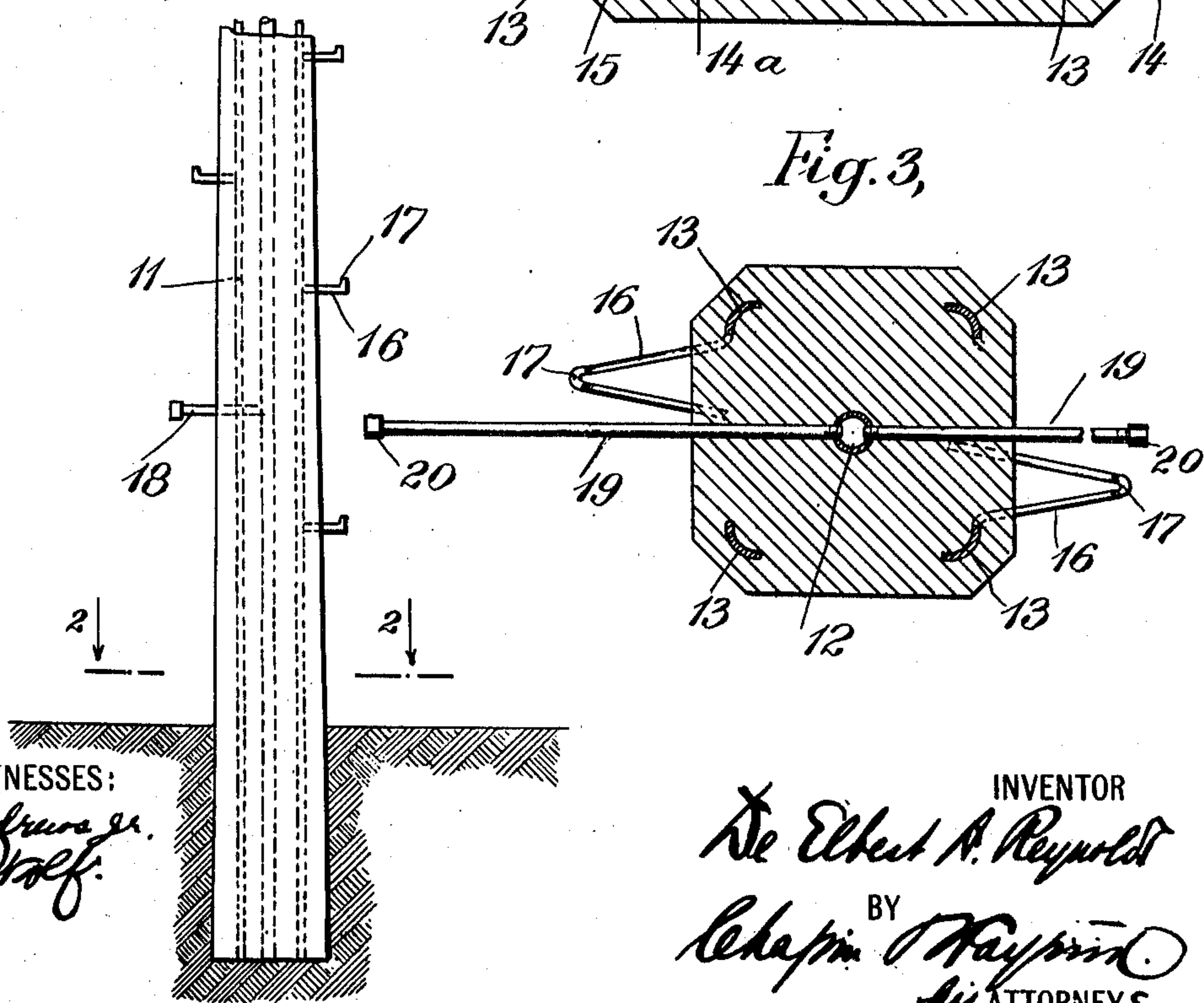
