Nov. 10, 1931. H. W. NESTER 1,830,883

ROAD CHAIR

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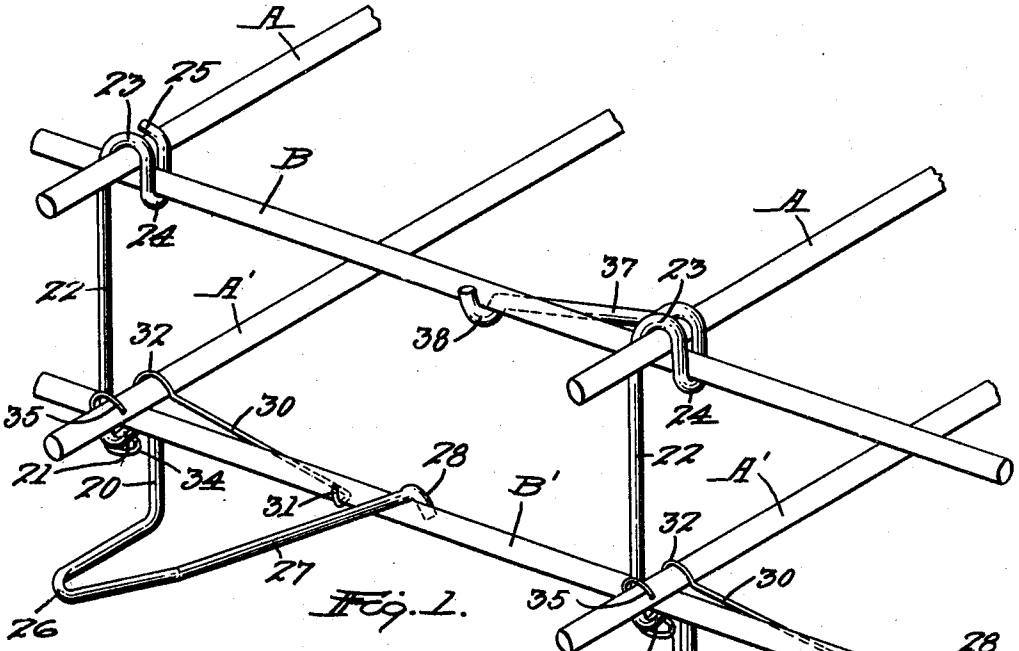


Fig. 1.

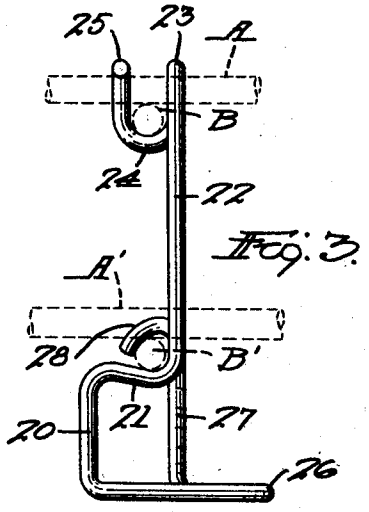


Fig. 3.

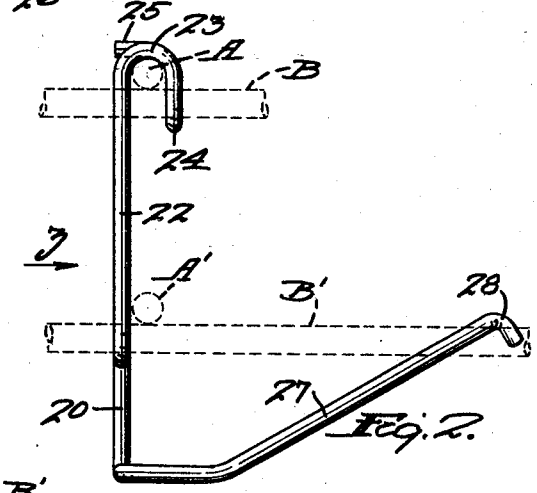


Fig. 2.

