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Calhoun et al.

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[54] **DECKING SYSTEM**

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[52] **U.S. Cl.** **52/319,** 52/220, 52/602

[51] **Int. Cl.**.....**E04b 5/26,** E04c 1/38

[58] **Field of Search**.....52/319, 327, 602, 220, 222, 52/480, 22

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[57] **ABSTRACT**

This disclosure relates to a decking construction for buildings. A precast concrete deck forming member, which may be utilized either as a roof or floor forming member, is constructed to receive, without modification, ceiling panels which are merely slipped into place and held in place by gravity. Each decking member includes a horizontal slab portion and at least one depending beam portion, the beam portion being particularly configurated to receive the ceiling panels and the decking member being of a configuration to provide space above the ceiling panels for building utilities.

4 Claims, 3 Drawing Figures

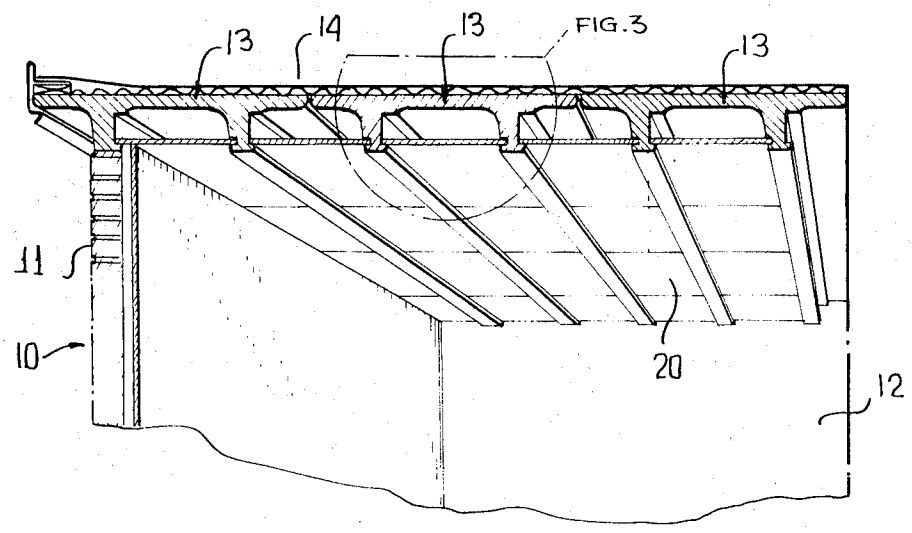


FIG. 3

FIG.1

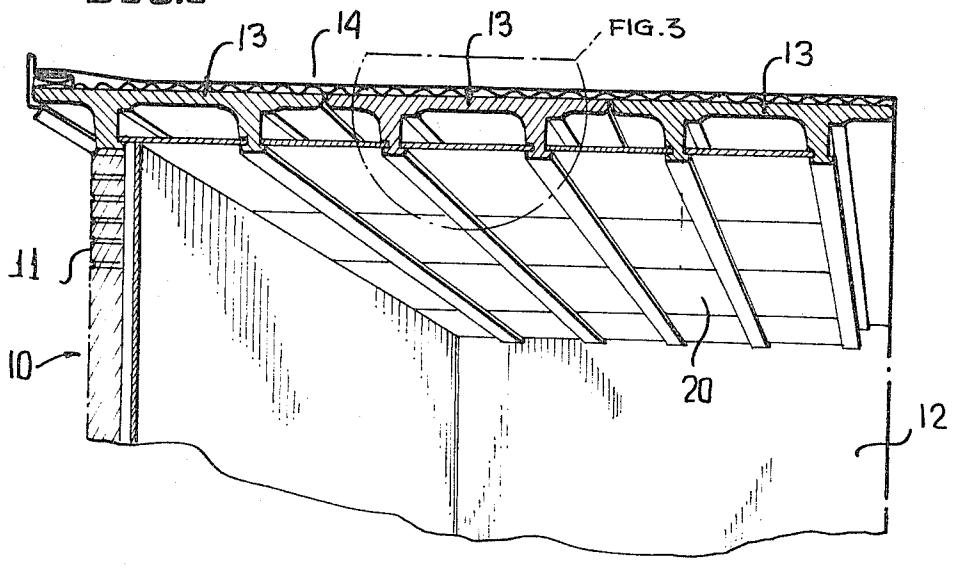
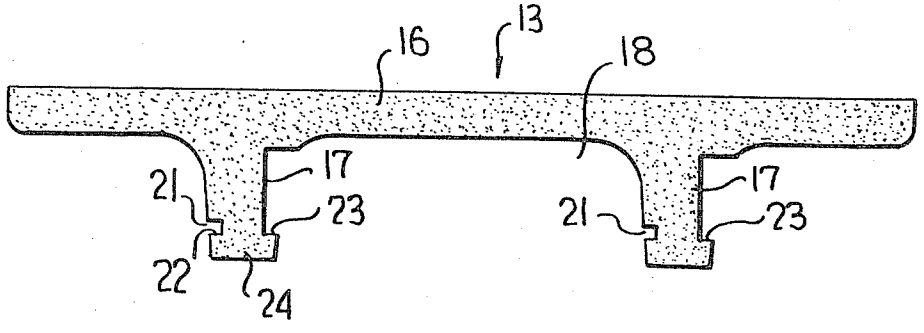


