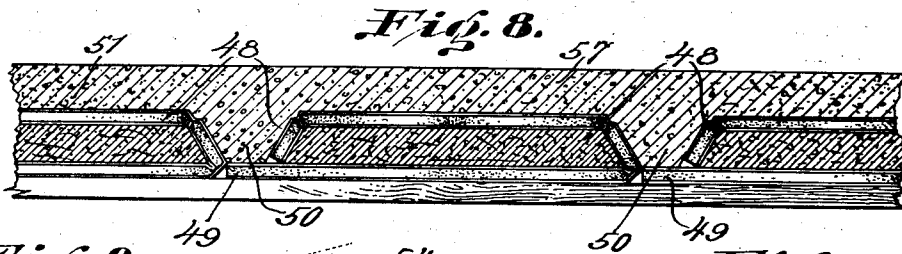
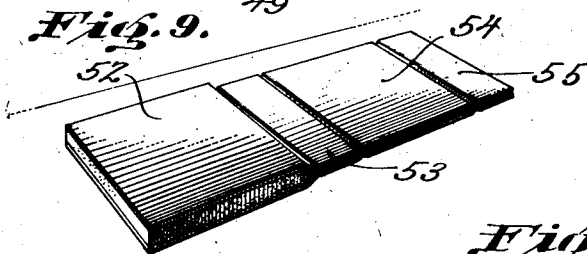
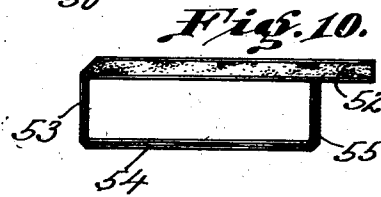
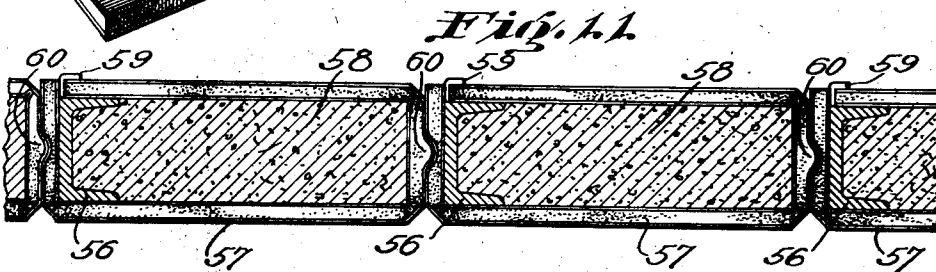
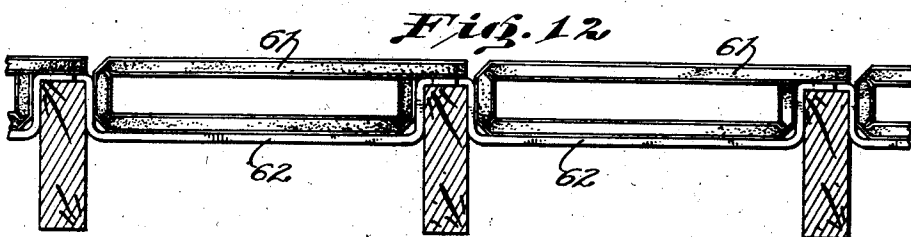
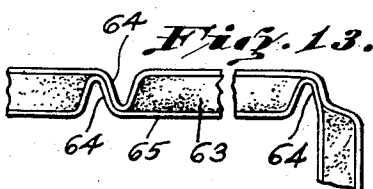
J. H. DELANEY

1,874,922

BUILDING MATERIAL

Filed July 10, 1929

2 Sheets-Sheet 2



BY

INVENTOR
John H. Delaney
John F. Lam
ATTORNEY

UNITED STATES PATENT OFFICE

JOHN H. DELANEY, OF LOS ANGELES, CALIFORNIA, UNION BANK & TRUST CO., OF LOS ANGELES, ADMINISTRATOR OF SAID JOHN H. DELANEY, DECEASED

BUILDING MATERIAL

Application filed July 10, 1929, Serial No. 377,207.

This invention relates to building material, and especially to foldable boards that can be utilized to form cellular compartments, or hollow blocks, for walls, ceilings, floors or the like.

It is one of the objects of my invention to make it possible to provide an inexpensive, although practical, building material of this character; and in order to accomplish this object, I provide a novel process whereby creases can be formed in plaster board to enable columnar or cellular shapes or blocks to be formed. Thus a "knock down" block is formed, easy to ship, inexpensive to manufacture, and highly practical in use.

It is another object of my invention to provide a convenient building unit that can be readily attached to the beams or studdings that support the walls or ceilings or floors; and especially by the aid of overlapping or extending edges of the units, whereby wall or floor or ceiling structures can be constructed in a variety of ways, depending upon the manner in which the units are assembled.

