March 11, 1930. J. N. HELTZEL 1,750,106

REENFORCING ROD CHAIR

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FIG. 1.

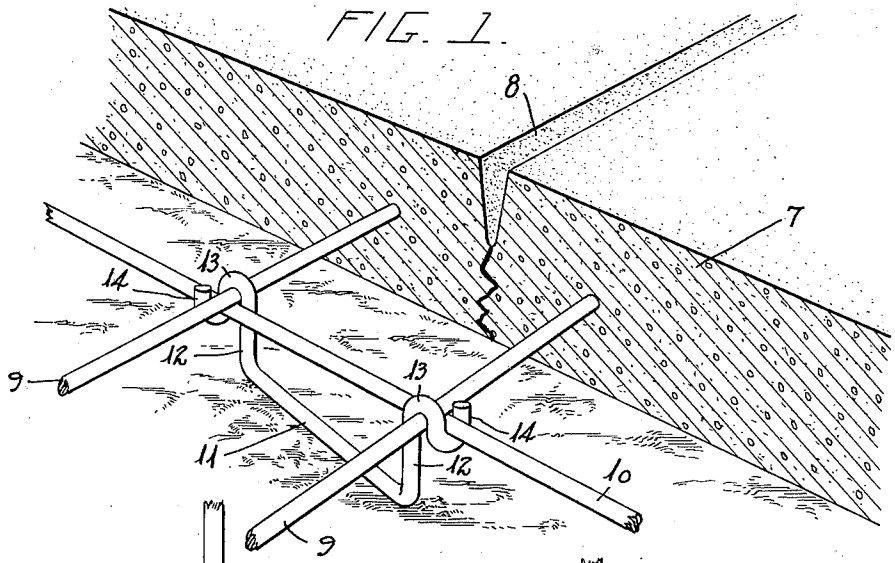


FIG. 2.

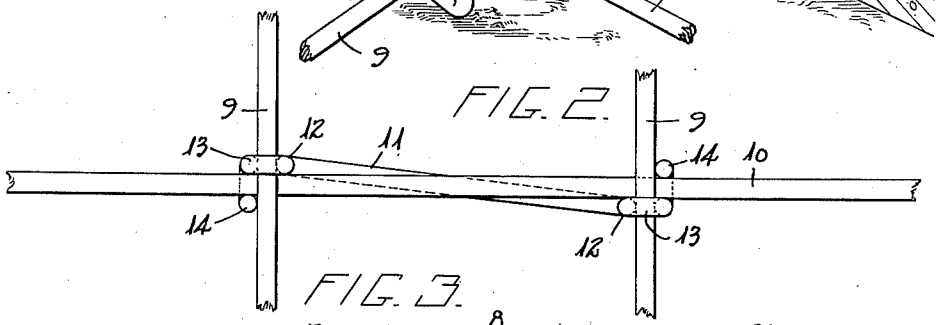


FIG. 3.

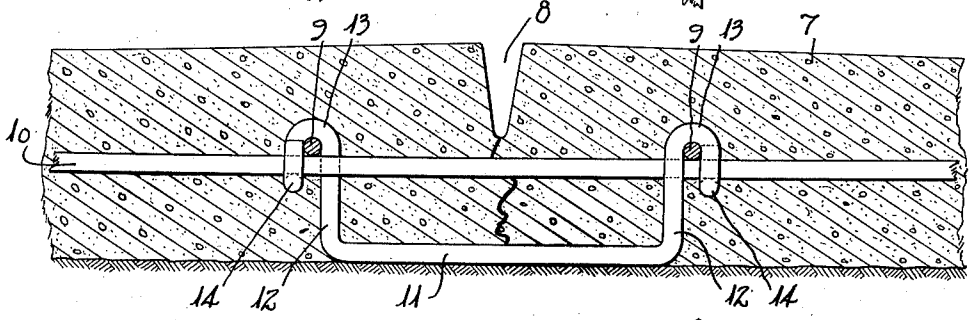
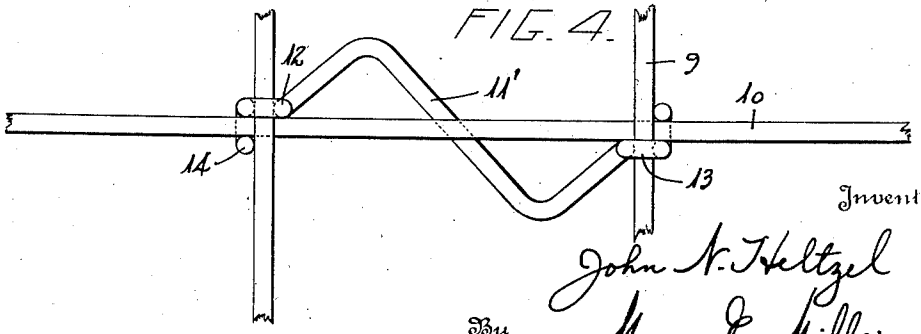


