March 24, 1942. H. A. FABER 2,277,217

BUILDING CONSTRUCTION

Filed March 2, 1939

Fig. 1.

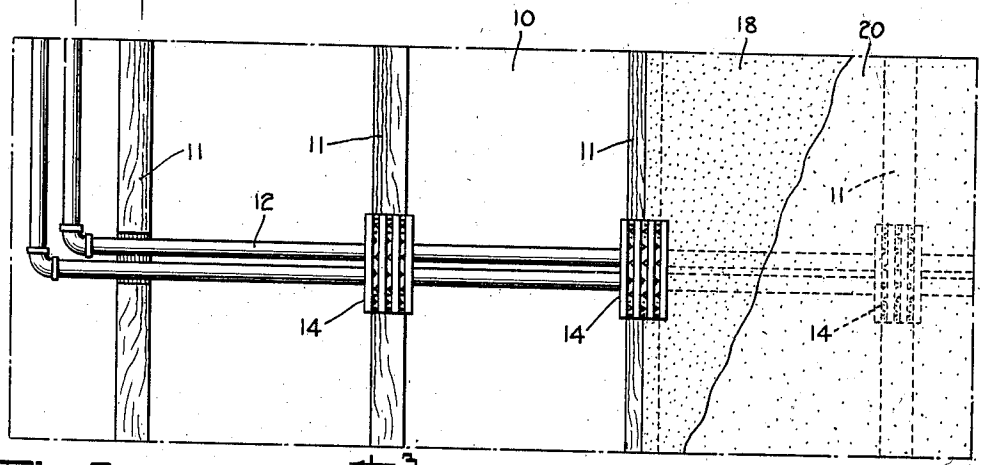


Fig. 2.

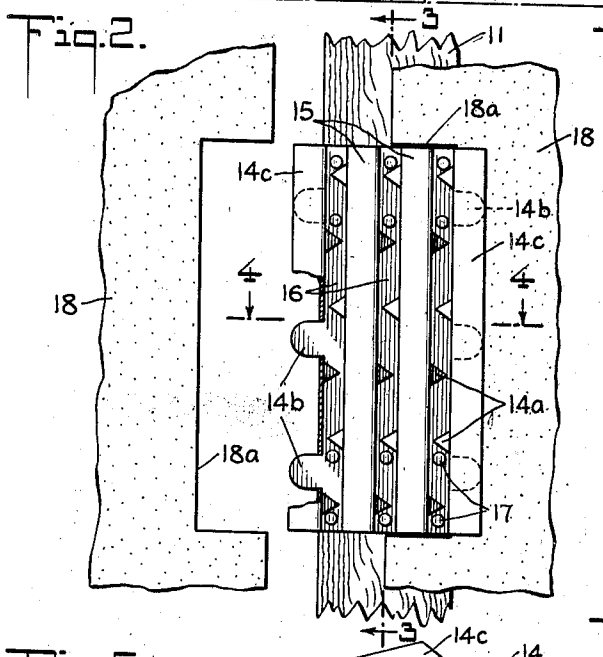


Fig. 3.

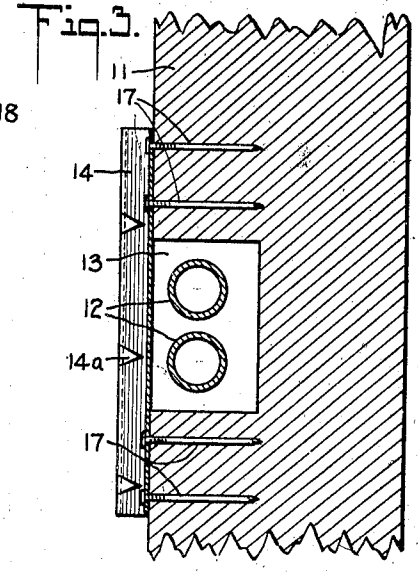


Fig. 5.