FIG.2



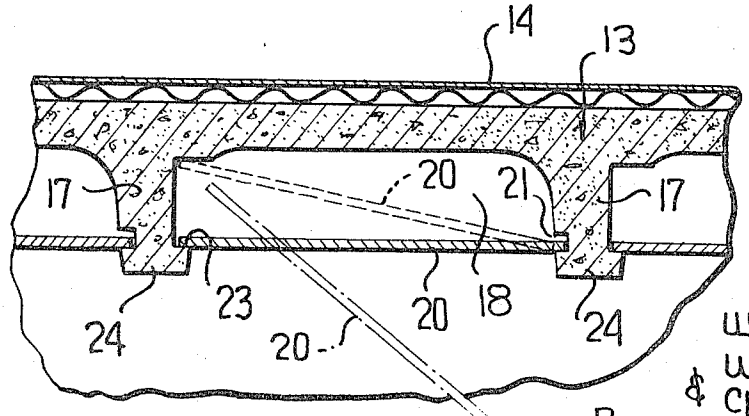


FIG.3

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DECKING SYSTEM

This invention relates in general to new and useful improvements in building construction, and more particularly to a novel decking system.

BACKGROUND OF THE INVENTION

It is well known in building construction to provide a suspended ceiling with the building utilities, such as plumbing, electrical, air conditioning, etc. being mounted above the suspended ceiling. However, even though these suspended ceilings do provide for the ready insertion and removal of ceiling panels, the systems require a somewhat complicated and expensive grid system which must be installed independently of the overhead decking such as the above floor or roof of the building.

It is also well known to provide precast concrete decking members which may be utilized either as a floor or a roof of a building. Such decking members are normally of a Tee construction and include a horizontal slab portion and one or more depending beam portions. However, in accordance with present day practice, it is necessary for workers to secure to the decking members ceiling attaching means after the decking members have been positioned.

It is also well known that there has been proposed in the past Tee-beam concrete decking systems wherein the depending beam portions have been utilized as ceiling supports. In some of these systems, tile or other masonary product elements are supported by the beam portions and thereafter a conventional ceiling is formed, supported directly by the decking members and the tile elements.

All of these prior systems have the deficiency in that after the decking members have been positioned and such further work has been performed thereon to form a floor or roof of a building, it is necessary to have workman perform other steps in order that a ceiling, other than that which is naturally formed by the decking members, may be installed.

SUMMARY OF THE INVENTION

In accordance with this invention, it is proposed to provide a decking system wherein the concrete Tee-beam members have the beam portions thereof specially configurated so that the extreme lower parts of the beam portions become a part of the building ceiling and conventional ceiling panels may be laid in place between the beam portions without any modifications or additions to the decking members or any suspension of supporting frames.

Another feature of the decking system is that a Tee-slab construction naturally provides space between the beam portions thereof for the placement of building utilities whereby it is not necessary to suspend the ceiling from beneath the decking members and, accordingly, after the deck has been formed and the utilities placed within the building, the ceiling of the building may be rapidly completed by unskilled help merely by placing conventional ceiling panels in between the beam portions of the decking members.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawing:

IN THE DRAWING

FIG. 1 is a fragmentary perspective view of a building formed in accordance with this invention.

FIG. 2 is an enlarged end elevational view of a typical decking member.

FIG. 3 is an enlarged sectional view showing the identified portion of FIG. 1.

Referring now to the drawing in detail, it will be seen that there is illustrated in FIG. 1 a conventional building construction utilizing the decking system of this invention, the building being generally identified by the numeral **10**. The building **10** will be constructed with walls **11**, **12** of any desired construction for cooperation with precast concrete decking members. Precast decking members **13**, formed in accordance with this invention, are set in place on the walls of the building and with limited modification automatically form either the floor of an upper story of the building or the roof of the building. As is clearly shown in FIG. **1**, in the illustrated usage of the invention, the decking members **13** form part of a roof **14** of the building **10**.

After the decking members **13** have been positioned, the roof **14** may be completed in any desired manner, and the decking members **13** now form the overhead of the building **10**.

With particular reference to FIG. **2**, it will be seen that there is illustrated the specific details of a preferred form of decking member **13**. The decking member **13**, which is of a precast concrete construction, includes a horizontal slab portion **16** which is reinforced by one or more integral depending beam portions **17**. In the illustrated form of the invention, the slab portion **16** is of a width so as to require two beam portions **17**. It is to be understood that in order that the beam portion **17** may give sufficient strength to the decking member **13**, the beam portion **17** will extend below the slab portion **16** 6 or more inches.

