No. 808,951. PATENTED JAN. 2, 1906.

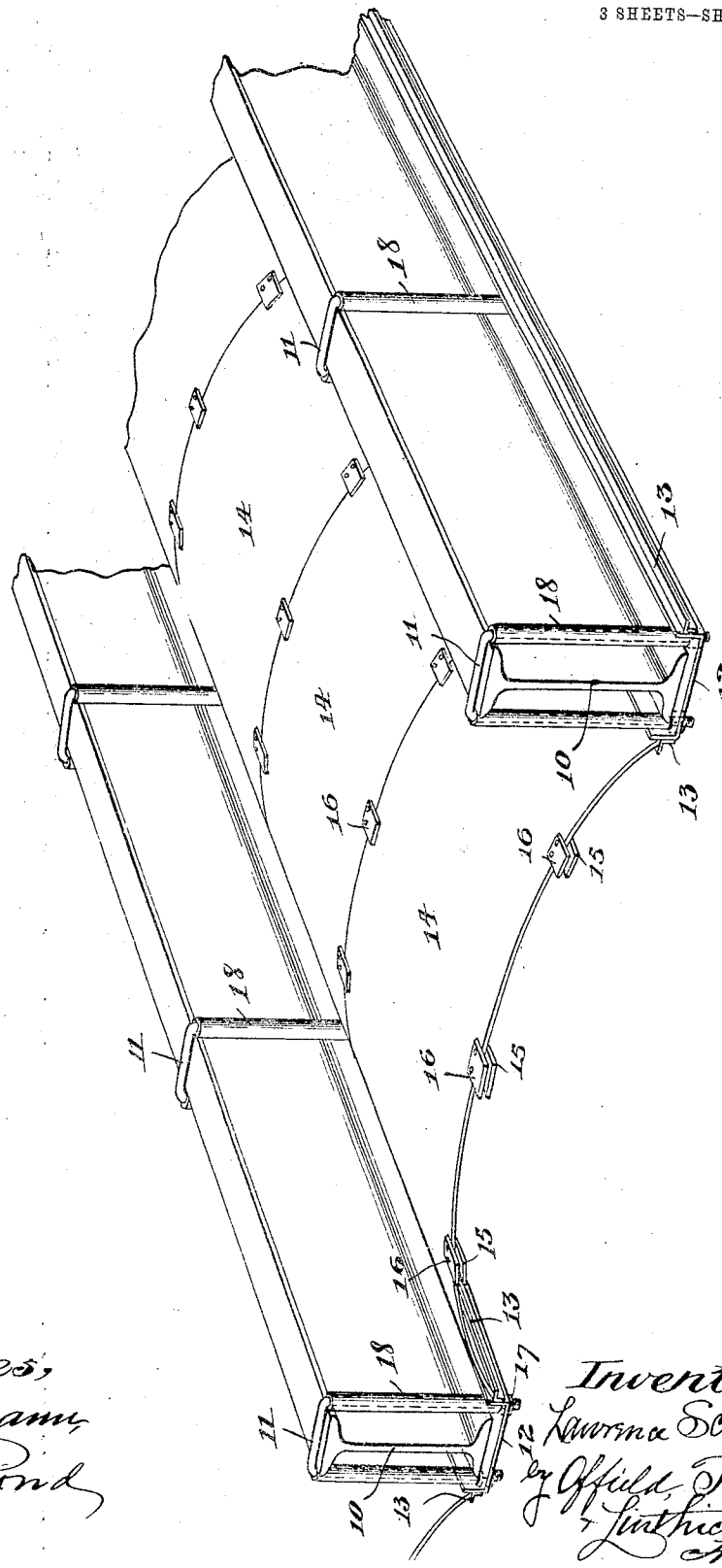
L. SCHULLER.

CENTERING FOR ARCHES.

APPLICATION FILED MAR. 6, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 2.

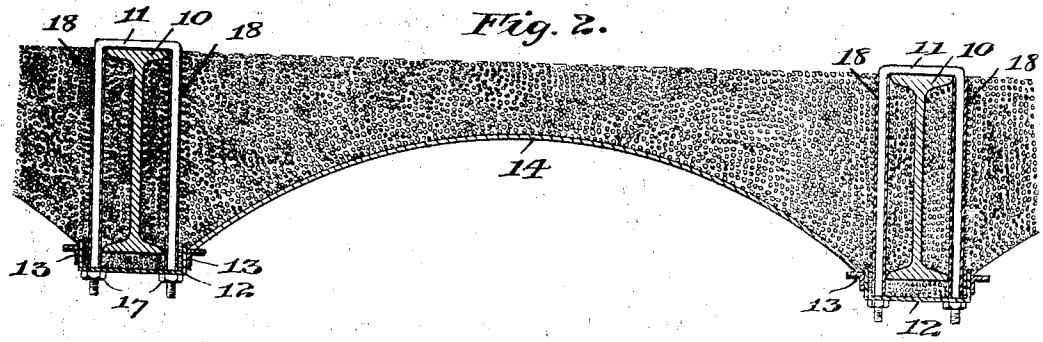


Fig. 3.

