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1,999,508

REENFORCING ROD TIE

Filed Nov. 16, 1933

Fig. 1

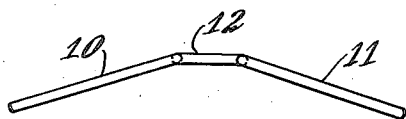


Fig. 2

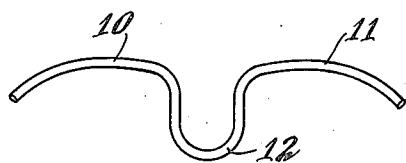


Fig. 3

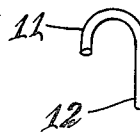


Fig. 4

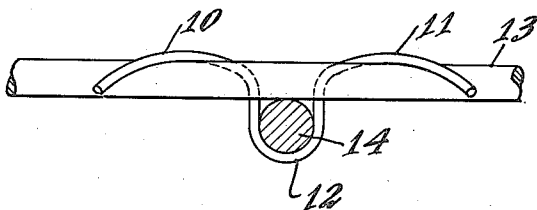


Fig. 5

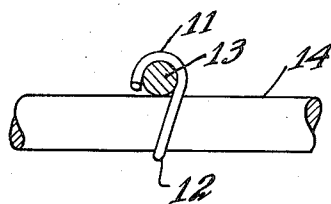
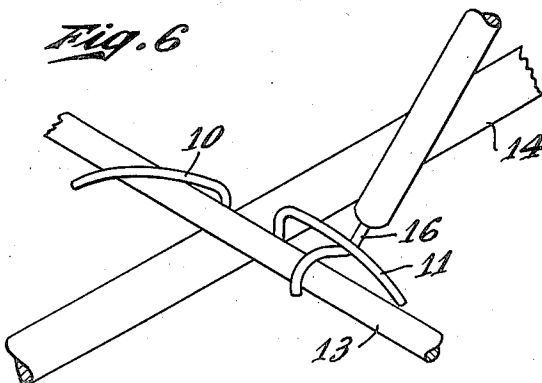


Fig. 6



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REENFORCING ROD TIE

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3 Claims. (Cl. 72-122)

My invention relates to a tie for reenforcing bars used in concrete construction, and has for its object the provision of a device of the character designated which shall be comprised of a minimum of material, be quickly and easily applied, and have a maximum of gripping and holding effect upon the intersecting reenforcing rods which it ties together.

It has long been recognized that the most desirable device for tying together intersecting reenforcing rods is one which embodies a minimum of material so as to provide a minimum cost of manufacture, a maximum of simplicity of design to provide a minimum of operations necessary to manufacture the tie, and one which has the effect of firmly holding the intersecting rods against both transverse and angular movement with respect to each other, and also a maximum holding effort against separation. It is also highly desirable that a reenforcing bar tie shall be easy of application whereby to reduce the labor cost in applying the tie to the reenforcing bar.

It is well understood that reenforcing rods are tied together in evenly spaced relation and usually at the place where the concrete is to be poured, so that the rods shall be evenly distributed in the slab or structure of which they form a part. Lately, in concrete road construction work, it has become the practice, in some instances, to tie mats of reenforcing rods at a point distant from the place where they are to be used and transport them to the place of use and lay them and there pour the concrete over the mat. This practice has necessitated a still more sturdy tie than has heretofore been found acceptable to the trade for the reason that the mat must be capable of rough handling without displacement of the rods, disturbing their evenly spaced relationship.

In accordance with my invention, I have provided a reenforcing bar tie which embodies all of the desirable features heretofore mentioned. Also, it is extremely simple and economical of manufacture. It comprises essentially two laterally extending curved arms joined by an intermediate U-bend, the lateral arms being adapted to partially encircle and overlie one of the intersecting rods and the U-bend being adapted to fit snugly about and to grip tightly the other of said intersecting rods. The result of the combined forces of the lateral arms and the U-bend is a tight gripping of the two rods which effectively resists transverse and angular movement, as well as separation of the bars.

