

No. 606,988.

Patented July 5, 1898.

A. DE MAN.
FIREPROOF CONSTRUCTION.

(Application filed Feb. 2, 1898.)

(No Model.)

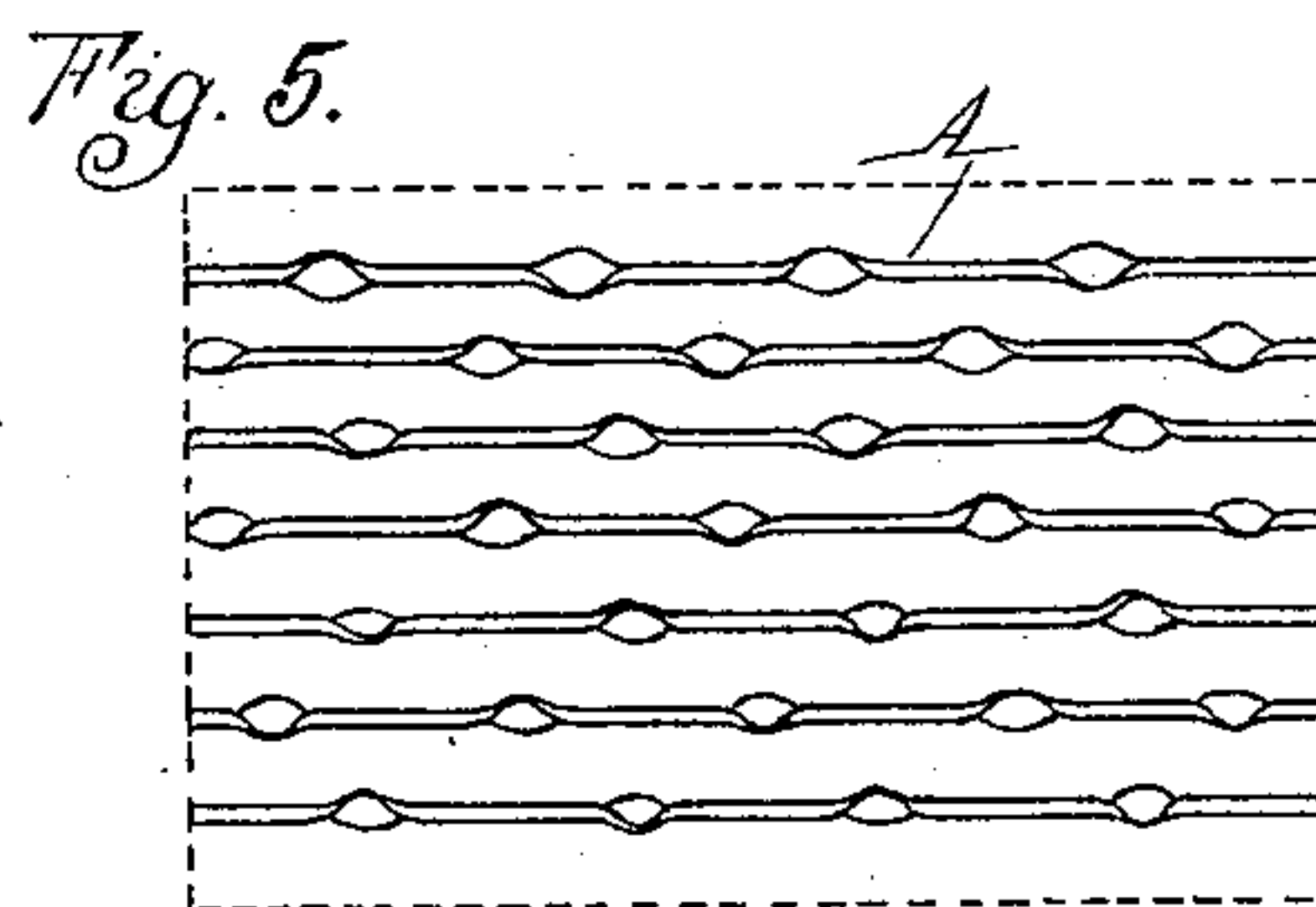