FIG. 4.



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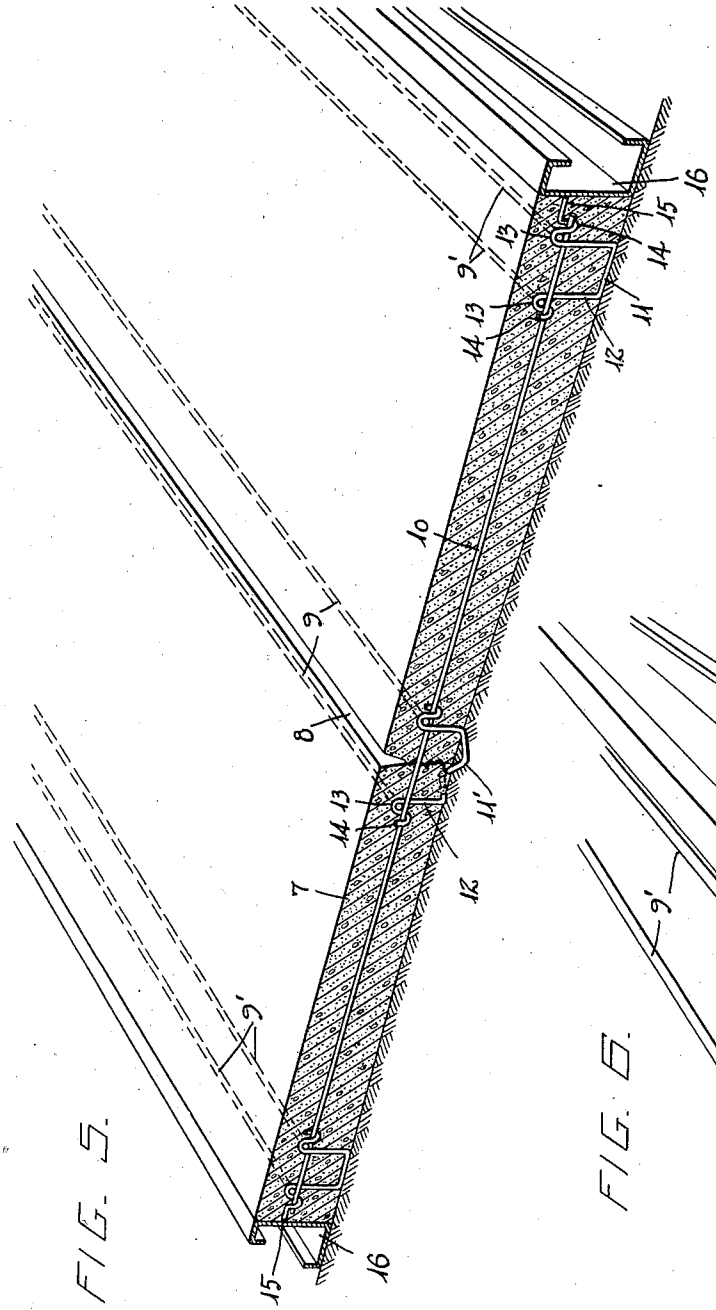


FIG. 5.