My invention possesses many other advantages, and has other objects which may be made more easily apparent from a consideration of a few embodiments of my invention. For this purpose I have shown several forms in the drawings accompanying and forming part of the present specification. I shall now proceed to describe these forms in detail, which illustrate the general principles of my invention; but it is to be understood that this detailed description is not to be taken in a limiting sense, since the scope of my invention is best defined by the appended claims.

Referring to the drawings:

Figure 1 is a diagrammatic plan view of a machine arranged to form the novel plaster board;

Fig. 2 is a side elevation thereof;

Figs. 3 and 4 are perspective views of two forms of plaster board made in accordance with my invention;

Fig. 5 is an end view showing how plaster board constructed in accordance with Fig. 3 can be formed into a hollow block;

Fig. 6 is a view similar to Fig. 5, but show-

ing how the plaster board of Fig. 4 can be used to form a hollow block or conduit;

Fig. 7 is a sectional view of a wall, ceiling, or floor structure utilizing my invention;

Fig. 8 shows a modified form of my invention, utilized in connection with a floor structure;

Fig. 9 is a perspective view of a foldable plaster board that is a modification of the form shown in Fig. 3;

Fig. 10 is a plan view of the board shown in Fig. 9, in folded position;

Fig. 11 indicates how one variety of the board can be used to form a wall or partition in such a way as completely to encompass or enclose the supporting columns or studding;

Fig. 12 is a view similar to Fig. 7, but showing a slightly modified form of block support; and

Fig. 13 is a fragmentary view of a further modification of the foldable board.

The apparatus for making the plaster board can in general be similar to that disclosed in my prior application, Serial No. 278,537, entitled Wall covering and method of making same, and filed on May 17, 1928. The machine is shown, therefore, merely diagrammatically. It can be made so that the board is manufactured first in a continuous length, cut later on into standard widths and lengths; or else the board can be manufactured in predetermined sizes. In the form shown in Figs. 1 and 2, the process of manufacturing is shown as carried on to form a continuous length of plaster board, the plastic filling being accommodated between a pair of paper or cardboard backings 11 and 12, taken from supply rolls not shown. These backings form relatively flexible supports for the filler material.

The bottom backing 11 is shown as fed over a guide roll 13 and a table 14. Above the table is positioned a hopper 15 into which the plastic filler material can be placed for depositing it onto the backing 11. This plastic filling, as disclosed in my prior application, can be an effervescent gypsum mixture, to form cells and voids in the finishing filling; or else there can be added a large percentage of zonolite, pumice, or other porous materials

or mixtures thereof. Optionally, such porosity can be secured by a combination of porous particles embedded in effervescing gypsum.

The material 16 delivered from hopper 15 onto the moving backing material 11 is spread to form a substantially uniform and a relatively thick layer by the aid of the stationary bars 17 placed transversely above table 14. The upper backing material 12 is fed over a roller 18 and onto the material 17. One or more rolls 19 serve to form the three-layer material to definite thickness.

As thus far described, the apparatus is in no wise materially different from that disclosed in my prior application. Before continuing with the description of the apparatus, attention is invited to the form of the product shown in Figs. 3 and 4. In Fig. 3, a plaster board is shown having a plastic filling 20 and backings 21 and 22. One or more parallel creases, such as 23, 24, 25, are provided, so that the plaster board can be folded on the creases to form a hollow conduit or block, or to facilitate placing the board to form angles at the creases. These creases as indicated in Fig. 3, can be made in both the top and bottom, so that the backings 21, 22, nearly touch at or near a point intermediate between the two main surfaces of the board.

In Fig. 4, a form of board is shown that has but one backing 26. The filling 27 is, however, creased as indicated at 28, 29, 30, to permit folding at these lines. Filling 20, 27 can be solid or porous, as hereinbefore mentioned. The single backing form of Fig. 4 can be made by leaving off the top backing material 12 while the machine of Figs. 1 and 2 operates.

In the form of the machine disclosed, the creases are formed longitudinally of the backing materials by the aid of driven creasing rolls 31, 32 disposed either on top, or both on top and bottom of the plaster board as it leaves the rolls 19, and while the filling therein is still plastic. Creases 33, 34, 35 can thus be formed. The creaser shoulders 36 on rollers 31, 32 can be arranged thereon in such a way as to secure the desired spacing and number of the creases; and it is intended that there be supplied a number of sets of creaser rollers with different spacings and arrangement of the creasing shoulders thereon.

After the board passes the creasing rollers 31, 32, it may be preferable to subject it to another set of smoothing or pressure rolls 36. Thence the material can be cut and dried in any well understood manner.

