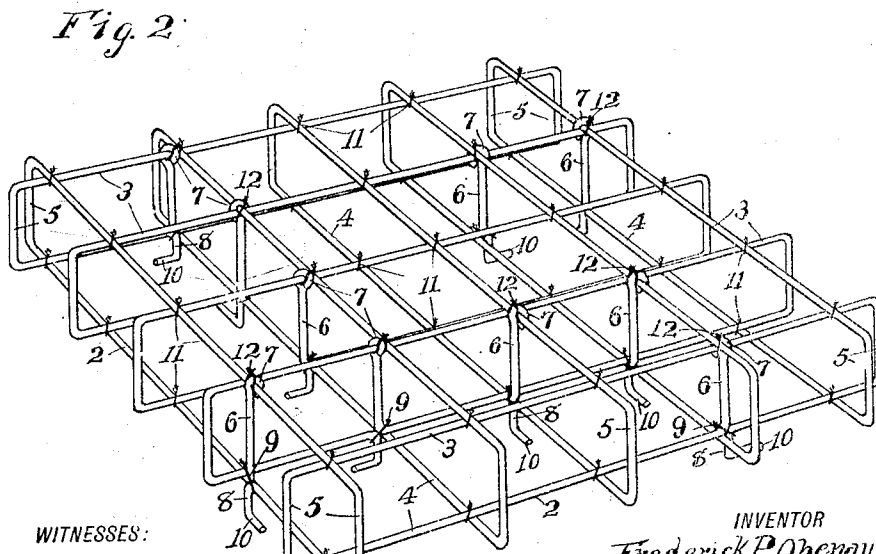
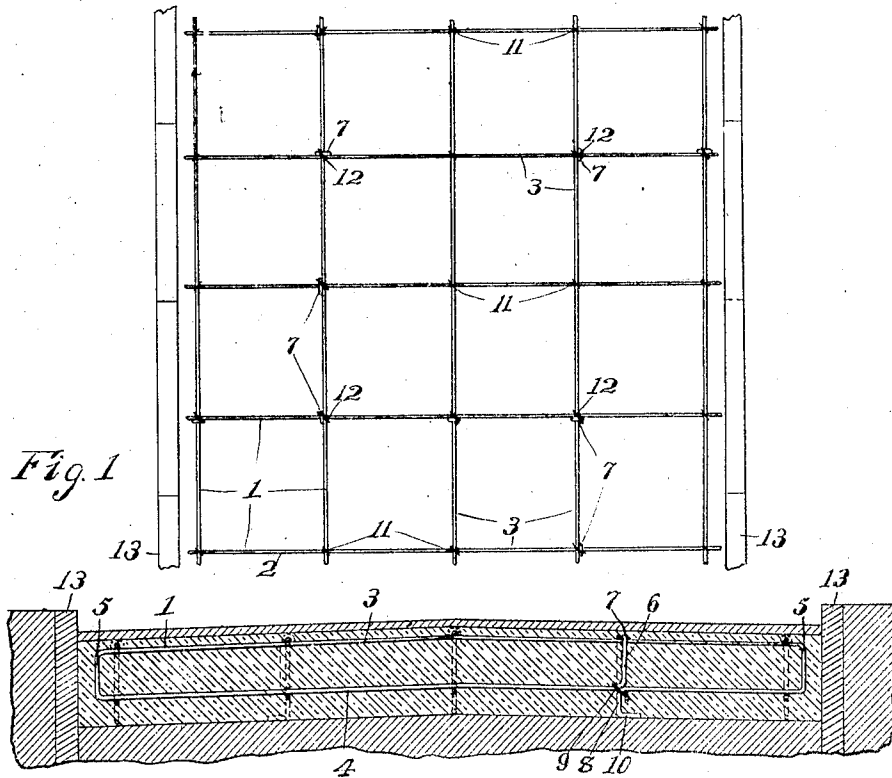


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METAL REINFORCEMENT FOR CONCRETE ROADWAYS.
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METAL REINFORCEMENT FOR CONCRETE ROADWAYS.

1,121,533.

