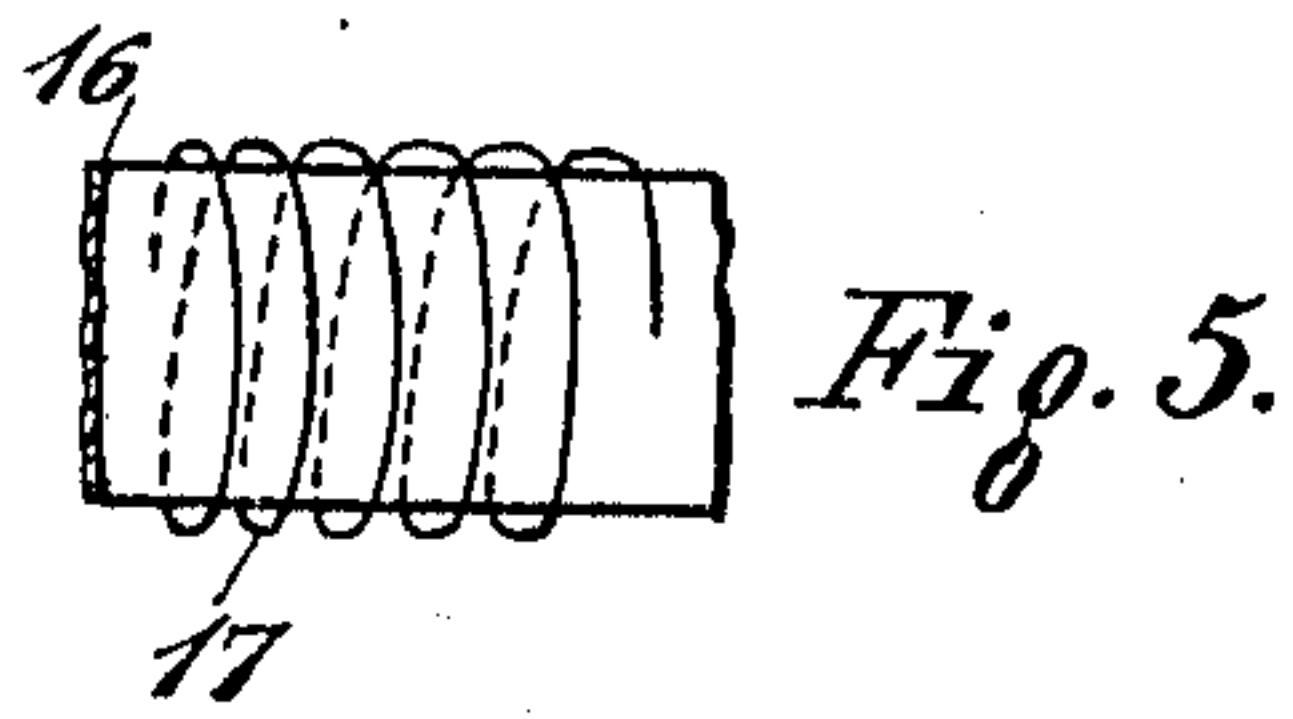
