S. J. SPROL.

CONCRETE CONSTRUCTION.

APPLICATION FILED JUNE 19, 1914.

1,166,642.

Patented Jan. 4, 1916.

3 SHEETS—SHEET 1.

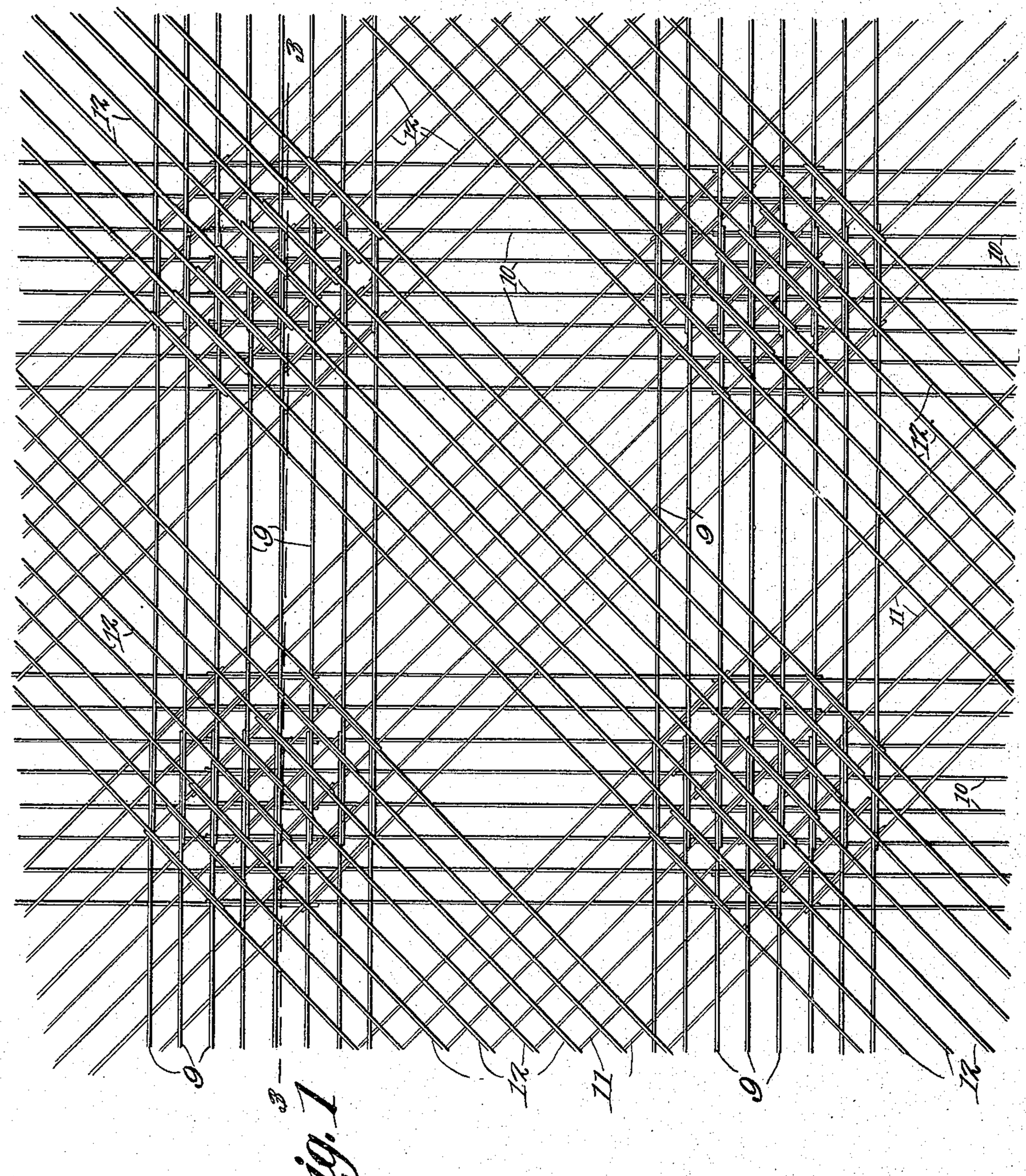

Fig. 1.