The uses of the creased material are many and varied. For example, hollow conduits can be formed thereof, which can if desired be filled with acoustic or heat insulating material. Thus in Fig. 5 I show how the board of Fig. 3 can be folded to form a hollow block, having an overlapping edge 37. In Fig. 6, I show a folded plaster board 39 placed over a column 38 to sheath it in fire

resisting material. Any form of column can be thus covered, by using appropriately proportioned creased boards.

As an example of the mode in which the creased board can be utilized to form insulating partitions, attention is called to Fig. 7. In this instance, wood studdings 40 are shown, spaced apart uniformly. This is the usual form of wall supports for houses. Between the studdings are placed the rectangular hollow blocks 41, of the general form shown in Fig. 5. The short side 42 can first be nailed to the inner face of a studding, in such a way that its top edge is flush with the end surface of the studding. Then the opposite side 43 can be correspondingly nailed onto the contiguous studding face, and the long, upper side 44 can be folded over to complete the block, the extending edge 45 covering the edge of the studding, and nailed thereon. The space between the studdings can thus be completely covered.

Since the top sides 44 of all the blocks thus formed provide a substantially continuous surface, and since the material from which the hollow block is made is non-inflammable, the effect is that a partition of substantially fire proof character is provided. Ordinarily, a single layer of such hollow blocks is sufficient; however, if the depth of studdings 40 permits, another layer of the blocks can be placed into position on the other side of the studdings as indicated in Fig. 7. There may be an air space 46 between the block layers, forming an additional heat insulating layer. If desired, these spaces 46 as well as the blocks 41 themselves can be filled with heat insulating or sound deadening material, such as hair felt, pumice, or the like.

The blocks can be used not only for wall partitions, but for many other purposes, such as ceilings and floors. In Fig. 8, I show a floor structure utilizing my new material. Upon a supporting member 47 are fastened as by nailing, series of hollow blocks 48, filled if desired with fireproofing or heat insulating or sound deadening material. The blocks in this instance are shown as trapezoidal in form, and as having extending edges 49, whereby grooves such as 50 can be formed between the blocks. Into these grooves and above the blocks can be placed material 51 such as concrete or the like to form the floor surface. The trapezoidal form of the blocks 48 provides a rigid supporting structure for material 51.

It is sometimes unnecessary that all four sides of the hollow block be of the same thickness; as for example, in Fig. 7, the external faces of the block only, need to be strong so as to support the finish layers, such as smooth plaster or stucco. In the form of block illustrated in Figs. 9 and 10, only the top side 52 is heavy, the other sides 53, 54, 55 thin. This effect can obviously be secured by the aid

of rollers acting on the material in the course of manufacture, and while the plastic material is still pliant.

In Fig. 11 I show a scheme whereby the
5 studding for a partition can be entirely encompassed by the blocks. In this instance, instead of wood studdings, I show evenly spaced structural iron columns 56. Around each column a block 57 is placed, the block being
10 long enough to fill all the intervening distance from column to column. The columns are thus located next to a short side of the block, which can be filled in with heat insulating or fire proof or sound absorbing material 58. To
15 hold the blocks to the columns, clips 59, struck up from the columns, can be used. Furthermore, to prevent slipping between the blocks where they abut, a projection 60 can be provided on one side of each block, fitting into a
20 corresponding groove in the contiguous face of the adjacent block. Thus a keying effect is provided.

It is of course understood that as many courses of the blocks shown in Figs. 7, 8 and 11
25 are used as necessary to complete the desired partition, wall, ceiling or floor. Thus in effect I provide a "knock down" building block that is easy to ship, light in weight, and inexpensive to manufacture. It furthermore
30 has highly desirable fireproofing and sound absorption qualities.

In Fig. 12, the hollow blocks 61 are shown as supported similarly to those of Fig. 7, but there are added the metal rest bars 62 to provide strength, as for a flooring.

In Fig. 13, I show a creased board 63 in which the creases 64 in each backing 65 extend substantially as deeply as the thickness of the board, the sides of the opposite creases being in contact. In this way, the bending of
40 the board 63 in either direction is facilitated, the bend being accomplished at either of the two creases.

I claim:

45 1. Building material having a relatively thin flexible backing, and a filler layer attached to the backing, said filler layer having parallel creases across it, said creases being substantially V-shaped, the apex of the creases
50 being close to the backing, and the filler material between some of the creases being thinner than between other creases.

2. Building material having a pair of relatively thin flexible backings, and a filler layer
55 between the backings and attached thereto, said material having a plurality of parallel creases across it, said creases being substantially V-shaped, the apex of the creases being close to the backing opposite the creases, and
60 the filler material between some of the creases being thinner than between other creases.

In testimony whereof, I have hereunto set my hand.

65 JOHN H. DELANEY.