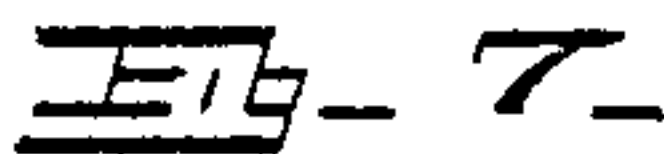
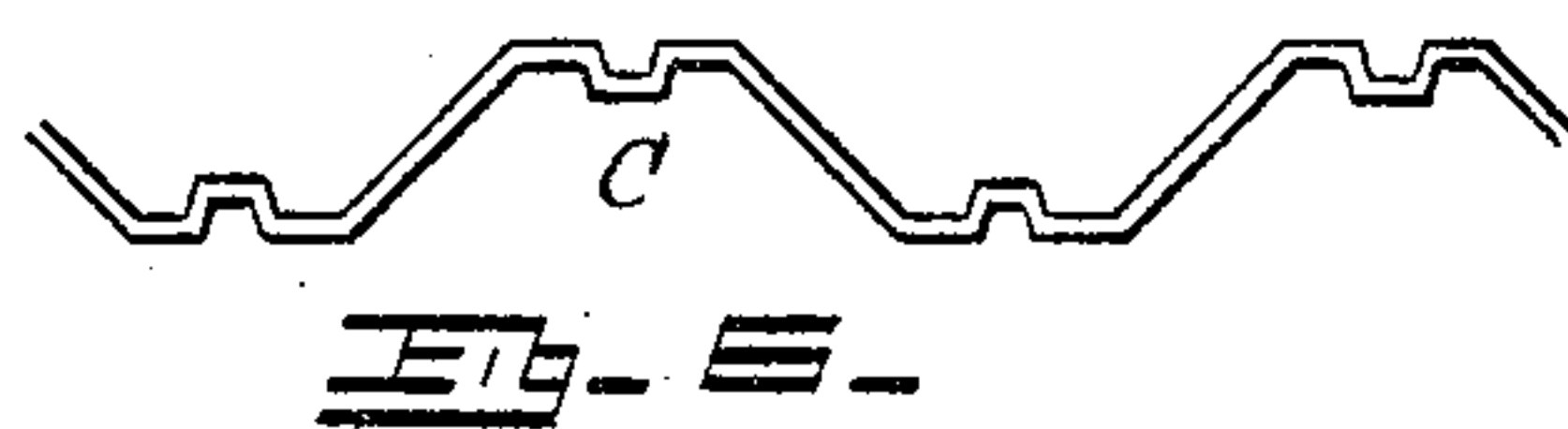
