No. 868,116. PATENTED OCT. 15, 1907.

C. D. OLIVER.

CENTERING FOR FIREPROOF CONSTRUCTION.

APPLICATION FILED JAN. 4, 1907.

Fig. 1.

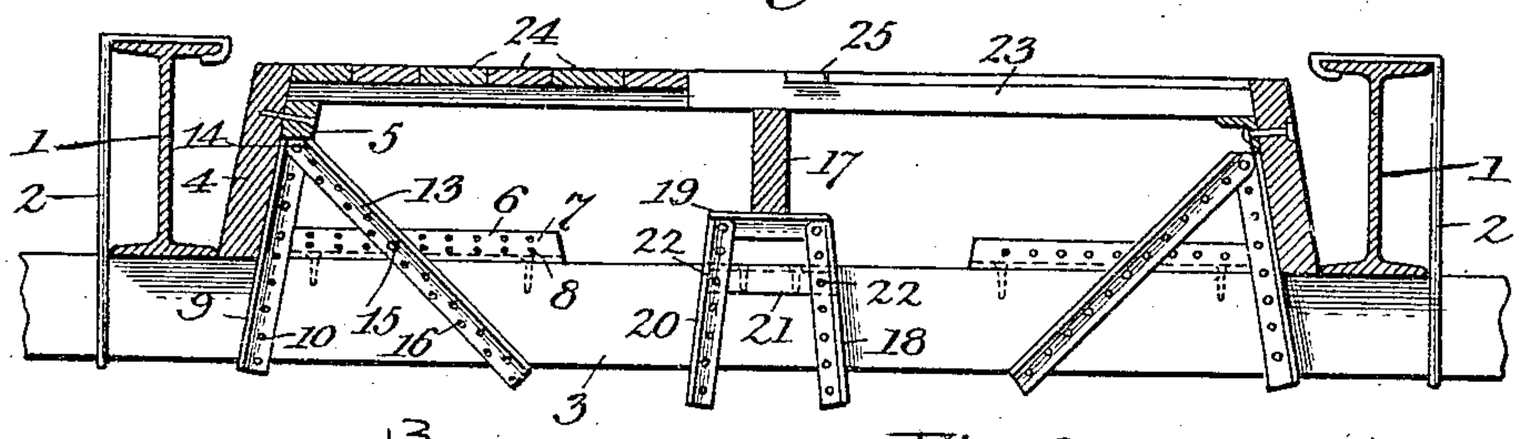

Fig. 2.

