Oct. 8, 1940. W. R. KEATING 2,216,948

WALL CONSTRUCTION

Filed Feb. 9, 1938

Fig. 1.

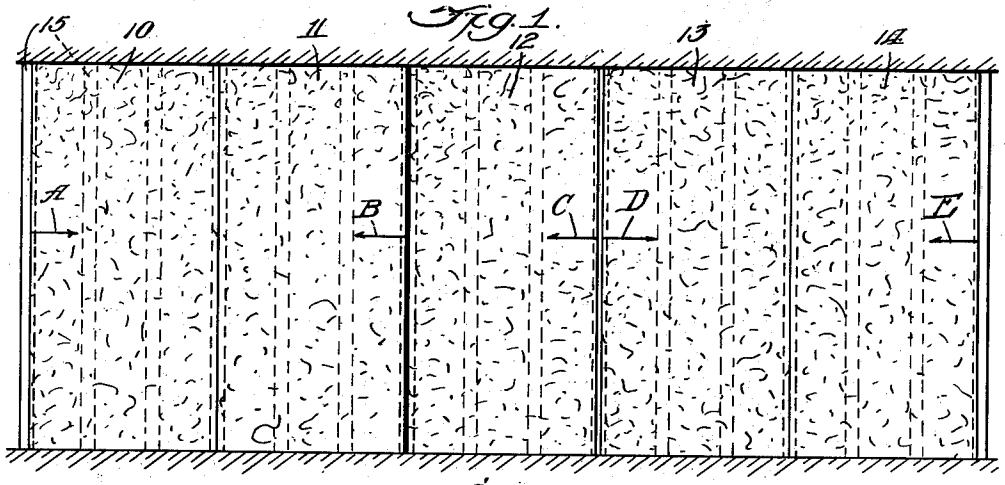


Fig. 2.

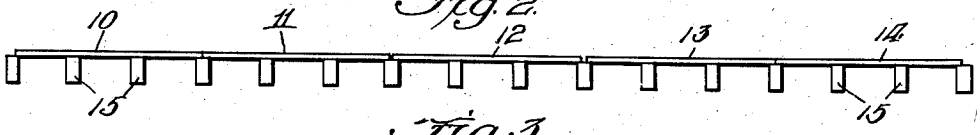


Fig. 3.

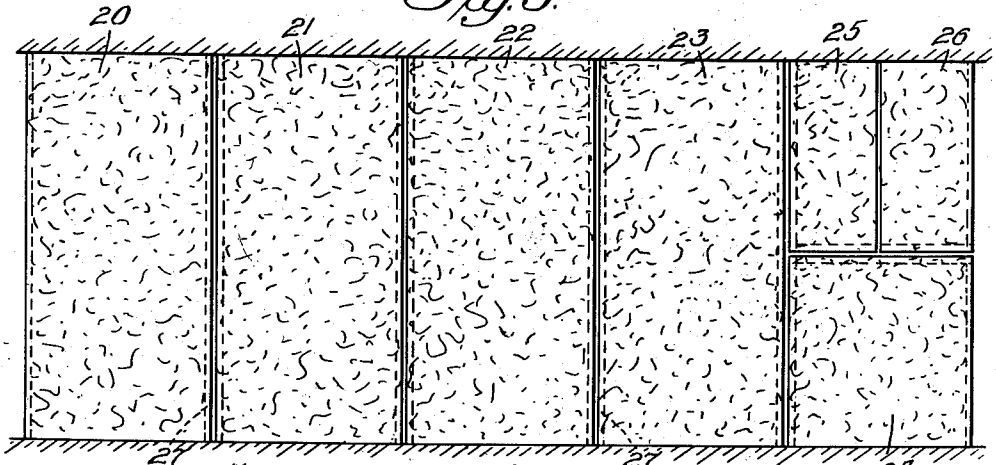


Fig. 4.

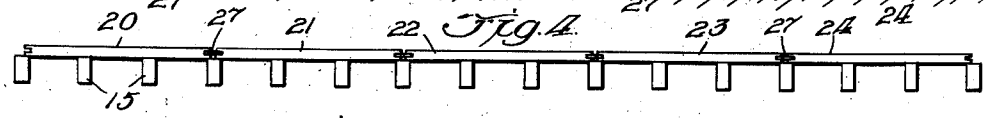
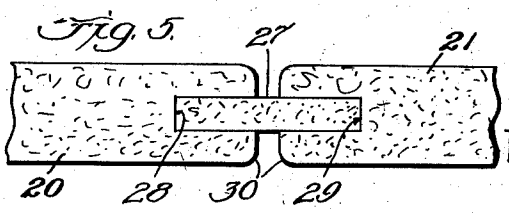


Fig. 5.