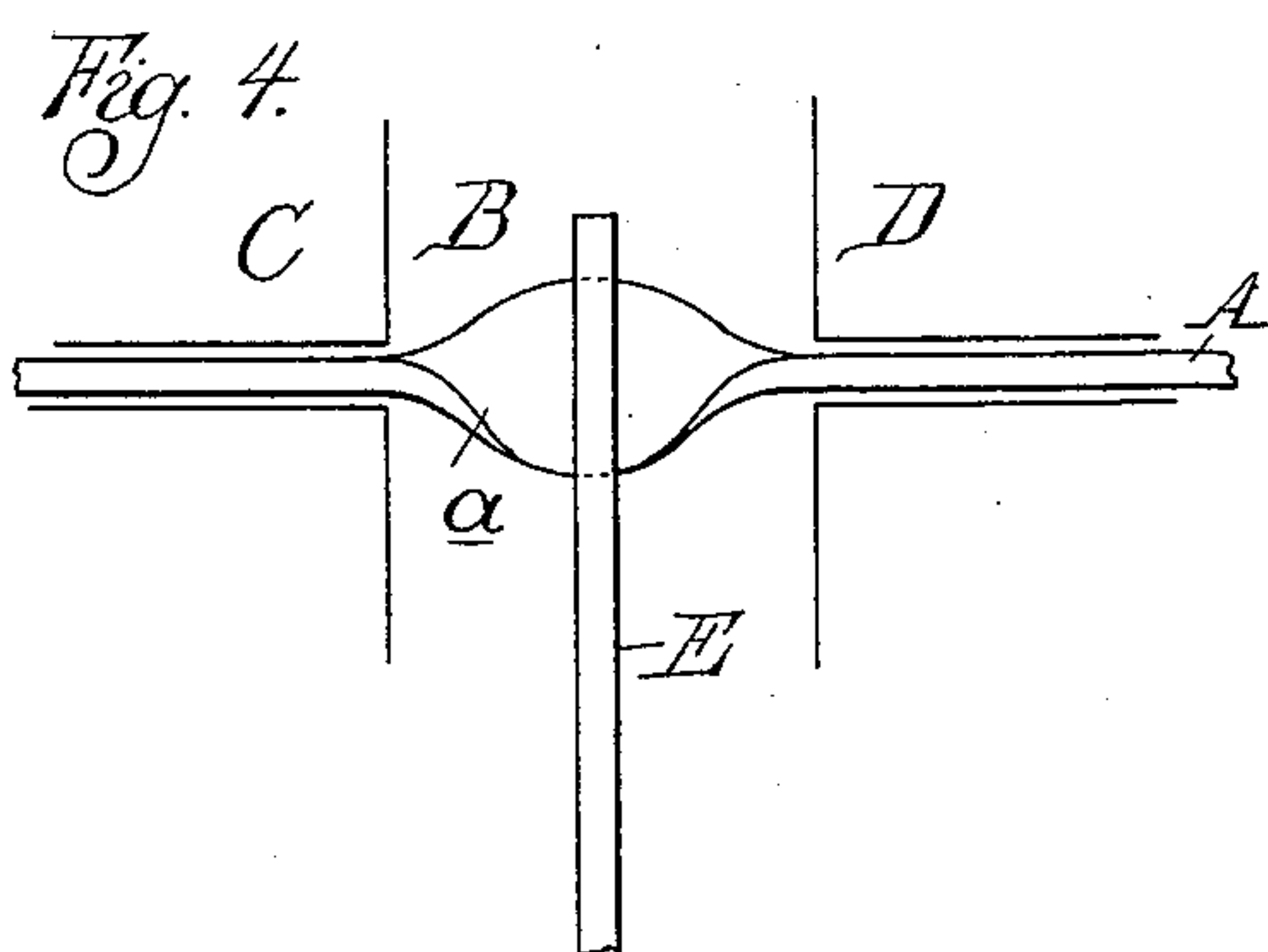
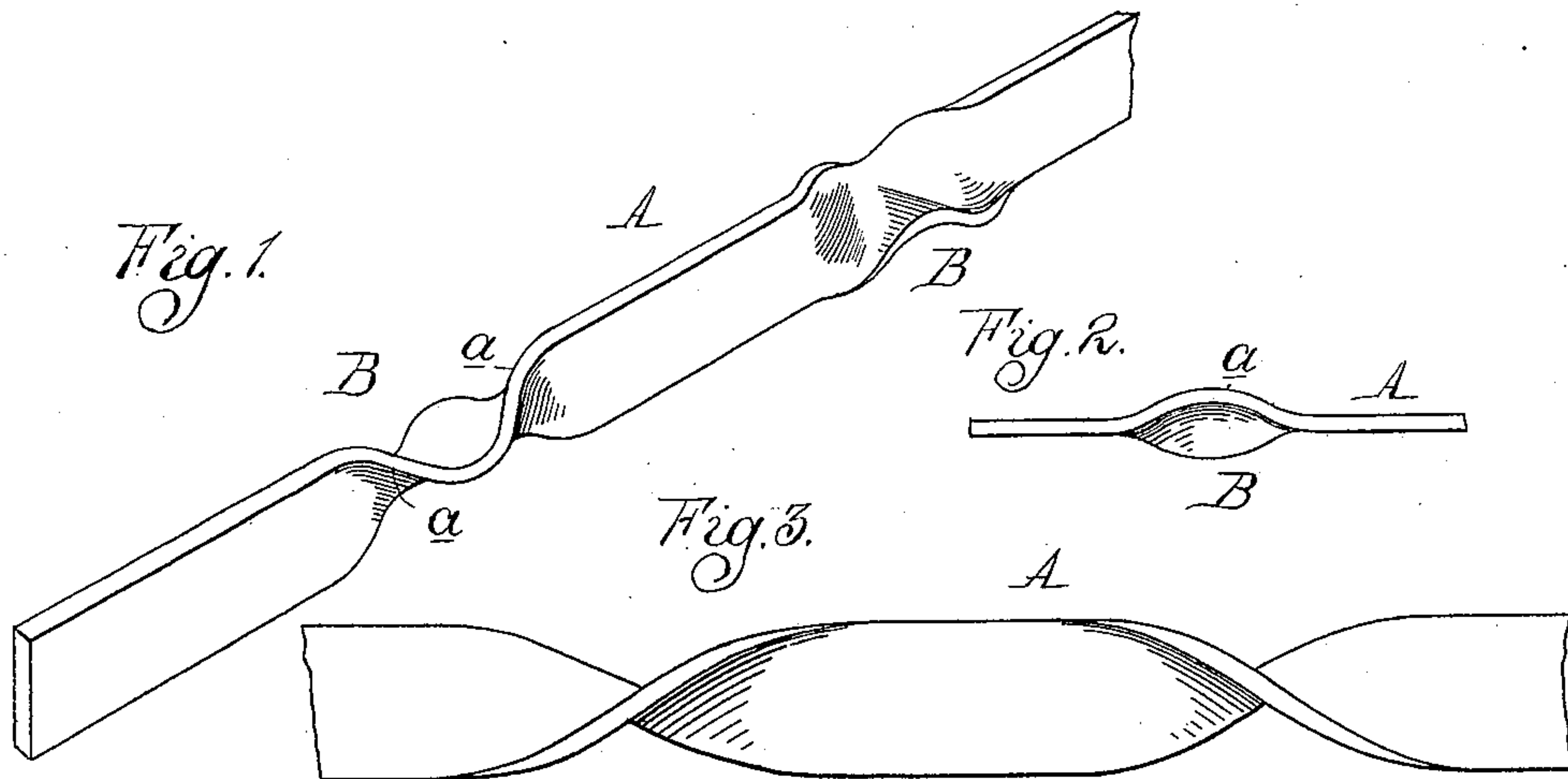