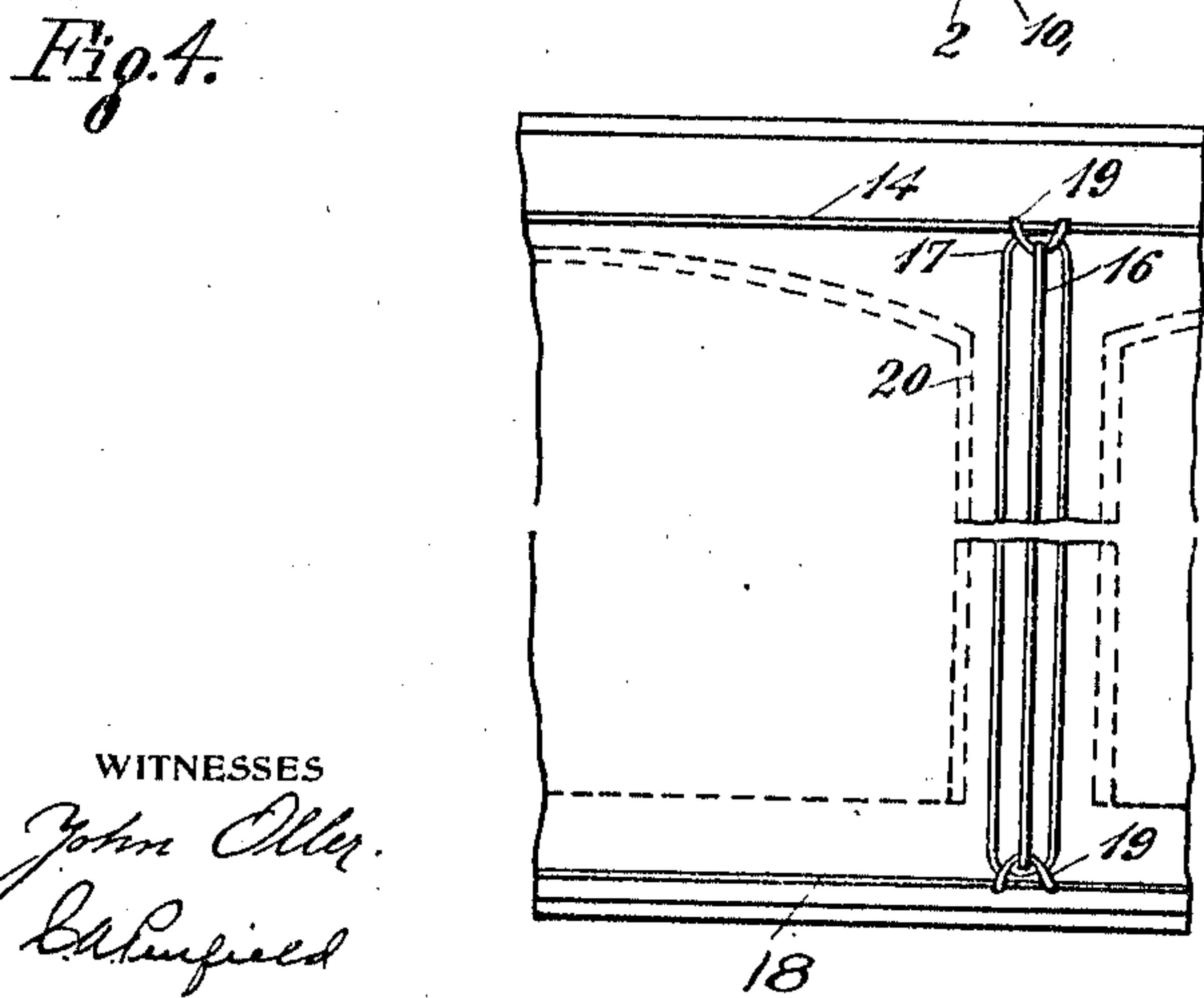
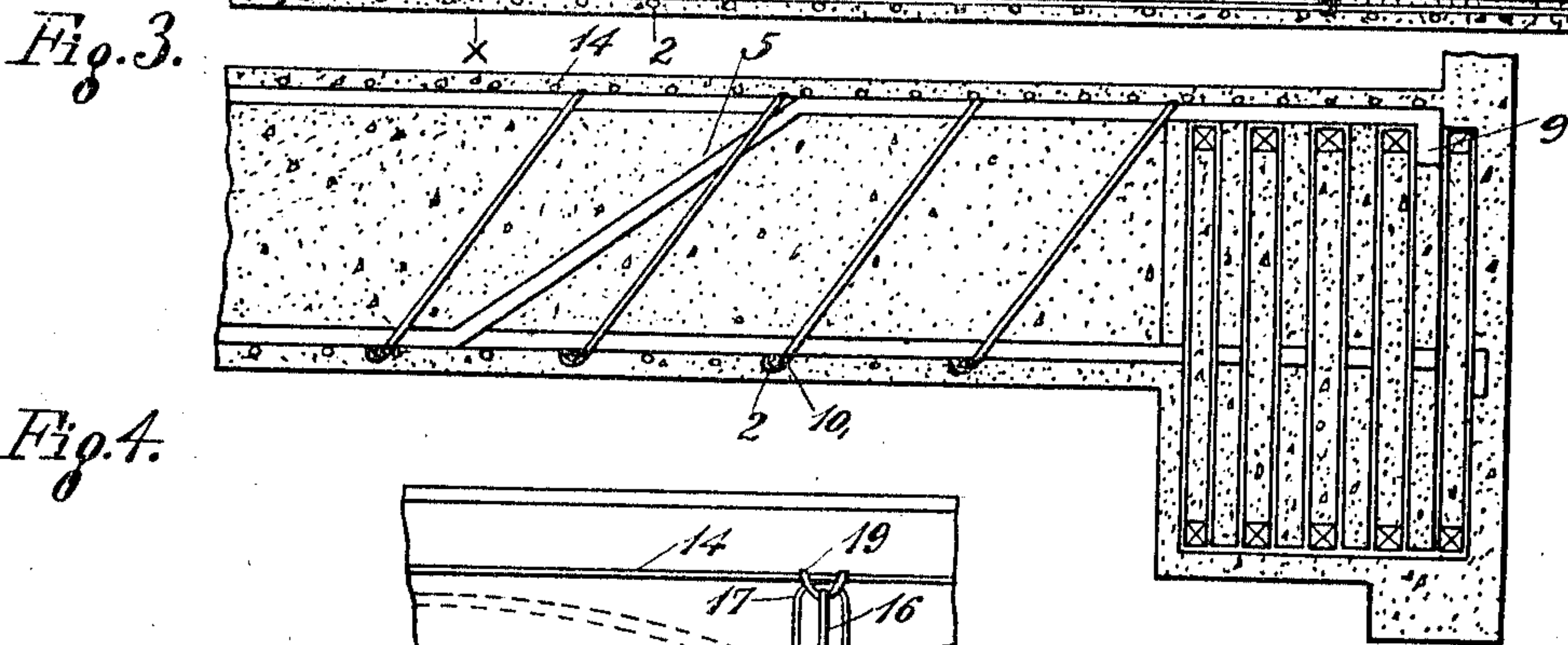
