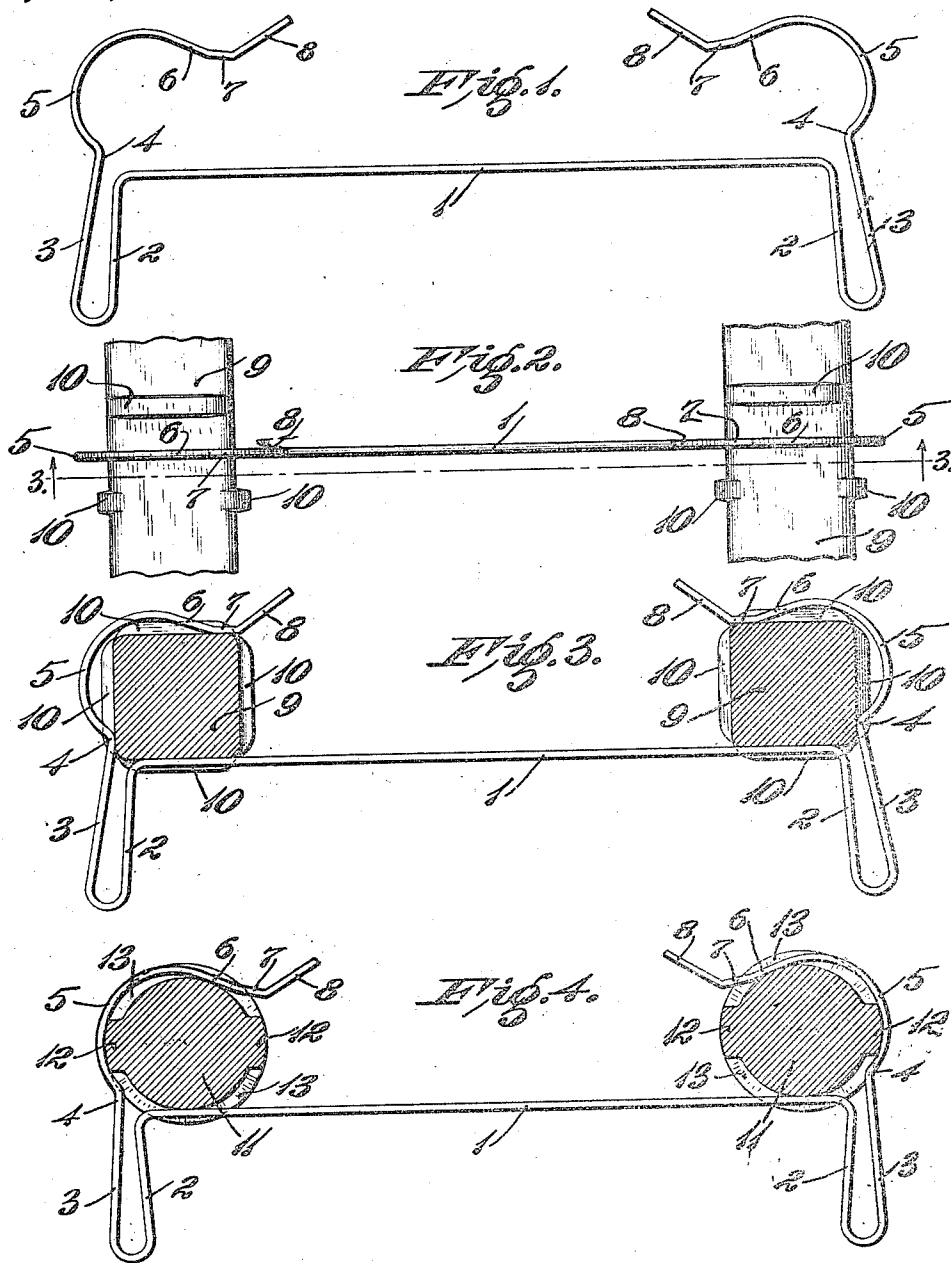


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 SPACING AND SUPPORTING DEVICE FOR REINFORCING BARS.
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1,024,260.

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UNITED STATES PATENT OFFICE.

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SPACING AND SUPPORTING DEVICE FOR REINFORCING-BARS.

1,024,260.

Specification of Letters Patent.

Patented Apr. 23, 1912.

Application filed October 12, 1911. Serial No. 654,323.

To all whom it may concern

Be it known that I, HARVEY H. HICKMAN, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Spacing and Supporting Devices for Reinforcing-Bars, of which the following is a specification.

This invention relates to metallic reinforcing forces for concrete constructions and has for its principal objects to produce a simple and efficient spacing and supporting device for the bars or rods used in reinforced concrete floor, ceiling and beam constructions, to produce a spacing and supporting device which can be used interchangeably with bars or rods of various cross sections, such as square, round, or bars whose contours are approximately square or round, &c., and to attain certain advantages as will hereinafter more fully appear.

The invention consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawing which forms part of this specification and wherein like symbols refer to like parts wherever they occur,—Figure 1 is a side elevation of a spacing and supporting device constructed in accordance with my invention; Fig. 2 is a top plan view showing fragments of two reinforcing bars of square section with the spacing and supporting device applied thereto; Fig. 3 is a section on the line 3—3 of Fig. 2; Fig. 4 is a view similar to Fig. 3 showing the device applied to a bar of round section and the supporting legs of the device being modified slightly.

