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E. E. HAWKINSON

1,817,437

SPACER

Filed Sept. 9, 1927

Fig. 1.

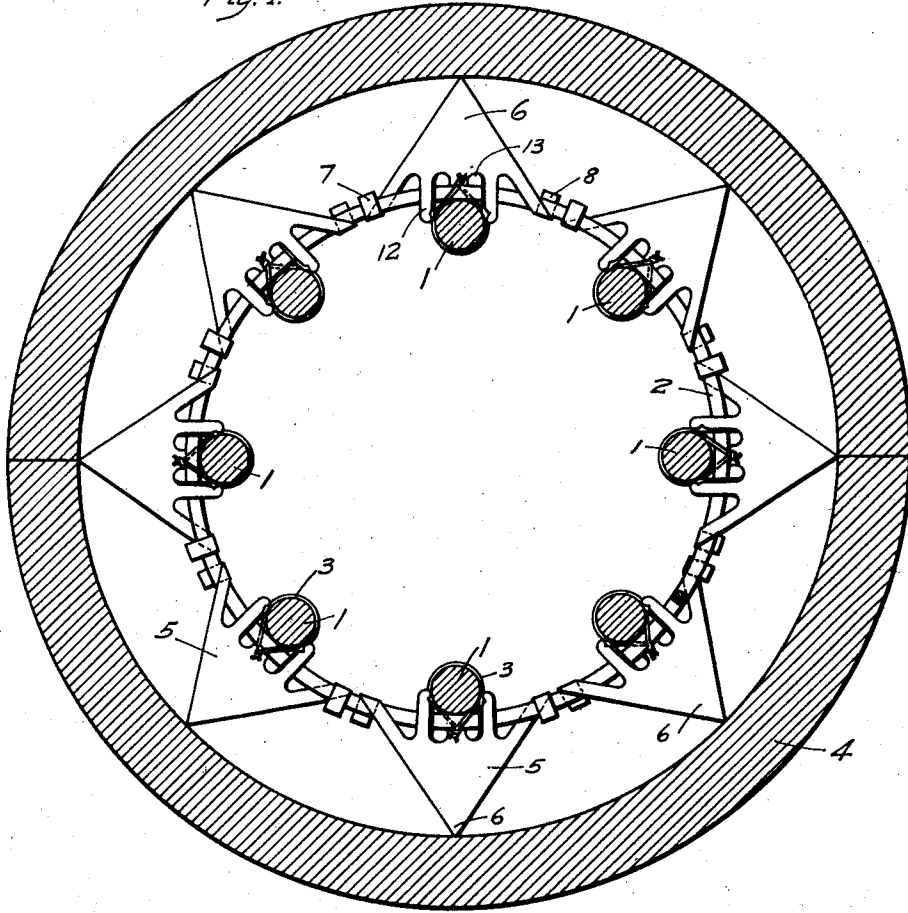


Fig. 2.

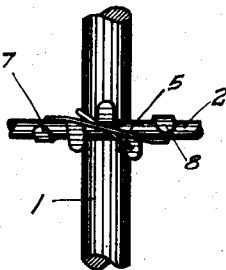


Fig. 3.

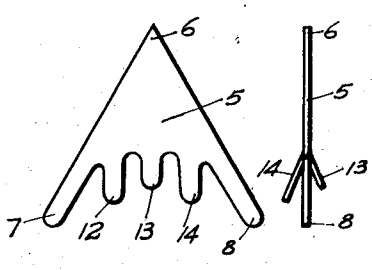


Fig. 4.

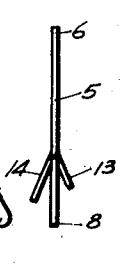
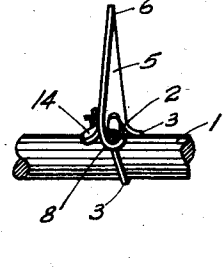


Fig. 5.



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SPACER

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My invention relates to processes of making reinforcing concrete structures and has particular relation to means for supporting a reinforcing cage and spacing it away from the mold in which it is placed.

5 An object of my invention is to provide means for spacing the reinforcing cage employed in centrifugally forming concrete poles away from the mold used in forming the concrete.

10 Another object of my invention is to provide a spacer such that the surface layer of the concrete is not chipped and broken away because of the presence of the metallic spacer near the surface thereof.

15 Another object of my invention is to provide a spacer which is not noticeable on the surface of the concrete pole and which does not rust and discolor the concrete.

20 A further object of my invention is to provide a spacer which is low in cost of manufacture and which may readily be attached and engaged with the reinforcing frame work.