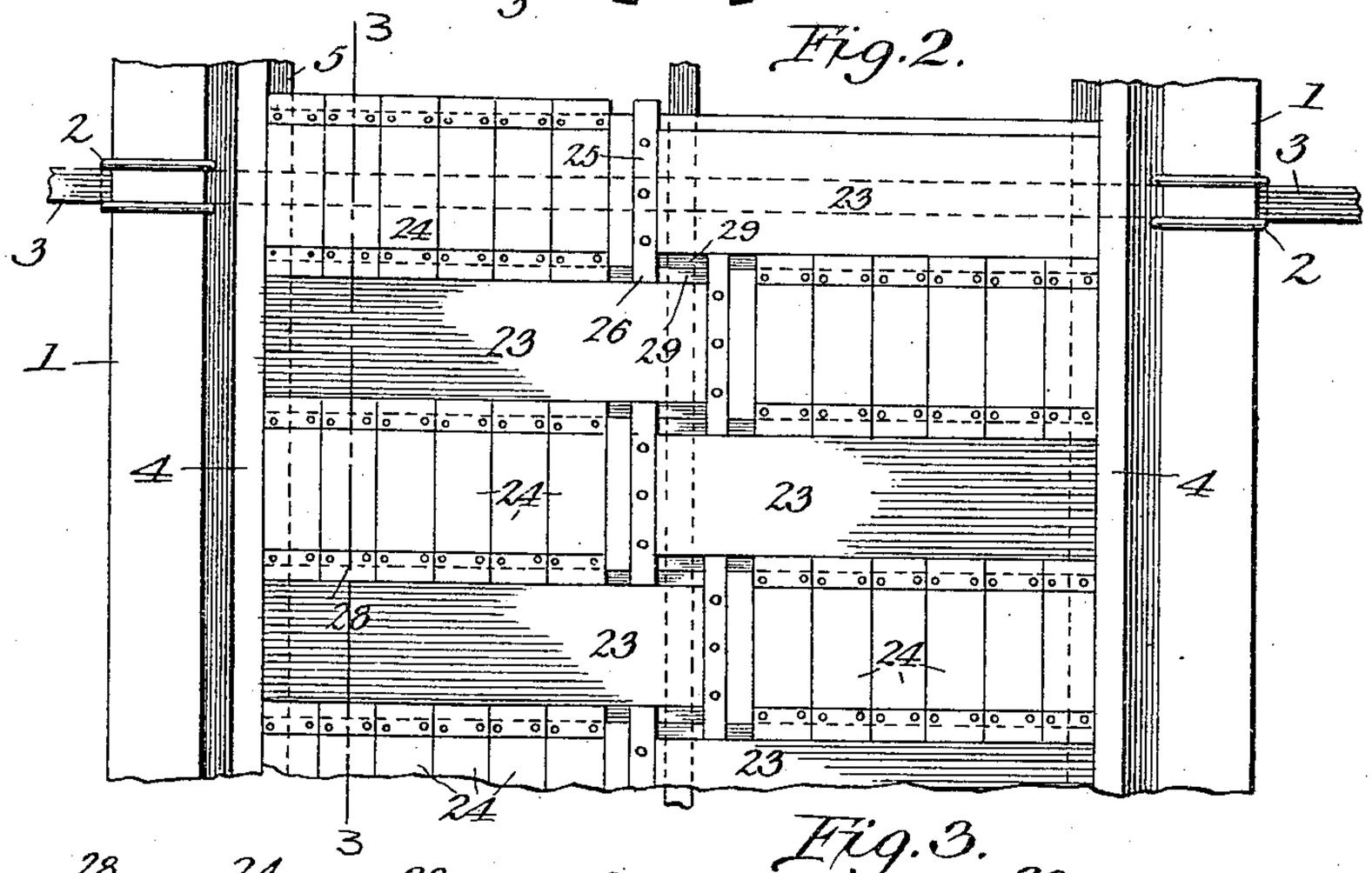

Fig. 3.

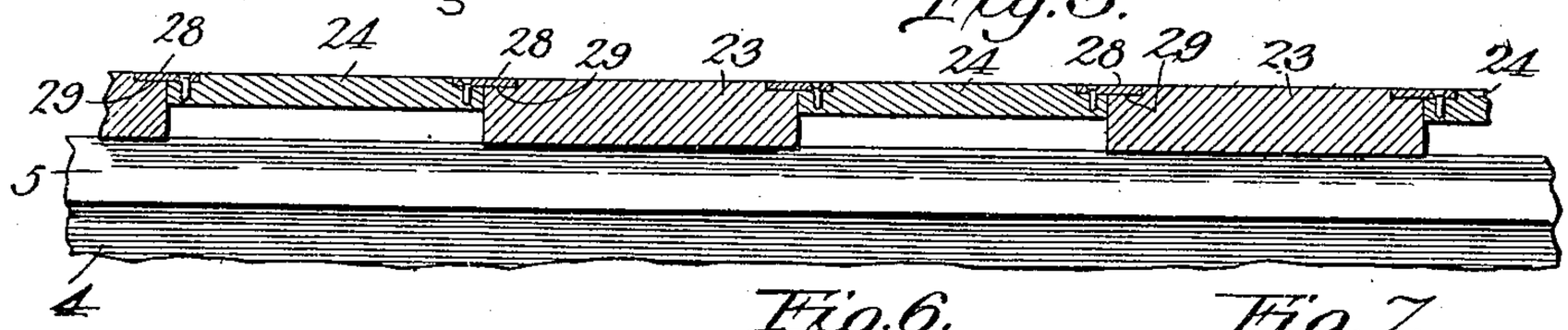

Fig. 6.

