March 8, 1927 1,620,501

R. VOGEL

CONCRETE REENFORCING ROD CHAIR

Filed Sept. 15, 1926

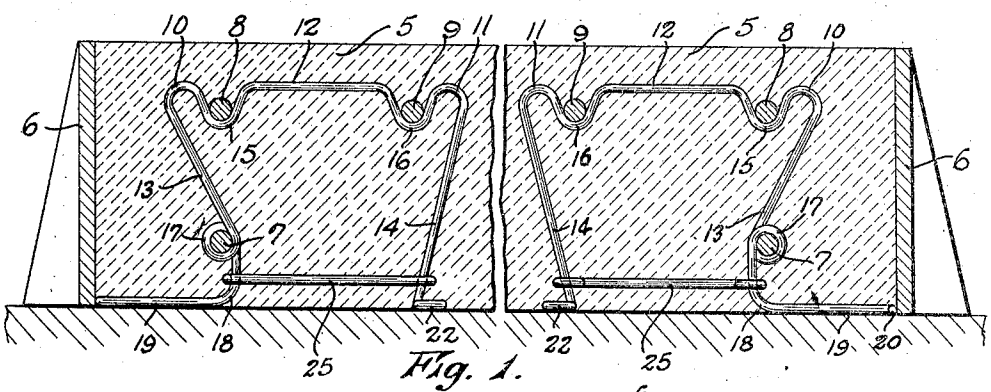


Fig. 1.

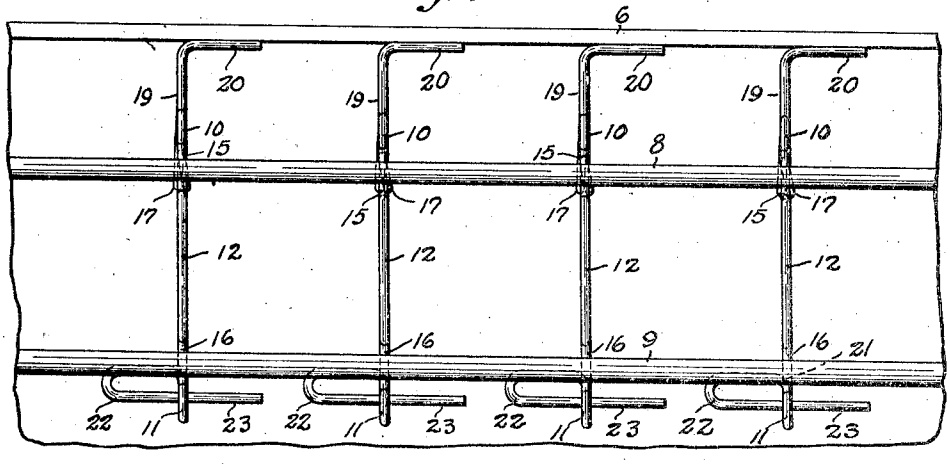


Fig. 2.

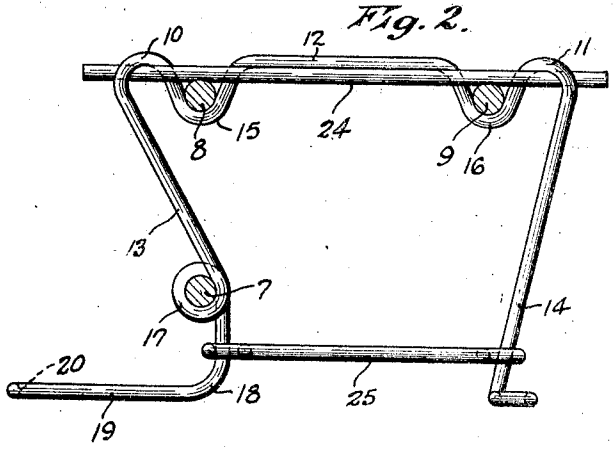


Fig. 3.

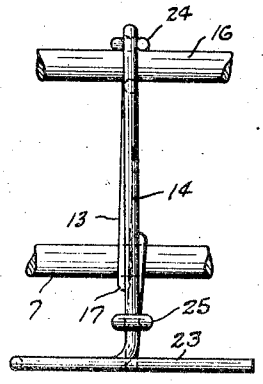


Fig. 4.

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CONCRETE-REENFORCING-ROD CHAIR.

Application filed September 15, 1926. Serial No. 135,525.

