Jan. 30, 1940. W. P. AWBREY 2,188,424

SUPPORT AND SPACER FOR CONCRETE REINFORCEMENTS

Filed May 7, 1938 2 Sheets-Sheet 1

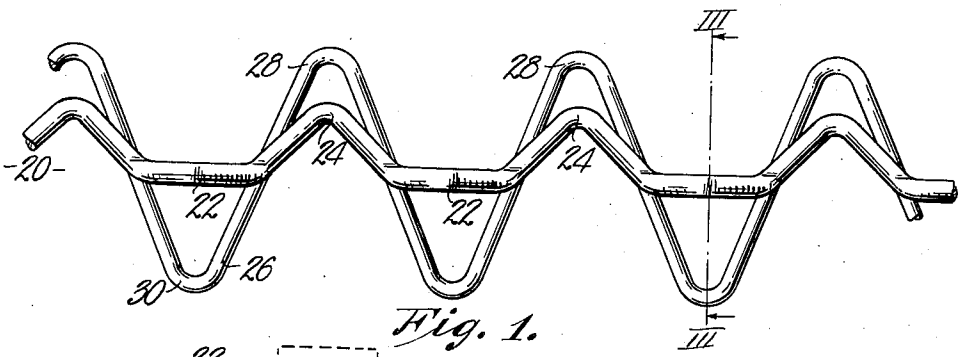


Fig. 1.

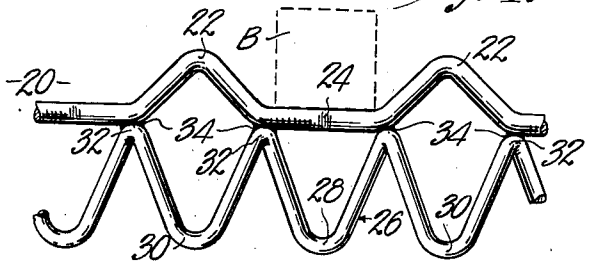


Fig. 2.

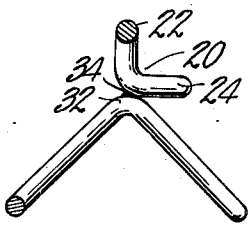


Fig. 3.

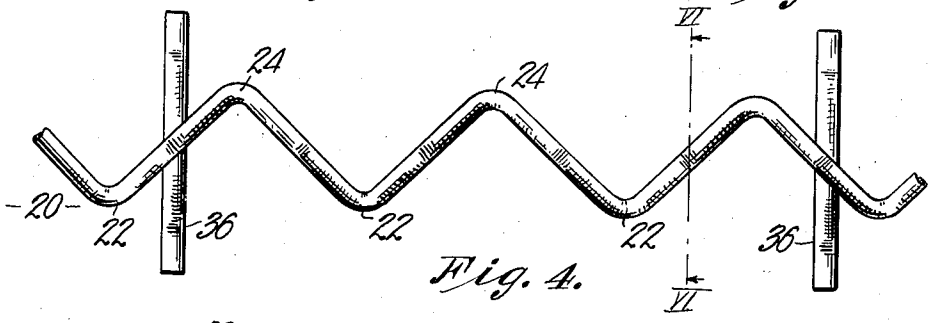


Fig. 4.



Fig. 5.

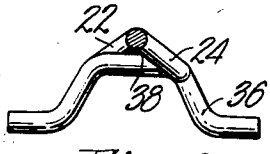


Fig. 6.

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SUPPORT AND SPACER FOR CONCRETE REINFORCEMENTS

Filed May 7, 1938 2 Sheets-Sheet 2

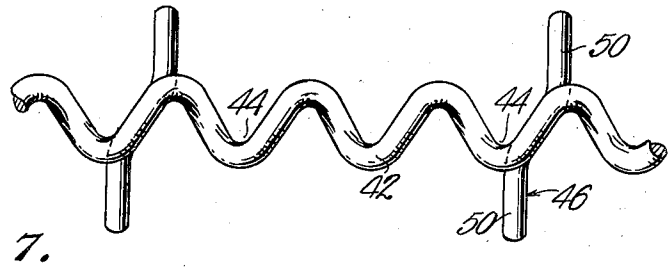


Fig. 7.