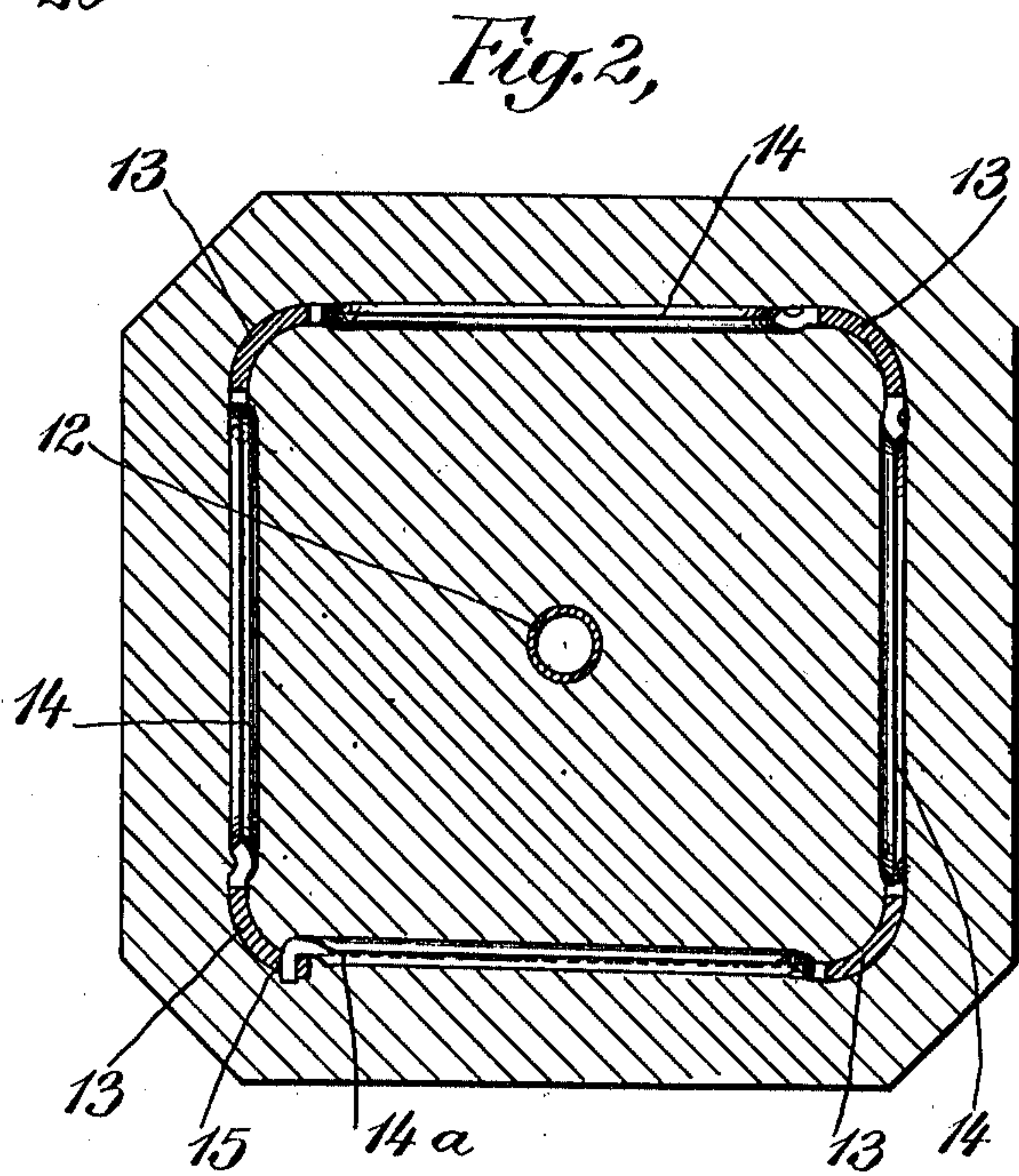
