No. 852,898. PATENTED MAY 7, 1907.

W. E. OWENS & J. E. WRIGHT.

TRUSS FOR REINFORCING CONCRETE CONSTRUCTION.

APPLICATION FILED JUNE 16, 1906.

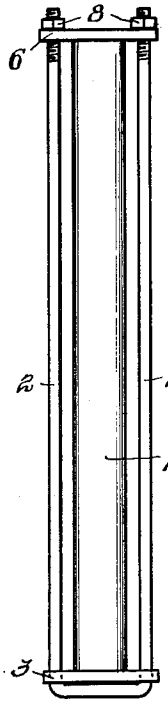


FIG. 1.

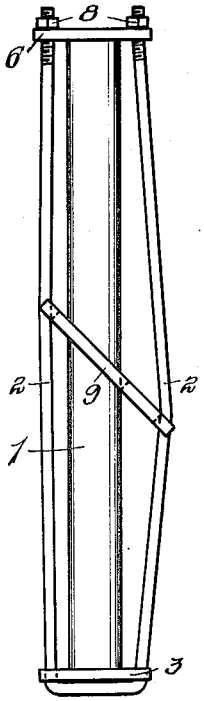


FIG. 2.

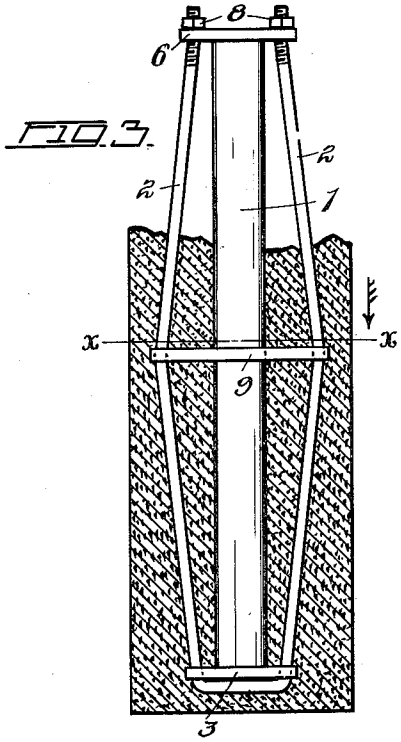


FIG. 3.

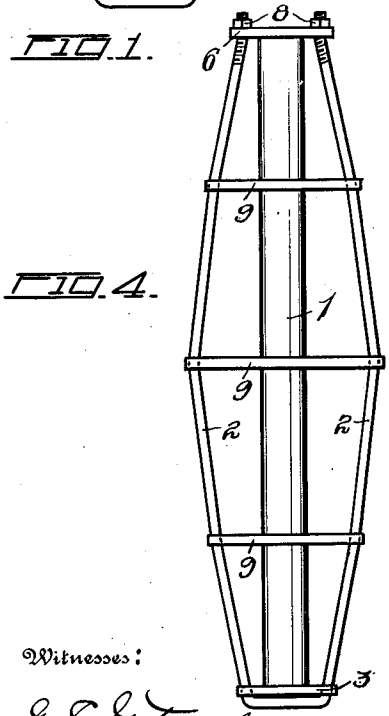


FIG. 4.

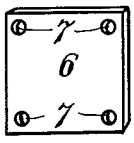


FIG. 6.

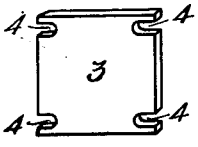


FIG. 7.

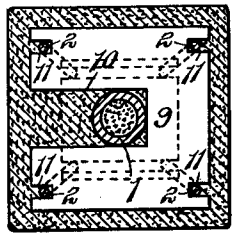


FIG. 5.

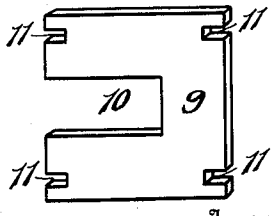


FIG. 8.

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UNITED STATES PATENT OFFICE.

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TRUSS FOR REINFORCING CONCRETE CONSTRUCTION.

No. 852,898. Specification of Letters Patent. Patented May 7, 1907.

Application filed June 16, 1906. Serial No. 322,041.

To all whom it may concern:

Be it known that we, WILLIAM E. OWENS and JAMES E. WRIGHT, citizens of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Trusses for Reinforcing Concrete Constructions, of which the following is a specification.

This invention pertains to improvements in trusses for re-inforcing concrete construction, and has for its object the equal and even distribution of strain or other pressure which may be imposed directly or indirectly on the fence post, girder, sill, lintels, joist, steps, pole, or railway tie, in conjunction with which the invention may be used.

The above are recited as examples, and are to be considered so rather than enumeration of the various uses to which the invention may be put.

With the above and other objects in view, the invention further consists in the novel details of construction and combination of parts to be fully described in the following specification, and then pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification, and wherein like characters of reference designate similar parts throughout the several views; Figure 1, is a side elevation of an embodiment of the invention, prior to positioning of the truss plate, Fig. 2, illustrates the position of the truss plate assumed thereby in being positioned with respect to the tie rods, Fig. 3, is a view illustrating the truss plate in proper position, the whole being partly embedded in a plastic composition, Fig. 4, illustrates a modification, disclosing the use of a plurality of truss plates, Fig. 5, is a transverse section taken on line *x*—*x* of Fig. 3, looking in the direction of the arrow, Fig. 6, illustrates a perspective view of the upper end plate, Fig. 7, is a perspective view of the plate at the opposite end of the core, and Fig. 8, discloses a perspective view of the truss plate.