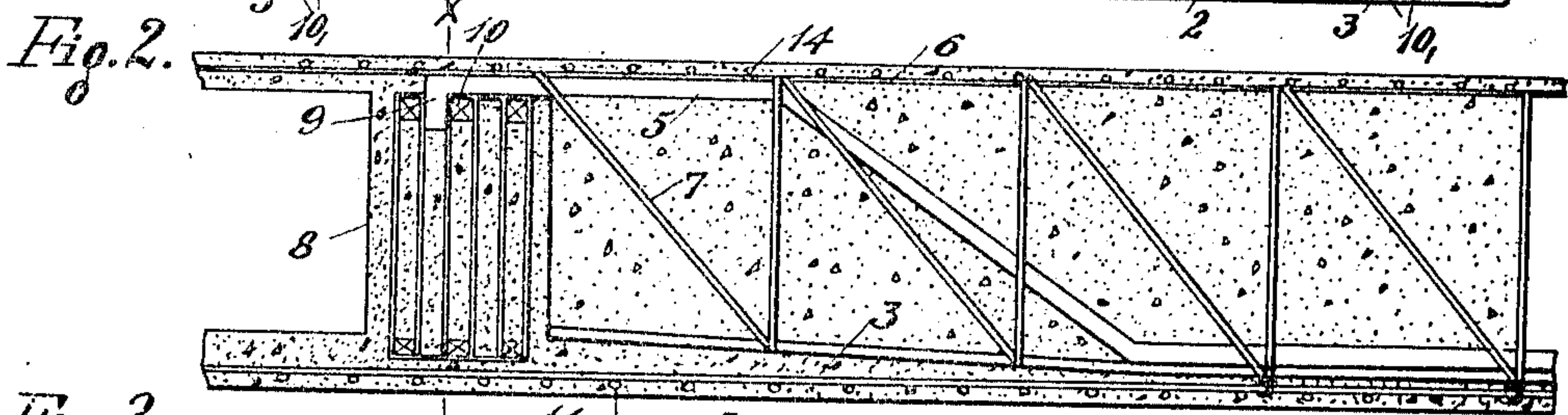