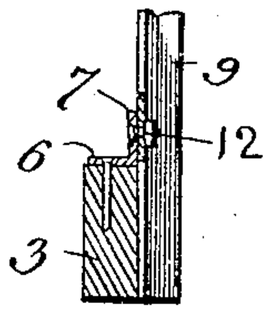

Fig. 4.

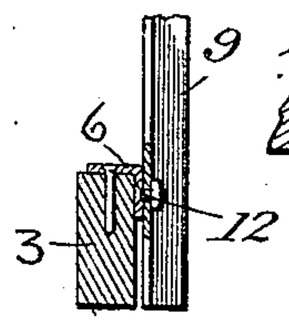

Fig. 5.

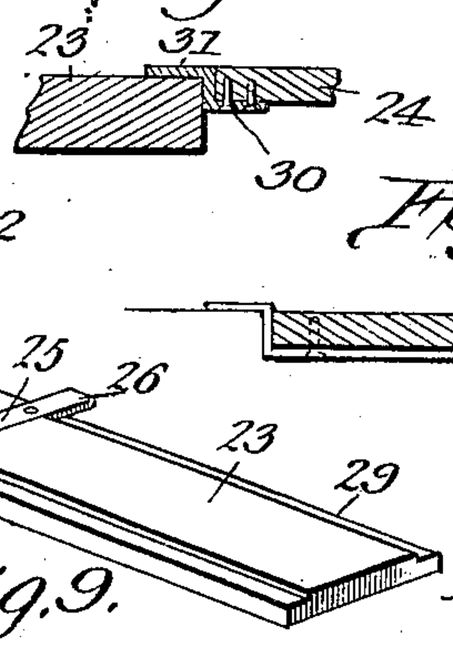

Fig. 7.

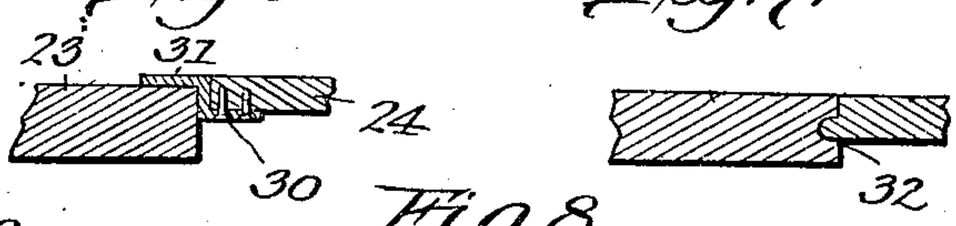

Fig. 8.

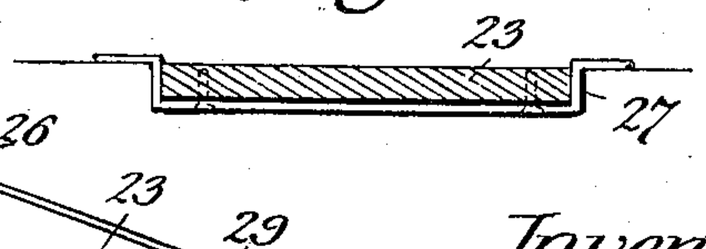

Fig. 9.

Witnesses:
G. M. Stucker
F. A. Connor.

Inventor,
Charles D. Oliver
By Meyers, Eastman & Rea
Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES D. OLIVER, OF NEW YORK, N. Y.

CENTERING FOR FIREPROOF CONSTRUCTION.

No. 868,116. Specification of Letters Patent. Patented Oct. 15, 1907.

Application filed January 4, 1907. Serial No. 350,755.

