Oct. 14, 1924. 1,511,334

J. F. HAVEMEYER

BAR SPACER FOR CONCRETE CONSTRUCTION

Filed Feb. 24, 1922

Fig. 1.

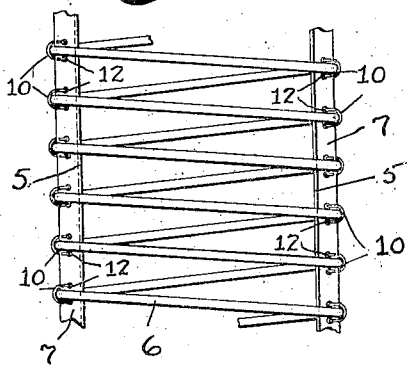



Fig. 2.

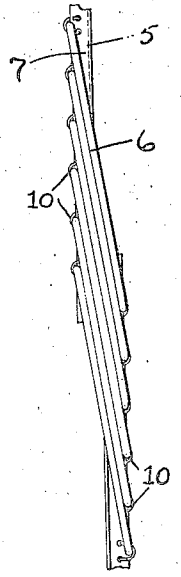



Fig. 3.

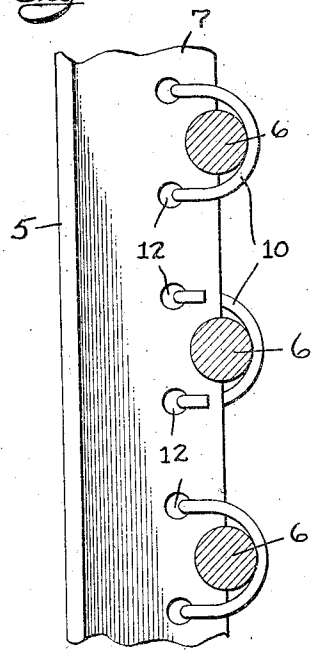



Fig. 4.

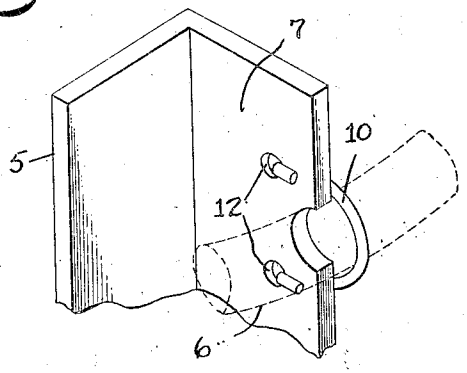
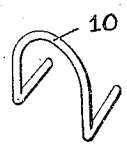



Fig. 5.

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# UNITED STATES PATENT OFFICE.

JOHN F. HAVEMEYER, OF ARDSLEY-ON-HUDSON, NEW YORK.

## BAR SPACER FOR CONCRETE CONSTRUCTION.

Application filed February 24, 1922. Serial No. 538,879.

*To all whom it may concern:*

Be it known that I, JOHN F. HAVEMEYER, a citizen of the United States, and a resident of Ardsley-on-Hudson, county of Westchester, State of New York, have invented an Improvement in Bar Spacers for Concrete Construction, of which the following is a specification.

The present invention relates to concrete construction and has reference more particularly to bar spacers of the type used for holding in desired spaced relation the several turns of helical coils usually employed in concrete columns to prevent lateral rupture.

The invention has for an object to provide an improved device of this type and more particularly one which can be cheaply manufactured and assembled either in the factory or in the field.

Spacers of the type described, as commonly manufactured, have a web which in use lies in a plane substantially radial to the helical coil, and it is provided with notches cut deeply into the side thereof to receive the successive turns of the coil. These notches are commonly made substantially deeper than the diameter of the bars received therein, and means is provided for closing the outer portion of the slot after the insertion of the bar. The strength of spacers of this type both in tension and in compression is obviously that of the smallest section which is that adjacent the coil-receiving notch, and therefore is relatively limited as compared with the weight of the bar on account of the deep slots.

The present invention affords an improved means for securing the bars or coils to the spacer whereby relatively deep notches in the edge of the spacer web are unnecessary, and therefore the invention makes possible the use of spacers of lighter weight requiring less material.

The nature and objects of the invention will be better understood from a description of a particular embodiment thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a view in elevation of a helical coil assembled with two bar spacers embodying the principle of the invention;

Figure 2 is a similar view of the same but showing the parts in folded relation for storage, handling or shipping;

Figures 3 and 4 are detail views in elevation and perspective showing the manner of securing a bar in position against the bar spacer by means of a specially designed securing clip constructed in accordance with the invention;

Figure 5 is a perspective view of the clip.

