May 12, 1964 J. W. PHILLIPS ETAL 3,132,448

CHAIR FOR CONCRETE REINFORCING RODS

Filed May 8, 1958

3 Sheets-Sheet 1

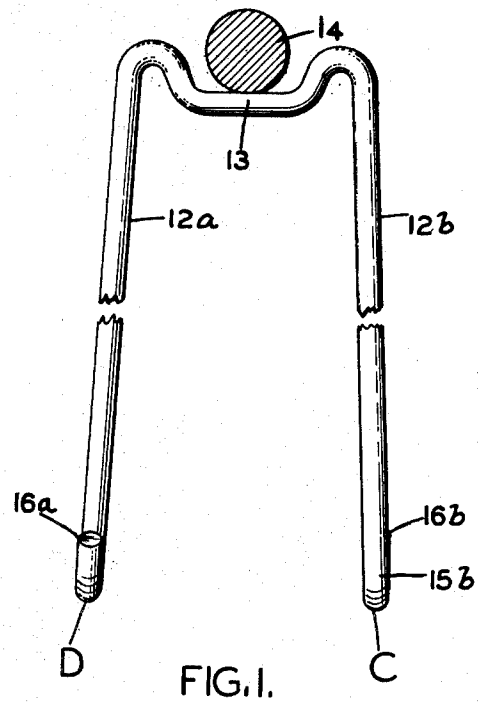


FIG. 1.

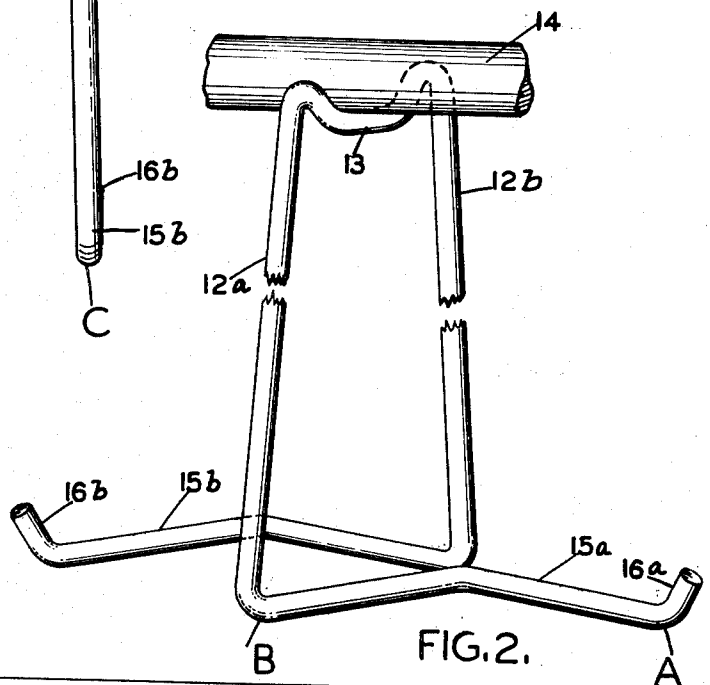


FIG. 2.

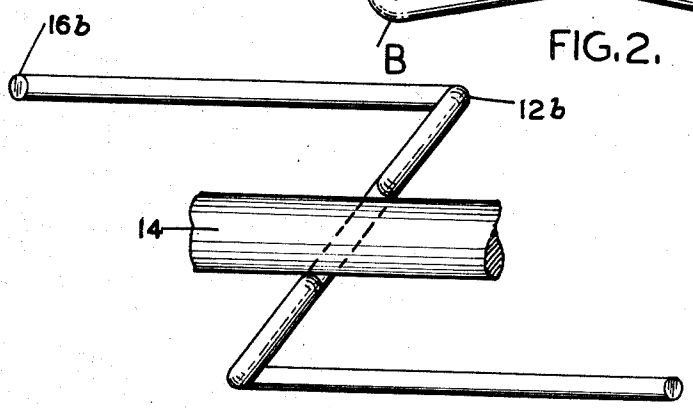


FIG. 3.