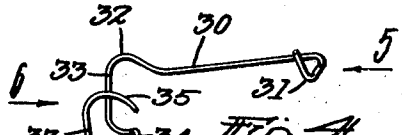


Fig. 4.



Fig. 5.

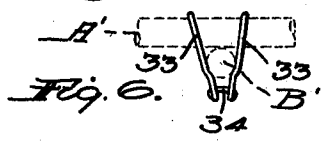


Fig. 6.

Inventor
Howard W. Nester
By Attorneys
Southgate Fay & Hawley

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ROAD CHAIR

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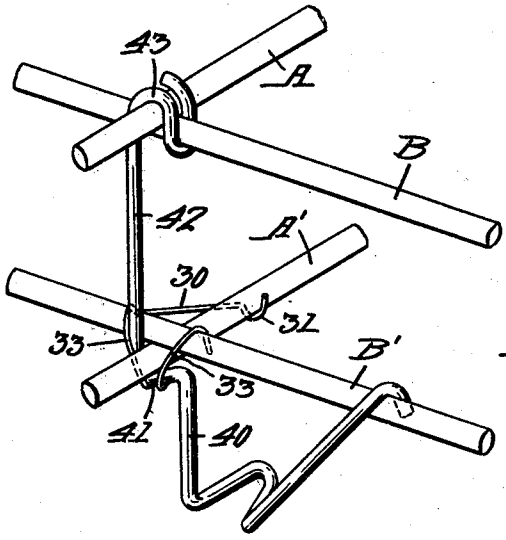


Fig. 7.

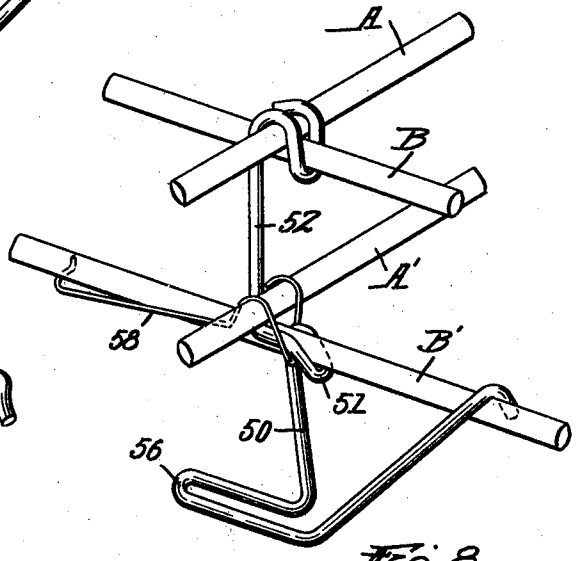


Fig. 8.

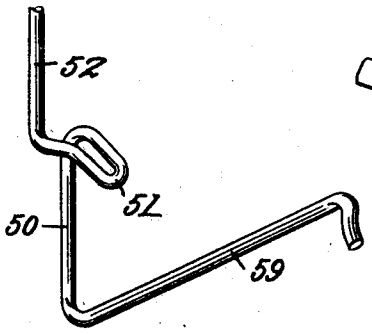


Fig. 9.

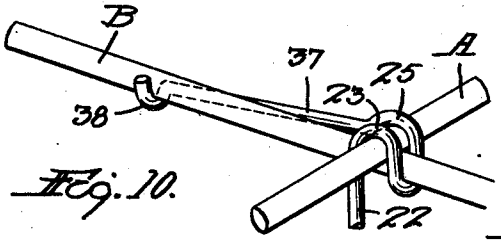


Fig. 10.

Inventor
Howard W. Nester
By Attorneys
Southgate Fay & Hawley

Patented Nov. 10, 1931 1,830,883

UNITED STATES PATENT OFFICE

HOWARD W. NESTER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO PARKER WIRE GOODS COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

ROAD CHAIR

Application filed April 16, 1930. Serial No. 444,828.