This invention relates to reenforcement for concrete roads and especially to the chair for supporting the horizontally extending reenforcing rods or bars.

In building concrete roads they are usually built in sections about twenty-five feet long, eight feet wide, and about eight inches thick. At the opposite side edges, and also at the ends, are usually placed three longitudinally extending steel reenforcing rods. These three rods for proper results must be accurately located both with respect to the side wall and surfaces of the concrete and also with respect to each other. At the present time a common way to support them during the pouring operation is by means of wooden chairs or frames or chairs made of heavy wire to which they are wired by wrapping a smaller wire about the support and the rods. These constructions are not satisfactory because it requires considerable labor to wire the reenforcing rods to the supports, and also it is difficult to so wire them that they will not shift out of position during the pouring and tamping of the concrete. It is, therefore, an object of my invention to provide a chair or support for the reenforcing rods which will securely hold them in the proper position without the necessity of wiring the rods to the supports, or if such wiring is found desirable it will be greatly simplified, and also to provide a support which may be manufactured at low cost, will accurately position the reenforcing rods, and will prevent their shifting out of position during the laying of the concrete.

With the foregoing and other objects in view, I have devised a construction of chair for supporting these reenforcing rods, the preferred form of which is illustrated in the accompanying drawing. In this drawing,

Fig. 1 is a transverse section through the outer side edges of a section of concrete road showing the longitudinally extending reenforcing rods or bars and the method of supporting the same by means of my improved support or chair.

Fig. 2 is a top plan view showing the reenforcing rods and the chairs in position, the distance between the chairs, however, not being to scale.

Fig. 3 is a side elevation of the chair on a larger scale showing the reenforcing rods in position, and

Fig. 4 is an end elevation thereof looking from the right of Fig. 3.

The concrete is represented by the numeral 5, and as is well known it is laid between suitable forms while wet and held thereby until it has sufficiently hardened or set. The side members of this form are indicated at 6. The outer side portions of the concrete road are reenforced by longitudinally extending steel rods or bars and these rods must be accurately located according to specifications. In the drawing these rods or bars are indicated at 7, 8 and 9, the common construction calling for three of these rods, the lower rod 7 and upper rod 8 being located about four inches inwardly from the edge of the concrete and they are vertically spaced about four inches from each other, leaving about two inches between the upper rod and the surface of the concrete and the same distance between the lower rod and the bottom of the concrete. The other upper rod 9 is spaced inwardly about six inches from the rod 8 and in substantially the same plane.

In laying the concrete these rods must be very accurately located to secure the desired results, and heretofore considerable difficulty has been experienced in economically securing them in the right positions and holding them there during the operation of laying the concrete. Common forms of support are wooden chairs or bent wires to which the rods are secured by wrapping a wire around them, but these are not satisfactory as the wires slip and the wiring requires considerable manual labor as there are a large number of these chairs used. Generally they are placed about two and one-half feet apart. With my construction of chair, however, the reenforcing rods are properly supported without the necessity of any wiring operation, and they are firmly held in the proper relative positions during the laying of the concrete. These chairs are made of a single piece of relatively heavy wire or small rod bent substantially to the shape shown in the drawing. The rod is bent laterally in the same direction at two points 10 and 11 spaced a proper distance from each other to form a horizontally extending upper portion 12 and two uprights 13 and 14 at the opposite ends thereof. The top member is also bent or offset downwardly at 15 and 16 adjacent the bends 10 and 11 to form substantially U-shaped loops which provide seats for the rods 8 and 9, and, of course, these downwardly extending seats or offsets are so located as to give the proper distance between

the rods 8 and 9. The upright member 15 is inclined inwardly somewhat from the bend 10 and is bent or wound to form an eye or loop 17 the required distance below the offset 15, and the inward incline of the upper upright brings this loop in substantially the same plane as the rod 8. It is preferred to make this loop as one continuous convolution which will wrap entirely around the rod 7, as it is easier to make and will also firmly hold this rod against lateral movement in any direction. The side member extends downwardly from this loop and is then bent outwardly, as shown at 18, to form a horizontal portion 19, preferably extending in substantially the plane of the chair, and at its outer end it is bent laterally to form a foot 20. The foot 20 is located a distance outwardly of the loop 17 so that when the chair is placed with this foot against the inner wall of the side member 6 of the form the loop 17 and the offsets 15 and 16, which will hold the reenforcing rods, will be in proper position to locate them as desired. The other upright 14 is also preferably inclined inwardly somewhat but at its lower end is bent laterally at 21 in the opposite direction from the foot 20 and then upon itself at 22 to form a portion 23 extending in the opposite direction and of sufficient length to extend beyond the plane of the chair on the same side as the foot 20. These feet, therefore, provide lateral supports for the chair on both sides of the plane of the chair.

