

No. 702,093.

Patented June 10, 1902.

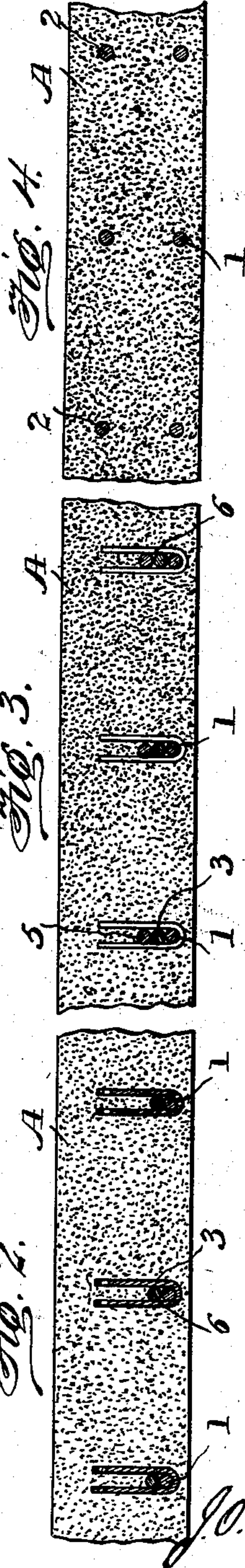
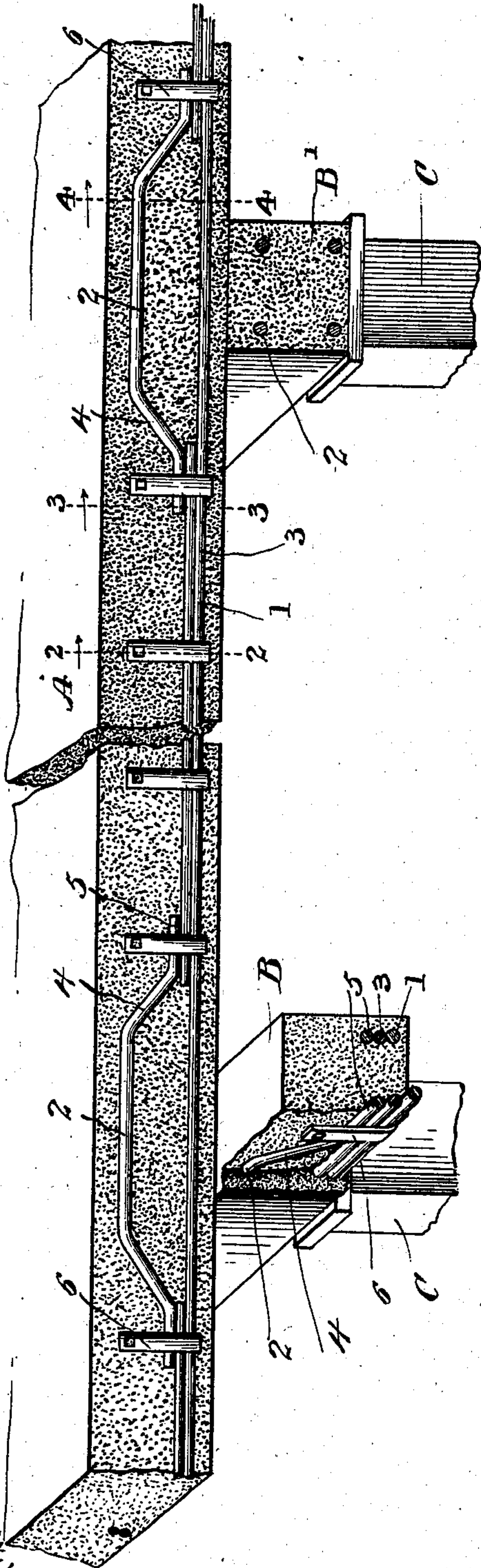
J. O. ELLINGER.

FIREPROOF BUILDING STRUCTURE.

(Application filed Sept. 30, 1901.)

(No Model.)

Fig. 1.



Witnesses
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FIREPROOF BUILDING STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 702,093, dated June 10, 1902.

Application filed September 30, 1901. Serial No. 77,063. (No model.)