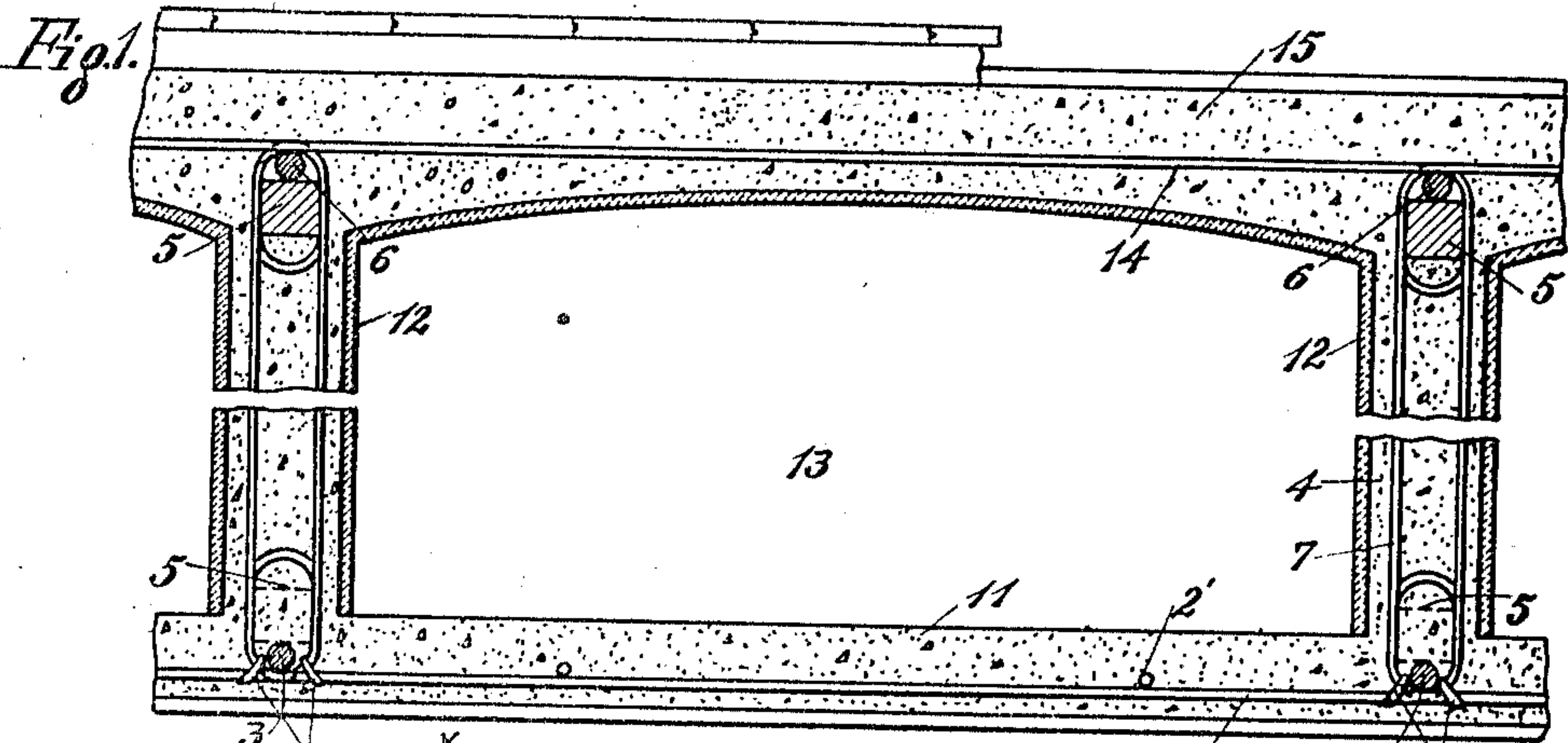