The device shown in the drawings comprises a member 1 which is preferably made from a piece of wire of high elastic limit. The end portions of the wire are bent, as at 2, and looped back or rebent, as at 3, to form supporting legs adapted to rest on the centering or false work so as to position the reinforcing bars or rods vertically. The portions 3 are extended up above the body or connecting portion 1, as at 4, and then bent on a curve outwardly, as at 6; thence in a straight line at an inclination toward the body or connecting portion 1, as at 6. From the portion 6 the direction changes slightly, as at 7, for a short distance, and then the wire is turned away from the body or connecting portion 1, as at 8. The portions of

the wire thus looped or hooked are adapted to receive and retain the reinforcing bars or rods. The shoulders formed by the portions 4 serve as abutments for the sides of the respective bars in cases where bars of square section are used, as shown in Figs. 2 and 3. The distance between the shoulders is figured to properly position the bars for a given job. That is, the desired distance between the reinforcing bars in the structure being determined, the clips or spacing and supporting devices are made accordingly. Normally, the distance across the mouth of the hook is less than the thickness of the bar to which it is adapted, so that in applying the device the hook has to be sprung; the resiliency of the hook being depended upon to retain the bar in place. The portion 8 constitutes a flared lip so that the bar may be easily moved into the hook.

In Figs. 2 and 3, the square bar 9 is shown as being provided with transverse ribs 10 on all four of its faces. As shown, the bottom of the bar rests flatwise on the body or connecting portion 1, while its outer side abuts against the shoulder 4. The portion 7 of the hook bears upon the top of the bar near the inner corner. Thus the bar is firmly held against turning accidentally.

In Fig. 4 the device is shown as applied to a bar of round section. That is, a bar whose body 11 is of general round section. It is provided with longitudinal ribs 12 on opposite sides and transverse ribs 13 similar to the ribs 10 of the square bar. In this case, the longitudinal ribs 12 are set in a horizontal plane and one of said ribs rests in the curved portion immediately above the shoulder 4, the body portion of the bar being clamped between the body or connecting portion 1 and the inclined hook portion 6 of the spacing and supporting device which engages the bar some distance inwardly from a line extending vertically through the center.

The hooks or bar-receiving portions of the respective spacing and supporting devices may be made to such dimensions that the same device will fit both a square bar of a certain size and a round bar of a certain size but different from the square. For example, the device may be made for a one inch square bar and an inch and one-eighth round bar of the two types shown in the drawing. That is, in practice each

side of the square bar measures one inch, while the inch and one-eighth bar 11 measures approximately one and seven one-hundredths in short diameter through the body, one and twenty-nine one-hundredths in long diameter through the ribs 12, and said ribs are each four-tenths of an inch wide, so that the cross section area is substantially the same as that of a plain circular bar of one and one-eighth inches in diameter.

As above set forth, the shoulder 4 positions the square bar, and as the bar rests flat upon the connecting portion or body 1, it is easily held against turning accidentally. However, some special provision must be made to hold the round bar against turning. This is accomplished by curving the hook portion 5 immediately above the shoulder 4 on a radius considerably shorter than that of the face of the rib 12, so that said hook portion 5 contacts with both the upper and lower corners of the rib; and as the portion 6 of the hook contacts with the bar a considerable distance inwardly from a line extending vertically through the center of the bar, this contact between the hook portion 5 and rib, as well as between the body of the bar and portion 1 of the spacing and supporting device, is maintained. Hence, there is a four point contact which is effective to hold the bar against turning.

It is noted, that in Figs. 1 and 2, the supporting legs of the device are flared slightly outward while in Fig. 4 they are substantially perpendicular to the body or connecting portion 1. The difference in position is merely incidental and due to differences in the shape of the forming and bending dies used in manufacturing the devices.

In practice, the device may be used to space a pair of bars constituting reinforcing units for a beam, or three or more bars may be connected by using a series of the devices. That is, in a floor, ceiling or slab structure, where the reinforcing bars or rods have to be spaced equidistantly, the devices are applied respectively to each adjoining pair of bars in a straight line throughout the width of the structure or, if desired, the devices may be staggered with respect to each other. So, too, the devices may be made of different lengths where there is a desired variation in the spacing of the bars, as is obvious.

Obviously, the device may be made of flat metal strips instead of wire, if desired, and it admits of further modification without departing from my invention. Therefore, I do not wish to be limited to the specific construction and arrangement shown.

What I claim is:

1. A spacing and supporting device for reinforcing bars comprising a horizontal connecting member having supporting legs, upwardly extending shoulders, and hook portions overhanging the body portion adjacent to the respective shoulders to hold the reinforcing bars.

2. A supporting and spacing device for reinforced concrete construction comprising a straight body portion of wire whose opposite end portions are looped downward to form supporting legs, then extended upward to form shoulders, and then bent to form hooks to cooperate with the respective shoulders and body portion adjacent thereto to hold reinforcing bars.

3. A spacing device for reinforcing bars of concrete structures comprising a straight body portion having extensions forming shoulders adjacent to the opposite ends of said body portion, and hooked to cooperate with the respective shoulders and the adjacent body portion, said hook portions being curved outwardly from said shoulder portions, then inwardly, and then extending in a straight line toward the body portion at an inclination.

4. A supporting and spacing device for reinforcing bars of a concrete structure comprising a metal strip of high elastic limit, the end portions of said strip being bent to form an upwardly projecting shoulder adjacent to each end of the device, then bent on a curve outward from the ends and then inwardly, then toward the body and then away from the body.

5. A spacing and supporting device for reinforcing bars of concrete structures comprising a horizontal strip of metal bent downward and rebent at its ends to form supporting legs and extended upward and hooked above the body portion to receive the bars.

Signed at St. Louis, Missouri, this 10th day of October, 1911.

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Witnesses:

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