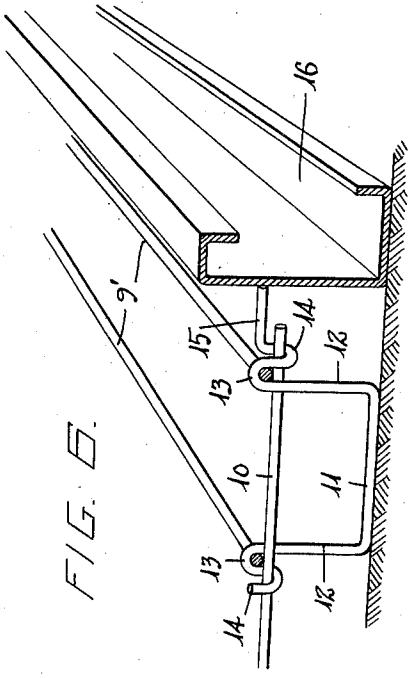


FIG. 6.

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REENFORCING-ROD CHAIR

Application filed May 7, 1927. Serial No. 189,544.

The present invention relates to chairs for supporting reenforcing rods or bars above the ground or sub-base in order that the rods will be properly positioned and embedded in a concrete road, pavement or other surfacing structure.

It is the object of the invention to provide a simple, inexpensive and efficient chair for supporting reenforcing rods that cross one another.

A further object is the provision of such a device for supporting two parallel rods and a third rod crossing them, to support said rods above the ground or sub-base and maintain the parallel rods spaced a predetermined distance apart, as well as maintaining the device or chair in place.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a perspective view of the improved chair, illustrating a fragmentary portion of a concrete road in section.

Fig. 2 is a plan view of the chair.

Fig. 3 is an elevation of the chair, showing the concrete road in cross-section.

Fig. 4 is a plan view corresponding to Fig. 2, illustrating a modification.

Fig. 5 is a perspective view illustrating a road in cross section with three chairs therein.

Fig. 6 is a perspective view of one of the side chairs shown in Fig. 5 previous to the pouring of the concrete.

As illustrated in Figs. 1 and 3, the chair is used in connection with reenforcing rods embedded in a concrete road 7, which, as shown, is formed with a longitudinal groove 8, preferably midway between the sides or edges of the road, to divide the road into opposite sections or slabs. The groove 8 is filled with a bituminous composition, tar, asphalt, colored concrete, or other suitable material, to seal the joint and provide a traffic line. The concrete will break, after it has set, below the groove 8, thereby dividing the road into opposite side sections or slabs. Longitudinal reenforcing rods or bars 9 are embedded in the concrete at opposite sides of the grooves 8, and at suitable longitudinal intervals cross or tie rods 10 extend transversely under the groove 8 for tying the opposite side sections or slabs together, to prevent separation thereof below the groove 8. Said reenforcing rods are spaced above the ground or sub-base and are also spaced below the surface of the concrete.

The chair, forming the subject matter of the present invention, is employed to support the rods 9 and 10 at the desired height above the sub-base, and the chair is formed in a simple and inexpensive manner from a length of rod, stout wire, or other suitable stock.

The chair has a base 11 to seat on the sub-base, and pedestals or upright portions 12 extend upwardly from the opposite ends of the base 11 and extend across opposite sides of the rod 10 which extends under the rods 9, with the portions 12 extending across the rods 9 at the inner or adjacent sides thereof. The portions 12 constituting the terminals of the rod or member from which the chair is formed, are formed with double bends, thereby forming the hooks 13 straddling or engaging over the rods 9, and the secondary hooks or stirrups 14 engaging under the rod 10 at the outer or opposite sides of the rods 9. The hooks 13 are disposed at opposite sides of the rod 10, and the hooks 14 extend in opposite directions from the hooks 13 under the rod 10 in planes at substantially right angles to the planes of the hooks 13.

