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CONCRETE REINFORCEMENT SPACER

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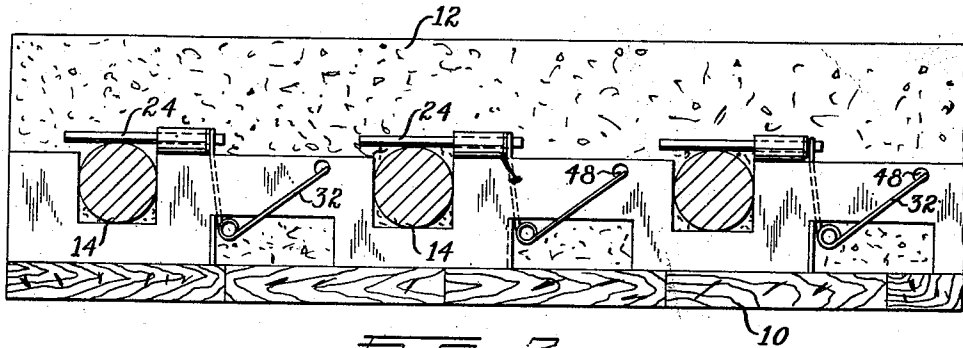


Fig. 2.

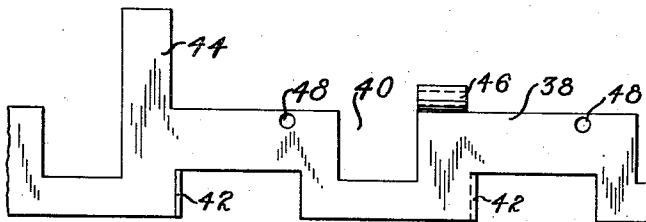


Fig. 3.

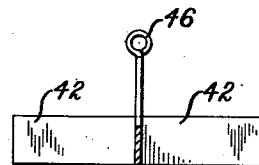


Fig. 4.



Fig. 5.

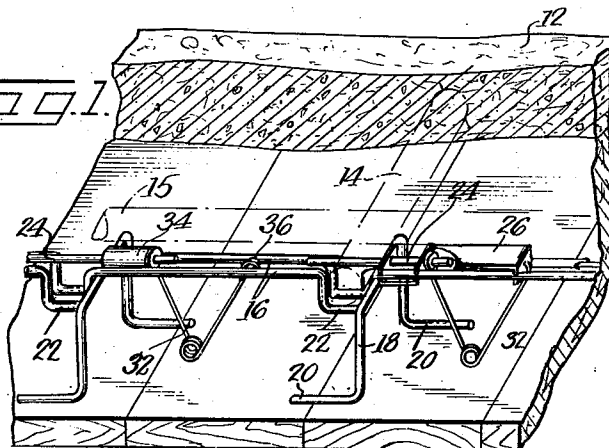


Fig. 6.

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CONCRETE REINFORCEMENT SPACER

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8 Claims. (Cl. 72-122)

This invention relates to a supporting spacer for reinforcing bars or other elements which are used in concrete structures.

It is common practice to employ reinforcing bars in concrete floors, side walls, columns, footings, beams, and wherever such or similar concrete structures are used to reinforce the concrete. Such reinforcing bars are supported in spaced-apart relation with respect to each other and spaced from the wall of the form so that when the concrete is poured into the form the reinforcing bars will be imbedded in the concrete in the desired spaced-apart relationship with respect to each other and with respect to the outer surfaces of the concrete structure itself.

An object of this invention is to provide a reinforcing bar supporting unit or structure adapted to be secured to a concrete form for support thereby within the space to be occupied by the concrete, which will be laid within the form, which supporting unit is adapted to support and position the reinforcing bars or elements in the proper spaced relationship with respect to each other and with respect to the space that the concrete, within which such bars will be imbedded, will occupy.

Another object is to provide a reinforcing bar support and spacer which is so constructed that when the reinforcing bars are placed therein they may be automatically engaged thereby and held against accidental displacement.

The construction of the support and spacer is such that wiring or other means of attaching the bars thereto is not required but bar retaining pins or means is provided which engage the bars and hold them in place.

The construction is simple and inexpensive. It is one which lends itself to ready attachment and ease of manipulation. It is adaptable for use by unskilled labor and does not require tools for the placement of the reinforcing bars. The construction is such that if the reinforcing bars are properly placed they will surely be held as desired.

The invention is shown in different modifications embodying the same general fundamental idea of ease of placement of the bars, accurate spaced positioning of the bars, and automatic engagement of the bars to hold them in place once they are positioned.

Other objects, advantages, and meritorious features of the invention will be more fully apparent from the following specifications, appended claims, and accompanying drawing herein.

Figure 1 is a perspective of a fragment of a

form and concrete structure showing the support and spacer of the invention in position.

