April 2, 1929. J. C. KEPPLE 1,707,226

SUPPORTING STRUCTURE FOR CONCRETE CONSTRUCTION

Filed July 18, 1928

FIG. 1

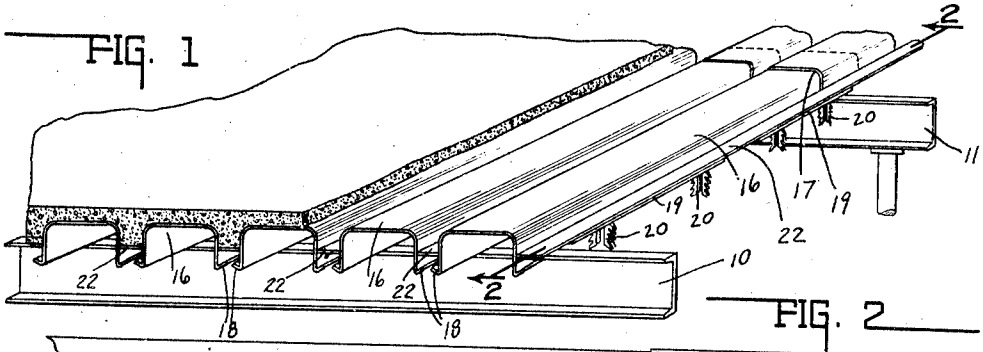
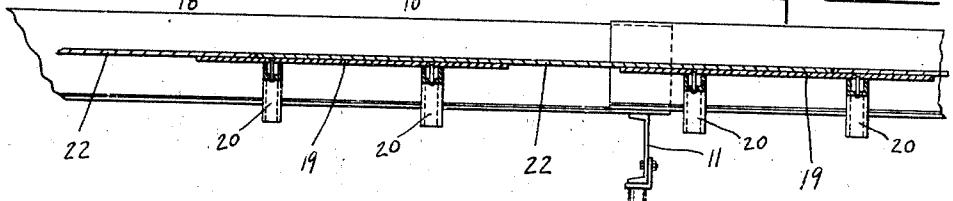


FIG. 2



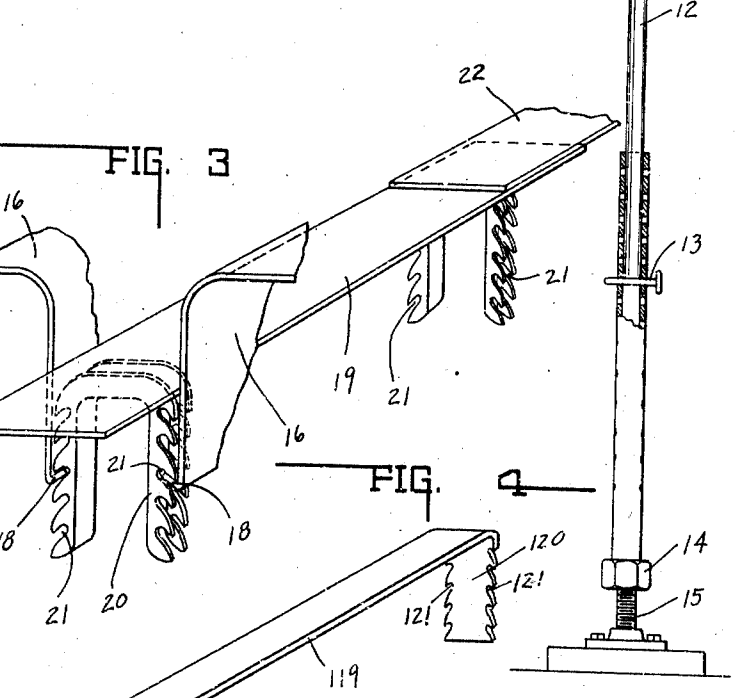
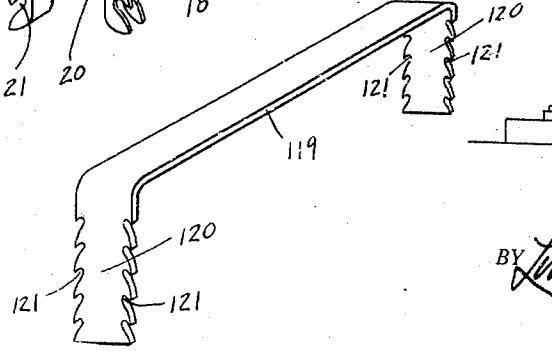


FIG. 3

FIG. 4



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UNITED STATES PATENT OFFICE.

