To all whom it may concern:

Be it known that I, Anthony Tosy, a resident of Napa, in the county of Napa and State of California, have invented certain new and useful Improvements in Reinforced Concrete Construction, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention comprises improvements in the construction of reinforced concrete buildings in which metal bars or rods suitably connected and embedded in the concrete form a trusswork capable of resisting the strains to which the structure may be subjected.

One object of the invention is to provide an improved binder or stirrup which will form a support for the bars as well as a spacer.

Another object of the invention is to provide an improved binder or stirrup which will form a support for the bars as well as a spacer.

A further object is to provide a stirrup made from a single rod and so formed that it will act as a carrier for the bars when first placed in position to receive the concrete.

Referring particularly to the drawings which illustrate this invention, Figure 1 is a vertical longitudinal section through a floor and beam provided with the reinforcement. Fig. 2 is a horizontal section on a line $y-y$ in Fig. 1. Fig. 3 is a transverse vertical section on a line $x-x$ in Fig. 1. Fig. 4 is a similar section on a line $z-z$. Fig. 5 is a perspective view of the stirrup, showing cross-bars supported thereon.

As shown in the drawings, 1 and 2 represent the columns, and 3 the beam, of the structure. Running from the outer edge of said columns (speaking of two of them) are horizontal rods 4, bent downward at right angles, as at 5. Above these rods and resting upon them in the central part are arranged a corresponding number of rods 6, bent upward symmetrically on each side of the center to a suitable height and then again horizontally running to a point above the end of the lower rods. Running at right angles to said rods are arranged horizontal rods 7, of similar shape as the rods 4, but preferably of smaller diameter and of varying length. The distance between the latter and the rods 4 is governed by the thickness of the beam and is kept constant by means of a stirrup 8, formed in the following manner: A rod of any suitable thickness and length is first bent in the middle with a slight curve or bow 9, and the ends are each in the form of a hook 10. Then running obliquely upward to a point substantially equal in height to the bow a loop 11 is formed parallel to the bow or at right angles to the plane of the hook, then down again obliquely, but in the opposite direction, forming another hook 12, whence it again runs upward substantially perpendicular and is then provided with a right-angled bend 13 of the same height as the bow and loop and extending in opposite directions away from each other. In this manner a basket-shaped binder or stirrup is formed of a single rod, which is ready to receive the tension and binding-rods, and the same are assembled in the following manner: A number of stirrups are placed in the boxes which receive and form the concrete. On account of their form the stirrups will stand unsupported on the bottom of the boxes, resting upon the four hooks 10 and 12. The rods 4 are then placed in the hooks and upon them, as already described, the rods 6. The cross-rods 7 are then placed in the loops 11, resting upon or preferably at the ends of the bows 9, but passing under the bends 13. In this manner a substantially rigid connection is attained between the bars, and the concrete can be readily deposited in the boxes without displacing the reinforcements.

Having described my invention, I claim—

1. A new article of manufacture, a stirrup for concrete structures, consisting of a rod having its ends bent into hooks in two planes and each provided with a loop at the top standing at right angles to the planes.

2. A new article of manufacture, a stirrup for concrete structures, consisting of a rod bent into two hooks in two substantially parallel planes, each provided with a loop at the top standing at right angles to said planes and the free ends bent at right angles to the planes of the hooks and extending in opposite directions from each other.

3. A new article of manufacture, a stirrup for concrete structures, consisting of a rod, the central portion of which is bent into a slight curve and the ends of which are bent downward, then obliquely upward to form a hook, then into a loop at the top at right angles to the plane of the hook, then ob-
liquely downward, then upward to form a hook, and then laterally at substantially a right angle to the plane of said hooks.

4. In a concrete construction, a plurality of basket-like stirrups, each consisting of a single rod having each end bent downward and then laterally to form two hooks, and then laterally at right angles to the plane of said hooks to form loops at the top, then downward, then laterally to form hooks, then laterally at substantially right angles to the plane of said hooks, and a plurality of rods or bars arranged in the corresponding hooks of said stirrups, and a plurality of cross rods or bars passed through said loops and under the laterally-bent ends of the stirrups and over the bent central portion of the strip, said stirrups and rods being embedded within a body of cement.

An testimony whereof I affix my signature in presence of two witnesses.

ANTHONY TOSY.

Witnesses:

A.H. STE. MARIE,

Geo. T. Knox.