Fig. 6.

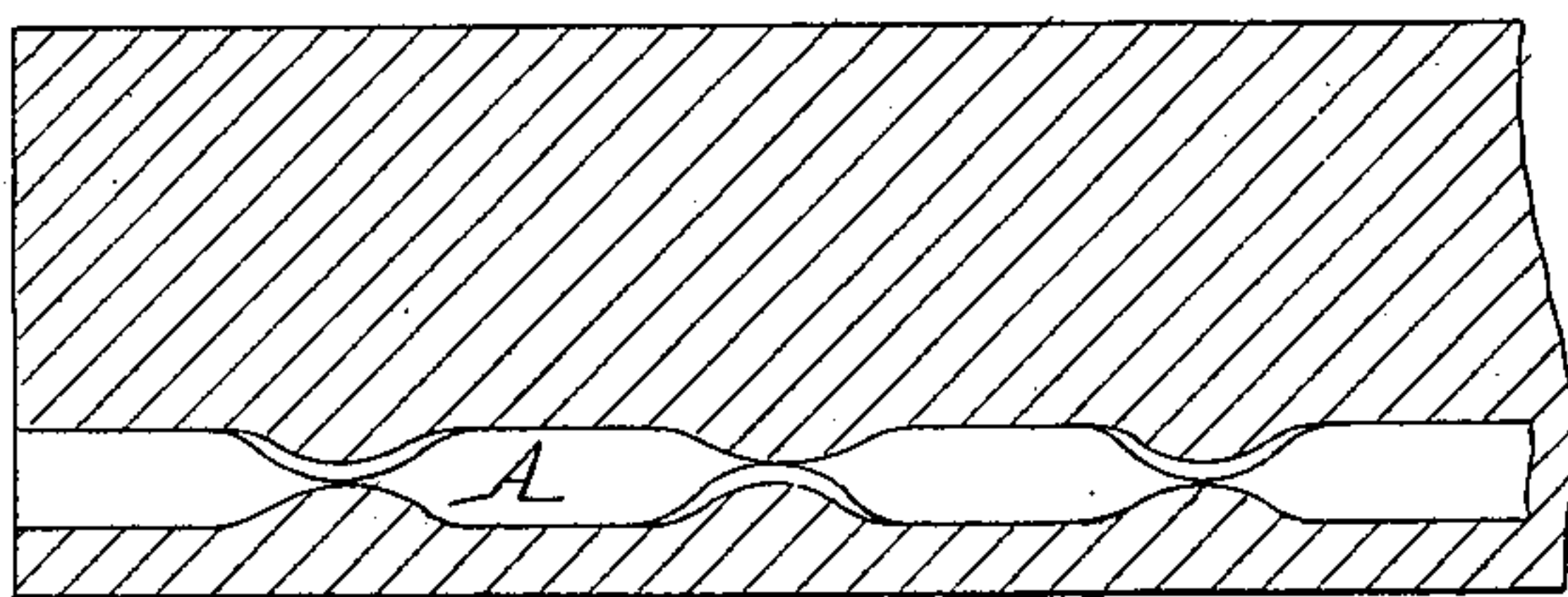
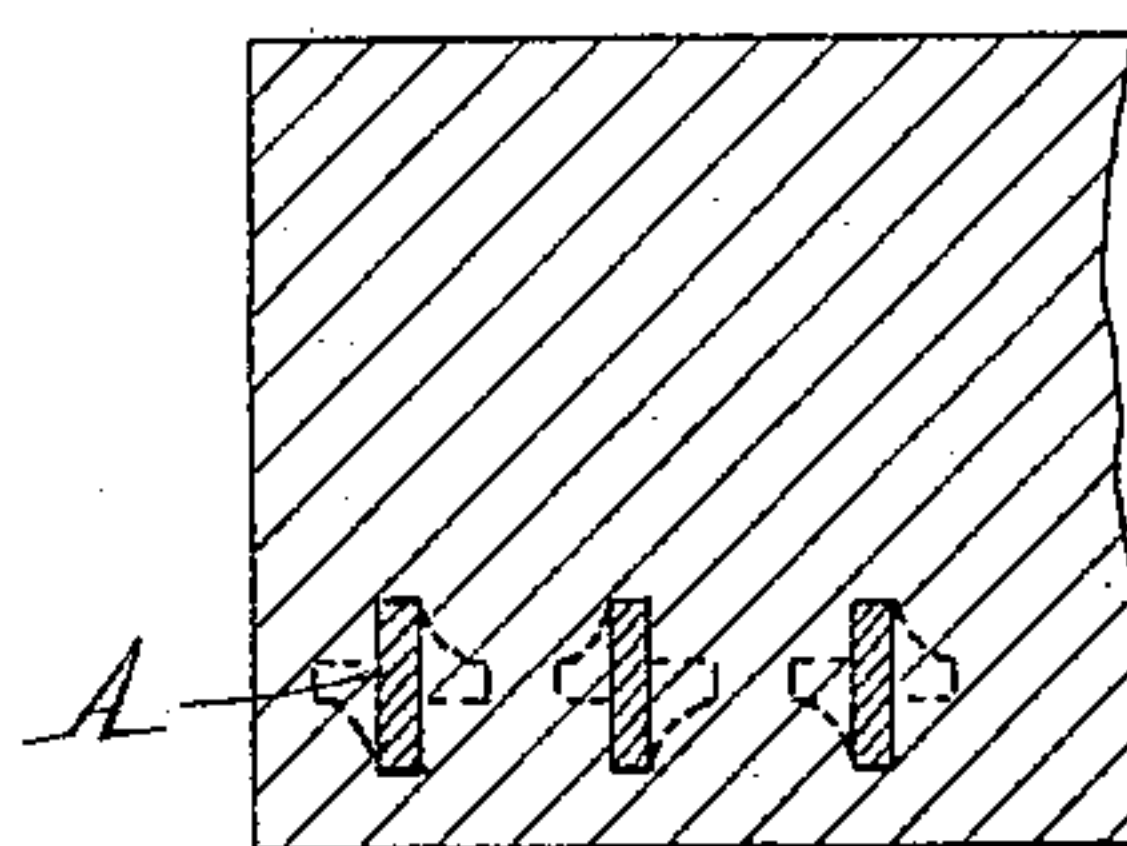