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SUPPORTING STRUCTURE FOR CONCRETE CONSTRUCTION.

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This invention relates to concrete building structures, and particularly the centering and supports for forming floors and ceilings thereof.

The principal feature of the invention resides in the means for supporting the filling between the centering forms and adjusting the same to various heights with respect thereto for obtaining varying depths of floor beams. This is accomplished by providing a supporting member having a plurality of recesses formed therein for selective engagement with suitable flanges extending laterally of the side walls of the centering forms.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

Fig. 1 is a perspective view showing the assembly of the various units for forming floor and ceiling structures of concrete or the like. Fig. 2 is a section taken on the line 2—2 of Fig. 1. Fig. 3 is an enlarged perspective view of the adjustable filler or soffit support. Fig. 4 is a modified form of soffit chair, showing a perspective view thereof.

In the drawings there is shown a structural support comprising the ledger beams 10 and 11 formed of structural channels or timbers, which are supported at intervals by the adjustable shore 12 which comprises telescopic tubular posts adjustable with respect to each other by means of a pin 13 extending through suitable holes in the lower member upon which the lower end of the upper member rests in adjusted position with respect to height. The lower member is supported by the nut 14 adapted to screw upon the screw-threaded base 15.

The centering forms comprise a plurality of sheet metal members 16 which are of inverted U-shape in cross section when placed in position, adapted to rest adjacent their ends upon the ledgers 10 and 11. Said centering forms may be made of any desired shape in cross section suitable for the formation of the concrete floor and ceiling of the building, and the sheet metal of which they are formed may be of any desired thickness or strength to obtain the proper length and breadth. They may also be continued in sections wherein a plurality of sections are positioned in alignment with each other, the ends of adjacent sections over-lapping each other in the usual manner as indicated at 17.

Each of the centering forms are provided with laterally extending flanges 18 extending the full length thereof, said flanges being formed by turning the longitudinal edges of the lower portions thereof upwardly at an acute angle so as to extend at an angle of approximately forty-five degrees to that of the side walls of the forms. Supported at intervals between the ledgers 10 and 11 by the adjacent flanges 18, and between the corresponding centering forms there are provided a plurality of soffit chairs comprising the top plate 19 supported adjacent to but spaced from the ends thereof by the U-shaped chair supports 20. Said supports are formed of a channel bar bent U-shaped in its general contour with the flanged legs thereof extending downwardly. In the legs, there are cut a plurality of recesses 21 spaced apart in vertical relation, and extending inwardly and upwardly at an acute angle adapted to receive therein the upwardly bent flanges 18 of the centering forms, —as best illustrated in Fig. 3.

When the soffit chairs are mounted in position, they are supported by the selective engagement of the flanges with the recesses, to give the top plate 19 thereof the desired depth with respect to the top of the centering forms. This gives the proper depth of the ceiling beams to be formed. Spanning the space intermediate the adjacent ends of the soffit chairs there are provided soffit plates or boards 22.

By means of this arrangement, the shoring for the ledgers may be quickly set up to the proper height, the shoring put in place and the centering forms mounted thereon. The soffit chairs are interposed between the forms as they are put in place so that the top plates thereof are positioned at the proper depth. This depth is maintained uniform by selectively interlocking the flanges of the centering forms with the similarly positioned recesses 21. The top plates and soffit plates or boards are then laid on top of the soffit chairs so as to be supported thereby and the concrete is then ready to be poured. After the concrete has been sufficiently set, the shoring may be removed and the ledgers taken down, whereby the centering forms with the soffit chairs may be removed and permanent shoring mounted in place to engage the soffit plates or boards for continuing to support the concrete until it is finally set with full strength.