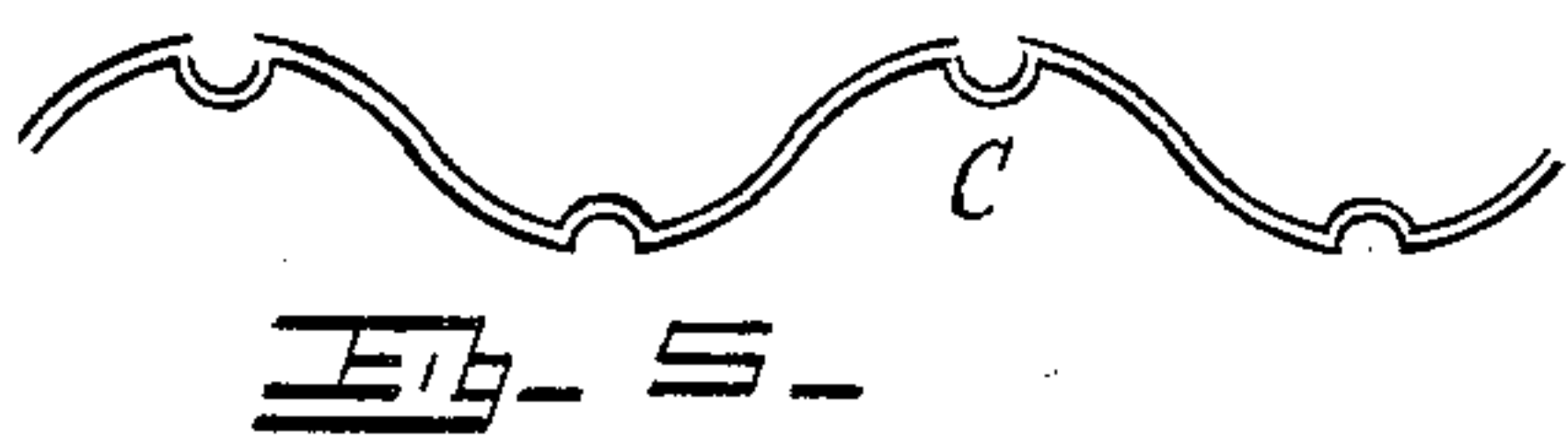
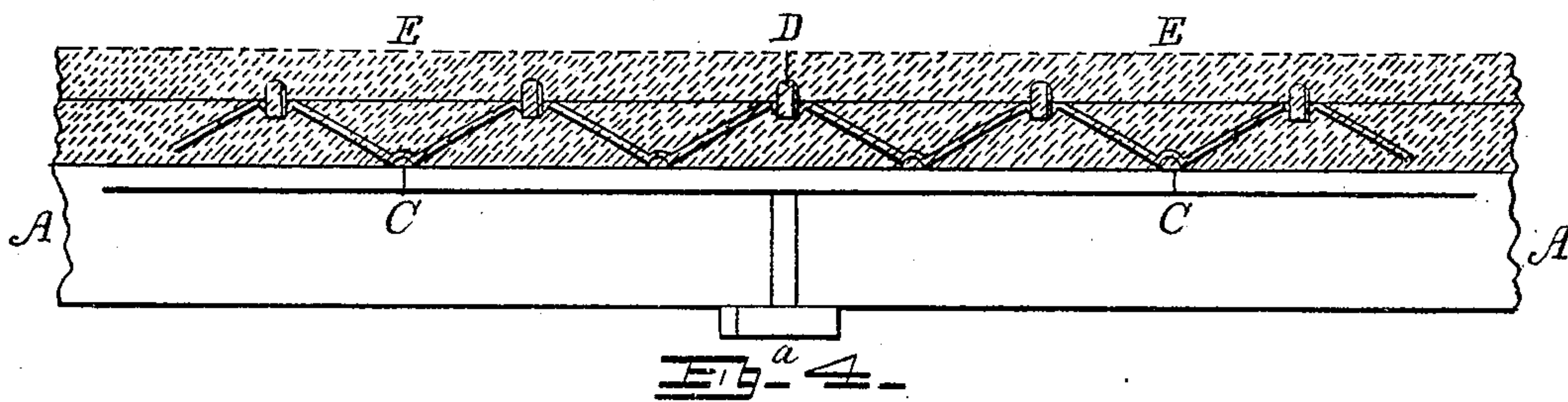
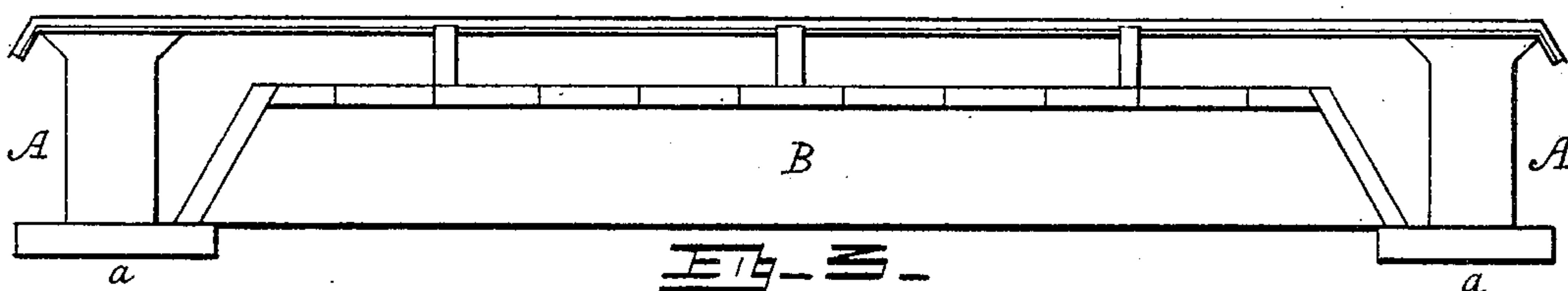