A device embodying features of my invention is illustrated in the accompanying drawing forming a part of this application in which

Fig. 1 is a plan view of my improved tie;

Fig. 2 is a side elevation of the same;

Fig. 3 is an end elevation of the same;

Fig. 4 is a view facing the long side of the tie and showing it in place on a pair of intersecting rods;

Fig. 5 is a view at right angles to that of Fig. 4; and

Fig. 6 is a perspective view showing the manner of applying the tie.

Referring to the drawing, my improved tie comprises a spring steel wire bent to form two lateral curved arms 10 and 11, each having a relatively long radius of curvature, joined by a U-bend 12 having a relatively short radius of curvature. Preferably the radius of curvature of the U-bend 12 is substantially that of the reenforcing rod with which it is to cooperate. When the tie is viewed edgewise, or in plan, as in Fig. 1, it will be seen that the two arms 10 and 11 lie in planes equally inclined away from the plane of the face of the U-bend 12 and inclined away from the same side of the face of the U-bend 12.

I have found that it is highly important that the arms 10 and 11 be inclined away from the face of the U-bend 12 as shown for the reason that this feature aids greatly in the application of the tie and adds materially to the gripping and holding effect when applied. I have also found that the angle of inclination for each arm, to give the best results, should be substantially fifteen degrees from the plane of the face of the U.

With the device formed as just described, it will be seen by referring to Figs. 4 and 5, that the arms 10 and 11 overlie the same side of an upper reenforcing bar 13, and partially encircle said rod. The tie, being made of spring steel, exerts a tight gripping effect upon the rod 13, and, in cooperation with the U-bend 12, partially encircling the lower rod 14, exerts a holding force on the two rods, which greatly resists all relative movement. Also, the arms 10 and 11, when sprung into place as hereinafter described, cause sides of the U-bend 12 to exert a vise-like effect and grip tightly about the rod 14.

Referring now to Fig. 6, a method of applying my improved bar tie will be explained. With the two intersecting reenforcing rods 13 and 14 lying at right angles to each other, as shown, the U-bend 12 is placed under and about the lower rod 14, and one arm 10 is placed over the rod 13.

The arm 11 may then be sprung over the rod 13 by inserting a suitable tool, such, for example, as the hooked tool 13, under the arm 11 and over the bar 13, and with a rotary motion of the tool, the arm 11 is snapped into place over the rod 13.

From the foregoing, it will be apparent that I have devised an improved reenforcing rod tie which is extremely simple and sturdy of construction, economical of manufacture and of application, and one which is adapted to resist strongly relative movement of the reenforcing bars. I have found that a mat of reenforcing rods tied together with my improved ties may be subjected to rough handling, and loaded and unloaded from trucks without displacement of the rods.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:

1. A tie for intersecting reenforcing rods comprising a spring steel wire bent to form a U-bend with a relatively short radius of curvature adapted to fit snugly about one of the rods, and

lateral arms having a relatively long radius of curvature with sides of the curved arms lying in planes forming acute angles with one face of the U-bend and adapted to be sprung over the other rod and adapted to fit snugly along and about the other rod when sprung into position.

2. A reenforcing bar tie made of spring steel and comprising two curved arms adapted to lie along and about one of two intersecting rods, and a central U-bend joining directly the two arms and adapted to fit snugly about and to grip tightly the other rod, the two curved arms being inclined with respect to one face of the U-bend so as to take a bearing on the same side of the first mentioned reenforcing rod.

3. A tie for intersecting reenforcing rods comprising a spring steel wire bent to form a U-bend with a relatively short radius of curvature adapted to fit snugly about one of the rods, and lateral arms having a relatively long radius of curvature with sides of the curved arms lying in planes forming angles of substantially fifteen degrees with the plane of the face of the U-bend and on the same side of said plane, said arms being adapted to be sprung over the other reenforcing rod and curve about said other rod when sprung into position.

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