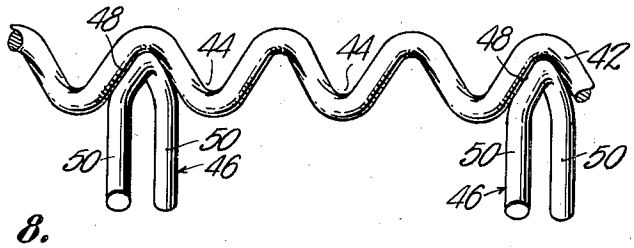


Fig. 8.

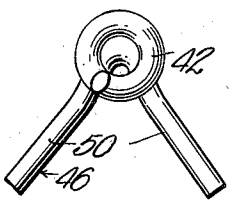


Fig. 9.

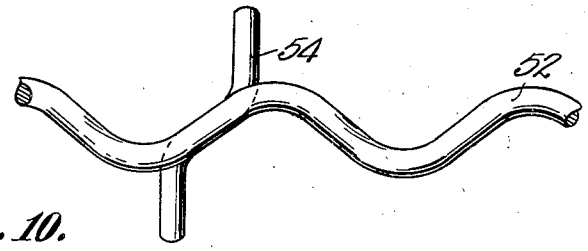


Fig. 10.

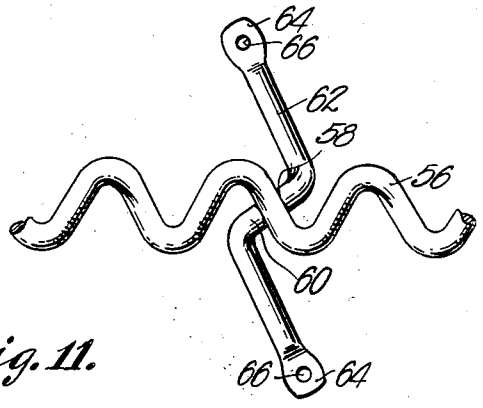


Fig. 11.

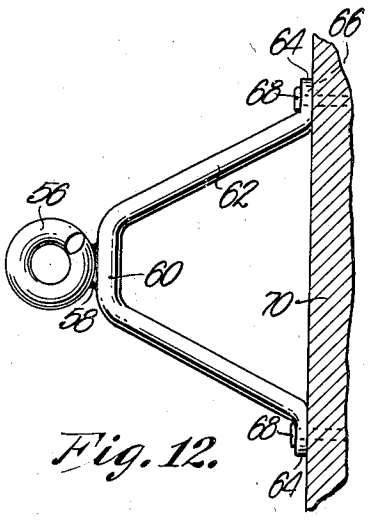


Fig. 12.

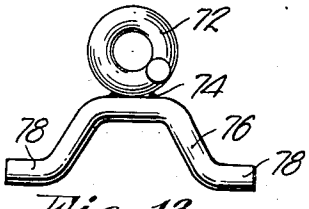


Fig. 13.

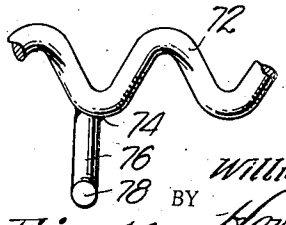


Fig. 14.

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UNITED STATES PATENT OFFICE

2,188,424

SUPPORT AND SPACER FOR CONCRETE REINFORCEMENTS

William Powell Awbrey, Kansas City, Mo.

Application May 7, 1938, Serial No. 206,681

5 Claims. (Cl. 72—122)

This invention relates to improvements in a support and spacer for concrete reinforcements and has for its principal object, the provision of an elongated, undulated member suitable for supporting reinforcing bars above the form surface in predetermined, spaced apart position.