In assembling the rods and chair, prior to the pouring of the plastic material or grout, the longitudinal rods 9 are laid on the sub-base along the desired lines, and the chairs are placed over the rods 9 at the desired intervals. Then, one rod 9 is raised into the corresponding hook 13 of the chair, and the tie rod 10 is inserted under said rod through the corresponding hook 14. The other rod 9 is then raised into its hook 13, and the rod 10 is slid further through the corresponding

hook 14. Thus, the rods 9 seat on the rod 10 and are confined between the hooks 13 and rod 10, while the rod 10 is confined between the rods 9 and hooks 14, so that the rods and chair are securely locked together, and the chair is also engaged with the rods 9 and 10 so that the chair cannot be displaced. The rods 9 engaging in the hooks 13 are held in the desired spaced relation. The hooks or loops 13 being at opposite sides of the rod 10 will prevent the structure from collapsing when the concrete is poured, tamped and finished. The present chairs are also effective in holding the reenforcing rods in place when joint installing machines are operated over the concrete, such as to produce the groove 8 in the plastic concrete.

Although the chair is especially suitable for use in supporting parallel rods 9 at opposite sides of the center line of the road along which a groove 8 or joint is to be produced in the road, it will be apparent that the chair may be used for supporting reenforcing rods for use in other concrete pavements or surfacing structures.

Fig. 4 illustrates a modification in that the base 11′ of the chair is bent so that the chair may seat on the sub-base without tilting or falling over, especially prior to the assembly of the rods and chair, and it is apparent that the base of the chair may be bent into various shapes. As shown, the base 11′ is of zigzag form. The bending of the base 11′ also has the advantage in that the base is elastic, and may be stretched, such as when the slabs at the opposite sides of the joint 8 flex relatively to one another, due to the slabs heaving up on account of frost. Thus, when there is a tendency for the slabs to separate, the base 11′ may yield or stretch to avoid excessive strain on the concrete, and thereby preventing possible fracturing of the concrete at the points where the uprights 12 of the chair are located. The uprights 12 may therefore separate to avoid excessive tension or strain on the concrete.

Fig. 5 illustrates the use of two longitudinal rods 9 at the center of the road 7, and a pair of longitudinal rods 9′ in the road at each side thereof, with a transverse rod 10 extending substantially the full width of the road and crossing the rods 9 and 9′. The rods 9 and 10 are supported by a chair, such as shown in Fig. 4, while the rods 9′ and 10 are supported by chairs such as shown in Figs. 1, 2 and 3, and these side chairs have fingers 13 extending from their outer hooks or seats 14 to contact with the form rails 16 which are used to define the sides of the road and between which the concrete is poured and finished. The fingers 15 serve to space the side chairs the desired distance from the rails 16, as seen in Fig. 6, thereby spacing the rods 9′ the desired distances from said rails.

The rods and chairs may be assembled when placed on the sub-base between the form rails, or may be assembled at the factory or elsewhere and transported in assembled condition to be placed on the sub-base.

Having thus described the invention, what is claimed as new is:—

1. A reenforcing rod chair formed from a single length of stock comprising a base and upwardly extending free terminal portions connected by said base, said terminal portions being bent to engage across spaced rods and across another rod crossing said spaced rods, for supporting the rods and holding them together.

2. A reenforcing rod chair formed from a single length of stock comprising a base and upwardly extending free terminal portions connected by said base, said terminal portions being bent to engage over spaced rods and under a rod crossing said spaced rods below the same, for supporting the last named rod and holding the rods together.

3. A reenforcing rod chair formed from a single length of stock comprising a base and upwardly extending free terminal portions connected by said base, said terminal portions being bent to form hooks to engage spaced rods and other hooks to engage a rod crossing said spaced rods, for supporting the rods and holding them together.