As shown in the modified form, Fig. 4, the soffit chair comprises an elongated top plate 119 having its ends bent downwardly U-shaped to form the legs 120, and suitably

ribbed for strengthening purposes. The legs are provided with the recesses 121 for the same purpose as above described with respect to the recesses 21. The soffit chair shown in Fig. 4 serves the same function as a pair of the chairs illustrated in Fig. 3, while the elongated portion 119 of the chair shown in Fig. 4 is the equivalent of the top plate 19 shown in Fig. 3. It will, therefore, be understood that the modified form illustrated in Fig. 4 is the equivalent of a pair of soffit chairs with the top plate suported thereby, as above described and illustrated in Fig. 3.

The invention claimed is:

1. In a concrete structure, a plurality of centering forms having laterally-extending flanges thereon, and means interlocking with said flanges for supporting the concrete intermediate said forms.

2. In a concrete structure, a plurality of centering forms having laterally-extending flanges thereon, and means adjustable with respect to the depth of said forms and interlocking with the flanges thereof for supporting the concrete intermediate said forms to the desired depth.

3. In a concrete structure, a plurality of centering forms having laterally-extending flanges thereon, and a plurality of supporting members for the concrete intermediate said forms provided with recesses adapted to receive said flanges whereby said members will be supported thereby.

4. In a concrete structure, a plurality of centering forms having laterally-extending flanges thereon, and a plurality of supporting members for the concrete intermediate said forms provided with a plurality of recesses for selectively receiving said flanges so as to be supported thereby in adjusted position for obtaining the desired depth of concrete intermediate said forms.

5. In a concrete structure, a plurality of centering forms having laterally-extending flanges bent upwardly from the lower edges thereof at an acute angle, and a plurality of members adapted to be mounted intermediate said forms and having slots extending inwardly therein at an acute angle adapted to receive said flanges, whereby said forms will be interlocked with said members and held thereby against lateral movement of the side walls thereof.

6. In a concrete structure, a plurality of centering forms having laterally-extending flanges thereon, said flanges being bent upwardly at an acute angle, and a plurality of adjustable interlocking members having a vertical series of angularly disposed slots on each side thereof adapted to selectively receive the corresponding flanges of said forms whereby said members will be adjustably held for supporting the concrete intermediate said forms to the desired depth and interlock the side walls of said forms to prevent lateral movement thereof.

7. In a concrete structure, a plurality of centering forms having laterally-extending flanges thereon, and a plurality of soffit chairs adjustably supported thereby intermediate of said forms, said chairs comprising a U-shaped member having slots formed in the legs thereof extending upwardly at an acute angle adapted to selectively receive therein the respective flanges of said forms, whereby the said forms and chairs will be interlocked with each other in adjusted position to give the proper depth to the concrete between the forms and prevent variation in the lateral position of the side walls thereof.

8. In a concrete structure, a plurality of centering forms of sheet metal, supporting members for the concrete intermediate said forms, and means provided on said forms and members for interlocking with each other whereby said members will be supported by said forms and will prevent the position of the latter from being varied under pressure of the concrete.

9. In a concrete structure, a plurality of centering forms having downwardly-extending side walls, soffit chairs mounted therebetween for supporting the concrete to the desired depth, said soffit chairs comprising supporting members having recesses therein adapted to selectively engage with the side walls of said forms for permitting adjustment thereof to the desired depth, and supporting plates mounted thereon intermediate said walls for supporting the concrete.

10. In a concrete structure, a plurality of centering forms having side walls spaced apart, soffit chairs mounted therebetween and supported thereby, supporting plates mounted on said soffit chairs for supporting the concrete intermediate said walls, said soffit chairs including a U-shaped metal member having downwardly extending legs provided with recesses formed therein and extending inwardly and upwardly at an acute angle, said recesses being adapted to interlock with the side walls of said forms for maintaining the same in place and preventing lateral movement of said walls.

In witness whereof, I have hereunto affixed my signature.

JOHN C. KEPPLE.