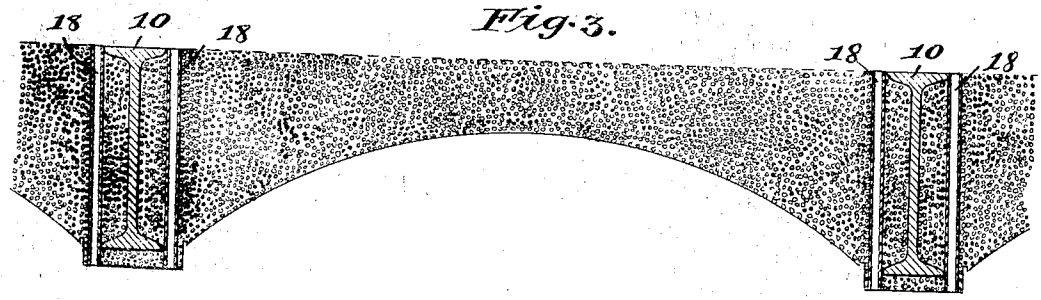


Fig. 5.

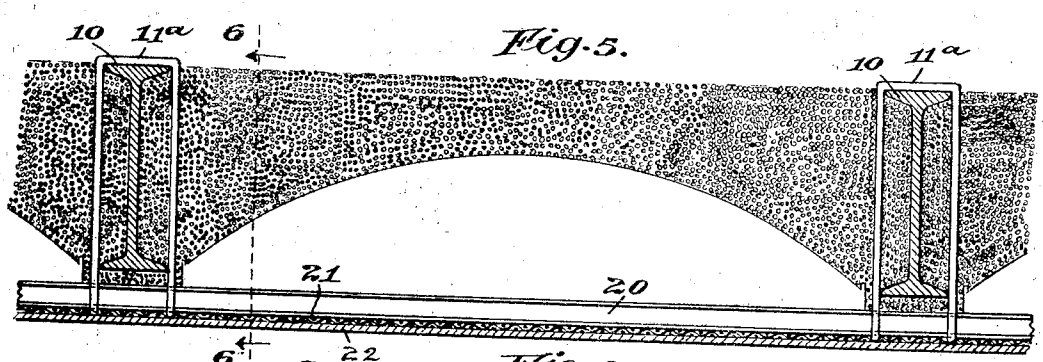
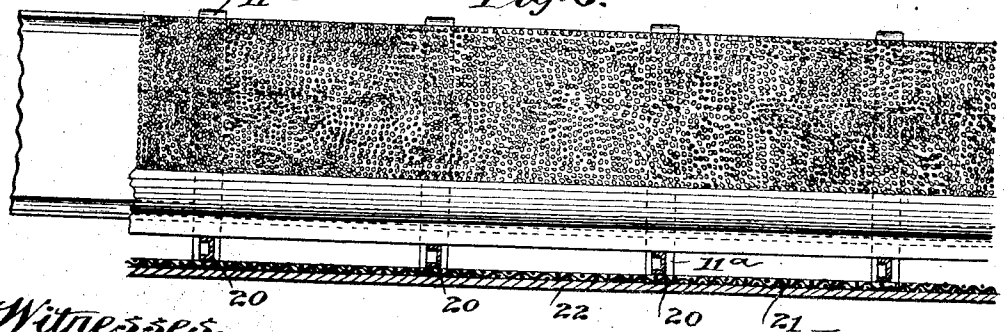


Fig. 6.