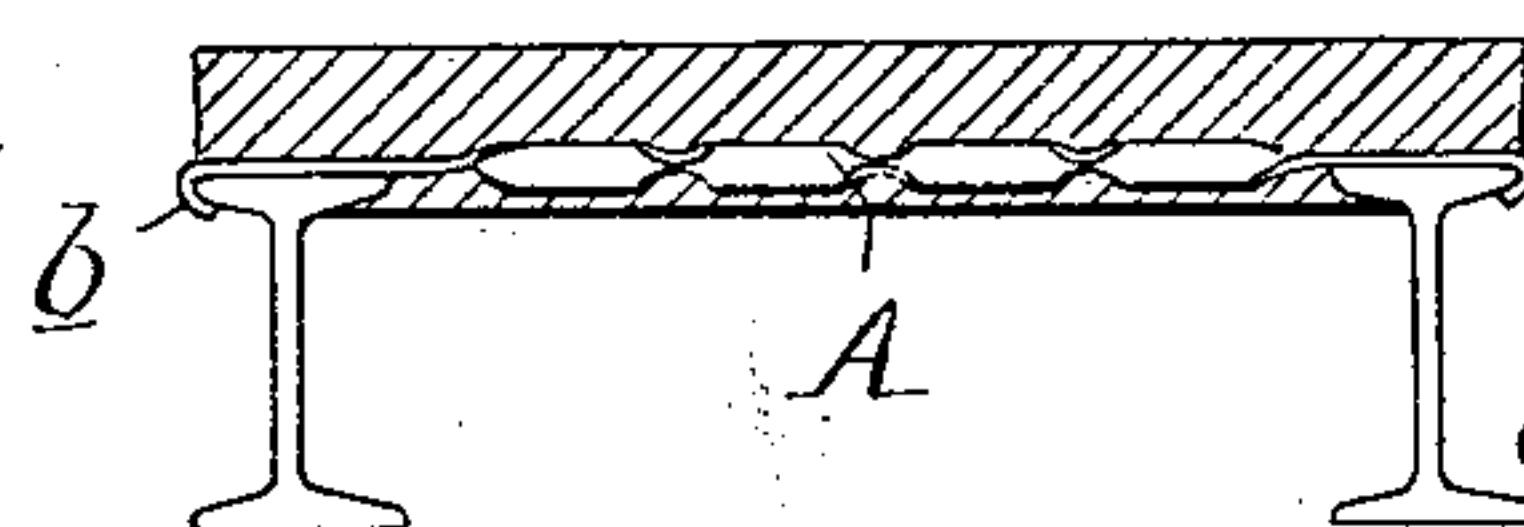
Fig. 7.



