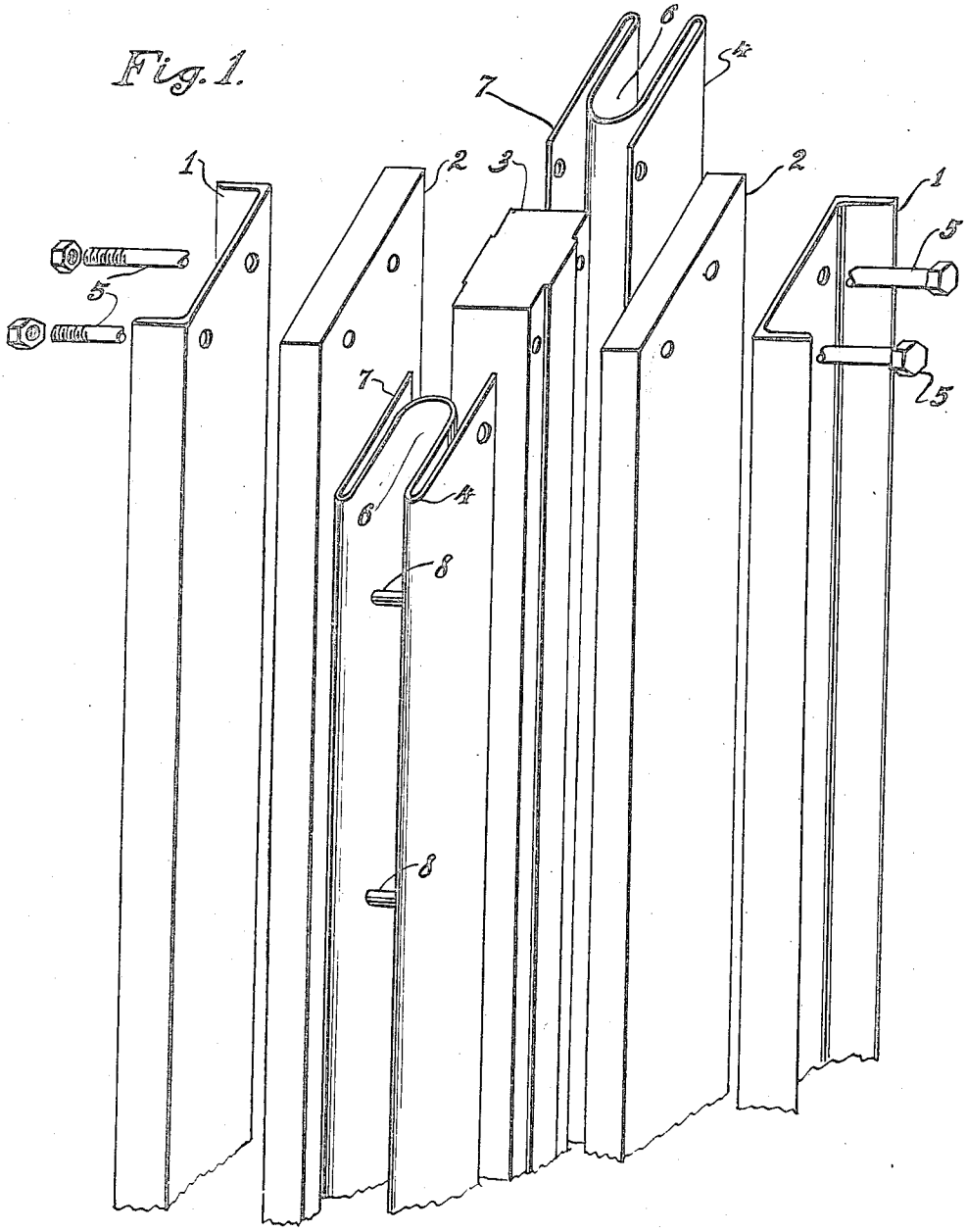
Feb. 27, 1934. R. L. McCAIG 1,949,215

BUILDING CONSTRUCTION

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Fig. 1.




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Fig. 2.