To all whom it may concern:

Be it known that I, CHARLES D. OLIVER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Centerings for Fireproof Construction, of which the following is a specification.

This invention relates especially to the construction of fireproof floors, ceilings, arches, bridges and similar structures in which a temporary framework or centering is used to support the material of the structure during the making of the same and during the setting of the concrete or other plastic material, if such plastic material be used, the object of the invention being to provide a simple, cheap and efficient means of supporting the centering in place and enabling the centering to be quickly and conveniently placed in proper position and removed.

A further object of the invention is to provide a novel and simple means for supporting the haunch-boards, whereby said boards may be adjusted vertically or at different angles of inclination.

A still further object of the invention is to provide a novel construction of centering consisting primarily of removable and interchangeable sections having interlocking connections, whereby the centering may have such adjustments as to meet the various sizes and other conditions attending the class of work to which this invention appertains.

As the invention can best be understood by a detailed description of a construction embodying the same, such description will now be given in connection with the accompanying drawings forming a part of this specification and in which;

Figure 1 represents a transverse section of the invention. Fig. 2 is a plan view. Fig. 3 is a section on the line 3—3, Fig. 2. Fig. 4 is a detail view of a portion of one of the haunch-board supports. Fig. 5 is a similar view showing a slightly modified form of haunch-board support. Figs. 6, 7 and 8 are details of modifications within the spirit of the invention. Fig. 9 is a perspective view of one of the longer sheathing members.

Referring now to the drawings, the reference numerals 1 designate the usual I-beams from which are suspended the hangers 2 supporting the transversely arranged joists 3 upon which the centering is mounted.

The reference numerals 4 designate the haunch-boards which extend longitudinally of the beams 1, and which may be supported parallel with said beams or at an angle thereto, as desired. The haunch-boards are provided on their outer faces with longitudinally extending cleats 5 which may consist of wood strips or of angle iron, as desired, said cleats being secured to the haunch-boards by means of nails, bolts or screws. The cleats referred to are designed to support the centering boards constituting the temporary flooring, which will be presently described in detail.

The means for supporting and adjusting the haunch-boards 4 consist of easel-like frames comprising the angle irons 6 attached to the joist 3, either at the top edge thereof with a portion 7 of the iron extending upward as shown in Fig. 4 or with a portion extending downwardly as shown in Fig. 5. These angle irons are provided with rows of perforations 8 for the purpose of effecting various adjustments as will be presently explained. Coöperating with each angle iron 6 is a perpendicular haunch-board rest or supporting strip in the form of an angle iron 9, having equi-distant perforations 10 therein, said angle iron being of greater length than the width of the haunch-boards 4 and extending parallel therewith, and taking under the cleat 5 at its upper end. Suitable bolts or other connecting devices 12 extend through the perforations 10 and 8, respectively, of the angle irons 9 and 6, whereby to connect these parts together and support the haunch-boards in proper position. A third angle iron 13 or what may be termed a connecting strip is provided to vary the angle of inclination of each haunch-board. Each strip of angle iron 13 is connected at its upper end by means of a bolt or screw, as at 14, to the upper end of the angle iron 9 and is connected at another point to the angle iron 6 by means of a bolt or screw 15, said angle iron 13 being further provided with equi-distant perforations 16, similar to the perforations in the other angle irons referred to. The three angle irons described constitute what might be termed an easel-like support, one being provided for each haunch-board and obviously, by properly adjusting the connecting bolts or screws, said haunch-boards may be adjusted vertically or at any desired angle relatively to the I-beams 1.

Extending parallel with the I-beams and at a point substantially midway of the center of two adjacent beams is a supporting timber joist 17, designed to support the temporary flooring presently to be described. This timber joist 17 is mounted upon an adjustable truss, consisting of a pair of vertically extending angle irons 18 connected at their upper ends by means of a cross piece 19, upon which the timber joist rests. These vertically extending angle irons 18 are provided with equi-distant perforations 20, through which and also through a perforation in angle iron 21 attached to the upper edge of the joist 3, suitable screws or bolts 22 may be passed to support the truss-frame and with it the timber-joist 17, in any desired adjusted position. The angle-iron 21 is attached to the joist 3 in the same manner as the angle-iron 6 shown in Figs. 4 and 5.