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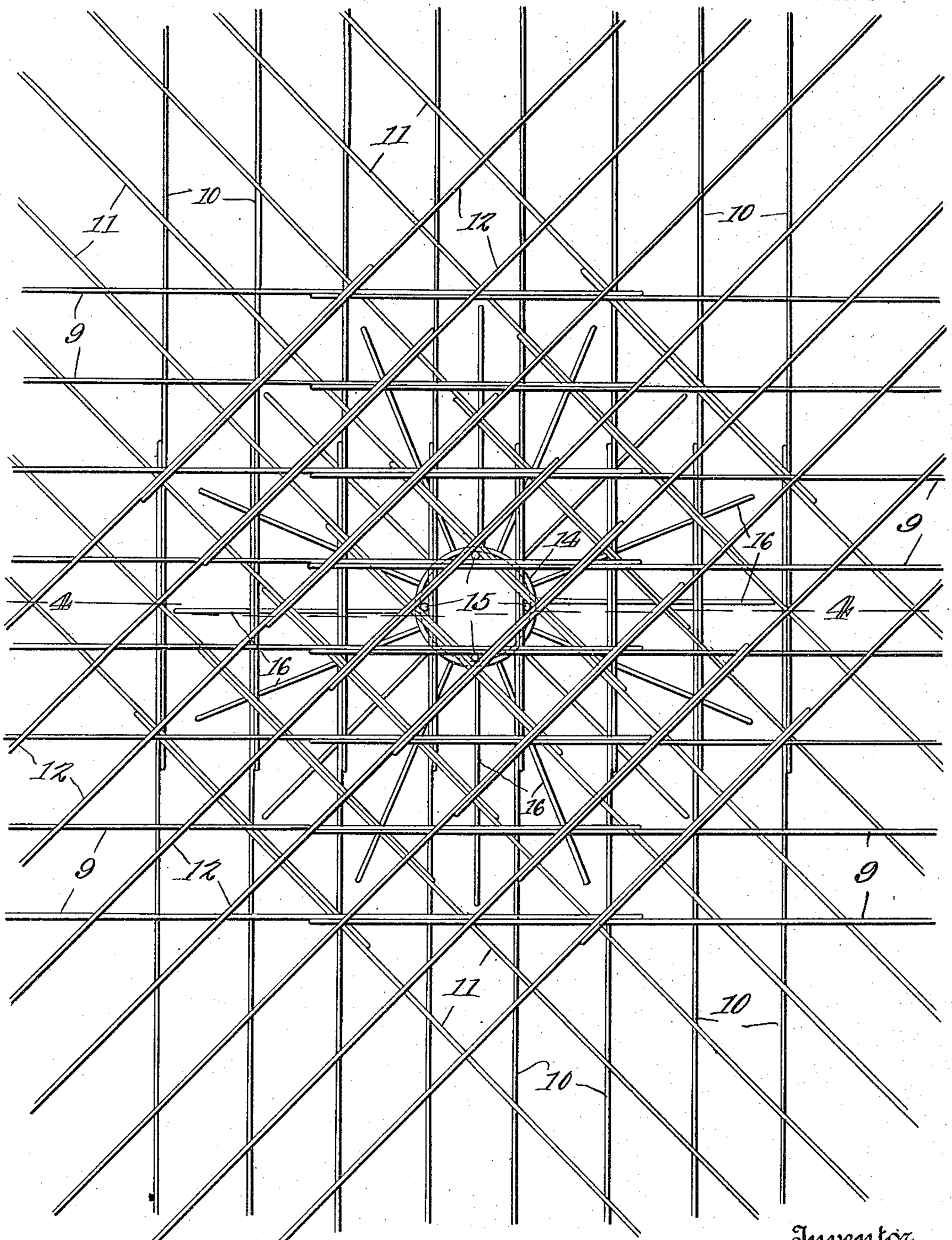

Fig. 2.