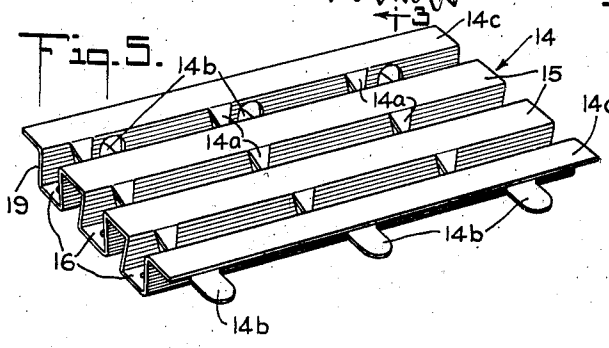
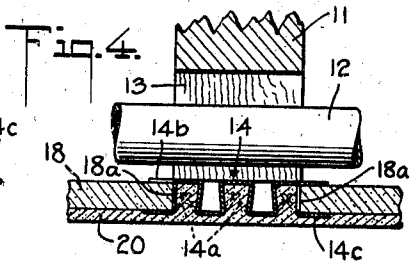


Fig. 4.



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BUILDING CONSTRUCTION

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1 Claim. (Cl. 20—4)

This invention relates to building construction of the type wherein studding, joists, rafters, and like structural elements make up the load-bearing skeleton framework.

In such types of building construction service instrumentalities, as for example, supply and drain piping, heating and air-conditioning conduits, electric cables, are often run between the individual structural elements of the framework within the confines of the facing materials applied to such framework. Thus, concealment of the service instrumentalities is had and space in the building is conserved. With this arrangement, however, the direction of extension of the service instrumentalities is limited by the extension of free space between structural elements of the framework.

A primary object of the present invention, then, is the provision of building construction in which service instrumentalities run in practically any direction through the skeleton framework of the building without jeopardizing structural strength of the framework and in a manner affording relatively simple placement thereof.

A further object is the provision of building construction of the above type in which finish facing materials are simply and satisfactorily applied to the structural framework and serve to entirely conceal the service instrumentalities and the structural elements through which such service instrumentalities run.

An outstanding feature of the invention, in the preferred attainment of the aforesaid objects, resides in the provision of an open-ended channel-cut in the body of one or more of the individual structural elements concerned, for passage of service instrumentalities therethrough, the channel-cut having its lengthwise opening extending across a face of the structural element to afford ready insertion of the service instrumentalities thereinto; and, further, in the provision of structural bridging extending across the lengthwise channel opening and secured to those portions of the structural element which define the channel-cut, for restoring structural strength to the cut element.

Generically speaking, the prominent feature of the invention resides in the provision of a gap in a structural element for the passage of another element—usually a non-structural element—therethrough, and in the provision of structural bridging for the gap to give to the stated structural element ample structural strength as a unitary whole. The structural bridging is advantageously formed for cooperation with facing materials applied to the structural element in providing continuity of finish facing for the structure of which the structural element is a component part.

In the drawing, which exemplifies building construction pursuant to the invention,

Fig. 1 represents a front elevation of a wall structure, in which portions of the finish facing material have been removed exposing piping running through aligned channel cuts in the studding;

Fig. 2 represents a fragmentary exploded view of the joinder of finish wall facing, tie plate, and stud;

Fig. 3 represents a section taken on the line 3—3, Fig. 2;

Fig. 4 represents a section taken on the line 4—4, Fig. 2; and

Fig. 5 illustrates, in top perspective, the preferred form of tie plate utilized in the wall construction of the other figures of the drawing.

The invention is here illustrated and described in its application to the studding of wall structure. A preferred form of wall structure is specifically illustrated and described as an example of a practical embodiment of the invention, but it is by no means intended that the scope of the invention be limited thereby. Those skilled in the art can readily apply the generic concept of the invention in various ways as found most convenient in the particular instance.

Referring to the drawing: a portion of a wall structure is indicated at 10. Its studding comprises mutually spaced studs or uprights, indicated 11, respectively, of wood or similar material. As is customary, the individual studs are substantially mutually parallel.