25 My invention may be better understood by referring to the accompanying drawings in which,

30 Figure 1 is a sectional view of a mold and a reinforcing cage utilizing my spacer for spacing the cage away from the walls of the mold;

Fig. 2 is a top view of the spacer showing the manner in which the spacer engages the reinforcing rods and spiral wrapping wire of a reinforcing cage;

35 Fig. 3 is a view, in side elevation, of a spacer as it appears before application to the reinforcing cage;

Fig. 4 is a view, in end elevation, of the spacer, and

40 Fig. 5 is a similar view of the spacer after it has been applied to a reinforcing cage.

The reinforcing cage of the usual concrete pole comprises longitudinally disposed rods 1 held and reinforced by a helical wrapping 45 of heavy wire 2. The heavy wire and the rods are fastened together at their junction points by a tie 3 of lighter wire.

50 In a reinforced concrete pole construction of the usual type, it is necessary that the reinforcing cage be equally spaced away from

all parts of the wall of the mold 4, so that a uniform thickness of concrete may be secured between the reinforcing cage and the outer surface of the pole and also it is desirable that the reinforcing cage be properly spaced in order to avoid unequal centrifugal stresses during the spinning process.

The outer portion of the concrete pole is usually composed of colored granite pebbles bonded together by the concrete. My spacer 5 is provided with a triangular shaped portion 6 the apex of which engages the mold so that the spacer appears at the surface of the finished pole only as a small point that is inconspicuous among the colored pebbles. The spacer may be made of any malleable metal and the metal may be galvanized or plated to prevent rusting but it is preferably made of copper so that there is little possibility that the portion of the spacer which appears at the surface of the pole will oxidize and discolor the pole.

My spacer is preferably formed of a flat triangular-shaped piece of metal. Two long lugs, 7 and 8, comprising part of two sides of the triangle, are adapted to be wrapped around the helical wrapping wire 2 of the reinforcing cage (Fig. 2). Three other lugs 12, 13 and 14, disposed between the two first-named lugs, are bent in alternate directions so that they may engage the reinforcing rod to hold the spacer perpendicular to it. (Fig. 5).

In applying the spacer to a reinforcing cage, the lug 7 is wrapped about the helical wire 2 by means of pliers. The lugs 12 and 14 are bent slightly, as shown in Figs. 2 and 5, to engage the reinforcing rod at one side of the wire 2 and the lug 13 is bent in the opposite direction to engage the reinforcing rod at the other side of the wire, the lug 8 being bent around the wrapping wire in a direction opposite to that of lug 7.

The spacer may be punched out of a flat piece of metal by means of a punch provided with a die for stamping out two spacers at a time, which are disposed in opposite directions so as to utilize a minimum amount of material. The lugs may be given an initial bending, as shown in Fig. 4, such that only

the two wrapping operations of the lugs 7 and 8 are necessary in applying the spacer.

My spacer provides means for accurately spacing a reinforcing cage away from the walls of a mold, so that a uniform layer of concrete is insured between the reinforcing cage and the surface of the pole. The spacer may be readily applied with a minimum amount of effort, is low in cost of manufacture, and does not discolor the surface of the pole when exposed to moisture.

Although I have described a specific embodiment of my invention, it is apparent that modifications may be made by those skilled in the art without departing from the spirit and scope of my invention, as defined in the appended claims.

I claim as my invention:

1. A spacer for a reinforcing structure comprising a flat triangular shaped member, the body portion of which is utilized for spacing the reinforcing structure from the mold, a pointed portion forming one corner of the triangle for engaging the mold, two lugs forming the other two corners of the triangle adapted to be fastened to the reinforcing structure and three lugs adapted to engage said reinforcing structure.

2. Means for use in making a concrete pole comprising a mold, a reinforcing means including a helical wire and spacing means comprising members of flat triangular shape each of which has a pointed apex to engage the said mold and a plurality of lugs along its opposite edge, the end lugs of said triangular member being bent over to, at least partially, surround said helical wire and the intermediate lugs being bent to engage opposite sides of said wire.

3. Means for use in making a reinforced concrete pole comprising a mold, a plurality of longitudinal rods, a helical wire surrounding said rods and fastened thereto to form a cage and a plurality of plates of triangular shape interposed between the cage and the mold, the inner edge of each plate having a plurality of lugs to grip said wire and a plurality of lugs to engage the corresponding rod.

4. A spacer for supporting a reinforcing frame in a mold comprising a single flat triangular member, one of the corners of which rests on the mold, and having a plurality of lugs at the opposite edge for gripping one member of the reinforcing frame, and other lugs adapted to hold said spacer perpendicular to another member of said frame.

In testimony whereof, I have hereunto subscribed my name this 1st day of Sept., 1927.

EMIL E. HAWKINSON.