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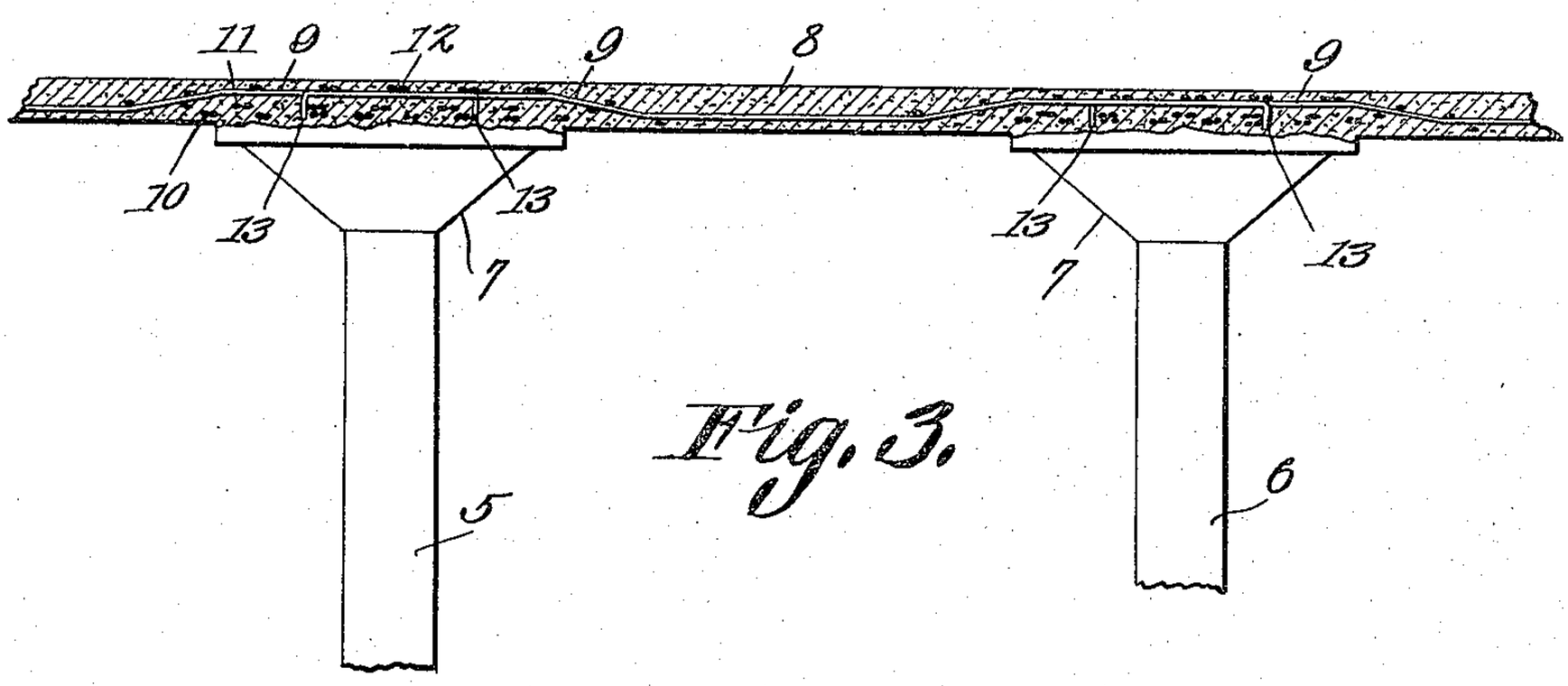

Fig. 3.