Fig. 2 is a cross section through a fragment of a concrete structure and its supporting form showing a modification of this improved spacer and support in use.

Fig. 3 is a side elevation of the blank partially formed up and out of which the spacer of Fig. 2 is constructed.

Fig. 4 is a cross sectional view through the blank shown in Fig. 3.

Fig. 5 is the side elevation of one of the retaining pin guides shown in Fig. 1, and

Fig. 6 is the end elevation of the guide shown in Fig. 5.

In concrete work where a side wall, column, footing, floor or other concrete structure is being built, a form is provided within which the concrete is placed. This form is built up of lumber or in any other suitable manner. The reinforcing rods or other elements are positioned within the space the concrete is to occupy to reinforce the concrete. It is desired that these reinforcing rods be positioned spaced apart with respect to each other and at the proper distance within the form to obtain the desired location within the concrete structure.

The improved support and spacer units shown in the application is designed to accomplish this end. In Fig. 1 of the drawing a portion of the form is indicated as 10. The concrete material is indicated as 12. Suitable spacer rods are indicated in dotted outline as 14. The improved spacer support here shown comprises a longitudinally extending stringer which in this figure of the drawing is made up of a pair of parallel wires 16 supported by legs 18 which legs are provided with feet 20. The feet 20 may be stapled or secured in any suitable manner to the form. The two parallel wires 16 which jointly constitute the stringer may be welded or otherwise secured to the leg elements 18.

These wires 16 are bent as at 22 to provide sockets or saddle portions within which a reinforcing rod 14 is adapted to seat as shown in Fig. 1. These saddle portions 22 would be formed to the desired size to receive any particular size of reinforcing rod that was to be used. The saddle portions are arranged at spaced intervals along the stringer 16, the legs and feet are likewise arranged at spaced intervals along the stringer as shown in the drawing.

To retain the reinforcing rods 14 in place once they are seated within the saddles we provide suitable retaining elements. These retaining ele-

ments are adapted to function automatically to releasably lock the saddle portions. The retaining elements shown in Fig. 1 as well as in Fig. 2 of the drawing are spring-controlled. Springs are provided to maintain the retaining elements in a position which normally holds the reinforcing rods within their saddle seats.

As illustrated in Fig. 1 there is associated with each saddle portion a retaining pin 24. This retaining pin is mounted for slidable movement within a guide element carried by the stringer. Two slightly different types of guide elements are shown in Fig. 1. The guide element shown at the right of the figure is formed of sheet metal and is indicated as 26. It is shown in detail in Figures 5 and 6. The strip 26 is bent to provide two aligned apertures 28. The retaining pin 24 extends through these apertures for slidable movement. The ends of the element 26 are notched as at 30 on opposite sides and these notches are seated between the two wires 16 that make up the stringer as shown in Fig. 1. If desired, this element may be further secured by being welded or the like to the leg member 18. A spring 32 is shown which has one end secured within an aperture at one end of the retaining element 26 and the opposite end secured to the retaining pin 24 to normally project the same over the saddle portion 22 as shown in Fig. 1 of the drawing.

The guide element shown at the left of Fig. 1 differs from that just described in that there is a cylindrical socket 34 secured to the wire 16 as illustrated, and through which the retaining pin 24 extends and is slidable. The spring 32 has one end secured to the pin 24 and has its opposite end secured to a stationary cross piece 36 as illustrated in Fig. 1 so that its tendency is normally to project the pin 24 over the saddle portion as illustrated.

It is obvious that the functioning of the pin would be the same in either case. It is likewise apparent that the pin will have to be forced rearwardly against the tension of the spring to permit the reinforcing bar 14 to be received in the saddle. It is apparent that when the pin is forced back, and this may be accomplished by pushing the rod 14 against the end of the pin and the rod is dropped into the saddle 22, that the pin will be automatically projected forwardly over the rod to hold it in place. The functioning would be the same, regardless of whether the guides shown at the right of Fig. 1 or at the left thereof were used.

In Fig. 2 of the drawing there is shown a modified type of support and spacer. In this figure the form is indicated as 10, and the concrete as 12, as in Fig. 1. The reinforcing rods are likewise indicated as 14 as above. The spacer here shown is formed of sheet metal which has been cut and bent as illustrated. The strip of sheet metal which is indicated generally as 38 is cut out along longitudinal margin to provide a series of relatively spaced-apart saddle portions 40. It is cut out along the opposite longitudinal margin and the sections so severed are bent out at right angles to provide feet 42. The web of the strip may be shaped to provide portions 44, one adjacent to each saddle socket, which portions 44 may be rolled over as shown at 46 to provide guides for the retaining pins.