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To all whom it may concern:

Be it known that I, FREDERICK P. OBENAUER, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Metal Reinforcement for Concrete Roadways; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to a metal reinforcement, especially adapted for use in concrete roadways, and consists in the construction and arrangement of parts herein-after more fully set forth and pointed out particularly in the claims.

The object of the invention is to provide a simple, strong and efficient metal reinforcement for embodiment in concrete roadway foundations to assist in staying and maintaining the concrete mass intact, in which the construction of the reinforcement is such as to enable it to be made up in a given or unit frame formation to facilitate transportation, and to enable the ready assembling of the reinforcing units of the structure in the form of sections of net-work upon the roadway, and in which the construction of the units is such as to render them self-supporting and co-supporting when assembled to embrace each other, and also to provide vertical supporting means at intervals throughout the net-work, together with bearing feet to serve as a gage for elevating the structure at a suitable height upon the roadway preparatory to embedding the reinforcement within the concrete body.

The above object is attained by the construction and arrangement of parts as illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a section of the reinforcing structure in position upon the roadway for the reception of the concrete filling. Fig. 2 is a transverse section through a roadway of reinforced concrete construction, showing the manner of disposing and embedding the reinforcing structure therein. Fig. 3 is a perspective view

of the net-work of the reinforcing frames or units in their assembled position as they would appear preparatory to receiving the concrete body in which the structure is embedded.

Referring to the drawings by the characters of reference marked thereon, 1 designates in a general way the units or frames from which the sections are composed. These frames are preferably rectangular in shape and are formed from a single continuous metal strand or rod 2, and consist in upper and lower body portions 3 and 4 respectively, which are spaced the desired distance apart by integral end posts 5 formed by bending the body portions of the rod at right-angles.

The free end of the parallel body member 4 of the frame is bent at right-angles to said body, extending upwardly in the form of a vertical post 6, preferably at a point approximately one-fourth the length of the frame, and terminates in an eye 7 which is closed about the body of the upper member 3 of said frame. The opposite free end portion of the lower member 4 of the frame is bent at a right-angle, extending downwardly in the form of a post 8 substantially in a vertical line with the post 6, and upon which said vertical post 6 is supported at the meeting points of the bends of the respective posts. Said parts are secured together at these points by means of wire strands 9 wrapped about the meeting bends in the form of a tie. The remaining end of said lower member is bent at right-angles to the post 8 and parallel with the body member 4 in the form of an L-shaped foot 10, which lies in the plane of the body of the frame and serves as a support and gage for temporarily positioning the frame upon the roadway to provide a uniform space for the concrete body between the lower member of the frame and the surface of said roadway, as clearly shown in Figs. 2 and 3.

The frames being thus formed singly or in units are assembled together in the form of a net-work, in which a plurality of the frames are placed longitudinally of the roadway and spaced in upright adjacent parallel relation to each other, being crossed at right-angles by a plurality of frames spaced in transverse parallel relation. The upper and lower courses of the longitudinal and

transverse members of the frames lie in contact with each other and are bound together at their points of intersection by ties 11 formed by wrapping and twisting wire strands about the engaged members. The vertical post 6 intermediate the ends of each longitudinal frame engages at one end with each transverse frame, and the same applies to the posts of the transverse frames with respect to the longitudinal frames. By this arrangement said posts serve to position each frame in its proper space, and also to place and securely hold said frames vertically, in which position they are secured together by binding wire ties 12, as clearly shown in Fig. 3.

The longitudinally disposed frames are made sufficiently wide to pass over and receive the transverse frames between their upper and lower body members, in which position the upper parallel members of the longitudinal frames are supported upon the upper parallel members of the transverse frames, and the lower parallel members of the transverse frames bear upon the lower parallel members of the longitudinal frames. Thus each longitudinal frame is braced by each transverse frame at their points of intersection against lateral movement, while vertical support to the upper and lower members of the net-work is afforded through the end post of the frames and the intermediate posts connecting the frame members together.