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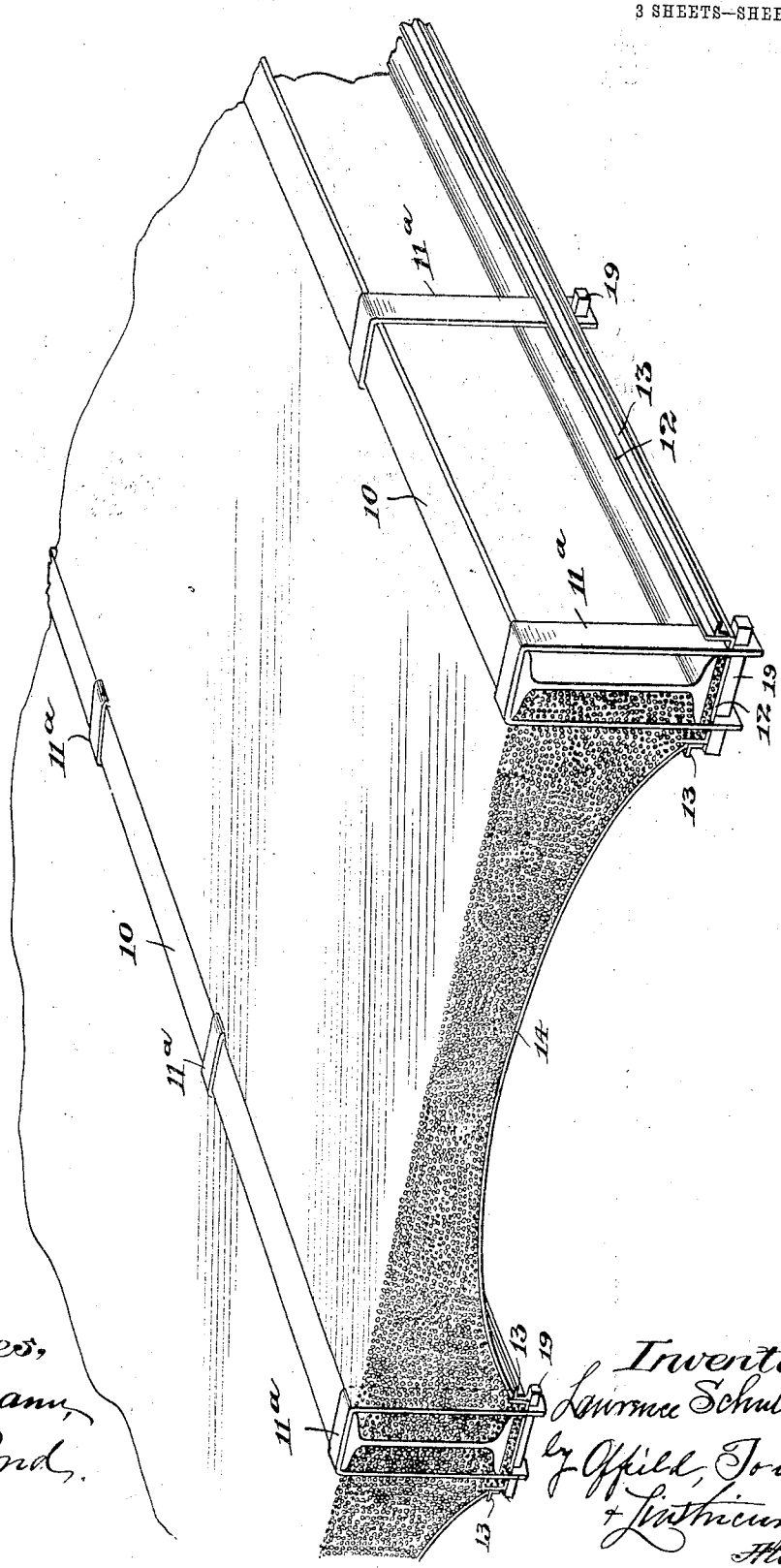
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3 SHEETS—SHEET 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

LAWRENCE SCHULLER, OF CHICAGO, ILLINOIS.

CENTERING FOR ARCHES.

No. 808,951. Specification of Letters Patent. Patented Jan. 2, 1906.

Application filed March 6, 1905. Serial No. 248,588.

To all whom it may concern:

Be it known that I, LAWRENCE SCHULLER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Centering for Arches, of which the following is a specification.

My invention relates to centering mechanism, such as is commonly employed for the purpose of a temporary support in the erection of fireproof masonry floor and ceiling-arches, which are extensively made of concrete packed between steel I-beam girders; and the principal object of my invention is to provide a simple construction of centering not requiring the usual transverse bars or trusses to support the lagging and which may be readily applied to and removed from the floor-beams, presenting a minimum of obstruction to the application of the concrete and permitting said floor-beams to be completely embedded on their lower and vertical sides in the concrete.

A further object of the invention is to provide a centering wherein the hangers that support the center arch-plates may without change of position be subsequently utilized in the completed structure to support the ceiling-frame.