In putting the invention into practice, we preferably employ a core member which is tubular during its length, and which is strengthened by pouring the same full with concrete, cement, or other plastic composition, which hardens upon drying. This core member is designated 1, in the drawings and is of a length to agree with the concrete construction which it re-inforces.

The tie rods are indicated at 2, and preferably embody four in number being located at the respective corners of the end plate and truss now to be referred to. The bottom plate indicated 3, and shown more clearly in Fig. 7, is formed at its side portions with notches 4, which extend through such side and are of a size to receive the tie rods 5. This plate 3, as shown in Figs. 1, 2, and 3, is placed directly on the bottom end of the core member 1, and is held thereon solely by frictional contact therewith caused by the pressure exerted by the tie rods, which latter are retained under constant tension.

The top plate is designated 6, and is formed of a size to substantially agree with that of the bottom or lower plate, and has provided therethrough apertures 7, of suitable size to receive the tie rods, the latter passing through such apertures and having their ends threaded to receive the securing nuts as illustrated at 8, in Figs. 1, to 4.

It will be observed that the respective tie rods are each formed of a single piece of material, which latter is preferably a strand of wire of considerable cross-section, the same being bent into U-shape at its lower portion to thereby extend about the bottom end of the core member as shown in the drawings, the upper ends which have been stated to be threaded being passed through the apertures 7, of the top plate 6, after which nuts 8, are applied and screwed down onto the several legs of the tie rods until the desired tension has been reached, which necessarily eliminates all slack of which the tie rods may have been possessed of. I further increase the tension on the respective tie rods by the employment of a truss plate which as shown in Fig. 3, is disposed intermediate the length of the core member, and which is of the form shown in Fig. 8, of the drawings. This truss plate is indicated by the reference character 9, being preferably of square contour and having a large opening 10, therein which rather imparts to the plate a U-shape contour, the width of opening 10, agreeing with that of the diameter of the core member so that the former will readily receive the latter. The truss plate is also notched at its ends to receive the tie rods as shown at 11.

By reference to Fig. 2, of the drawings it will be noted that truss plate 9, is first disposed in inclined relation to core member 1, so as to receive the tie rods in the notches therein provided for that purpose, after which the truss plate is gradually turned to occupy a position at right angles to the longitudinal axis of core member 1, which position is indicated in Fig. 3. The latter figure also shows the manner in which the truss plate will be embedded in the plastic composition so as to effectually secure the same against movement with respect to the core member, and further the security which the end plates possess against movement. The principal advantage derived by use of this means, resides in the distribution of the strain or pressure which the construction may be subjected to, as well as the additional desideratum of but slight a increase in the static pressure of the construction, which latter often must necessarily be but slight. The regulation of the tension on the tie rods may be readily changed as can be noted, by mere tightening or loosening of the securing nuts, of course prior to the immersion into the plastic composition.

In Fig. 4, we have further shown the possibilities of this invention, wherein a plurality of truss plates are employed, arranged at regular intervals during the length of the core member, and being of varying sizes to agree with the angle which the tie rods make with the core member. This form is especially valuable in heavy construction where great tensile strength is desired and essential. It will thus be noted that no one point is subjected to undue strain or pressure, since the reinforcement bears an equal relation to all parts of the construction in conjunction with which the invention is employed.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. In combination with a core, plates on the ends thereof, tension rods connecting the plates, and a plate having an opening therein to receive said core and formed with notches to receive said rods.

2. A re-inforcement for concrete construction, composed of a hollow core member, filled with plastic composition, plates on the ends of said member, rods connecting said plates, and a truss surrounding said member and engaging said rods.

3. A re-inforcement for concrete construction, embodying a core member, a plate on one end thereof formed with notches which extend through the sides thereof, a plate on the opposite end of said member formed with apertures, tie rods extending in said notches of said first named plate and having their ends threaded and passing through said apertures of said second named plate, nuts on the ends of said rods, and a truss having an opening which extends through one side thereof to receive said member and formed with notches which extend through its sides to receive said rods.

4. A re-inforcement for concrete construction, embodying a core, plates on the ends thereof, tie rods connecting said plates, and a U-shaped truss for receiving said core having notches in its sides to receive said rods.

5. A re-inforcement for concrete construction, embodying a core, plates on the ends thereof, rods connecting the plates, and a U-shaped member to receive said core between the legs thereof, and to engage said rods.

6. A re-inforcement for concrete construction, embodying a core, plates on the ends thereof, tie rods connecting the plates, and a truss for adjusting the tension of said rods consisting of a member formed to receive said core, and having parts to receive said rods whereby said member may be positioned by first inclining the same and then turning the same to right angular position with respect to said core.

7. A re-inforcement for concrete construction, embodying a core, plates on the ends thereof, rods connecting the plates, and a truss formed at its sides to engage said rods, and formed to receive said core, so that said truss may be inclined with respect to the longitudinal axis of said core.

8. A re-inforcement for concrete construction, embodying a core, plates on the ends thereof, rods arranged in pairs to connect said plates, and means to adjust the tension of said rods, consisting of a plate having opposite sides arranged to receive said pairs, said plate having movement so as to be inclined with respect to the longitudinal axis of said core.

9. A re-inforcement for concrete construction, embodying a core, plates on the ends thereof, rods connecting said plates, and arranged in pairs opposing one another, and a truss formed to receive said core and to engage each of said pairs so as to adjust the tension thereof.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM E. OWENS.
JAMES E. WRIGHT.

Witnesses:
CHAS. W. PEARSALL,
FREDK. J. LARSON.