To all whom it may concern:

Be it known that I, JULIAN O. ELLINGER, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Fireproof Building Structures, of which the following is a specification.

This invention comprises certain improvements in composite fireproof structures, consisting of cemented composition molded about a framework of metal rods; and it relates particularly to the arrangement of the rods within the structure whereby strength and lightness are attained.

In the accompanying drawings, which illustrate the invention, Figure 1 is a sectional perspective view through a portion of a floor and its supporting-beams. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is a section on the line 3 3 of Fig. 1, and Fig. 4 is a section on the line 4 4 of Fig. 1.

Referring to the drawings, A indicates a section of flooring, and B B' represent two of the supporting-beams, which, as shown, are carried upon suitable columns C. The floor A is composed of a body of cemented fireproof material having embedded therein at suitable distances apart a series of parallel tension-rods 1, extending throughout the length of the floor-section in the lower part thereof, a corresponding series of suspension-rods 2, arranged longitudinally in the upper part of the composition above each support and having their ends inclined downwardly on each side of the support, brace-rods 3, extending parallel with the tension-rods between the end portions of the suspension-rods, and stirrups binding the rods within the concrete. The tension-rods 1 take up any longitudinal stress which the structure may be subject to and also give support to the mass. The suspension-rods 2, as shown, extend through the upper portion of the mass above the beams, their end portions being inclined downwardly on either side of the beam, as shown at 4, and thence extending for a short distance parallel with the tension-rods, as shown at 5. The brace-rods 3 are arranged parallel with the rods 1 and between said rods and the ends of the rods 2. Stirrups 6, consisting of U-shaped metal strips, extend around the rods at suitable intervals, and their ends project up-

wardly into the mass of material. Preferably these stirrups are formed with openings 7, into which the concrete extends.

The rods 1 and 3 in the lower part of the structure give all the vertical support that is necessary in the body of the floor between the beams, and the longitudinal stress in the structure is taken up by the rods 1. At the beams, however, where the greatest breaking stress occurs, the rods 2, extending through the upper portion of the concrete over the supports and connecting at their extremities with the lower rods, tie the material together over the supports and transmit the stress to the upper portion of the mass above the supports, thereby counteracting the tendency of the mass to break at the beams. The beams, it will be noted, are constructed in a similar manner, as will be evident from the drawings without a detailed description, there being in each beam two or more sets of rods, according to the width of the beam, and the suspension-rods being arched over the pillars. In either the floor or the beams the brace-rods 3 may be omitted, if the required strength to support the load is given to the tension-rods 1; but I prefer to make the latter comparatively light in weight and use the short brace-rods to give the required vertical support between the beams, as the structure can thus be made more rigid with about the same weight of metal.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with one or more supports of a building structure thereon consisting of a body of cemented material and a framework of metal rods embedded therein, said framework comprising a series of parallel tension-rods extending longitudinally throughout the lower part of the structure and a separate series of short suspension-rods for each support, each series of suspension-rods extending through the upper part of the structure over a support and thence downwardly in the lower part of the structure and terminating on either side of the support.

2. The combination with one or more supports of a building structure thereon consisting of a body of cemented material and a framework of metal rods embedded therein,

said framework comprising a series of parallel tension - rods extending longitudinally throughout the lower part of the structure, a separate series of longitudinal brace-rods between each pair of supports in the lower part of the structure, and a separate series of short suspension-rods for each support, each series of suspension-rods extending through the upper part of the structure over a support and thence downwardly into the lower part of the structure on each side of the support and terminating adjacent to the ends of the brace-rods.

3. The combination with one or more supports of a building structure thereon consisting of a body of cemented material and a framework of metal rods embedded therein, said framework comprising a series of parallel tension - rods extending longitudinally

throughout the lower part of the structure, a separate series of longitudinal brace-rods extending between each pair of supports in the lower part of the structure, a separate series of short suspension-rods for each support, each series of suspension - rods extending through the upper part of the structure over a support and thence downwardly into the lower part of the structure on each side of the support and terminating near the ends of the brace-rods, and stirrups extending beneath said rods and upwardly into the mass of cemented material.

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

JULIAN O. ELLINGER.

Witnesses:

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