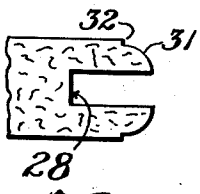


Fig. 6

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UNITED STATES PATENT OFFICE

2,216,948

WALL CONSTRUCTION

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Application February 9, 1938, Serial No. 189,684

1 Claim. (Cl. 20—15)

This invention relates to panelling and has for its object to provide a novel panel unit and a wall made from a plurality thereof, which will be cheap to manufacture, easy to erect, and more practical and pleasing in appearance than those heretofore proposed.

With these and other objects in view the invention resides in the novel details of construction and combinations of parts constituting the individual panel unit, as well as in the novel manner of erecting a wall therewith, all as will be disclosed more fully hereinafter and particularly pointed out in the claim.

Referring to the accompanying drawing forming a part of this specification and in which like numerals designate like parts in all the views,

Fig. 1 is an elevation of a wall section composed of a plurality of panel units erected according to heretofore known methods;

Fig. 2 is a bottom plan view of the wall shown in Fig. 1;

Fig. 3 is an elevation of a wall section composed of a plurality of panel units erected according to the present invention;

Fig. 4 is a bottom plan view of the wall shown in Fig. 3;

Fig. 5 is a fragmentary view illustrating a joint between two panel units constructed according to this invention; and

Fig. 6 is a fragmentary view of a modification of the construction shown in Fig. 5.

This invention has particularly to deal with walls or portions thereof which are formed by assembling a plurality of pre-formed units which are secured directly to studding, such units generally though not always manufactured in appreciable sizes such for example as those measuring 4' x 12' and known today on the market as wallboards. Also this invention contemplates the use of such units in the form of panels intended to be left substantially in their natural condition and by this is meant that no plaster or other finishing coat is to be applied over the exposed surfaces of such units. The use of such panels in their natural effect or finish has met with popular favor not only because of the elimination of the relatively high cost of plastering, but also because the natural effect is pleasing to the eye, or because much cheaper finishes than plaster or the like can be applied thereto as for example paints either in covering coats or stenciling, or because the individual units may be erected in true panel formation with their adjoining edges not in actual contact with each other whereby the lines of division between the units will accentuate the panel effect. Lastly, full size units and /or divisions thereof can be assembled to create many geometric or other pleasing panelling designs, this being made possible by the use of a saw on the construction job.

Fig. 1 illustrates a wall composed of a plurality of units identified by the numerals 10, 11, 12, 13 and 14, each secured in any suitable manner to the studding indicated at 15, such studding generally being spaced on 16'' centering with each large panel unit of the commercial 48'' width so as to make possible the location of the panel joints on a stud. However, the prior practice has been to erect a wall with the edges of the units in abutting relation, so that such panel joints were closed. Due to the fact that the individual units are subject to expansion and construction under climatic changes and other causes, such practice has resulted after a lapse of time in unpleasing appearances. In other words, upon subsequent expansion, one or more of the joints might "buckle," or conversely upon subsequent contraction the joints might open, and such expansion and/or contraction would hardly ever be uniform in all the units wherefore the joints would be closed and/or opened in different degrees at the same time in the wall.

An attempt to illustrate these objectionable conditions under expansion and contraction has been made in Fig. 1 where the arrows A and B represent forces in the units 10 and 11 which will result in a tight closure and/or a buckle of the joint between said units. The arrows C and D illustrate forces in the units 12 and 13 acting reversely, i. e., they produce an opening of the joint between said units. The arrows D and E represent forces operating on the units 13 and 14 in a manner similar to the action of the forces indicated by the arrows A and B above mentioned. Therefore it is conceivable that the arrows B and C of the units 11 and 12 may represent unequal forces in those units as a result of which the joint between units 11 and 12 may be opened to a width or degree less than the joint between any two other units; or on the other hand forces represented at B and C may be equal and operating in the same general direction but unequally in corresponding edge portions of the units 11 and 12 whereby the opening of the joint between units 12 and 13 will be greater than the opening of the joint between the units 11 and 12. To illustrate the foregoing the joint has been indicated as closed between the units 10 and 11 as well as between the units 13 and 14, whereas the joint between the units 11 and 12 has been shown slightly open (for example one-sixteenth to one-eighth of an inch), and the joint between the units 12 and 13 has been shown more widely separated (for example one-eighth to one-quarter of an inch).

Whereas the condition (either closed or open) between each two adjacent units has been illustrated by straight line representation, it is evident that such joints may not be strictly straight but may be somewhat wavy due to varying

densities in the respective units and this is particularly true in cases where the units are fabricated or manufactured from pulp the density of which cannot be accurately controlled when the pulp is sheeted into its final panel formation as in the production of fiber-boards. Also the variable densities are responsible for the non-uniformity of expansion and/or contraction in each unit as a whole. The result of what has been hereinbefore stated is that, though the wall units were uniformly joined at erection, the joints therebetween are subject to change, such change not necessarily being equal in all of the joints wherefore it is possible that an appearance will be established some time later similar to the showing in Fig. 1, which is not at all pleasing, and therefore the present invention is directed to a construction which will give at all times a pleasing appearance.