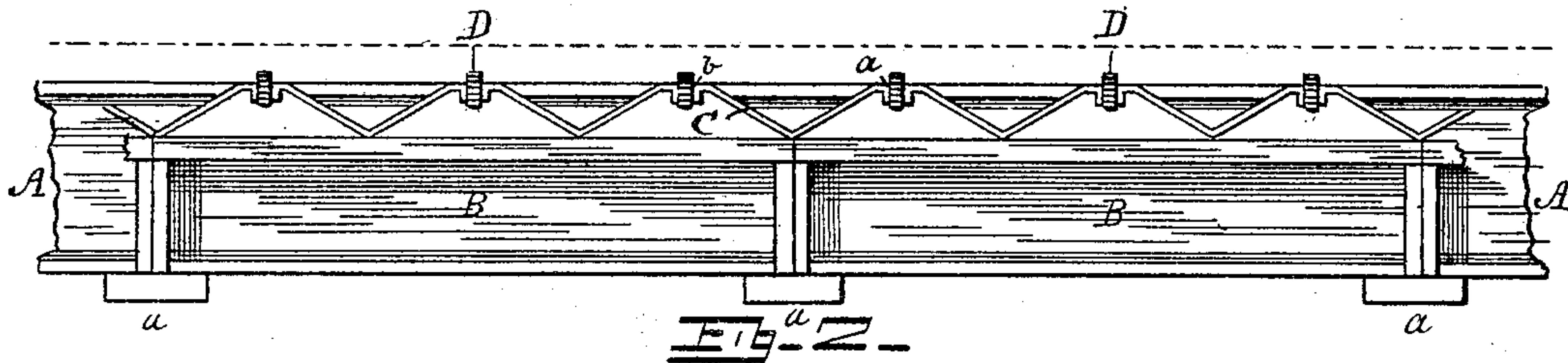
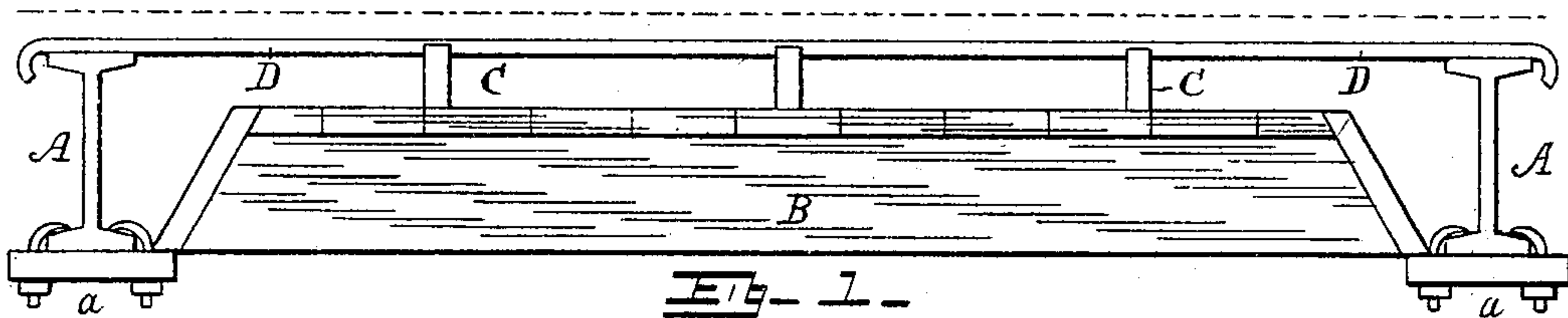