In the accompanying drawings, which illustrate two practical forms in which my invention may be embodied, Figure 1 is a perspective view of one form of centering. Fig. 2 is a cross-sectional view showing the same with the concrete or other filling in place. Fig. 3 is a view similar to Fig. 2, but showing the centering removed and illustrating the form of arch-filling produced thereby. Fig. 4 is a perspective view similar to Fig. 1, but showing the filling in place and illustrating another form of the invention wherein the hangers serve as permanent supports for an underlying metallic ceiling-frame. Fig. 5 is a cross-sectional view similar to Fig. 2 of the form of the invention illustrated in Fig. 4, showing also the application of the metal ceiling; and Fig. 6 is a cross-sectional view on the line 6 6 of Fig. 5.

Referring first to Figs. 1, 2, and 3, 10 may designate the usual I-beam floor-girders, to which the centering is applied preliminary to the application of the masonry filling. Suspended a slight distance below the lower faces of the I-beams by inverted-U-shaped hangers 11, hung over the latter, are channel-beams 12, disposed with their trough sides uppermost, the side walls of said channels extending to a position slightly above the lower flange of the I-beams, as clearly shown in Fig. 2. To the outer faces of the side walls of the channels are riveted or otherwise secured angle-irons 13, the horizontally-extending members of which constitute, in connection with the upper portions of the side walls of the channels extending above them, abutments or rests for the ends of a series of arch-plates 14, which latter, as best shown in Fig. 1, are preferably provided on one edge with one or more pairs of inner and outer cleats 15 and 16, respectively, between which the meeting edge of the adjacent arch-plate is received, this construction contributing to the perfect surface alinement of the several arch-plates and the solidity and uniformity of the temporary arch as a whole. The channels 12 are suitably apertured to pass over the lower ends of the hangers 11 and are retained and supported thereon by nuts 17, engaging the screw-threaded lower ends of said hangers, this construction facilitating the ready withdrawal of the channels when the centering is to be removed. The vertical members of the hangers 11 are preferably, and as herein shown, incased in thin tubes or ferrules 18, of tin or other sheet metal, which tubes when the centering is removed remain in and constitute permanent parts of the filling, their function being to facilitate the withdrawal and subsequent reuse of the hangers.

In the form of the invention illustrated in Figs. 4. 5, and 6 the hangers are made of suitably-bent strap or bar iron, said hangers being designated by 11^a. The lower ends of the hangers 11^a pass through slots in the base of the channels 12, said channels being supported by means of cross-pins 19, passed through holes formed in the underlying ends of said hangers. In this construction the hangers 11^a are designed to constitute permanent parts of the structure, and are especially applicable where the structure is to be equipped on its under side with a metal ceiling-frame. In such a case after the concrete or other filling has become hardened and set the centering is removed by knocking out the pins 19, taking down the channels 12, and removing the arch-plates 14. The hangers 11^a being left in place channel-iron or other forms of metal bars (shown at 20) in Figs. 5 and 6 are then inserted through the apertures in the lower ends of the hangers longitudinally

of the arch and transversely of the I-beams, being supported by said hangers and having secured thereto the sheet-metal lathing, (indicated at 21,) to which latter may be applied a finish of plaster or cement, (indicated at 22.) This last construction is particularly applicable in office-buildings, hotels, stores, &c., where a more finished structure is desirable, while the construction shown in Figs. 1, 2, and 3 will serve well for warehouses, factories, and similar buildings designed principally for storage of freight, merchandise, or machinery.

It will be observed that the centering structures disclosed offer but a negligible obstruction to the masonry filling, and permit the lower faces as well as the vertical sides of the girders to be completely incased.

The parts of the centering are all preferably of metal and capable of indefinite reuse, and owing to their simplicity and fewness in number can be set up and taken down with facility and rapidity.

I claim —

1. In a centering-support, the combination with hangers adapted to be hung over the floor-beams, of channels underlying the latter parallel therewith and suspended by said hangers, horizontal supports secured to the side walls of said channels, and centering-plates stepped at their ends on said horizontal supports, substantially as described.

2. In a centering-support, the combination with inverted-U-shaped hangers adapted to be hung over the floor-beams, of channels underlying the latter parallel therewith and suspended on the lower ends of said hangers, angle-irons secured to the side walls of said channels, and centering-plates stepped at their ends on said angle-irons, substantially as described.

3. In a centering-support, the combination with supporting members suspended from the floor-beams, of a series of centering-plates rested at their ends on adjacent supporting means, said centering-plates being provided on one edge thereof with guides adapted to receive the adjacent edge of the adjacent centering-plate, whereby to facilitate the alinement of the series of centering-plates, substantially as described.

4. In a centering-support, the combination with inverted-U-shaped hangers adapted to be hung over the floor-beams, of channels underlying the latter parallel therewith and suspended on the lower ends of said hangers, angle-irons secured to the side walls of said channels, and metal arch-plates stepped at their ends on said angle-irons, substantially as described.

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Witnesses:

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