In concrete building construction wherein metal reinforcing is used, it becomes necessary to support reinforcing bars in definite spaced apart position above the form surface. These bars when positioned, and before the concrete is poured, are ofttimes subjected to relatively heavy loads and rough treatment by the workmen so that it becomes necessary to definitely position the bars in order that they will retain their proper position and present proper reinforcing relation with the concrete when the slab is completed.

The principal object of this invention is the production of a support and spacer for concrete reinforcing rods wherein the rods may be quickly and definitely positioned, and which will withstand the rough usage to which the reinforcing structure is subjected.

Another object of the present invention is the provision of a support and spacer for concrete reinforcing bars comprising a continuous wire, undulated at regular intervals and offset to present two series of undulations in intersecting planes, and means for supporting said wire above the surface of a concrete form.

A further object of this invention is the provision of a support and spacer for concrete reinforcing bars wherein the elongated supporting member is so shaped as to present bar receiving depressions at different spaced apart distances by varying the angle of support with the supporting members.

A further object of the invention is the provision of a support and spacer for concrete reinforcing material adapted for use on either horizontally or vertically disposed surfaces.

With these objects in view, other minor objects will appear during the course of the specification, referring to the drawings wherein:

Figure 1 is a plane view of a support and spacer for concrete reinforcing bars embodying this invention.

Fig. 2 is a fragmentary side elevation of the support and spacer shown in Fig. 1.

Fig. 3 is a transverse section taken on line III—III of Fig. 1.

Fig. 4 is a plane view of a support and spacer using the same elongated, undulated supporting wire as shown in Fig 1, but with separate spaced apart supporting chairs.

Fig. 5 is a side elevation of the support and spacer as shown in Fig. 4.

Fig 6 is a cross sectional view taken on line VI—VI of Fig 4.

Figs. 7, 8 and 9 are plane, side elevation and end views respectively, of a modified form wherein the elongated supporting wire is in helical form supported by spaced apart chairs.

Fig. 10 is a further modification of the support and spacer similar to that shown in Figs. 7, 8 and 9, but having a helical elongated wire of materially greater lead.

Figs. 11 and 12 show a support and spacer suitable for use on vertical building elements; and,

Figs. 13 and 14 show a slight variation over modified forms shown in Fig. 7 wherein the chair is attached to the lower portion of the helical longitudinal wire.

Referring first to the preferred form shown in Figs. 1, 2 and 3, the numeral **20** designates an elongated, undulated wire or bar of sufficient strength to carry the particular load contemplated. This wire **20** is uniformly undulated and then formed so as to present two series of V-shaped portions **22** and **24**, the adjacent portions being disposed in different planes and the alternate portions being disposed in a common plane, thereby presenting two distinct series of undulations in intersecting planes. As shown in these figures, these planes are disposed at right angles but may be at any other angle when it is desired to obtain slightly different results.

This elongated wire **20** is supported in a raised position by a base member **26** formed in like manner as wire **20** to present legs **28** and **30**, and a series of equally spaced apart apexes **32** to which is welded the longitudinal wire **20**, as shown at **34** in the various views.

The height of the longitudinal supporting wire **20** above the surface of the form may be easily varied by simply increasing or decreasing the length of legs **28** and **30**. Furthermore, the legs **28** and **30** may be made of different relative lengths so as to properly position the center of gravity of the load carried by the support.

The position of wire **20** in the base member **26**, shown in Figs. 1, 2 and 3, are such that the plane of the portions **24** is parallel with the supporting surface, thereby presenting a horizontal support for a reinforcing bar B as shown in Fig. 2. While many of the reinforcing bars now in common use are substantially cylindrical in form, it is apparent that this positioning of the supporting wire **20** would carry any of the various reinforcing bars at the proper height.