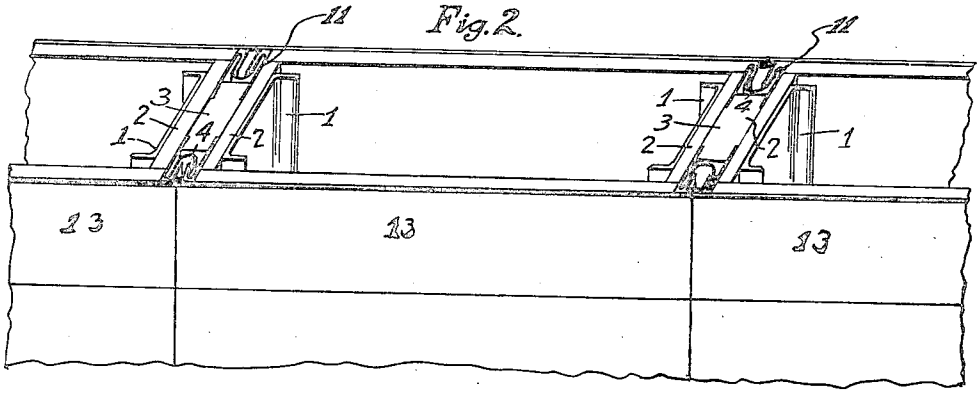



Fig. 3

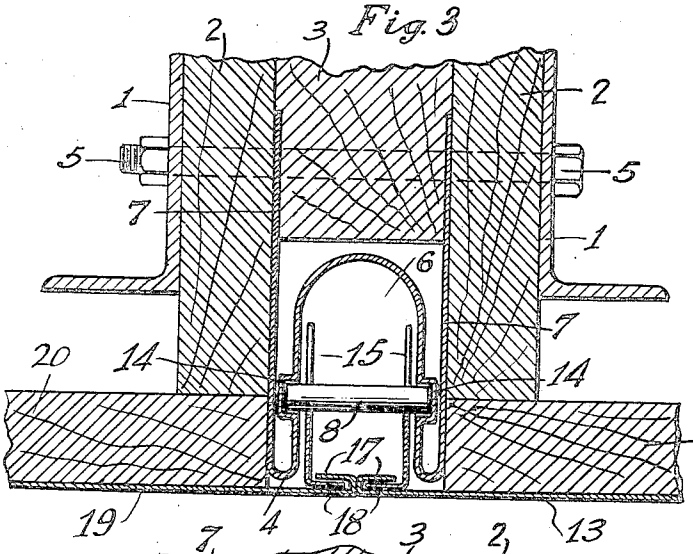



Fig. 5.

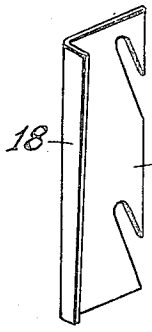



Fig. 6.

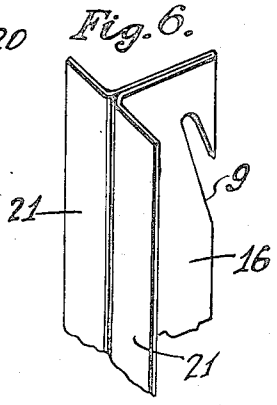
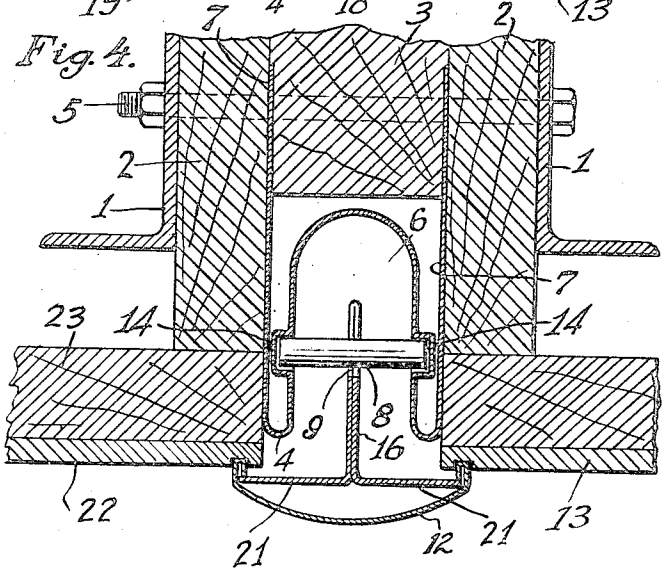



Fig. 4.




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# UNITED STATES PATENT OFFICE

1,949,215

## BUILDING CONSTRUCTION

Robert L. McCaig, Toledo, Ohio, assignor to Michael Hughes, Toledo, Ohio

Application May 14, 1931. Serial No. 537,360

11 Claims. (Cl. 72—115)

One object of my invention is to produce frame members and attendant fastening devices by which wall sheathing sections may be readily and quickly attached to or removed from said members.

Another object of my invention is to provide members of the character described which may be used interchangeably as studding, rafter or joist in walls, partitions, roofs, ceilings or floors, and which may be attached by bolts or other means to each other or to sills or plates, and which are accordingly especially adapted for use in portable buildings.

Another object of the invention is to provide members of the character described which have metal parts furnishing strength and insulating parts so combined with the metal as to prevent direct contact between said strength-providing parts of the member and metallic or like conducting parts of sheathing sections.