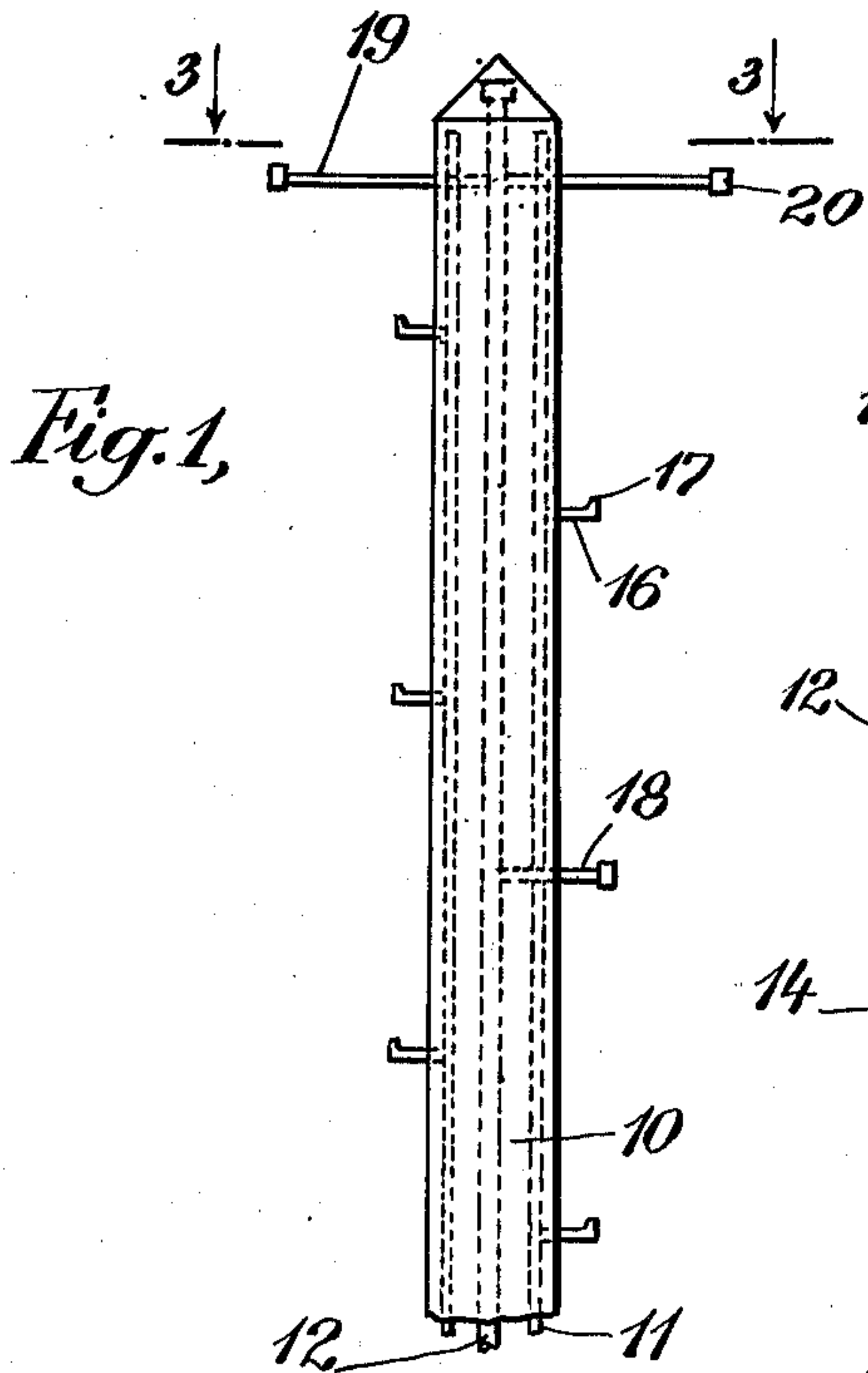


