A. H. SYMONS.

SPRING CLIP FOR CONCRETE REINFORCEMENTS.

APPLICATION FILED JULY 13, 1915.

1,185,263. Patented May 30, 1916.

Fig. 1.

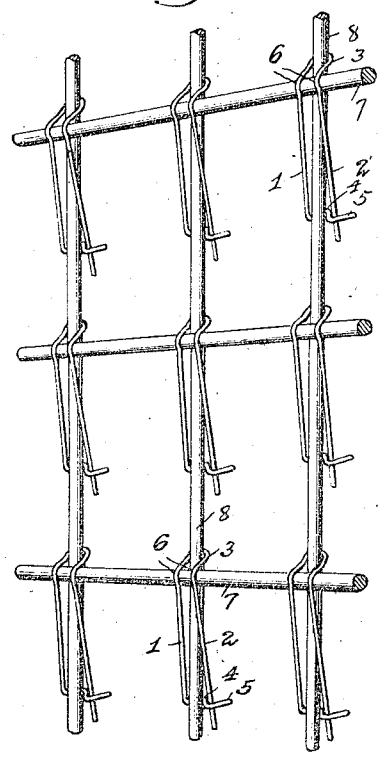


Fig. 2.

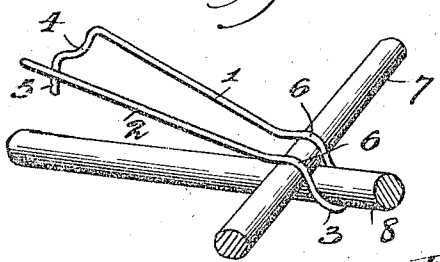


Fig. 3.

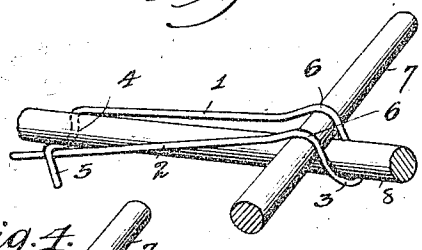
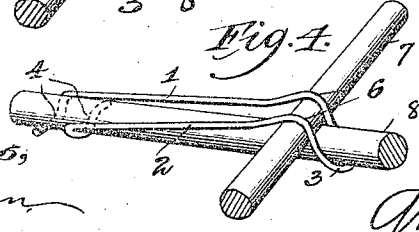


Fig. 4.



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SPRING-CLIP FOR CONCRETE REINFORCEMENTS.

1,185,263. Specification of Letters Patent. Patented May 30, 1916.

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To all whom it may concern:

Be it known that I, ARTHUR H. SYMONS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spring-Clips for Concrete Reinforcements, of which the following is a specification.

This invention relates to improvements in spring clips for concrete reinforcements of that general character in which a spring metal filament is so shaped as to embrace and bind together by the spring tension of the clip intersecting reinforcing members which are to be embedded in the concrete.

Among the salient objects of the invention are to provide a clip which can be very economically manufactured of inexpensive material; which is extremely efficient in reliably holding together the parts to which it is applied; which may be applied almost instantly and with the greatest convenience without the use of tools, and which by reason of its form and construction may be applied to reinforcements of different shapes and considerably varying dimensions without change in the form or proportions of the clip.

Other objects of the device will appear to those skilled in the art and need not be specifically mentioned.

To the above ends the invention consists in the matters hereinafter described, and more particularly pointed out in the appended claim.

In the drawing Figure 1 is a perspective view of a series of crossed and intersecting rod-like reinforcements of concrete held in definitely spaced relation by clips embodying my invention applied at each intersecting point of the reinforcements; Fig. 2 is another perspective view of one of my improved clips applied to intersection reinforcements but unfastened and therefore in the position which the clip assumes when untensioned and open; Fig. 3 is a view of the parts shown in Fig. 2 with the clip fully applied; I g. 4 shows a modification.

The clips of my invention are of spring metal, and in the manufacture of the same I prefer, for reasons of economy, simplicity of manufacture and economy of material, to form the clips of wire having such resiliency that the clips when applied will exercise a constant tension to hold the parts firmly clamped together. In practice moderately hard drawn steel wire I have found best adapted for this purpose.

In the preferred embodiment of the invention, that which I have shown in the drawings, a suitable length of wire is bent intermediate its length to form two arms 1, 2, an open loop or partial ring 3 joining the two arm portions, a saddle-like cross extension 4 at one end, and a hook 5 forming the extremity of the arm which has the saddle portion. The arm 2 may desirably be, and as herein shown is, straight as to its main length. At a point adjacent to the loop portion 3 the arms are provided with parti circular bends of humps 6, 6, which are parallel with each other and are adapted to overlie and partially embrace one of the concrete reinforcing members 7. The loop 3 is of such dimensions as to receive the other concrete reinforcement 8.

The proportions of the several parts of the clip are such that when one of the reinforcements 8 is extended through the loop 3 and the other reinforcement 7 lies directly upon and crosswise of the reinforcement 8, and the humps of the clip partially embrace and rest upon the upper side of the reinforcement 7, the arms of the clip will extend at an acute angle relatively to the reinforcement member 8, as shown very clearly in Fig. 2; the angle included between the arms of the clip and the reinforcing member being such that these arms may be forced down so that their lower ends approximately coincide with the lower side of the reinforcement member 8 without greatly, or at all, exceeding the elastic limit of the spring metal of which the clip is formed. The clip having been applied as last described and the reinforcing members adjusted to the exact intersecting relation which is to be preserved until they are embedded in concrete, the arm 1 is first forced downwardly and outwardly so as to carry the saddle portion 4 below the level of the member 8, and the saddle is then adjusted to embrace and hook against the under side of the reinforcement, as shown clearly in Fig. 3. The straight arm is then bent or sprung downwardly and hooked behind and underneath the hook member 5, as also shown clearly in Fig. 3. The latching together of the arms beneath the longitudinal reinforcement as described binds the two reinforcements together at their point of

intersection very firmly. The tension or degree of firmness with which they are thus united depends chiefly upon the gage and temper of wire used in the clip. It is found in practice that these wire clips hold together ordinary sized metal reinforcements with ample firmness when made of wire of about 12 gage and of ordinary hard drawn stock.

Since the holding function of the clip depends upon securing the arms in tensioned position to a part of the reinforcement some distance from the intersecting point, it is obvious that the ends of the arms may be secured in such relation otherwise than as shown in the first three figures of the drawing. Accordingly I have shown a modification in Fig. 4, in which the arms instead of being hooked together are each provided with its own saddle-like portion which enables them to be independently secured to the reinforcement. Other modifications may be made without departing from the spirit of the invention.

It is to be noted that the clips can be removed and re-adjusted, or they might under special circumstances be removed and preserved for use again, although ordinarily they are left applied to the reinforcements and embedded in the concrete.

I claim as my invention:

A spring clip for uniting concrete reinforcements, comprising a length of spring wire bent intermediate its length to form a partial loop adapted to embrace a reinforcement member extending in the direction of the length of the clip and two arms extending in continuation of the sides of said loop, a hump-like bend formed in each arm of the clip near the loop portion thereof, a transversely disposed saddle portion formed upon one of said arms adapted to underlie and engage a longitudinally disposed reinforcement, and a down-turned end on the arm forming a hook interlocking with the other arm of the clip.

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