INVENTORS
JOHN W. PHILLIPS
RUSSELL G. HARROP
ROY R. WAUGH

BY McGrew and Edwards
ATTORNEYS

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3 Sheets-Sheet 2

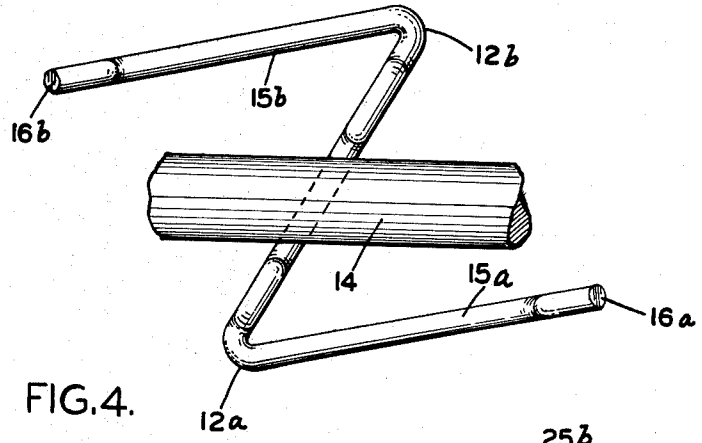


FIG.4.

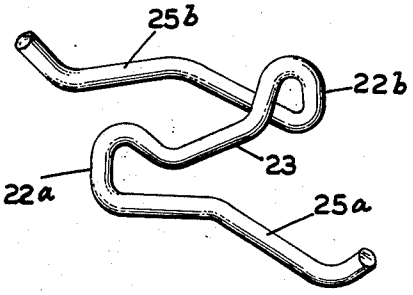


FIG.5.

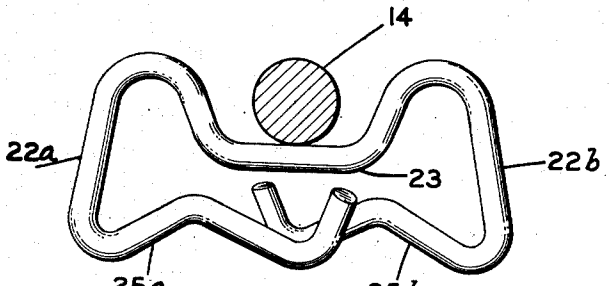


FIG.6.

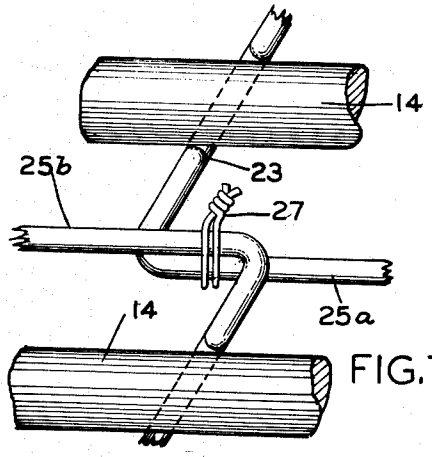


FIG.7.