DE ELBERT A. REYNOLDS.
CONCRETE CONSTRUCTION.
APPLICATION FILED JUNE 17, 1908.

978,647.

Patented Dec. 13, 1910.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4,

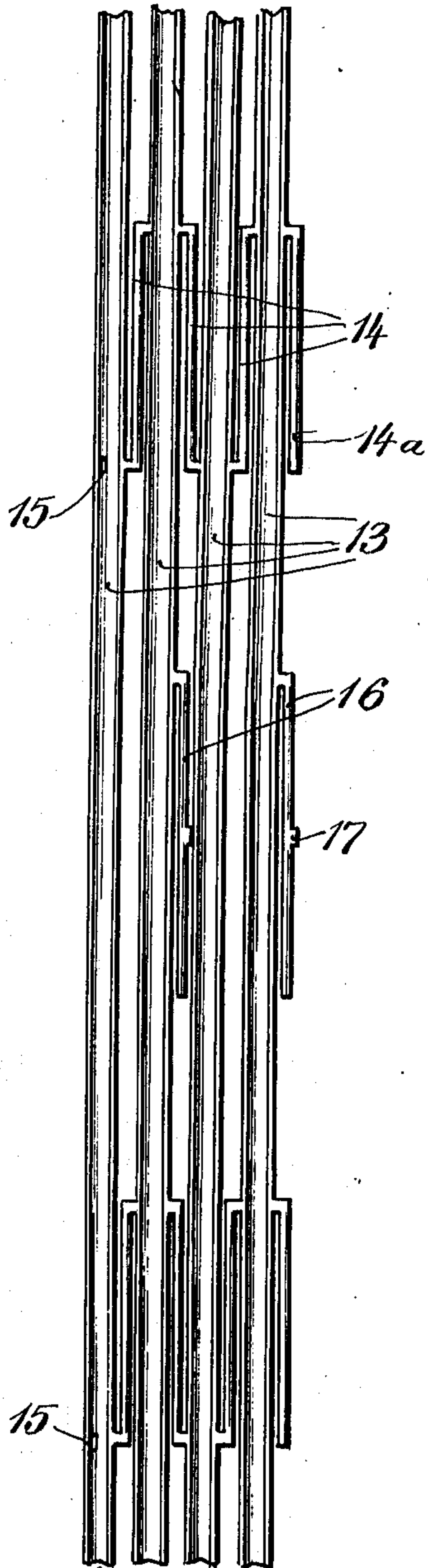
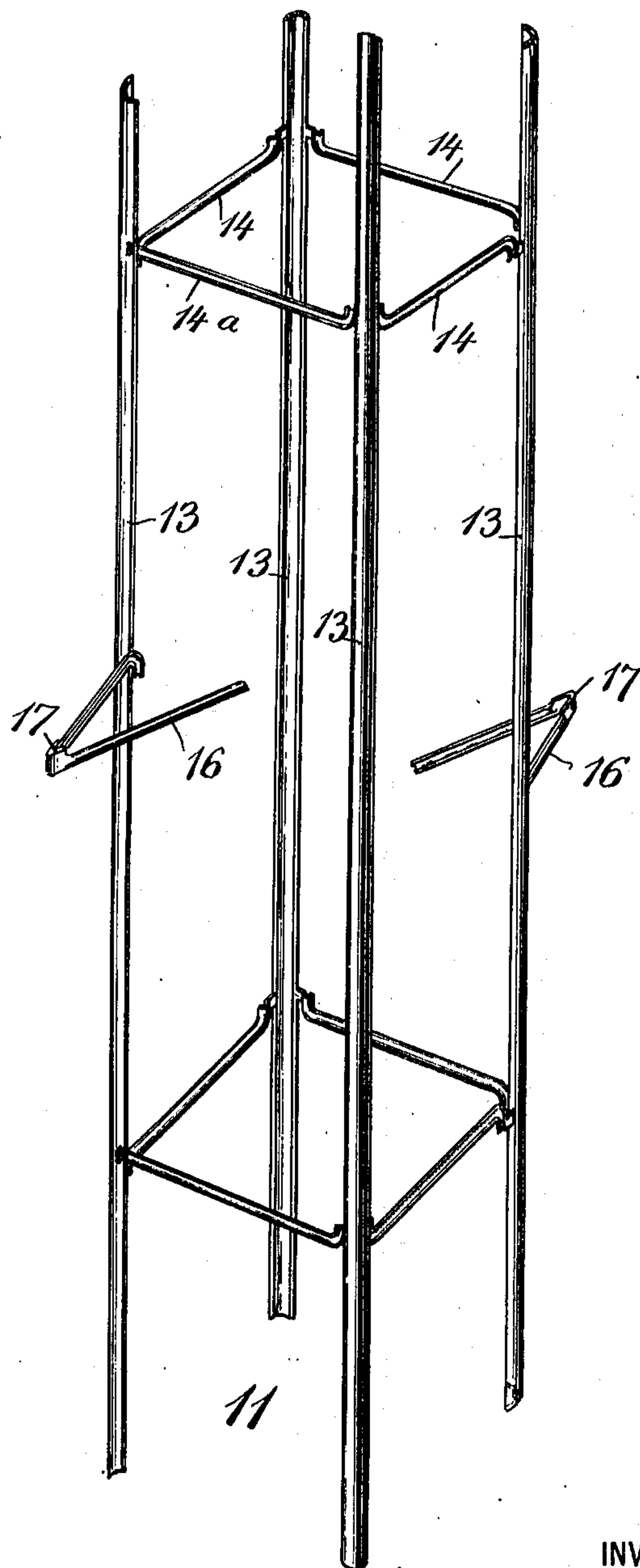