In the present instance, piping, indicated at 12, runs through the studding between those faces thereof to which wall facing material is applied. The piping 12 may be a component part of the water supply system serving the building; it may be a component part of the heating system installed within the building; or it may be provided for other purposes in connection with supply or removal of fluids and other useful and transportable mediums to and from various parts of the building. The piping 12 is merely an example of a variety of service instrumentalities which might advantageously be run through the structural framework of the building.

Each of the studs 11, through which the piping 12 extends, is recessed, as at 13, in the form of a channel-cut which extends across the face

and into the body thereof. Each recess 13 provides passage for the piping 12 which fits thereinto and extends therethrough. In the present instance, the recesses 13 are horizontally aligned over that portion of the studding through which the piping 12 extends.

For compensating for the reduction in strength of the stud by reason of the recess cut thereinto, bridging means is secured to the stud, at opposite sides of the channel-cut, in such manner as to extend across the open channel.

The bridging means may take the form of a tie plate, and preferably the form of tie plate illustrated per se in Fig. 5, and designated 14. The tie plate 14 not only serves as structural reinforcement for the stud, but also cooperates with wall facing material to provide continuity of wall facing for the application of finishing material, such as plaster.

The tie plate 14 is preferably stamped out from sheet metal to provide tongue portions which, when the stamped metal is bent into the form of the tie plate with alternate ridges 15 and grooves 16, extend from adjacent the tops of the ridges out over the grooves, see the tongues 14*a*. When the tie plate is secured to a stud 11 over the opening of a channel 13, as by nails driven through suitably provided openings at the bottoms of the grooves, see the nails 17, 17 Fig. 3, plaster or other plastic finish facing material may be spread over the exposed face of the tie plate, filling the grooves 16 and anchoring therein under the tongues 14*a*.

For cooperation with wall facing material, such as the composition board 18, in providing continuity of wall facing for the application of plaster over the entire wall surface, the tie plate may be formed with lateral sides of groove formation. Tongues 14*b* may be stamped from the sheet metal simultaneously with the stamping of the tongues 14*a*, and the edge portions of the metal sheet may be bent to form flanges 14*c*, 14*c*, respectively. A groove formation is thus provided at the lateral sides of the tie plate for the reception of suitably indentured portions of the wall facing material 18, see the groove formations 19, 19, Fig. 5, and see, further, the indentured portions 18*a*, 18*a*, of the wall facing material, and, also, the manner of their cooperative fit with the tie plate 14, by referring to Fig. 2. Plaster, indicated 20 in Fig. 4, may be spread over the entire wall surface to hide all indication of the installation of piping 12.

The material of the tie plate, preferably sheet metal, should be selected with due regard to its function as structural reinforcement for the structural element cut to receive the service instrumentality. Its strength should be at least sufficient to compensate for the cut made in the structural element. It should be noted that the corrugated structure of the tie plate 14 considerably enhances its ability to withstand buckling under loads.

As aforestated, the presently illustrated and described specific embodiment of the invention merely exemplifies the possibilities inherent in the generic inventive concept set forth in the claims that here follow. Various changes in the manner of running piping or other service instrumentalities through the studding or other structural framework portions of a building, various changes in the nature of the bridging means or in the structural characteristics of the tie plate, and various changes in the nature of the wall facing material and in the manner of its cooperation with the bridging means, as well as various changes in the nature of the finish facing material, may be made by those skilled in the art without departing from the spirit and generic scope of the invention.

I claim:

In wall construction, a series of studs aligned side-by-side in mutually spaced relationship forming studding, the studs of said series being notched forming a series of notches extending across a face of said studding, a substantially continuous service-providing means within said series of notches and extending from notch to notch thereof across said studding, tie plates extending across the respective notches, bridging the same, and being secured to the respective studs at opposite sides of the said respective notches, said tie plates reinforcing said studs and being of plaster-receiving and plaster-retaining formation, plaster-receiving and plaster-retaining wall facing material secured to the said face of the studding and extending between the studs thereof, said wall facing material being indentured and fitting snugly about said tie plates, and plaster spread over said facing material and said tie plates, concealing the same.

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