In the structure shown in the drawings, for the purpose of illustrating the invention, bar spacers 5 engage opposite sides of a helical coil 6 to hold the successive turns thereof in suitable spaced relation.

The spacers may conveniently be formed of angle iron as shown, one web 7 of which lies in a plane radial to the coil and the turns of the coil are held in place primarily by retaining clips 10, which encircle the bars or turns of the coil and suitably engage the spacer. Preferably notches are formed in the engaged edge of the web 7 of sufficient depth more certainly to prevent lateral slipping of the bars along the spacer. It should be noted that the notches, which may be of any shape desired, the arcuate shape shown being merely illustrative, need not be of any particular size or shape to hold a bar of given size against slipping. Accordingly, one standard form of spacer may be used with rods or wire of many commercial sizes. The clips are of a form to facilitate rapid assembly. The arrangement illustrated brings the rods or wire out beyond the spacer and close to the surface of the concrete for the reason that only the thickness of the clips projects beyond the rods, the spacers being almost entirely within the coil and therefore relatively far from the surface of the concrete.

One form of clip is shown in Figure 5. It is formed of wire bent to provide a U-shaped portion, to encircle the element to be retained, and end portions bent into a plane substantially at a right angle, or preferably somewhat less than a right angle, to the body of the clip for convenient insertion laterally through suitable holes 12 in the radial web 7. One or both of the end portions are so arranged that when finally positioned in the holes 12 in the radial web the clip will be held against accidental displacement. As shown, both end portions of the clip are arranged to be bent against the web and parallel to the body of the clip when inserted so that they will bear against the web in a manner to prevent displace-

ment of the clip or turning of the spacer. The spacer therefore, if in the form of a flat bar, is positioned to present maximum rigidity.

The clips may, if desired, be inserted in the spacer, some from one side and some from the other, thus more reliably preventing accidental turning of the spacer, but ordinarily that is not necessary. If desired, the clips may be made somewhat loose to facilitate folding of the helical coils.

The holes 12 are shown as rather large to facilitate rapid insertion of the clips and the arrangement is such that bifurcated tools may be employed to bend both ends of the clips at the time of insertion.

Various possible embodiments may be made of the invention and various changes in the embodiment described may be made, all within the scope of the subjoined claims.

I claim as my invention:

1. In a bar spacer for use in concrete construction, the combination with a bar-supporting member having a web and a series of relatively shallow, spaced bar-engaging notches in a free edge of said web, said notches being of less depth than the diameter of the bar to be received therein, of wire clips secured in the web adjacent the notches and extending outwardly beyond the edge of the web to encircle the bars.

2. In a bar spacer for use in concrete construction, the combination with a bar-supporting member having a web and a series of relatively shallow, spaced bar-engaging notches in a free edge of said web, said notches being of less depth than the diameter of the bar to be received therein, and clip-receiving holes adjacent said notches on either side thereof, of U-shaped wire clips, each having end portions bent into a plane at right angles to the body of the clip, adapted to be inserted in said holes and adapted to be bent to provide retaining means to hold the clip in applied position.

3. In a bar spacer for use in concrete construction, the combination with a bar-supporting member having a web and a series of relatively shallow, spaced bar-engaging notches in a free edge of said web, said notches being of less depth than the diameter of the bar to be received therein, clip-receiving holes adjacent said notches on either side thereof, of U-shaped wire clips each having bendable end portions lying in a plane substantially at right angles to the plane of the body of the clip adapted to be inserted in said slots, the free ends of the clips being arranged to be bent into locking position to hold the clips in place.

4. In a bar spacer for use in concrete construction, the combination with a bar-supporting member having a web and a series of relatively shallow, spaced bar-engaging notches in a free edge of said web, said notches being of less depth than the diameter of the bar to be received therein, of U-shaped wire clips each having its end portion bent at a right angle to the body of the clip, one end being formed to provide retaining means operative to maintain the clip in position on the web.

5. A bar spacer for use in concrete construction comprising a bar-supporting member presenting a web arranged to lie in a plane at right angles to the bars supported by it and provided with pairs of spaced holes and clips adapted to encircle spaced bars and be secured in said holes to secure the bars against the edge of said web.

In testimony whereof, I have signed my name to this specification this 21st day of February, 1922.

JOHN F. HAVEMEYER.