In order to effect a nearly uniform distribution of the intermediate posts 6 of the frame, these frames are reversed with respect to the ends having the vertical intermediate posts and supporting feet, in both longitudinal and transverse directions, so as to properly distribute the vertical supports throughout the body of the net-work and also to distribute the supporting feet in a manner to support the net-work in a uniform plane while being embedded in the concrete body.

The reinforcing structure thus formed is laid in sections of the width of the roadway extending from curb to curb, as indicated at 13-13 in Fig. 1, the sections being of such length as may be found practicable, and said sections may be connected longitudinally of the roadway by wiring the abutting ends of the sections together, not shown, or by other suitable means.

The reinforcing structure when placed in position upon the roadway is self-sustaining and will remain firmly in position during the work of filling in the concrete composition. The longitudinal and transverse frame units of the structure crossing each other at right-angles, and being firmly bound together, form such a trussed network of reinforcement to the body of the concrete forming the bed of the roadway as

to insure the integrality of the whole mass of the composition, and so confine the foundation thus formed as to obviate the liability of fracture or displacement.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. A structural unit adapted for use as a reinforcement for concrete bodies, comprising a rod bent in the form of a closed rectangular frame having parallel side members and transverse end members formed integral, in which the end portions of said rod form complementary portions of one side of said frame, and in which one end of said rod is bent to form a vertical brace terminating in a loop secured about the opposite side member intermediate the ends of said frame, the other end of said rod terminating in a downwardly deflected portion and secured to its complementary portion at the point of juncture with said vertical brace, all of said members lying in the plane of the body of the frame and confined together at their points of engagement.

2. A structural framework adapted for use as a reinforcement for concrete bodies, comprising a plurality of frame members disposed vertically in parallel adjacent relation to each other, a plurality of frame members disposed vertically within said first named frame members transversely thereof in adjacent parallel relation to each other, the side portions of said frame members intersecting and lying in contact with each other, each frame comprising a rod bent to form the sides and ends of said frame integral, in which the end portions of said rod form complementary portions of one of the side members of said frame, and in which one end of said rod is bent to form a vertical brace looped at its free end about the opposite side member intermediate the ends of said frame and engaged in contact with the intersecting side portion of a transverse frame, the other end of said rod terminating in a downwardly deflected portion and secured to said vertical brace at its point of juncture with its complementary portion of said frame, and means for tying said members together at their points of intersection.

3. A structural framework adapted for use as a reinforcement for concrete bodies, comprising a plurality of frame members disposed vertically in parallel adjacent relation to each other, a plurality of similar frame members disposed vertically within said first named frame members transversely thereof in adjacent parallel relation to each other, the side portions of said frame members intersecting and lying in contact with each other, each frame comprising a rod bent to form the sides and ends of said frame integral, in which the end portions of

said rod join each other and form complementary portions of one side of said frame, and in which one end of said rod is bent to form a vertical brace terminating in a loop secured to the opposite side intermediate the ends of said frame, said brace engaging with the sides of each transverse frame at their points of intersection, the other end of said rod terminating in a downwardly deflected portion and secured to the complementary portion of said frame at the point of juncture of said vertical brace therewith, and binding wire ties for securing said members together at their points of intersection.

4. A structural framework adapted for use as a reinforcement for concrete bodies, comprising a plurality of frame members disposed vertically in parallel adjacent relation to each other, a plurality of like frame members disposed vertically within said first named frame members transversely thereof in adjacent parallel relation to each other, the side portions of said frame members intersecting and lying in contact with each other, each frame comprising a rod

bent to form the sides and ends integral and having the end portions of said rod disposed to form complementary portions of one side of said frame, in which one end of said rod is bent to form a brace extending vertically of said frame and looped at its free end about the opposite member intermediate the ends of said frame and engaged in contact with the intersecting side member of a transverse frame, the other end of said rod terminating in a downwardly deflected portion and secured to said vertical brace and to the intersecting portion of a transverse frame at the point of juncture of said brace with its complementary portion of said frame, and binding wire ties for securing said members together at their points of intersection and connection.

In testimony whereof, I sign this specification in the presence of two witnesses.

FREDERICK P. OBENAUER.

Witnesses:

B. P. WHEELER,
M. E. BROESAMLE.