INVENTORS
JOHN W. PHILLIPS
RUSSELL G. HARROP
ROY R. WAUGH

BY McGrew and Edwards
ATTORNEYS

May 12, 1964 J. W. PHILLIPS ETAL 3,132,448

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3 Sheets-Sheet 3

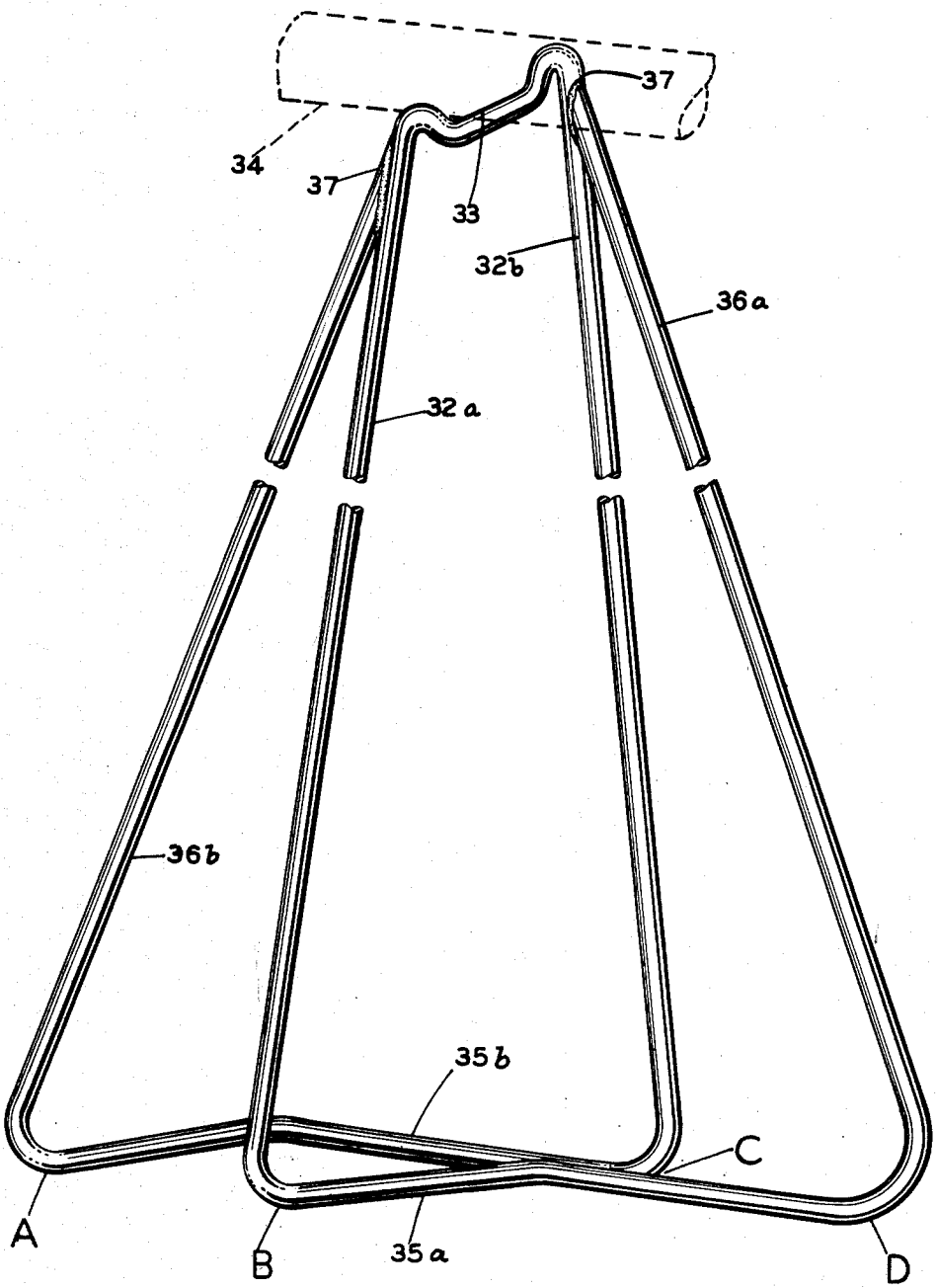


FIG.8.

INVENTORS
JOHN W. PHILLIPS
RUSSELL G. HARROP
ROY R. WAUGH

BY McGrew and Edwards

ATTORNEYS

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CHAIR FOR CONCRETE REINFORCING RODS

John W. Phillips, Littleton, and Russell G. Harrop and Roy R. Waugh, Denver, Colo., assignors to The Colorado Builders' Supply Co., Denver, Colo., a corporation of Colorado

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3 Claims. (Cl. 50—519)

This invention relates to seating devices for concrete reinforcing bars, rods or the like, and relates more particularly to seating devices for concrete reinforcing bars, which are adapted to form part of the reinforcing structure for the concrete in which they are embedded.

In forming concrete mats of substantial thickness and other horizontally-disposed shapes, the location and support of reinforcing bars presents a difficult problem, particularly when the pour extends over large areas. If the reinforcing bars are fixedly interconnected, a considerable time and expense is involved in making the necessary connections and this may place an undue cost or an excessive time delay in completing the concrete structure.

