

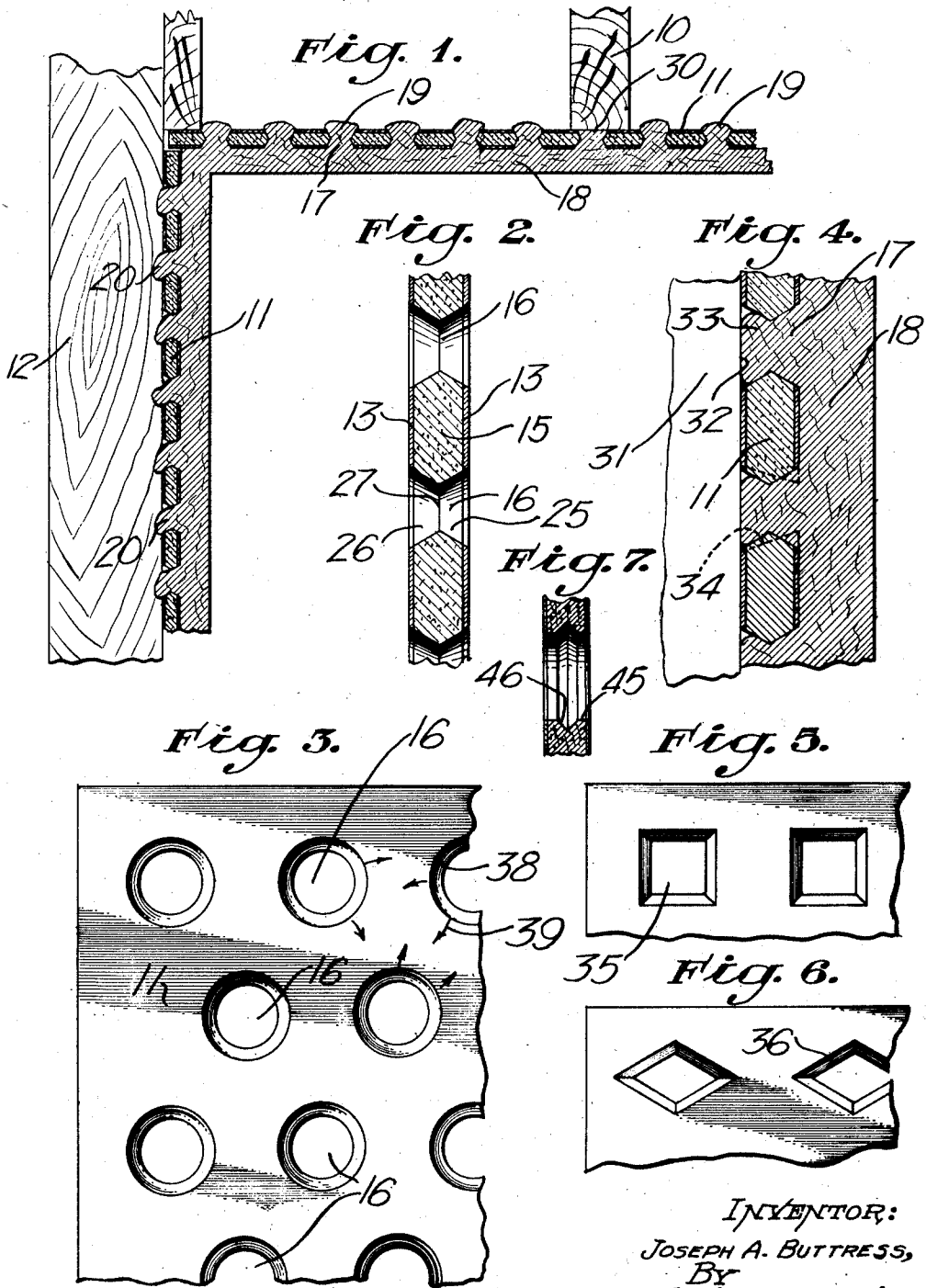
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J. A. BUTTRESS

WALL BOARD LATH

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UNITED STATES PATENT OFFICE.

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WALL-BOARD LATH.

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To all whom it may concern:

Be it known that I, JOSEPH A. BUTTRESS, a citizen of the United States, residing at South Pasadena, in the county of Los Angeles, State of California, have invented a new and useful Wall-Board Lath, of which the following is a specification.