Fig. 5,



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UNITED STATES PATENT OFFICE.

DE ELBERT A. REYNOLDS, OF NEW YORK, N. Y.

CONCRETE CONSTRUCTION.

978,647.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed June 17, 1908. Serial No. 438,913.

To all whom it may concern:

Be it known that I, DE ELBERT A. REYNOLDS, a citizen of the United States of America, and a resident of New York, county of New York, State of New York, have invented certain new and useful Improvements in Concrete Constructions, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in concrete constructions, and particularly to an improved form and construction of reinforced concrete pole.

The main object of my invention is to improve, simplify and lessen the cost of manufacture of reinforced concrete poles such as may conveniently be employed for signal posts, lamp posts, electric wire poles and other purposes; and to these ends my invention consists first in a novel form and construction of the reinforcement therefor comprising an integral structure or framework composed of a plurality of uprights connected together by horizontal arms, the whole adapted to be stamped out of a piece of sheet metal and then bent into shape for the purpose. This stamping may further be provided with portions adapted to be bent into proper form to constitute steps which may extend laterally beyond the face of the pole when it is completed, such steps constituting means for facilitating the ascent and descent of the pole on the part of operators and linemen.

My invention also consists in providing a metallic piping disposed longitudinally through the pole, such piping adapted to form reinforcing means, and also, when desired, a conduit through which air or other gases under pressure may be conveyed. In connection with this longitudinal piping, I may conveniently employ short sections of branch pipes, arranged to project laterally from the pole, such branch pipes being conveniently disposed for the purpose of constituting steps, or for providing means for supporting a ladder; or such branch pipes may, if desired, be employed for the purpose of conveying the air or other gases under pressure from the longitudinal conduit to any point at which it may be required for use.

In order that my invention may be fully understood, I will now proceed to describe an embodiment thereof, having reference to

the accompanying drawings illustrating the same and will then point out the novel features in claims.

In the drawings:—Figure 1 is a view in side elevation of a pole constructed in accordance with my invention. Fig. 2 is an enlarged view in horizontal section upon the plane of line 2—2 of Fig. 1. Fig. 3 is a view in horizontal section upon the plane of line 3—3 of Fig. 1. Fig. 4 is a face view of the stamping employed for the purpose of reinforcement, showing the same before it has been bent into structural or framework form. Fig. 5 is a view in perspective of the same after it has been bent into form to constitute the framework and ready to be employed in the production of a pole.