This invention relates to devices for spacing and supporting the reenforcing rods used in cement construction and particularly in the construction of cement or concrete roads. Such devices are commonly termed "road chairs".

It is the object of my invention to provide an improved road chair effective to space and support a double superposed series of reenforcing rods.

A further object of my invention is to provide devices by which a double series of spaced and superposed rods may be so firmly secured together that an assembly of such rods may be conveniently handled and transported as a unit.

A further object of my invention relates to an improved retaining clip for use in combination with my improved road chair.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

Several forms of the invention are shown in the drawings, in which

Fig. 1 is a perspective view of two of my improved road chairs, assembled with a plurality of reenforcing rods;

Fig. 2 is a side elevation of one of the road chairs shown in Fig. 1;

Fig. 3 is a rear elevation, looking in the direction of the arrow 3 in Fig. 2;

Fig. 4 is a perspective view of my improved retaining clip;

Figs. 5 and 6 are partial end views of the clip, looking in the direction of the arrows 5 and 6 in Fig. 4;

Figs. 7 and 8 are perspective views of modified constructions of road chair;

Fig. 9 is a partial perspective view showing a modification of the construction shown in Fig. 8; and

Fig. 10 is a perspective view of a further modification to be described.

Referring particularly to Figs. 1, 2 and 3, I have shown one form of my improved road chair used in assembling an upper series of intersecting reenforcing rods A and B and a lower series of intersecting reenforcing rods A′ and B′.

My improved road chair is formed from a single continuous piece of heavy wire and comprises a single lower upright portion 20, an intermediate offset portion 21 and a second upright portion 22 bent at its upper end to provide a loop 23 overlying the upper rod A of the upper series, a transverse loop 24 underlying the lower rod B of the upper series and an end projection 25 also overlying the rod A.

The lower end of the upright portion 20 is bent to provide a horizontal loop 26 and at the free end of the loop the wire is inclined upwardly and outwardly as indicated at 27 and is provided with an offset end portion or hook 28 adapted to overly the lower rod B′ of the lower series.

The chairs are assembled as indicated in Fig. 1, with the lower rod B′ of the lower series resting on the offset portion 21, the upper rod A′ of the lower series supported on the rod B′, the lower rod B of the upper series supported in the loop 24 and the upper rod A of the upper series resting on the rod B and held from upward displacement by the loop 23 and end portion 25.

The offset lower end portion 28 overlies the lower rod B′ of the lower series and prevents clockwise angular movement of the chair relative to the rods B and B′, as viewed in Fig. 3. The offset end 28 also assists in holding the rod B in position. At the same time the loop 24 underlying the lower rod B of the upper series and the loop 23 and end portion 25 overlying the upper rod A of the upper series prevent anti-clockwise swinging movement of the chair relative to the rods B and B′ and also prevent lateral twisting movements in either direction.

The chairs are thus held firmly upright,

and they definitely space and position the two series of rods relative to each other and to a supporting surface, the loops 26 forming substantial and extended footings for the road chairs.

In order to retain the transverse rod A′ of the lower series in position on the longitudinal rod B′, I provide the retaining clip 30 shown in detail in Figs. 4, 5 and 6. The clip 30 comprises a piece of wire extended at right angles to the upper rod to be secured and provided with an offset portion or hook 31 at its end adapted to hook under the lower rod of the pair to which the clip is applied. The wire 30 is offset upwardly at 32 to overlie the rod A′ and is then doubled and bent downwardly to provide a U-shaped loop 33, the extreme lower portion of which is bent forward in the form of a U-shaped projection 34. This projection 34 is preferably curved to closely engage the offset portion of the chair.

The short side of the loop 33 is curved and bent forwardly, as indicated at 35, substantially parallel to the portion 30. The downwardly bent portions 33 converge, as indicated in Fig. 6, and are so spaced that the rod B′ will be engaged and held against the lower side of the rod A′ and substantially above the projection 34.