Another object of the invention is to provide members adapted to sustain spaced wall sections attached to opposite sides thereof and having metallic parts providing strength and insulating parts positioned between said metallic parts and the point of attachment of the wall sections, thereby interrupting the metallic path for transmission of heat or sound through the wall.

A further object of my invention is to provide modified designs of a clamping member suitable for the various materials that may be used for sheathing purposes.

These objects and the several novel features of the invention are hereinafter more fully described and claimed and the preferred form of construction by which these objects are obtained is shown in the accompanying drawings in which—

Fig. 1 is an exploded perspective view of a section of the studding showing its component parts, exclusive of the clamping member shown elsewhere in the drawings.

Fig. 2 is a perspective view of the studdings, showing a section of wall supported by said studdings.

Fig. 3 is an enlarged plan view of one half of the studding shown in Fig. 2, detailing the method whereby the L-shaped clamping member, Fig. 6, removably supports the sheathing sections to the studding.

Fig. 4 is a plan view of the end of a studding showing the use of a modified T-shaped clamping member in combination with a cap member, 12, as a means of removably supporting sheathing sections to the studding.

Fig. 5 is a perspective view of the L-shaped clamping member shown in Fig. 2, and Fig. 3.

Fig. 6 is a perspective view of a portion of the T-shaped clamping member shown in Fig. 4.

Fig. 1 is a perspective view of an exploded studding, 1—1 being metal channels, 2—2 and 3 being strips of insulating board. The strips 2—2 are wider than the metal channels 1—1 and extend beyond the edges of the metal channels on each side. Strip 3 of insulating board is narrower than the channels 1—1 and, being placed between the strips 2—2, forms the center member of the assembled studding and is held in position at equal distance from the outer edges of the completed studding by bolts or rivets 5—5 which extend from the outer side of the metal channel 1—1 through the three insulating board strips 2—2 and 3 and through the legs 7—7 of U-shaped metal strips 4—4, holding all firmly together as a unit to form the studding, as shown in Fig. 3 and Fig. 4. The studding thus assembled has a groove 6 in each of its sides, formed in the U-shaped members 4, said grooves extending the full length of the studding. The U-shaped metal strip 4—4 extends the full length of the studding and has recesses 14 in pairs spaced along its inner sides in which are held the ends of steel pins, said pins 8—8 providing a catch device for a clamping member 15 of L shape as shown in Fig. 5, or a member 16 of T-shaped design as shown in Fig. 6, said clamping members having slots 9 in their longer legs which extend toward the center of the studding as shown in Fig. 3 and Fig. 4, said slots falling in line with the steel pins 8—8 and sliding over and down upon said pins, causing the clamping member to be drawn inward toward the center of the studding, thereby furnishing a means of holding sheathing sections in clamping relation to the studding, as shown in Fig. 3 and Fig. 4.

Fig. 2 is a view showing studding with sheathing sections 13 held in place by having their hook-shaped flanges 17 engage over the edges 18 of members 15, said clamping device being shown enlarged and in detail by Fig. 3 and Fig. 5. The metal outer layers 19 of sections 13 are lined with insulating layers 20 which contact insulating members 2.

Fig. 4 is an end view of half of a studding, showing a method of using the T-shaped clamping member 16 with a cap member, 12. Said T-shaped member may be used with or without said cap member 12.

As shown, the flanges 21 of member 16 engage layers 22 of the sheathing sections, thereby draw-

ing the inner layers 23 of the sections against members 12.

It will be seen that metallic parts 1 provide strength for the frame member, whether it is used as a stud, rafter or joist, and insulating members 2 prevent any direct contact between these metallic parts and the attached panels. It clearly appears from detail views 3 and 4 that heat traveling from the outer layers 13 or 21 of sheathing sections on one side of a wall to the corresponding layers on the other side must pass through insulating members, the only metallic path being through the flange connection with clamping members 15 or 16, through their slight contact with pins 8 to member 4, through flanges 7 to their slight contact with bolts 5, then along bolts 5 to parts 1, through parts 1 to the bolts 5 on the other side of the frame member, and then through an equally tortuous path in the clamping parts on that side of the frame member before reaching the wall panels. At the same time, the insulating parts 2 and 3 are firmly clamped between metallic parts 1, and thereby a rigid frame member is provided which effectually holds the sheathing sections in place. If the lining 20 or 23 of the sheathing section is made of insulating material, it is obvious that the flanges of members 1 might contact this lining without providing an uninterrupted metallic path through the wall from the outer metallic sheathing.

As will be seen, the U-shaped members 4 act as means for attaching the clamping members to the connecting bolts 5, so that the clamping means is held in place by the connectors 5.