It is an object of this invention to provide a simple, durable and efficient structure for providing adequate support for concrete reinforcing bars at selective positions, which may be adjusted easily, and which become a permanent part of the reinforcing of the concrete when set.

Another object of the invention is to provide a chair or support design for concrete reinforcing bars which may be produced in a variety of sizes, which will function similarly in use and may be used separately or in combinations.

A further object of the invention is to provide a simple, durable and efficient supporting structure for concrete reinforcing bars which is essentially non-tipping and may be used without fastening to the supported bar.

Other objects reside in novel details of construction and novel combinations and arrangements of parts, all of which will be described fully in the course of the following description.

In the practice of the present invention a two-legged supporting structure has oppositely-directed, bowed base portions extending from the respective legs and collectively providing a four-point bearing support. The elongated bowed portions are substantially parallel and the upper ends of said legs are interconnected by a saddle or seat portion disposed in non-perpendicular or acute angular relation to said base portions. Consequently when a reinforcing bar is seated in the saddle in substantially perpendicular relation to its lengthwise axis, the extended axis of the base portions intersect the axis of the bar at an acute angle to resist tipping induced by forces applied in lengthwise or lateral directions.

The practice of the invention will be described with reference to the accompanying drawings, in the several views of which like parts bear similar reference numerals, and in which:

FIG. 1 is an end elevation of one embodiment of our invention;

FIG. 2 is a side elevation of the reinforcing bar support shown in FIG. 1;

FIG. 3 is a top plan view of the support shown in FIG. 1, with the reinforcing bar in substantially parallel relation to the base portions as in the initial mounting stage of the reinforcing assembly;

FIG. 4 is a top plan view similar to FIG. 3, with the base portions moved to place the saddle in nearly perpendicular relation to the bar which is in the normal position during pouring of the concrete;

FIG. 5 is a perspective view of another embodiment of this invention;

FIG. 6 is an end elevation of the supporting structure shown in FIG. 5 with the reinforcing bar shown in section in seated position;

FIG. 7 illustrates a typical arrangement for placing supports in adjoining relation for the support of a plurality of reinforcing bars in close proximity; and

FIG. 8 is a side elevation of another embodiment of the invention, particularly suited for the support of pipes or conduits being embedded in concrete at elevated positions.

The form of the invention shown in FIGS. 1 through 4 illustrates a typical use of the invention. The reinforcing bar chair of this embodiment comprises two upright leg portions 12^a and 12^b interconnected by a generally U-shaped seat or saddle portion 13 formed of a bottom portion and side portions in which saddle a reinforcing bar or rod 14 is fitted. The lower end of the upright terminates in an elongated, upwardly bowed base portion 15^a or 15^b, respectively, which terminate in upstanding ends 16^a or 16^b, and extend oppositely from the legs in substantially parallel relation to provide a four bearing support as indicated at A, B, C and D in FIG. 2.

In the initial assembly procedure, the chair may be placed in any selected location lengthwise of the reinforcing bar with the base portions 15^a and 15^b generally parallel to the bar and with the side portions of the saddle in engagement with said reinforcing bar. After a series of such chairs have been located to provide support for the entire length of the bar, individual chairs may be moved forward or backward along the bar to provide a final adjustment of the spacing, at which time the extended axis of the base portions will be in actute angular relation to the bar so as to position the saddle 13 nearly perpendicular to the lengthwise axis of the bar as shown in FIGS. 1 and 4. In the position shown in FIGS. 1 and 4, the side portions of the saddle 13 are out of engagement with the reinforcing bar.

By so positioning the chairs, an essentially non-tipping support is provided without any fastening of the bar on the chair, the weight of the bar holding the chair firmly on its four bearing point support and the positioning of extended axis of the base portions 15^a and 15^b in acute angular relation to the bar stabilizes the support against forces directed lengthwise or laterally of the bar. Therefore, it is possible to support a reinforcing bar without any fastening to the chairs, or by fastening at intervals as by use of a tie wire or other lightweight clamp. When a more stable assembly is required, the bar may be fastened to each support and lightweight tie wires will be ample for this purpose.