Witnesses

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Fig. 8.



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UNITED STATES PATENT OFFICE.

ALPHONSE DE MAN, OF DETROIT, MICHIGAN.

FIREPROOF CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 606,988, dated July 5, 1898.

Application filed February 2, 1898. Serial No. 668,795. (No model.)

To all whom it may concern:

Be it known that I, ALPHONSE DE MAN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Fireproof Construction, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to the construction of composite slabs or spans especially designed for fireproof-floor construction, and comprising a body of artificial stone having metallic strengthening members embedded therein.

The invention consists, first, in the peculiar construction of metallic members employed for strengthening the slab, and, further, in the peculiar construction of a composite slab or floor span in which these metallic members are employed.

In the drawings, Figure 1 is a perspective view of the metallic strengthening member. Figs. 2 and 3 are views of modifications thereof. Fig. 4 is a plan showing the manner of forming the twists in said strengthening member. Fig. 5 is a plan view of a number of said strengthening members as arranged in position to receive the artificial-stone body. Fig. 6 is a longitudinal section through a portion of a composite slab complete. Fig. 7 is a cross-section thereof. Fig. 8 is a sectional view of a floor construction formed in accordance with my invention.

The metallic strengthening members which I employ are formed of flat and comparatively thin metallic bars A, preferably iron or steel. These bars are provided at intervals with laterally-deflected or partially-twisted sections B, preferably formed, as shown in Fig. 4, by placing the bar in grooved or slotted heads C and D, separated from each other a distance equal to the length of twist to be formed in the strengthening-bar, and then engaging a fork or wrench E, with the center of the section of said bar between said grooved heads, and giving a partial turn thereto. This will form curved shoulders *a*, which when the bar is embedded in the artificial-stone body will form a firm hold or anchor and prevent the slipping of the bar.

I preferably twist the sections B to stand at the center at an angle of about ninety de-

grees to the main section of the bar, as shown in Fig. 1; but this is not necessary, as I may give a greater or lesser twist, as in the modifications shown in Figs. 2 and 3.

To form the composite slab or span, the strengthening-bars, formed as above described, are arranged in parallel relation to each other in a suitable mold or form with the main portion of the bars standing on edge—that is, with the flat side of adjacent bars parallel, as shown in Fig. 5. The artificial stone in a plastic state is then run in so as to fill the mold and completely surround the bars, thus forming a composite slab, as shown in Figs. 6 and 7, the bars A furnishing the required tensile strength to the slab and being preferably located in the body in a position where the greatest tensile strain will be exerted, such as near the bottom surface of the slab.

The advantage of using thin flat bars twisted at intervals only for forming the tension members is that they may be arranged on edge, as above described, and with a given distance between centers of adjoining bars a greater space is left for the artificial-stone body than with bars of the same strength, but of different cross-section. This facilitates the tamping in of the plastic body between the bars and beneath the twisted portions and insures perfect contact therewith, thus forming a perfect lock between the metallic member and the body and also, on account of the greater mass of the body between the bars, preventing the same from cracking when subjected to strains.

Moreover, the bars themselves are much more rigid to withstand vertical strains when of the shape described than if they were of a round or square cross-section and are also embedded a greater distance in the body, and are thus better protected from the heat in case of fire.

In Fig. 8 I show a floor construction formed by laying bars A across the space between two beams or girders and then filling in the body portion of artificial stone upon a suitable supporting-moldboard, so as to form when complete a monolith floor the spans of which are given sufficient tensile strength by the bars A.

To hold the bars A in place during the proc-

ess of filling in the plastic material, I preferably provide them with hooks *b* at each end adapted to drop over the flange of the beam.

What I claim as my invention is—

- 5 A composite slab or span comprising a body of artificial stone and a plurality of metallic tension members embedded therein, each consisting of a flat thin bar having twists formed

therein at intervals, said bars being arranged on edge side by side for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

ALPHONSE DE MAN.

Witnesses:

M. B. O'DOHERTY,
OTTO F. BARTHEL.