In the modified form shown in Figs. 4, 5 and 6 the elongated, undulated wire **20** is identical with that shown in Fig. 1, the only material difference in the general construction being that the chairs **36** are separate and welded at **38** to wire **20** in spaced apart relation. Also, the wire **20** is positioned so that the planes of the series of wire portions **22** and **24** are projected downwardly and outwardly from the intersecting line of these planes.

It will be observed that when the longitudinal wire **20** is so positioned on the chairs that a series of depressions **40** will be presented for the reception of reinforcing bars and these depressions will be spaced apart one half the distance of the depressions shown in Fig. 2. This type of support and spacer might also be provided with the same form of base shown in the preferred form.

Referring now to Figs. 7, 8 and 9, it will be observed that the longitudinal, undulated wire **42** is helical in form to present depressions **44** for the reception of reinforcing bars in spaced apart relation. This helical wire is provided with spaced apart chairs **46** which may conform to the curvature of the wire **42** at the point of welding **48**. Due to the helical form of wire **42**, the opposite legs **50** of chair **46** will be slightly offset longitudinally of the helical wire, or in certain instances they may be in a plane perpendicular to the axis of the helix and spot welded at the point of intersection.

Fig. 10 is identical in general structure with that shown in Fig. 7, the only difference being that the lead of the helical wire **52** is greater than that of the wire **42**. Also, the legs of chair **54** are offset a greater distance to conform to the curvature of the helix.

The structure shown in Figs. 11 and 12 is especially adapted for use on vertical walls and comprises an elongated helical member **56** spot welded at **58** to the outer portion **60** of chair **62**. This chair **62** has out-turned feet **64** perforated at **66** to receive fastening means **68** by means of which the supporting and spacing member is secured to the vertical wall form boards **70**.

The modified form shown in Figs. 13 and 14 is suitable for use in the construction of horizontal slabs and consists of a helical longitudinal wire **72** welded at **74** to chair **76**. Chair **76** has out-turned feet **78** for supporting heavy loads without being forced materially into the texture of the form boards. By attaching the chair **76** to the lower portion of the convolutions, it is evident that the same height of the supporting longitudinal wire is obtained with the use of a less quantity of wire in the chair structure.

It is quite evident that the type of base or support for the longitudinal wire might be the same in all forms of support and spacers shown. The base member **26** may be used without departing from the spirit of this invention. It is apparent from the above description of the drawings, that I have produced a simple, economical, yet sturdy support and spacer, suitable for positioning reinforcing bars for the reception of concrete for the formation of reinforced slabs.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A support and spacer for concrete reinforcing bars comprising a wire formed to present two series of V-shaped portions, the portions of each series being in a common plane and the planes of the two series being disposed at an angle to each other; and means whereby said formed wire is supported above a building form surface with said planes of the two series disposed obliquely to the form surface.

2. A support and spacer for concrete reinforcing bars comprising a continuous wire formed to present a series of V-shaped portions, adjacent V-shaped portions being disposed in different planes and alternate portions being in a common plane; and means for supporting said wire in a raised position above a building form surface.

3. A support and spacer for concrete reinforcing bars comprising a longitudinal, helical formed wire of uniform convolutions; means secured to said helical wire above the axis thereof for supporting said wire at a predetermined distance from a form surface whereby a depression for the reception of a reinforcing bar is provided at each convolution of the helical wire.

4. A support and spacer for concrete reinforcing bars and the like, comprising a regularly undulated elongated ridge wire having a series of said undulations in a common plane; means secured to said ridge wire to position it a predetermined distance above the horizontal surface of a building form, with the plane of said series of undulations disposed obliquely thereto.

5. A support and spacer for concrete reinforcing bars comprising a ridge wire corrugated laterally so that the upper surface thereof lays in a common plane, and means secured to said ridge wire at spaced apart distances to support said ridge wire above the horizontal surface of a building form, with the common plane of said corrugations disposed obliquely thereto.

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