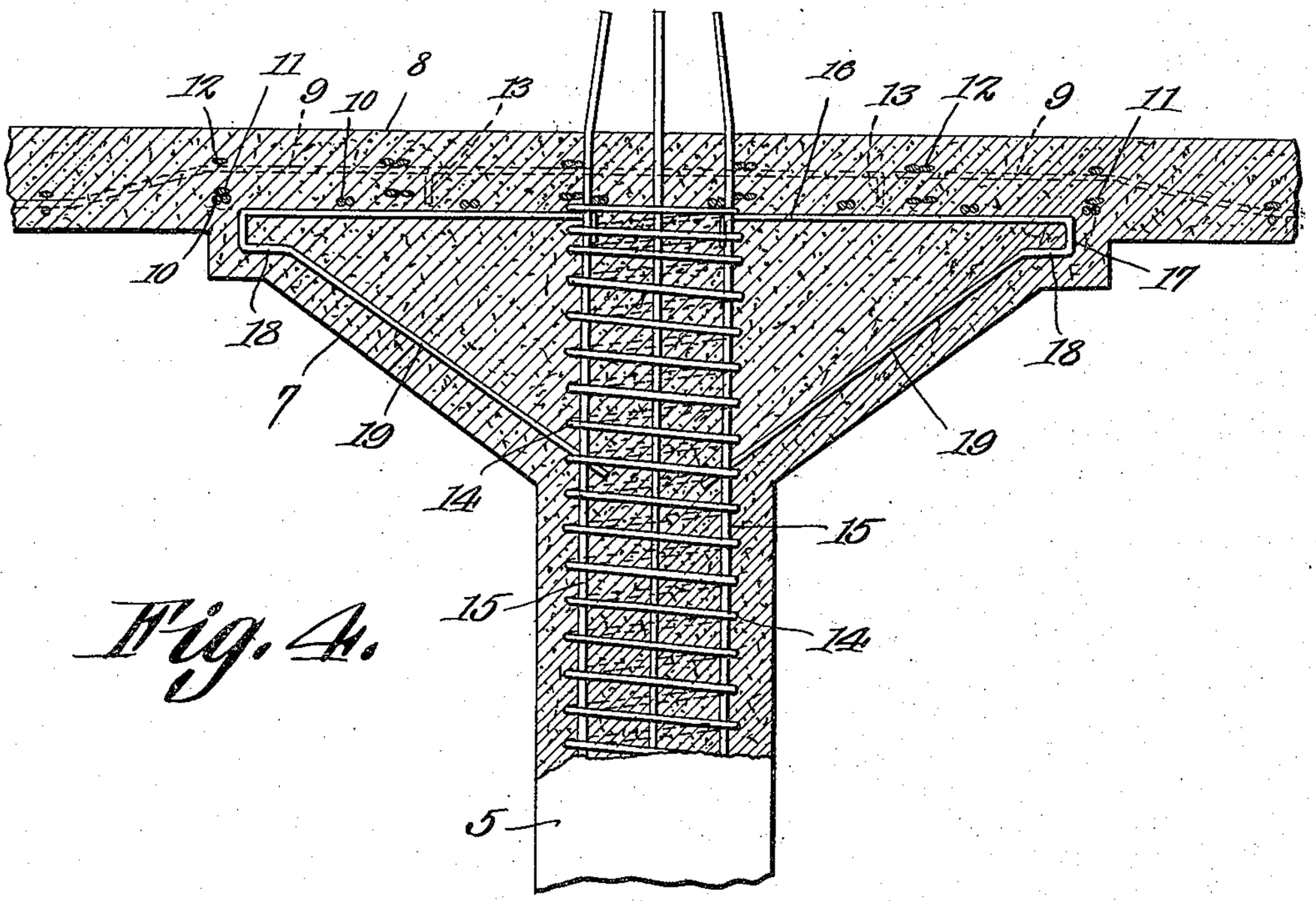

Fig. 4.

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UNITED STATES PATENT OFFICE.

SAMUEL J. SPROL, OF BALTIMORE, MARYLAND.

CONCRETE CONSTRUCTION.

1,166,642. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed June 19, 1914. Serial No. 846,008.

To all whom it may concern:

Be it known that I, SAMUEL J. SPROL, a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Concrete Constructions, of which the following is a specification.

This invention relates to reinforced concrete constructions and has for its object to produce what is known in the art as a flat slab system with a circular bracket head.

So far as I am aware there has not been proposed a system of reinforced concrete building construction which gives a flat seamless slab floor construction with the use of a circular bracket head. The present flat slab systems cannot be computed with the ordinary formulas and the result has been to make it very difficult to obtain the proper and correct stress.