By using chairs of different vertical extent, the reinforcing bars may be distributed at different elevations in the concrete in parallel, transverse, or other desired arrangements. After the reinforcing assembly is completed in the manner previously described, the concrete is poured, allowed to set and the chairs become a part of the reinforcing of the concrete. The bowed shape of the base portions serves to embed nearly all the material of the base in the concrete with only the metal of the bearing surfaces A, B, C and D exposed at the face of the concrete.

The embodiment illustrated in FIGS. 5 and 6 is similar in function to the chair shown in FIG. 2, and discloses a preferred arrangement for disposing the saddle or seat for the reinforcing at only a slight elevation above the bottom of the concrete mat. In this form the upright leg portions 22^a and 22^b are interconnected by a saddle portion 23 on which a reinforcing rod 14 is supported and the respective base portions 25^a and 25^b are similar to the base portions 15^a and 15^b except for dimensional differences.

This embodiment also provides a four bearing point

support as previously described, and the extended axis of the base portions are positioned in actute angular relation to the bar 14 to effectively resist tipping. The practice of the present invention provides a range of sizes with substantial range in the vertical extent of the chair. Usually smaller sizes will utilize a smaller gauge wire but any of the chairs may be formed of any desired weight of wire.

FIG. 7 is a fragmentary view illustrating one method of interconnecting chairs for supporting a plurality of bars 14 in close proximity. In the arrangement shown, two chairs of the type shown in FIG. 5 are joined together with the base 25^b of one and 25^a of the other in overlapping arrangement and held together by a tie wire 27 or other suitable fastening. As shown, the base portions 25^a and 25^b are in substantially parallel relation to the bars 14, and subsequently the base portions will be moved to establish the perpendicular relation of the saddle to the bar.

The embodiment of the invention shown in FIG. 8 is particularly suited for use in the support of pipes or conduits, at a substantial elevation above the level of base supports. As shown, the chair of this embodiment has substantially vertical leg portions 32^a and 32^b, interconnected at their upper ends by a saddle portion 33, and terminating at their lower ends in bowed base portions 35^a and 35^b to provide the four-point bearing support previously described. However, instead of terminating in short upstanding end portions, a stretch of the wire 36^a or 36^b beyond the bearing points A and D is turned and extended to contact the upper ends of the legs 32^b and 32^a, respectively, where it is permanently affixed as by welds 37. The saddle 33 supports a pipe or conduit 34, which usually is supported at a substantially higher elevation than the base support.

The provision of portions 36^a and 36^b and the fastenings 37 provides a very stable support, even when the legs 32^a and 32^b are of substantial vertical extent, for example, on the order of four feet or more. In many instances, the concrete pour will extent to an elevation between the base and the conduit, and after setting, the

extending portions of the several chairs may be removed, if necessary, to clear the space, as by burning, cutting, etc. However, the material of the entire chair is suitable for use as reinforcing material, and may be embedded in its entirety in the concrete whenever it is advantageous to do so.

We claim:

1. A reinforcing bar chair for use in concrete mats or the like, comprising two upright leg portions interconnected at their upper ends by a generally U-shaped saddle portion formed by two spaced side portions and a connecting bottom portion defining a plane, each leg having an extended base portion disposed in a substantially horizontal direction in generally parallel relation to the other base portion and directed oppositely to the other, the plane of said saddle portion being at an acute angle to said parallel base portions, the bottom portion of said saddle being substantially flat and of such length that a reinforcing bar adapted to be seated therein with its lengthwise axis parallel to said base portion will be engaged by the said sides of said saddle portion, and said chair being adapted for bodily rotation to position said base portions in a non-parallel relation to said bar, thereby moving said bar out of engagement with the sides of the saddle portion and increasing the resistance of a chair and supported bar to tipping.

2. A reinforcing bar chair as defined in claim 1 wherein each of the base members terminates in upstanding end portions.

3. A reinforcing bar chair as defined in claim 1 wherein each of the base members is upwardly bowed.

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