C. A. P. TURNER.
STEEL AND CONCRETE CONSTRUCTION.
APPLICATION FILED DEC. 7, 1904.

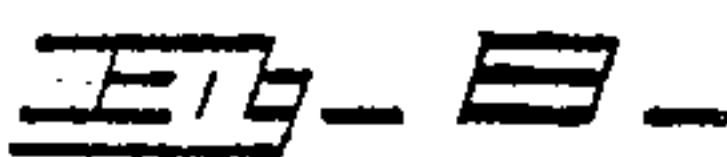


WITNESSES

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E. Peterson.

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UNITED STATES PATENT OFFICE.

CLAUDE A. P. TURNER, OF MINNEAPOLIS, MINNESOTA.

STEEL AND CONCRETE CONSTRUCTION.

No. 795,463.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed December 7, 1904. Serial No. 235,879.

To all whom it may concern:

Be it known that I, CLAUDE A. P. TURNER, of Minneapolis, county of Hennepin, and State of Minnesota, have invented certain new and useful Improvements in a Combined Concrete and Steel Construction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form an important part of this specification.

My invention relates generally to fireproof construction, particularly to concrete and steel construction, and more particularly to the construction of fireproof floors consisting of concrete mass reinforced by steel tie-rods, my purpose being to provide a spacing and supporting strip for the rod-reinforcement of the floor-slab to the end that the reinforced cement concrete may be poured in and leveled off without special attention of workmen to keep the said rods in proper position and the proper distance above the bottom of slab to insure protection from the fireproof standpoint.

In the drawings, Figure 1 is an end elevation of a floor constructed in accordance with my invention before the concrete filling has been applied, said floor being supported by steel I-beams; Fig. 2, a side elevation of the same; Fig. 3, an end elevation of a portion of a floor constructed in accordance with my invention before filling with concrete, but supported by concrete beams; Fig. 4, a side elevation of the same; Fig. 5, a side elevation of a portion of a spacing and supporting strip. Fig. 6 is a similar view of a modified form of the same; Fig. 7, a top or plan view of the same; and Fig. 8, a longitudinal section of the same, taken on the line 8 8.

Similar letters refer to similar parts throughout the several views.

A is the floor-beams; B, the "forms" or false work; C, the spacing and supporting strips; T, the steel tie-rods, and E the concrete filling.

I construct my floor as follows: The floor-beams A being erected, I bolt or otherwise secure footing-blocks *a* to the lower edges thereof, as shown in Figs. 1, 2, and 3. Upon these I erect my forms of false work B, upon which forms, in turn, I place my spacing and supporting strips C, arranging them parallel with the floor-beams A and preferably equal distances apart and equal distances from the

floor-beams A, as shown in Figs. 1 and 3. Upon the spacing and supporting strips C, I now lay the tie-rods D, arranging them transversely to the floor-beams A and the spacing-strips C, as shown in Figs. 1, 2, 3, and 4, their end portions resting upon or overlapping the floor-beams A and their intermediate portions resting in the respective notches *b* of the said spacing and supporting strips C. This completes the skeleton of my floor, which skeleton I now embed by filling the spaces lying between the floor-beams A and above the forms B with cement in the usual manner, thus covering the spacing-strips C and the tie-rods D, as shown in Fig. 4. After the concrete mass has set or solidified I remove the forms or false work B, which operation completes my floor construction.

My spacing and supporting strips C may be of a great variety of forms, four different configurations being shown herein. I prefer to make them of sheet-metal strips, as "hoop-iron," and so configured that either side thereof may be placed uppermost, as shown in Figs. 4, 5, and 6, but may fashion them as shown in Figs. 7 and 8—that is, I may cut through the metal, as shown by the solid lines *c*, and bend the portions *d*, partially separated therefrom, into upwardly-turned ears *e*, bending them upon the dotted lines *f*, thus forming niches *g*, adapted to receive the tie-rods D, after which I corrugate it transversely, as shown in Fig. 8, thus adapting it to the purposes specified.

It will be observed by reference to Figs. 1 and 3 that I have shown the ends of the tie-rods D bent downward at their ends; but I do not wish to confine myself to this configuration, as such may not at all times be convenient or necessary, nor do I wish to confine myself to any one or to all of the configurations of the spacing and supporting strips herein shown, for it is apparent that other forms than those designed may be used without departing from the spirit and intent of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In concrete steel floor construction, the combination with the floor-beams, of spacing and supporting strips arranged parallel with said floor-beams and with their upper edges in a plane with the upper edges of said floor-beams, tie-rods resting upon and supported

by said spacing-strips and said floor-beams and concrete filling in which the said spacing and supporting strips and said tie-rods are embedded.

2. In combined concrete and metal construction, the combination with the floor-beams, the tie-rods extending between said floor-beams, of spacing and supporting strips of

zigzag form and concrete filling surrounding said spacing and supporting strips and said tie-rods.

CLAUDE A. P. TURNER.

Witnesses:

JOHN WUNDER,
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