To overcome this difficulty is the object of this invention and with this object in view the invention consists in the improved construction, arrangement and combination of parts which will be hereinafter fully described and afterward specifically claimed.

In order that the construction and operation thereof may be readily comprehended, I have illustrated an approved embodiment of my invention in the accompanying drawings and will now proceed to fully and specifically describe the invention, having reference to said drawings, in which—

Figure 1 represents a plan view of the horizontal reinforcing members in my improved flat slab floor construction, Fig. 2, a plan view of the reinforcing members of one pillar of a form which I use in my system, Fig. 3, a section view on the plane indicated by the broken line 3—3 in Fig. 1, and Fig. 4, a vertical view on the plane indicated by the broken line 4—4 of Fig. 2.

Like reference characters indicate the same parts wherever they appear in a plurality of the figures of the drawings.

My structure comprises a plurality of load-sustaining columns arranged in suitable series either parallel or crossing, of which I have only deemed it necessary to illustrate two, indicated at 5, 6, in Figs. 3 and 4. Each of these columns is provided, at its upper or load-receiving end, with a circular, flaring, or inverted conical head or bracket 7 upon the top of which, and formed integral therewith, are what I term the slabs 8. These slabs, always integral with the columns and brackets, may be arranged to extend at right angles to each other, the slabs extending at right angles from the columns and taking the place of metal or wooden beams in building construction and forming floors, covering all of the spaces between the columns.

The metallic reinforcing rods are formed as follows: There are a number of series of horizontal reinforcing rods 9, 10 as shown in the floor slabs in Figs. 3 and 4 and detached from the slabs or floors in Figs. 1 and 2, the rods 9 running parallel with the slabs and the rods 10, crossing the rods 9 at right angles. Above the rods 9 and 10 are diagonal series of rods 11, 12 shown in Figs. 1 and 2, detached from the concrete, and in Fig. 3, in the concrete, which rods 11, 12 are above the rods 9, 10 and cross them diagonally, the rods 12 being above the rods 11. The two series of rods 9, 10, and 11, 12, cross each other above the columns, as shown in Fig. 1, and in each series, the rods lap each other, as shown at various places in Figs. 1 and 2, and the ends of the rods 9 and 10, at their lapping points are turned downward, into the concrete, as at 13 in Fig. 3 which tends to hold them against endwise stress. Any of the horizontally arranged reinforcing rods may be trussed as shown in Figs. 3 and 4.

In each column is a spirally coiled reinforcing rod 14, the upper coil of which overlaps a pair of adjacent rods 9 and within this spiral rod 14 are a plurality of vertical rods 15 which may be turned back into the concrete in the top slab or floor construction, but which will extend through as many columns as may be placed upon each other, the ends of said rods being shown extended above the slab or floor structure in Fig. 4. Reinforcing brackets extending radially from the reinforcements of columns are provided to reinforce the heads of the columns. These brackets are made of rods and each are bent to form the horizontal portions 16 and 18 connected by the vertical portion 17, and the inclined portion 19. The inner ends of the portions 16 and 19 engage the vertical reinforcements of the column and the said ends of the portion 16 are bent downwardly to form hooks which prevent their displacement, as clearly shown in Fig. 4 of the drawings.

Having thus fully described my invention what I claim as new and desire to se-

cure by Letters Patent of the United States is:

A reinforced concrete construction, comprising a flat floor slab and integral supporting columns having heads at their upper ends, horizontal reinforcing rods in said floor slab, each of which extends from column to column and across the vertical axis of the columns and with their ends terminating and anchored within the peripheral contour of said heads, vertical reinforcing rods in said columns, a spiral reinforcement around said vertical rods, and a plurality of radially extending triangular brackets secured to said column reinforcements, the horizontal portions of said brackets having inner bent ends to engage said column reinforcement and said horizontal portions together with the column reinforcements forming continuous tension members in the slab above the column heads and below the terminals of said horizontal reinforcing rods, and the inclined portions of said brackets being projected below said floor slab and serving as reinforcements for said column heads.

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

SAMUEL J. SPROL.

Witnesses:

E. WALTON BREWINGTON,

HOWARD D. ADAMS.