When in use, the retaining clip is applied as indicated in Fig. 1, with the projection 34 underlying and gripping the offset portion 21 of the road chair. The clip is therefore effective not only to secure the rods A′ and B′ together, but also to secure the lower pair of rods to the offset portion 21 and thus prevent upward displacement of the rods. The clip also secures the rods to the upright portion 22 and prevents lateral displacement.

My improved road chair and clip are both formed from a minimum amount of material to accomplish the designated purposes and they provide a rigid and substantial support for an upper and lower series of reenforcing rods as already fully described. The various rods are so firmly secured together that a mat formed of rods secured by my improved chairs and clips may be lifted and transported as a unit from the assembling rack to the road position in which it is to be used without collapsing or folding in any direction.

While I have shown the free end of the loop 26 extended upwardly at 27 and offset at 28 to overlie the lower rod B′ and thus prevent rocking of the chair clockwise, I may accomplish the same purpose by extending the upper end 25 of the chair as indicated at 37 in Fig. 10, and providing an offset portion or hook 38 adapted to underlie the upper rod B. The extension 37 and hook 38 accomplish exactly the same purpose as the extension 27 and offset or hook 28 and likewise prevent clockwise rocking of the chair.

It will be understood that the construction indicated in Fig. 10 may be substituted for the construction shown in 27 and 28 in Fig. 2 or for similar constructions in the forms shown in Figs. 7, 8 and 9, and it will be further understood that the parts 37 and 38 may if desired be used in addition to the complete construction shown in the other figures, as indicated at the right in Fig. 1.

In Fig. 7, I have shown a form of road chair which in general closely resembles the form previously described but in which the offset 41 between the upright portions 40 and 42 is in line with the lower rod B′ and is in the plane of the upper loop 43.

This construction may be used where it is desirable that the parallel rods A and A′ form the extreme upper and lower members of the assembly and the parallel rods B and B′ form the intermediate members. The tie clip 30 is the same as previously described and serves the same purpose, except that the end 31 thereof is hooked under the rod A′ instead of under the rod B′ as in the previous construction.

In the construction shown in Fig. 8, an offset depending loop 51 is formed between the upright portions 50 and 52 and the foot portion 56 is preferably (but not necessarily) extended rearward rather than laterally. With this construction, a standard form of retaining clip 58 may be used by merely increasing its width.

In Fig. 9, I have shown a modification of the construction shown in Fig. 8, in which the extended loop or foot portion 56 is omitted and the inclined portion 59 is connected directly to the lower end of the portion 50. This somewhat simplifies the manufacture of the chair but correspondingly reduces the footing of the chair in contact with the road bed or other supporting surface. This construction may be substituted in the other forms also.

In all forms of the invention, the offset intermediate portion is preferably curved downwardly to form a recess to more effectively retain the reenforcing rod supported thereon.

All forms of my invention firmly support both the upper and lower series of reenforcing rods in such a manner that the assembled structure cannot be canted or collapsed by swinging movement of the chairs. The two series of rods are also supported and secured in such a way that they are definitely spaced vertically and cannot be accidentally displaced either upward or downward.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:—

1. A road chair formed from a single continuous piece of wire and comprising a single upright member offset at an intermediate

point to provide a support for a lower pair of reenforcing rods and reversely bent and doubled at its upper end to position and support a second pair of reenforcing rods, one end of said upright member being extended laterally to engage one of said reenforcing rods, at a point substantially spaced from said upright member, thereby preventing rocking movement of said road chair relative to said rods in one direction.

2. A road chair formed from a single continuous piece of wire and comprising a single upright member offset at an intermediate point to provide a support for a lower pair of reenforcing rods and reversely bent and doubled at its upper end to position and support a second pair of reenforcing rods, one end of said upright member being extended laterally to engage one of said reenforcing rods at a point substantially spaced from said upright member, thereby preventing rocking movement of said road chair relative to said rods in one direction.