The pole shown in Fig. 1 comprises a main body portion 10 of concrete, a reinforcing structure 11 and a central pipe or conduit 12. The reinforcing structure 11 comprises four uprights 13, (see particularly Fig. 5) connected together by central arms 14. The structure 11 is made from a stamping, a portion of which is shown in Fig. 4. This stamping may, it will be noted, be produced from a piece of sheet metal, such piece of sheet metal being for ordinary purposes, about 12 inches in width, and about $\frac{1}{16}$ of an inch thick, though it may, of course, be of other dimensions as to width and thickness. The stamping and structure are made of a proper length in accordance with the height of pole required, Figs. 4 and 5 illustrating but comparatively short sections thereof. In the stamping, it will be seen that the uprights 13 lie quite close to each other and are connected by the arms 14 which at this time lie parallel with the said uprights. In forming the frame work, the uprights 14 are pulled apart so as to bring the arms 14 to a substantially horizontal condition, the alternate uprights being lowered with respect to the ones between them, a distance about equal to the length of the said arms. After the uprights have been thus separated, the arms are further bent so that they will extend at right angles to each other when viewed horizontally, so as to form a substantially rectangular structure with an upright at each corner thereof. The last arm 14^a will, of course, have a free end, and I provide the upright farthest away therefrom (when in the condition shown in Fig. 4) with an opening 15 for receiving the end

of such arm 14^a, the said opening and the end of the arm 14^a being arranged to come into register when the parts are bent so as to form the structure shown in Fig. 5. It will be seen from the foregoing, that the framework of Fig. 5, which is to be used as reinforcing means, is a complete integral and rigid structure. Thus in making the pole, this reinforcing structure may be set in a mold such as is employed in the production of cast concrete objects, and the concrete then inserted freely without there being any liability of the reinforcement becoming disarranged. This is very advantageous, for in the past, great difficulty has been experienced in holding the different elements which have constituted the reinforcement, in position while the process of casting was being carried out.

It is common to provide long posts or poles with lateral projecting steps by which ascent or descent thereof on the part of operators, linemen etc., is facilitated. For the purpose of making provision for such steps, I have provided the stamping with arms 16 arranged longitudinally intermediate the sets of arms 14, such arms 16 being arranged to project from such uprights as come opposite to each other when the stamping is bent to form the aforementioned structure, and I preferably make these arms 16 of such length that they may be conveniently bent backward upon themselves after having been properly bent to project laterally from the structure as is shown in Fig. 5, the said arms being provided with a slight projection as at 17 to form the usual abutment, such as is generally employed in these steps for preventing the user from slipping endwise therefrom. The free end of that portion of the step which is turned back upon itself is received within the concrete body of the pole so that the step acquires a double support, and is hence rigidly and firmly held in position.

The central piping 12 (see Figs. 1, 2 and 3), also constitutes a reinforcing means, and when employed lends strength to the post or pole as a whole, but the said piping may be employed where desired to convey air or gases under pressure therethrough in addition to its other functions. Furthermore it may be provided with short branches 18 which may constitute steps and may also be provided with one or more longer branches 19 to constitute means for supporting a ladder in proximity to the pole.

The ends of the branches and of the central conduit may be closed by caps 20 and where the piping is intended to be used to convey fluid, one or more of these caps may be removed and the proper connection made as will be well understood.

In producing the stamping, the various portions thereof may be slightly curved, if desired, as is illustrated in the drawings, whereby to lend additional rigidity to the reinforcing structure and to various elements thereof.

What I claim is:

1. A reinforcement for cast concrete poles comprising an expanded metal structure formed from a stamping including a plurality of uprights with arms which lie between them and are connected at their opposite ends with adjacent uprights at points in said adjacent uprights which before the structure is expanded are in staggered relation, the said structure being expanded and formed by drawing the uprights apart and bending the arms so that the said uprights are regularly disposed around a central axis, one of the outer uprights being provided with openings, and the other outer upright having arms on the outside thereof which have free ends, such free ends being adapted to be received in the said openings, substantially as set forth.

2. A reinforcement stamping for cast concrete poles comprising a plurality of uprights 13, arms 14 connecting them, the ends of the said arms connecting with the adjacent uprights at points in staggered relation, one of the outer uprights having openings 15, and the other of the said outer uprights having arms 14^a with free ends, the said uprights also provided with free ended arms 16 connected thereto at points intermediate the points of connection of the said arms 14.

3. A reinforcement stamping for cast concrete poles comprising a plurality of uprights, sets of connecting arms therefor, the arms of each set connected at their opposite ends with adjacent uprights at points in staggered relation, whereby the structure may be expanded, and free ended arms connected to the said uprights longitudinally intermediate the said sets of connecting arms.

DE ELBERT A. REYNOLDS.

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