The improved flooring which constitutes one of the essential features of the present invention consists of built-up parallel sections, made either of wood or metal, spanning between the I-beams, each section consisting

of a relatively long sheathing member 23 and a plurality of shorter filling-in members or boards 24. The sections referred to are arranged parallel with one another, the sheathing boards being alternately arranged with the filling-in boards as more clearly shown in Fig. 2 of the drawing. Said sheathing boards 23 are each supported at one end upon the cleats 5 attached to the haunch-boards 4 and to the other end of each sheathing board 23 that extends over the joist 17 is attached a transverse strip 25, having overhanging ends 26, the said overhanging ends of the strip 25 attached to one of said sheathing boards engaging with the next opposite sheathing board 23 of the adjacent section. These strips 25 may be attached directly to the top of the sheathing board, as shown in Fig. 2 or they may be attached to the under-side of said boards and have their opposite ends upwardly and outwardly turned as at 27, Fig. 8, which is a modified arrangement within the spirit of the invention.

The filling-in boards 24 are arranged to fill in the space of each section not covered by the sheathing boards 23 and obviously the number of these filling-in boards required to complete each section will depend upon the distance between the two I-beams. These filling-in boards 24 having attached to opposite ends thereof, plates 28 which overhang the longitudinal edges of the sheathing boards 23 of adjacent sections, suitable grooves 29 being provided along the upper longitudinal edges of the sheathing boards 23 to accommodate the said plates 28.

Instead of employing the plates 28 to support the filling-in boards, I may employ the arrangement shown either in Fig. 6 or in Fig. 7 which are modifications within the spirit of the invention. In Fig. 6, I attach a Z shaped plate 30 to the opposite end of each filling-in board 24, the outwardly extending portion 31 of said Z shaped plate overhanging the sheathing board 23 of an adjacent section. In Fig. 7, I have shown a tongue and groove connection 32 between the sheathing board 23 and filling-in board 24.

By the arrangement of temporary flooring shown, it will be seen that said flooring consists of a plurality of parallel sections, each section consisting of a sheathing board and a plurality of filling-in boards, the said filling-in boards and the said sheathing boards of the said sections being alternately arranged and the filling-in boards of one section being supported at their opposite ends by the sheathing boards of the adjacent section or sections. This arrangement enables a ready building-up of a temporary flooring suited to any structure or to any width between the beams. The sections are removable and interchangeable and can be built-up and used as desired, which is a desideratum of no small importance in structures of this kind, since it results in a great saving of timber.

Instead of supporting the sheathing boards 23 and filling-in boards 24 upon the cleats 5 attached to the haunch-boards as shown, obviously the outer end of each sheathing board 23 and the longitudinal edge of the outer filling-in board of each section may be supported directly upon the upper edge of the haunch-boards 4.

I have herein shown and described the preferred construction of the invention, but I do not wish to be understood as limiting myself to the details illustrated and described, as it will be obvious that changes or additions may be made without limiting the scope of the appended claims.

What is claimed is:

1. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a plurality of removable and interchangeable shorter members, and means for supporting the sections.

2. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a plurality of removable and interchangeable shorter members, the long member of one section being located alongside the shorter members of an adjacent section.

3. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a plurality of removable shorter members, the longer members of the different sections alternating with the shorter members.

4. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a plurality of removable shorter members, the longer members of the different sections alternating with the shorter members, and vertically adjustable supporting means for the said sections.

5. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a plurality of removable shorter members, the shorter members of one section being supported by the long members of adjacent sections.

6. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a plurality of removable shorter members, and interconnecting means between the shorter members of one section and the long members of adjacent sections.

7. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a plurality of removable shorter members, and plates attached to the opposite ends of the shorter members and adapted to overhang the edges of the longer members of adjacent sections.

8. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a plurality of shorter members, the longer members of the different sections alternating with the shorter members, haunch-boards at the ends of said sections and upon which the latter rest, and means for adjustably supporting the haunch-boards.

9. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member, and a removable filling-in member or members, and means for supporting the sections.

10. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and filling-in member or members, the longer members of the different sections alternating with the filling-in members, and means for supporting the sections.

11. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a filling-in member or members, the latter named member or members of one section being supported by the long members of adjacent sections.

12. In fireproof floor and ceiling construction, a haunch-board and supporting means therefor, comprising a transverse joist, a vertically adjustable perpendicular member 9, pivotally connected to said joist and against which the haunch-board rests, and a member 13, pivotally connected at one end to said perpendicular member and adjustably connected at another point to said joist.

13. In fireproof floor and ceiling construction, a haunch-board and supporting means therefor, comprising a transverse joist, a vertically adjustable perpendicular angle-

iron 9, pivotally connected to said joist and against which the haunch-board rests, and an inclined angle-iron 13, pivotally connected at one end to the upper end of the said perpendicular angle-iron and adjustably connected at another point to said joist.

14. In fireproof floor and ceiling construction, a centering comprising a temporary flooring and haunch-boards having longitudinal cleats and supporting means for the haunch-boards consisting of a transverse joist having a plate attached thereto and provided with a plurality of perforations, a cleat-engaging plate adjustably connected to the first named plate, and a connecting plate attached at one end to the cleat-engaging plate and adjustably connected at another point to the first named plate.

15. In a fireproof door and ceiling construction, a centering comprising a temporary flooring and haunch-boards having longitudinal cleats, and supporting means for the haunch-boards consisting of a transverse joist, a cleat-engaging plate adjustably connected to said joist, and a connecting plate attached at one end to the cleat-engaging plate and at another point adjustably connected to the joist.

16. In fireproof floor and ceiling construction, a centering comprising a temporary flooring and haunch-boards, a transverse joist, and adjustable supports for the haunch-boards, each consisting of an angle-iron 6, attached to the joist, a perpendicular member 9, pivotally connected to said angle-iron and against which the haunch-board rests, and an inclined member 13, pivotally connected at one end to said perpendicular member and at another point adjustably connected to the said angle-iron.

17. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member and a plurality of removable shorter members, the longer members of the different sections alternating with the shorter members, and a transverse plate attached to each long member, the opposite ends of the plate on one long member overhanging the edges of two adjacent long members.

18. In fireproof floor and ceiling construction, a centering comprising a temporary flooring and haunch-boards, easel-like frames for adjustably supporting said haunch-boards, and a centrally arranged vertically adjustable truss, a longitudinal joist on said truss for supporting the said flooring, and a transverse joist to which the said frames and truss are connected.

19. In fireproof floor and ceiling construction, a centering comprising a plurality of parallel sections, each section consisting of a relatively long member having its longitudinal edges rabbeted and a plurality of removable shorter members, the opposite ends of the shorter members of one section resting in the rabbeted edges of the longer members of adjacent sections.

20. In fireproof floor and ceiling construction, a centering comprising haunch-boards and a plurality of parallel sections, each section consisting of a long member and a plurality of removably supported shorter members, and a centrally arranged joist, the longer members of each section being supported at their opposite ends by one of the haunch-boards and the said joist, and the shorter members of each section being supported by the longer members of adjacent sections.

21. In fireproof floor and ceiling construction, a centering comprising haunch-boards and a temporary flooring supported thereby, a transverse joist, vertically adjustable means carried by the said joist for supporting the haunch-boards, a longitudinal joist for supporting the flooring intermediate its ends, and a vertically adjustable truss carried by the transverse joist and upon which the longitudinal joist rests.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES D. OLIVER.

Witnesses:
BERNHARD BILLERTH,
HARRY OLIVER.