3. A road chair formed from a single continuous piece of wire and comprising a single upright member offset at an intermediate point to provide a support for a lower pair of reenforcing rods and reversely bent and doubled at its upper end to position and support a second pair of reenforcing rods, the upper reenforcing rod of both pairs extending in one and the same direction and the lower rods of said pairs extending substantially parallel to each other and transversely to said upper rods.

4. A road chair formed from a single continuous piece of wire and comprising a single upright member offset at an intermediate point to provide a support for a lower pair of reenforcing rods and reversely bent and doubled at its upper end to position and support a second pair of reenforcing rods, and a retaining clip embracing said lower pair of rods and a portion of said chair and securing the lower pair of rods from displacement relative to each other and also relative to said road chair.

5. A road chair formed from a single continuous piece of wire and comprising a single upright member offset at an intermediate point to provide a support for a lower pair of reenforcing rods and reversely bent and doubled at its upper end to position and support a second pair of reenforcing rods, and a retaining clip embracing said lower pair of rods and a portion of said chair and securing said lower pair of rods from displacement relative to each other, said clip having a lower portion projecting under and engaging said offset intermediate portion of said chair and preventing upward displacement of the lower pair of rods.

6. A road chair formed from a single continuous piece of wire and comprising a single upright member offset at an intermediate point to provide a support for a lower pair of reenforcing rods and reversely bent and doubled at its upper end to position and support a second pair of reenforcing rods, and having its lower end bent to form a horizontal loop constituting a footing for said chair.

7. The combination in a road chair as set forth in claim 6, in which one end of said single piece of wire is extended laterally to engage one of said reenforcing rods, thereby preventing rocking movement of said road chair relative to said rods in one direction.

8. The combination in a road chair as set forth in claim 6, in which both ends of said single piece of wire are extended laterally to engage said reenforcing rods, thereby preventing rocking movement of said road chair relative to said rods.

9. The combination in a road chair as set forth in claim 6, in which the horizontal loop is substantially V-shaped.

10. The combination in a road chair as set forth in claim 6, in which one end of said single piece of wire is extended laterally and yieldingly snaps into engagement with one of said reenforcing rods, thereby preventing rocking movement of said road chair relative to said rods in one direction.

11. The combination in a road chair as set forth in claim 6, in which the offset intermediate portion is recessed to receive a reenforcing rod supported thereon.

12. The combination in a road chair as set forth in claim 6, in which the free end of the loop is upwardly inclined and is provided with an offset end portion adapted to engage and overlie one of the lower pair of reenforcing rods supported by said chair.

13. The combination in a road chair as set forth in claim 6, in which the free end of the loop is upwardly inclined and is provided with an offset end portion adapted to engage and overlie one of the lower pair of reenforcing rods supported by said chair at a point substantially spaced from said upright member.

14. A retaining clip formed from a single piece of wire having parallel portions of unequal length offset upwardly and then extended downward to form a loop and the lower portion of said loop being extended forward to form a projection adapted to underlie and engage a laterally offset portion of a supporting member.

15. A retaining clip formed from a single piece of wire having parallel portions of unequal length offset upwardly and then extended downward to form a loop and the lower portion of said loop being extended forward to form a projection adapted to underlie and engage a laterally offset portion of a supporting member, said projection having a depressed portion at its point of engagement with said member.

16. A retaining clip formed from a single

piece of wire having parallel portions of unequal length offset upwardly and then extended downward to form a loop and the lower portion of said loop being extended forward to form a projection adapted to underlie and engage a laterally offset portion of a supporting member, the longer parallel portion of said wire being forwardly extended from its upwardly offset portion and being provided with an offset end adapted to underlie the lower of a pair of superposed rods to which said clip is applied.

In testimony whereof I have hereunto affixed my signature.

HOWARD W. NESTER.