My invention relates to the art of applying plastic surfacing materials to the walls of buildings, and relates particularly to the manufacture and use of plasterboard lath as a supporting means for such surfaces.

In the construction of buildings, especially in those districts favored with equable climate, plaster is extensively used as a surface for both internal walls and ceilings and outside walls. For the purpose of supporting the plaster surface wood lath has been employed almost exclusively up until the late years and makes a very efficient support for plaster if properly seasoned before use, but causing cracking of the plaster due to expansion and contraction if not thoroughly dried and seasoned before application to the wall structure. In plastering over wood lath, the key between the plaster and the lath is formed by the plaster entering between the spaces allowed between the adjacent laths. These spaces being of considerable length require that the plaster be applied to the laths with a motion of the trowel crosswise to the extension of the spaces between the laths, in order to prevent unnecessary waste of plaster. Expanded metal and wire lath has been somewhat employed, but has been found to rust due to the penetration of moisture through the plaster, and in a comparatively short time causes the falling away of the plaster surface.

In late years the use of plasterboard has been introduced as a support for plastered surfaces. This plasterboard is commonly manufactured by enclosing a layer of plaster between two sheets of heavy paper, permitting the plaster to dry between the sheets of paper; thus forming a board which may be conveniently nailed to the wall framing with considerable economy of application over the wood lath owing to the comparatively large sizes in which the plaster board is manufactured. The difficulties encountered in the manufacture of plaster board are the tendency to warp when being dried or cured; overcuring of the edges of the board with a resulting crumbling consistency at the edges; and the length of time required to properly

cure the wallboard due to the insulating effect of the sheets of paper between which the plaster is placed. Although several forms of wallboard have been developed with surfaces intended to enter into bond with the plaster applied thereto, thus furnishing a means for holding the plaster securely thereupon, it is customary, especially for outer walls, to employ wire net upon the surface of the plaster board to provide a means for holding the plaster in place after it has become dry. The advantages in the use of plasterboard reside in the ease with which it may be applied, the flexibility thereof which adapts it to application upon unevenly placed framework, the ample strength thereof for the purpose to which it is applied, and the equal and very small expansion and contraction.

It is an object of my invention to provide a plasterboard with which plaster will form a perfect bond without the need of additional securing means, thus providing a plasterboard having the advantages of the ordinary plaster board in combination with the bond qualities of lath. I accomplish this object in the provision of holes which extend entirely through the plasterboard, so that the plaster applied thereto may form a button or hook upon the rear surface of the board and thus constitute an effectual key for holding the plaster to the board.

It is a further object of my invention to provide a particular type of opening, which forms a substantial bond between the plaster and the plasterboard, and which permits the board to be applied to the framing with either surface outwardly disposed.

It is a further object of the invention to provide a plasterboard having great strength, yet being of practical flexibility.

It is also an object of the invention to provide a means for supporting plaster surfaces, to which the plaster may be applied with a movement of the trowel thereover in any direction.

It is a still further object of the invention to provide a plasterboard which will require less material in its manufacture and therefore be of lighter weight and of correspondingly smaller cost of manufacture and shipment.

It is a further object of the invention to provide a plasterboard which will dry in a much shorter period of time than is now necessary, which will not buckle during the

curing process, and in which the curing will progress evenly throughout the entire area of the board.

It is a still further object of the invention to provide a plasterboard which will expand and contract evenly over its entire area when subjected to variable conditions.

The specific advantages of the invention and further objects thereof will become evident hereinafter.

Referring to the drawings which are for illustrative purposes only:

Fig. 1 is a fragmentary section illustrating the utility of my invention.

Fig. 2 is an enlarged section through the preferable form in which the invention may be embodied.

Fig. 3 is a fragmentary face view of the plasterboard lath.

Fig. 4 is an enlarged fragmentary section illustrating the manner in which the plaster expands within the wallboard openings to form a key between the board and the plaster, when the board is mounted upon sheathing or at points where the board is in engagement with the structural members upon which it is mounted.

Figs. 5 and 6 are fragmentary sections illustrating other forms of the openings which may be employed in the practice of my invention.

Fig. 7 is a fragmentary section showing an alternative form of opening with which the board may be provided.