S. GILETTI.
 REINFORCED CONCRETE CONSTRUCTION.
 APPLICATION FILED SEPT. 1, 1908. RENEWED FEB. 23, 1911.

991,971.

Patented May 9, 1911.



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REINFORCED CONCRETE CONSTRUCTION.

991,971.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SECONDO GILETTI, citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Reinforced Concrete Construction, of which the following is a specification.

My invention relates to reinforced concrete building construction, and pertains especially to a form and method of constructing floors and ceilings.

The object of my invention is to construct a floor, ceilings and beams, and connecting girders, in one monolithic body, in such a manner that no beams or girders will appear below the ceiling; in other words, the ceiling being flush; in which suitable air spaces will be left between the floors and ceilings for ventilating purposes, water-pipes, etc., besides economizing in weight and cost of construction; and in which any load can be carried on increasing the height of beam, and still preserve the flush character of the ceiling, and the hollow spaces.

The invention consists of the parts, and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a vertical section of a floor perpendicular to the secondary beams, Fig. 2 is a vertical section of a floor perpendicular to the main beams, Fig. 3 is a vertical view, showing the intersection of a main beam and a secondary beam at the wall. Fig. 4 is a modification of the invention. Fig. 5 is a detail of plate 16.

In the practice of the invention I build a temporary wooden floor or staging at about the height of the ceiling. On this floor I lay what may be termed a coarse wire fabric or equivalent as 2. This fabric 2 usually consists of wires running lengthwise and crosswise to form a coarse mesh. If desired, the reinforcing rods 2' may be laid crosswise on the mesh 2 to give additional strength. At suitable intervals, corresponding to the distance apart of the beams which are necessary to support the ceiling and floor, I run a series of parallel steel bars 3, which latter become the lower tension members of the reinforced concrete girders 4. In addition to these lower tension bars 3, I employ the main tension bars 5 (shown in side elevation Fig. 1); a portion of these

tension bars 5, toward the center of the beam, being bent down and running parallel with the lower bars 3. An upper bar 6 is employed, spaced apart from bar 3 a distance equal to the depth of the beam; these bars running parallel, and the bar 5, of which there may be one or more for each beam, bent at one end into two parallel planes, spaced apart equal to the distance between a corresponding pair of upper and lower bars 6—3. A rod or heavy steel wire 7 is passed around the upper and lower bars 6—3 to embrace the main, preferably, twisted bar 5; the wire 7 being wrapped around these bars in such a manner as to resist shearing strain. At suitable intervals, there are girders as 8, running crosswise of the beams 4, and these girders may be of similar construction to the beams. Where a beam is anchored, or connected with a girder, or vice versa, the main tension bars 5 have their ends bent in hook fashion, as shown at 9 in Fig. 2, and engaged over the top with corresponding upper tension bars 10. These tension bars 10 are similarly wrapped and reinforced by a spirally wound rod or wire similar to the shear bars 7. When this skeleton metal reinforce has been set in position on top of the wire fabric 2, and the latter connected to the metal reinforce by suitable means, as the tie wires 101 then a filling of concrete is laid in and tamped down so as to cover the fabric 2 to a suitable depth; this filling being represented at 11. When this preliminary layer of concrete 11 has been put in place, I put in the hollow shell or tile of plaster or any other suitable material on top of this layer, and between the beams and girders. This shell may be made in sections, and one or more sections used, according to the size of the space between the girders and beams. The hollow tile or shell need not be over half an inch thick of plaster, is cheaply and easily constructed, and is preferably made in the form of a flat arch. These shells are designed to be left embedded in the completed structure. When these shells are put in position, the distance apart of the shells will determine the thickness of the concrete filling for the beams and girders, and the spaces so left between the shells will be filled with concrete; thus leaving the chambers or conduits 13. On top of the conduit shells is then laid a layer of wire fabric 14, similar to fabric 2, and the spaces around and over the shells are filled to the

level of the under line of the finished or unfinished floor level and to any desired depth by a body of concrete 15. On top of this concrete filling 15, the usual cement floor finish is laid.

In Figs. 4 and 5, I have shown a slight modification of the beam construction, in which I employ a steel plate 16, of length and thickness equal to the length and depth of the beam, wrap this plate loosely with spirally wound wires 17, connect the lower tension rods 18 to the plate and wire 17 by suitable ties 19, and then proceed to use hollow shells 20, and fill in the spaces around these shells in a manner similar to that just described. These steel plates are especially adapted for use in long spans and heavy loads; and the spirally wound wire gives a most excellent anchorage for the concrete or mortar. These plates 16 are comparatively thin and have little inherent rigidity in the direction of their thickness, but when they are plastered on each side with an inch or more of concrete, and the concrete allowed to set, an extremely strong, resistant floor support is provided. Since these plates may be as thin as the web of an I-beam, this saves in weight the amount of the cross ribs or flanges of the same, and is very much lighter and cheaper. The concrete skin and the general structure here employed prevent any tendency of these plates to buckle or bend.

The result of this method of construction is that I provide a system of reinforced concrete floor and ceiling construction which is economical to the builder, and which abolishes all projecting beams below the ceiling, where such a finish is desired; which, by means of the hollow conduits or spaces, provides for the installation of a

perfect ventilating system in every room; greatly reduces the weight of the superstructure; allows for the running of water-pipes and the like, through these spaces between the floor and ceiling; and by simply increasing the height or depth of the beams any desired load or weight can be sustained.

I have not here shown the columns or end supports for this structure, since they may be of any appropriate construction.

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

1. A reinforced concrete beam comprising in combination, a vertically arranged, thin, continuous, tension plate approximately of equal depth of the beam, upper and lower horizontal rods laid crosswise of the plates, a reinforcing member wound around said plate, ties connecting said upper and lower horizontal rods to the upper and lower edges respectively of the plate, and means including a concrete filler, for preventing transverse horizontal flexure of the plate.

2. A reinforced concrete structure comprising thin, continuous tension plates set on edge, upper and lower horizontal rods laid crosswise of the plates forming respective floor and ceiling elements, a reinforcing member wound around each of said plates, ties connecting said rods and plates, permanent hollow shells located between said fabrics and the plates, and a concrete filler enveloping the plates, rods and shells.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SECONDO GILETTI.

Witnesses:

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