From the foregoing, it will be seen that the decking members **13** are of a construction so as to automatically provide longitudinally extending, continuous spaces **18** below the slab portion **16** and between the beam portions **17**. These spaces will be of sufficient size to receive the customary building utilities including lighting, duct work, etc.

After the utilities have been placed within the building, the decking system of this invention may be completed by merely closing off the spaces **18** from below by positioning ceiling panels **20** between the lower parts of the beam portions **17**, as is specifically illustrated in FIG. **3**. When the ceiling panels **20** are provided in widths in accordance with the spacing of the beam portions **17**, it will be readily apparent that all that is required in the placing of the ceiling panels **20** is the cutting of one or both end ceiling panels of each row to the desired length in accordance with the length of the decking member **13**. Accordingly, the formation and finishing of the ceiling of the building **10** may be rapidly performed by relatively unskilled labor at a minimum expense.

Referring once again to FIG. **2**, it will be seen that in the preferred embodiment of the decking member **13**, the lower part of each beam portion **17** is provided on one side thereof with a longitudinally extending notch **21** which includes an upwardly facing lower wall **22**. The opposite side of the beam portion **17** is provided with a projecting ledge **23** which is disposed substantially coplanar with the wall **22**.

Referring once again to FIG. 3, it will be seen that a ceiling panel 20, which is of the proper predetermined width, may be installed by merely sliding one end thereof up into the space 18 above the ledge 23 and then inserting the opposite end of the ceiling panel 20 into the notch 21 while lowering the ceiling panel so that it now seats on the ledge 23. In order to prevent accidental release of panel 20 should it shift in position, the panel should be so dimensioned that the spacing between the bottom of notch 21 and the nearest edge of the cooperating adjacent ledge 23 is less than the width of the panel, as clearly shown in FIG. 3. Similarly, the spacing between the bottom of notch 21 and the beam portion 17 carrying the cooperating adjacent ledge 23 should be greater than the width of panel 20, as also shown in FIG. 3, to facilitate installation of the panel. The installation of the ceiling panel 20 is complete and the ceiling panel is held in place by gravity.

Not only may the ceiling panel 20 be rapidly installed by unskilled labor, but it will also be readily apparent that the ceiling panel 20 is readily removable whenever access to the space 18 is desired.

It is to be noted that an extreme lower part 24 of each beam portion 17, in the illustrated form of the invention, forms an exposed part of the ceiling of the building 10. It is to be understood that in the casting of the decking member 13, care will be given to assure the quality of finish of the ceiling portions 24. It is also to be understood that when contrast is desired, the projecting portions 24 may be separately formed and then incorporated into the decking member 13 during the casting thereof. It is also feasible to form the projecting portions 24 of a material other than concrete, such materials including wood, plaster and other conventional building materials.

It will be readily apparent from the foregoing that the desirability of the decking system of this invention resides not in the complexity thereof, but in the simplicity thereof as compared to known building constructions.

It is to be recognized that although in the illustrated form of the invention each ceiling panel is supported by the combination of one ledge and one notch, the decking system could be modified so that each beam portion 17 could be provided with either two of the notches 21 or two of the ledges 23. In the case of the provision of two notches 21, it is preferred that the ceiling panels 20 be formed of a flexible material which could be arched when the panels are inserted so as to prevent the accidental removal thereof from the notches.

Although only a preferred embodiment of the decking system has been specifically illustrated and described, it is to be understood that minor variations may be made in the decking system without departing from the spirit and scope of the invention, as defined in the appended claims.

We claim:

1. For use in the construction of a building, a combined decking and ceiling forming member, said member being of a precast concrete construction and including an upper slab defining portion and at least one integral depending beam portion, said beam portion having a lower exposed ceiling forming portion being of greater width than the adjacent portion of the remainder of said beam portion and projecting to one side of the remainder of said beam portion to define a ceiling panel supporting ledge, a ceiling panel receiving notch formed in the opposite side of said beam portion for cooperation with a ledge of a like beam portion to support a ceiling panel, said combined decking and ceiling member being of a dimension for supporting a ceiling panel of a predetermined width, the spacing between the bottom of said notch and the adjacent beam portion bearing said cooperating ledge being greater than said predetermined width for facilitating installation of said panel, and the spacing between the bottom of said notch and the nearest edge of said cooperating ledge being less than said predetermined width for preventing accidental release of a shifted ceiling panel, and said beam portion being free of overlying relation with respect to said panel supporting ledge in the vicinity of said ledge facilitating tilting of a ceiling panel to effect removal thereof from said ceiling panel receiving notch.

2. The building construction of claim 1 wherein said ceiling panel receiving notch has a bottom wall, and said panel supporting ledge and said bottom wall being substantially coplanar for supporting ceiling panels in a level position.

3. The building construction of claim 1 wherein said panel receiving notch and said panel supporting ledge extend substantially continuously longitudinally of said beam portion.

4. The building construction of claim 1 wherein said panel receiving notch and said panel supporting ledge are materially spaced from said slab defining portion for the reception of utilities readily accessible by the removal of an underlying ceiling panel.

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