In building construction it is customary to nail or otherwise suitably secure wallboard upon the building members provided for the support of the plastered surface. In Fig. 1 I show the wallboard 11, embodying the preferred features of my invention, mounted upon studs 12 and ceiling joists 10. This wallboard is comprised of two sheets of paper 13 having a layer of plaster 15 disposed therebetween and having specially formed openings 16 extending entirely therethrough, so that when the plaster surface 18 is applied to the boards 11, plaster keys 19 and 20 will be forced through the openings 16, whereupon they enlarge upon the back of the wallboard, due to their plasticity, and upon hardening prevent the removal of the plaster from the wallboard without first breaking the keys.

It is the intention to provide a preferred form of wallboard having the openings therein diverge or enlarge as they progress rearwardly in order that the keys 19 may assume a wedge-shape formation, or dove-tail, within the opening so as to securely lock the plaster surface upon the board.

The particular type of opening 16 which I employ consists of two conical surfaces 25 and 26 which converge as they progress inwardly to the point of conjunction 27. It will be perceived that this formation of

opening permits the board to be mounted upon the framework with either surface outwardly disposed, owing to the outward divergence of the walls 25 and 26 from the central point 27 to the surface of the board.

When placed upon the ceilings the keys are formed as shown at 19 and when the board is used upon vertical walls, the keys assume the form shown at 20, either form of key being substantially as effective as the other. As shown in Fig. 4 the plaster which enters those openings which are against the building members, as shown at 30 in Fig. 1, or when the wallboard is mounted upon sheathing 31 as is the common practice in certain localities, the plaster abuts against the surface 32 and expands outwardly between the rearwardly diverging walls under the pressure of the trowel, as shown at 33; thus forming a lock between the plaster boards 11 and the plaster 18. In drying a certain amount of contraction takes place in plaster, and if the openings 16 were provided with the conical form indicated by the dotted lines 34 of Fig. 4, but very small area at the point of juncture of the key with the plaster surface, would be provided to resist the contraction stresses. The formation of the opening 16 provides a very broad base 17 for absorbing the contraction stresses and thereby considerably contributes to the strength of the bond between the wallboard and the plaster. It is not necessary that the openings be of the circular form shown in Figs. 1 to 4, as they may be provided in the square or elongated form 35 and 36 indicated in Figs. 5 and 6, without detracting from their effectiveness.

The paper sheets which enclose the plaster core of the ordinary types of plasterboard serve, as hereinbefore stated, as an isolation between the plaster core and the warm air of the drying kilns. It will be perceived that a greater portion of the drying out of the plaster in said wallboard must take place through the edges, and likewise these edges being openly subjected to the full heat of the drying kiln, are frequently overcured so as to become crumbly, due to the tendency to crowd the drying operation; while the central portions of the board are undercured. The provision of the openings 16 and their even distribution over the area of the board 11 as shown in Fig. 3 has the same effect in the curing of the boards as would the division of the board into small areas having their edges open to the influence of the drying kiln interior. The walls 38 of each of the openings 16 provide open contact of the plaster with the heated drying air, and the drying out of the plaster progresses inwardly from each of the holes as indicated by the arrows, 39, thus accomplishing the curing of the board 11 very evenly and in a very short period of time.

Furthermore, the even drying out of the entire board overcomes the tendency thereof towards warping and the incurrance of expansion and contraction strains within the body of the wallboard. In case the finished product is subjected to moisture, as when plaster is applied, the moisture permeates the board evenly and thus buckling due to uneven expansion and contraction is prevented.

Fig. 7 presents another form of opening 45 by which the key may be accomplished between the plasterboard lath and the plaster. The groove 96 provides an enlargement into which plaster may spread when applied from either side of the board, and which will serve in conjunction with the button formed upon the back of the board in forming the key. Although the employ-

ment of an aperture having perfectly straight walls would provide an efficient bond between the board and plaster, it is evident that such bond will not have the inherent strength attained with the preferred form of opening described and illustrated.

I claim as my invention:

A plaster board comprising: a layer of plaster; a sheet of paper on each side of said layer of plaster; said board having openings therethrough, such openings being formed of two frusto conical co-axial holes having their smallest diameter near the center of the board.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 27th day of June, 1922.

JOSEPH A. BUTTRESS.