From the foregoing description it becomes evident that this construction is very simple and efficient in use, will lend itself admirably to the assembly of standardized buildings, which may be easily set up or taken down and provides devices which accomplish the objects described.

Various changes may be made in the parts and their arrangement and combination within the scope of the appended claims.

Having thus fully described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States, is—

1. In a building construction, inner and outer wall sheathing and a studding comprising strips of metal and a strip or strips of other material so assembled that the metal portions of the studding do not come in metallic contact with the inner or outer wall sheathings and having pins attached or inserted in the studding at intervals, said pins holding a clamping member in clamping relationship to said studding, thereby furnishing a means for removably supporting sectional wall sheathing members to the studding.

2. In building construction, a studding comprising two metal channels and three strips of insulating board, two of the said insulating board strips being wider than the said channels which they abut and extending beyond the edges of said channels on each side and having between them and forming the center member of the assembled studding the third said strip of insulating board which is slightly narrower than said channels, said center strip being held in a position equally distant from the edges of the studding by bolts or rivets which extend from the outer sides of the said channels through both channels and through the three insulating board strips, holding them all firmly together as a unit to form the studding.

3. In building construction, a studding comprising two metal channels, between said channels and abutting said channels two strips of insulating board which extend beyond the edges of said channels, between two abutting strips a third strip of insulating board, narrower than said channels and held in the center of the studding thus forming indentations in the center of the studding, on the sides of the studding that abut the inner and the outer wall sheathings, said indentations extending as grooves the entire length of the studding and in said indentations, two metal strips formed in U shape with turned back legs which extend toward the center of the studding on each side of the said center insulating board strip to a point at least one half inch short of the center of the studding, and bolts or rivets extending through the assembled studding from the outside of said channels and through the three said insulating board strips and through the legs of said U-shaped metal strip binding them all firmly together to form the studding.

4. In building construction, a studding comprising, two metal channels between which are held three strips of insulating board in a manner that provides grooves along the center of the inner and outer sides of the said studding in which U-shaped metal strip members are secured, said metal strip members having recesses in pairs at spaced intervals along their inner sides and steel pins which are held in said recesses and at right angles to the U-shaped groove formed by the said metal strip, said pins holding a clamping device in clamping relationship to the studding.

5. In building construction, a studding comprising two metal channels, three strips of insulating board, two metal strips forming grooves along the inner and the outer sides of the studding, steel pins which span said grooves at spaced intervals and metal clamping members formed in strips of angular or T-shaped design, having slots in their longer legs, said legs extending toward the center of studding and said slots falling in alinement with said steel pins and sliding over and down upon said pins thereby drawing said clamping member toward the center of the studding and furnishing a means for removably supporting wall sheets to the studding.

6. In a building construction, a frame member comprising metallic members furnishing strength, insulating material between said members, means passing through the insulating material and connecting the metallic members at spaced intervals, and clamping means adapted to hold sheathing sections in engagement with said frame member, said clamping means being secured in place by metallic means attached to said connecting means.

7. In a building construction, a frame member comprising metallic parts affording strength, insulating material between said parts, spaced connectors passing through the insulating material and connecting the metal parts to form a rigid member, wall panels, clamps attached by metallic means to said connectors for clamping the wall panels to the frame member, with insulating material between any conducting portions of the panels and said metal parts.

8. In a building construction, a frame member comprising metal parts furnishing strength, insulating material between the metal parts, connectors passing through the insulating material at spaced intervals and connecting the metal parts to form a rigid member, said insulating material extending at the edges beyond said metal parts, wall panels, and means for clamping

the wall panels against the extended portions of said insulating material.

9. In a building construction, a frame member comprising metal parts furnishing strength, insulating material between the metal parts, connectors passing through the insulating material at spaced intervals and connecting the metal parts to form a rigid member, said insulating material extending at the edges beyond said metal parts, wall panels, and means for clamping the wall panels against the extended portions of said insulating material, said clamping means being attached by metallic means to said connectors.

10. In a building construction, a frame member comprising metal parts furnishing strength, insulating material between said parts, connectors passing at spaced intervals through the insulating material and holding the metal parts rigidly in parallel relation against the faces of the insulating material, sheathing sections having metal flanges, and clamping means engaging said metal flanges and attached by metallic means to said connectors.

11. In a building construction, a frame member comprising metal parts furnishing strength, insulating material between the metal parts, connectors passing through the insulating material at spaced points and holding the metal parts against the faces of the insulating material, the edge of the insulating material being provided with a groove spaced from said metal parts, a member in said groove and having an extension attached to said connectors, wall panels, and means for clamping the wall panels against said frame member, said clamping means engaging at spaced intervals the member in said groove.

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