4. A reenforcing rod chair formed from a single length of stock comprising a base and upwardly extending free terminal portions connected by said base, said terminal portions being bent to form hooks to engage over spaced rods and hooks to engage under a rod crossing said spaced rods below the same, for supporting the last named rod and holding the first named and second named rods together.

5. A reenforcing rod chair bent from a single length of stock, comprising a base and upwardly extending free terminal portions at opposite ends of the base, said terminal portions having hooks to engage outwardly over spaced rods between which the chair is located, and other hooks extending in opposite directions to engage under a rod crossing the spaced rods below the same.

6. A reenforcing rod chair having a base of such form as to be capable of stretching, and upright portions rising from the base and engageable with reenforcing rods.

7. A reenforcing rod chair formed from a length of stock and having a base formed with bends to permit of yielding action and to prevent the base tilting on a supporting surface, and upright portions rising from the base and adapted to engage spaced reenforcing rods.

8. A reenforcing rod chair comprising a base seatable on a surface, and spaced pedestals rising from and connected by the base, said pedestals having portions to engage across a pair of spaced reenforcing rods and

having other portions in planes at an angle with the planes of the first named portions to engage across another reenforcing rod crossing said spaced rods, for supporting the rods and holding them together.

9. A reenforcing rod chair comprising a base to seat on a surface, and pedestals rising from and connected by said base, said pedestals having bent portions to engage over a pair of spaced reenforcing rods and having other bent portions in planes at an angle with the planes of the first named portions to engage another reenforcing rod crossing said spaced rods below the same, for supporting the lastnamed rod and holding the rods together.

10. A reenforcing rod chair comprising a base to seat on a surface, and pedestals rising from and connected by said base, said pedestals being bent to provide hooks to engage a pair of spaced reenforcing rods and other hooks in planes at angles to one another to engage another reenforcing rod crossing said spaced rods, for supporting the rods and holding them together.

11. A reenforcing rod chair comprising a base to seat on a surface, and pedestals rising from said base and connected thereby, said pedestals being bent to provide hooks to engage over a pair of spaced reenforcing rods and hooks in planes at angles to one another to engage under another reenforcing rod crossing said spaced rods below the same, for supporting the lastnamed rod and holding the rods together.

12. The combination with spaced reenforcing rods, of a chair to seat on a surface for supporting said rods and having portions engaging said rods and an elastic portion between said portions to permit the separation of said rods.

13. The combination with spaced reenforcing rods, of a chair having portions engaging said rods and having a portion connecting said portions and formed with bends to permit of yielding action and the separation of said rods.

14. The combination with spaced reenforcing rods and a third reenforcing rod crossing same, of a chair having a base to seat on a surface, and spaced pedestals rising from and connected by said base, said pedestals being bent in planes at angles to one another to engage said spaced and third rods.

15. The combination with spaced reenforcing rods and a third reenforcing rod crossing same, of a chair having a base to seat on a surface, and spaced pedestals rising from and connected by said base, said pedestals being bent to form hooks in planes at angles to one another and engaging the spaced and third rods for supporting them and holding them together.

16. The combination with spaced reenforcing rods and a third rod crossing same, of a chair formed from a length of stock and comprising a base to seat on a surface and upwardly extending terminal portions connected by the base, said terminal portions being bent in planes at angles to one another to engage said spaced and third rods to support them and hold them together.

17. The combination with spaced reenforcing rods and a third rod crossing same, of a chair formed from a length of stock and comprising a base to seat on a surface and upwardly extending terminal portions connected by the base, said terminals being bent to form hooks engaging said spaced and third rods for supporting them and holding them together.

18. The combination with spaced reenforcing rods, of a chair having a base to seat on a surface and of such form as to be capable of stretching, and upright portions rising from the base and engaging said rods.

19. The combination with spaced reenforcing rods, of a chair formed from a length of stock and having a base to seat on a surface and formed with bends to permit of yielding action, and upright portions rising from said base and engaging said rods.

In testimony whereof I hereunto affix my signature.

JOHN N. HELTZEL.