In placing the reenforcement in position the required number of chairs are threaded onto the rod 7 by inserting this rod through the eye 17. The chairs are then placed with the foot 20 against the inner wall of the side of the frame 6 and at the proper distances apart. The upper rods 8 and 9 are then merely placed in the offsets 15 and 16. It will be obvious that the chairs will securely hold all three of these reenforcing rods in proper relation to each other and also the surfaces of the concrete. A downward pressure on the top portion 12 will more firmly clamp the rod 7. It will also be apparent that the operation of locating the chairs and placing the reenforcing rods therein is a very simple one which may be quickly and easily performed. The rod 7 is gripped by the walls of the loop 17 and firmly held against lateral movement in any direction and there is very little danger of either of the rods 8 and 9 being shifted out of their seats. Should, however, it be found desirable to positively hold them in these seats this may be done by means of a piece of wire or rod 24, which, as shown in Fig. 3, may be extended across and laid on the top of the rods 8 and 9 and its opposite ends merely bent laterally and slipped through the loops formed by the bends 10 and 11. It will be seen that this will firmly hold the rods 8 and 9 in their loops and prevent upward movement or displacement of these rods. In order to prevent spreading of the supporting side members 13 and 14 under the weight of the rods and concrete I may connect them at their lower portions by means of a tie rod 25, which is a piece of wire or rod similar to or the same as the stock used for the chair and at its opposite ends bent into an eye around the members 13 and 14.

Having thus set forth the nature of my invention, what I claim is:

1. A chair for supporting reenforcing rods comprising upright side members one of which is provided with a loop to support a transversely extending reenforcing rod, a top member connecting the side members and provided with spaced downwardly curved portions to form seats for reenforcing rods, and laterally extending feet at the lower ends of the side members.

2. A chair for supporting reenforcing rods comprising a rod bent to form a horizontal top member and upright side members, one of said side members being bent into a loop to embrace a reenforcing rod and the top member being provided with spaced downwardly extending bends to form seats for reenforcing rods, and the lower ends of the side members being bent laterally to form feet.

3. A chair for supporting reenforcing rods comprising a rod bent at spaced points to form a horizontal top portion and upright side portions, one of said side portions being provided with a loop to embrace a transversely extending reenforcing rod, the top member being bent downwardly to form a seat for a reenforcing rod, and one of the side members being bent laterally at its lower end to form a foot to hold the chair upright.

4. A chair for supporting reenforcing rods comprising a rod or relatively heavy wire bent to substantially inverted U-shape to provide a horizontal upper member and upright side members, said upper member being provided with spaced downwardly offset bends to provide seats for transversely extending reenforcing rods and similar inverted bends adjacent the first bends, and a wire or rod extending across over the transverse rods and extending into and held by said inverted bends.

5. A chair for supporting reenforcing rods comprising a rod or relatively heavy wire bent to substantially inverted U-shape to provide a horizontal upper member and upright side members, one of said side members being bent into a loop to embrace a transversely extending reenforcing rod and having a horizontally extending foot at its lower end, said upper member being provided with spaced downwardly offset bends to provide seats for transversely extending

reenforcing rods and similar inverted bends adjacent the first bends to hold a transverse wire or rod extending across over the transverse rods.

6. A chair for supporting reenforcing rods comprising a rod bent in the same direction at spaced points to provide a horizontally extending portion and spaced upright portions at the opposite ends thereof, said horizontal portion being provided adjacent the first bends with downwardly extending substantially U-shaped bends to form seats for reenforcing rods, one of the upright portions being bent into a loop to embrace a reenforcing rod and extending outwardly below the loop in the plane of the chair and then laterally to form a foot at its lower end, the other upright portion being bent laterally at its lower end and backwardly upon itself in the opposite direction to form a foot.

7. A chair for supporting reenforcing rods comprising a rod bent to substantially inverted U-shape with the upper part provided with seats for reenforcing rods and one of the side members provided with a seat for a similar rod, laterally extending feet at the lower ends of the side members, and a tie rod connecting the side members adjacent their lower ends.

In testimony whereof I affix my signature.

REINHOLD VOGEL.