The retaining pins identified as heretofore by the numeral 24 are slidably supported within these guides 46. They are held by springs 32 hereinabove described so as to be normally pro-

jected and retain the reinforcing rods in place therein. In this case the opposite end of the spring may be secured within an opening 48 in the web of the sheet metal strip 38 as shown in Fig. 2. The operation of the structure just described as shown in Figures 2, 3 and 4 is the same as the operation of the structures shown in Fig. 1 above set forth.

Though not shown in Fig. 2, it is apparent that this same second series of reinforcing rods 15 may be provided and as shown in Fig. 1, may be laid crosswise upon the rods 14 abutting against the supporting spacer unit.

The disclosures of Figures 1 and 2 illustrate the use of the supporting rods and spacer in conjunction with a floor structure. It is apparent it is equally useable in connection with side walls, beams, or any other structural concrete forms as hereinafter set forth. When used for such side walls or columns, the second series of rods 15 may be wired to the first series to hold them in place if such method were desired. On the other hand, a second series of spacer supports might be used, extending in the opposite direction from the first series and of a similar character for the purpose of holding the second series of reinforcing rods.

What we claim:

1. A reinforcing bar spacer and supporting unit comprising a longitudinal stringer provided at spaced-apart intervals throughout its length with saddle portions, each saddle adapted to seat a reinforcing rod, a retaining element associated with each saddle portions and carried by the stringer and adapted to be moved over the saddle portion to hold the reinforcing rod therein, and spring means coupled with said retaining element adapted to normally hold the retaining element in position over the saddle portion to secure the reinforcing rod therein.

2. A reinforcing bar support and spacer comprising a longitudinal stringer provided at spaced intervals along one margin with feet adapted to support the stringer spaced from a concrete form and provided along the opposite margin with saddle portions adapted to seat a reinforcing rod, a retaining pin guide carried by the stringer and disposed adjacent each saddle portion, a retaining pin slidably mounted within each guide and adapted to be projected over said saddle portion.

3. A reinforcing bar support and spacer comprising a longitudinal stringer formed by a pair of substantially parallel wires bent at spaced intervals to provide saddle portions, each saddle portion adapted to seat a reinforcing rod, feet portions secured to said wires adapted to support the same spaced from a concrete form, a retaining pin guide for each saddle portion supported upon said wires adjacent to one side of the saddle portion, a retaining pin slidably mounted within said guide for slidable movement to be projected over said saddle portion or to be withdrawn to uncover the same and a spring adapted to normally project said pin over said saddle portion.

4. A reinforcing bar support and spacer comprising a longitudinal stringer formed by a pair of substantially parallel wires bent at spaced intervals to provide saddle portions, each saddle portion adapted to seat a reinforcing rod, said wires provided with feet portions adapted to support the same spaced from a concrete form, a retaining pin guide for each saddle portion supported upon the wires adjacent one side of the saddle portion, a retaining pin mounted within

said guide for slidable movement, a spring element coupled at one end with the pin and at the opposite end with said wires, said spring depending below the wires and adapted normally to project the pin to cover the saddle or to permit the pin to be withdrawn against the tension of the spring to uncover the saddle.

5 5. A reinforcing bar support and spacer formed of a strip of sheet metal having cut-outs at spaced intervals along one longitudinal margin forming saddle portions, each saddle portion adapted to seat a reinforcing bar, such strip provided along the opposite longitudinal margin at spaced intervals with feet portions adapted to engage a concrete form, said strip provided with a projecting portion adjacent to each saddle cut-out which projecting portion is bent over upon itself forming a retaining pin guide and a retaining pin mounted within each guide adapted to be projected over the saddle portion.

6. A reinforcing bar spacer and supporting unit comprising a longitudinal stringer provided at spaced intervals throughout its length with seats for receiving and retaining reinforcing rods, a retainer pin associated with each seat and mounted for lengthwise bodily movement parallel to the stringer from a position to one side of the seat to a position overlying the seat, and means exerting a force yieldingly resisting return movement of each retainer pin when it is in position overlying the seat.

7. A reinforcing bar support having a seat into which a rod may be received and retained, a retainer pin guide on said support adjacent said seat formed of a strip of metal bent in such a shape that at least two portions thereof extend in spaced parallel relationship, said portions being apertured in alignment, and a retainer pin bodily lengthwise movable through the apertured portions and adapted in one position to overlie the seat.

8. A reinforcing bar support and spacer comprising a stringer formed of a strip of sheet metal having cut-outs disposed at spaced intervals along one margin forming saddle portions, each saddle portions adapted to seat a reinforcing bar, means for supporting the strip in upright position in a concrete form with the cut-out marginal portion forming the top edge thereof, a retaining pin guide secured along the margin of the strip adjacent to each saddle portion, a retaining pin slidably disposed in said guide and spring means acting upon said pin adapted to normally project the pin to cover said saddle portion, said pin adapted to be withdrawn against the tension of the spring to uncover the saddle portion.

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