The present invention is illustrated in Figs. 3 to 6 wherein **20**, **21**, **22** and **23** represent a plurality of large panel units attached to studding **15**, the smaller units **24**, **25** and **26** being illustrated merely to show differences in effect by the combined use of units of several sizes.

The edge of a unit such as **20** is provided with a mortise-like groove **28** of a definite depth inward of the unit from the edge thereof, and a similar groove is provided in the opposite edge of said unit, such a groove being indicated at **29** in Fig. 5 and associated with the adjacent unit **21**. In other words it is to be understood that each unit will be similarly formed with mortise-like grooves so that, when two units such as **20** and **21** are brought into adjoining relationship, the groove **28** of one unit will register with the groove **29** of the other unit, wherefore a tenon-like strip **27** may be inserted in the registering grooves to connect the adjoining units.

The tenon strip **27**, however, is of a width which is more than twice the depth of a mortise groove, so that when said strip is inserted in the registered grooves **28** and **29** to completely fill the same, there will be a space between the adjoining edges of the units equal to the difference between the width of such strip and the sum of the depths of said grooves, all as clearly indicated in Fig. 5. This separation distance or space between two adjacent units can be made of any dimension desired but in actual practice a space of from one-eighth of an inch to one-quarter of an inch will be found suitable for most any wall construction, the lesser dimension of one-eighth of an inch being perhaps more suitable for spaces between two adjacent small units such as **24** and **25**, or **25** and **26**, whereas the larger space of one-quarter inch may be more suitable between the larger units; this however is a matter of personal taste and therefore is not mentioned in any sense of a limitation.

The edges of each unit may be slightly rounded as indicated at **30** in Fig. 5 or may be provided with a rounded surface **31** of greater radius and terminating in a shoulder **32** as shown in Fig. 6, either or both of such constructions additionally aiding in the pleasing appearance of the finished wall. That is to say, the space between two adjacent units may be strictly rectangular as indicated by the showings in Figs. 3 and 4, or it may be rectangular adjacent the tenon strip **27** but outwardly flared in the region of the exposed surfaces of the adjacent units as seen in Fig. 5, or modified to have substantially no rectangular portion adjacent the tenon strip but being of a greatly increased width in the region of the shoulders **32** as indicated by the showing in Fig. 6.

In the heretofore known constructions, where rectangularly formed edges are provided on the units as shown in Figs. 1 and 2, expansion and contraction has resulted in opening and/or closing of the joints between the units in such manner as to become immediately and plainly discernable. In contradistinction thereto, the construction and laying of the units according to this invention permit likewise of expansion and contraction, but the result thereof at the joints will not be so apparent and discernable for the following reasons. By providing the tenon strip **27**, which positively creates a space between each two adjacent units, the eye of the observer will always see spaces between all of the units but the eye will not accurately nor discernably observe the dimension or width of any one joint space to such a nicety as to carry it to any other joint (even the next joint) in the wall structure, and therefore slight differences in the separation distances between the panel units will not obviously nor quickly be detected, wherefore a wall constructed according to this invention will always have the general appearance of uniformly spaced panel units, thereby resulting in what may be said to be a constant substantially uniform, and pleasing appearance.

In some instances walls constructed of wallboard units such as herein contemplated have had applied to the exposed surface of the units a stain, paint, or other relatively thin finish, either before or after the panels have been erected into the wall formation, and in such cases the construction shown in Fig. 6 may perhaps be more suitable in that the shoulder **32** will form a distinct limitation of the finish applied thereto, wherefore the rounded portion **31** may be left unfinished in its natural state or have applied thereto a finish pleasingly contrasting in color or other appearance to the finish on the exposed flat surface of the unit, the shoulder **32** establishing a line of demarcation therebetween which is substantially straight throughout the length of the shoulder.

It is obvious that those skilled in the art may vary the details of construction as well as the arrangements of parts without departing from the spirit of this invention and therefore it is desired not to be limited to the exact foregoing disclosure except as may be demanded by the claim.

What is claimed is:

In panelling the combination of a plurality of rigid sheeted fiber-board panel units; registering mortise grooves disposed in the adjoining edges of adjacent units, the tongues on both sides of each groove being substantially equal in length; and a rigid tenon strip between adjacent units, said strip of a thickness throughout equal to the width of the grooves, said strip completely filling and having its surfaces substantially coplanar with the walls of the registering grooves of such adjacent units, said strip of a width greater than the sum of the depths of the registering grooves, thereby to establish a space between such adjoining edges, which space renders less apparent the changes in width of the joint between adjoining units due to the expansion and contraction of the units.

WALTER R. KEATING.