No. 820,743. PATENTED MAY 15, 1906.

O. A. SLATER.

BRIDGE CONSTRUCTION OF REINFORCED CEMENT.

APPLICATION FILED MAY 25, 1905.

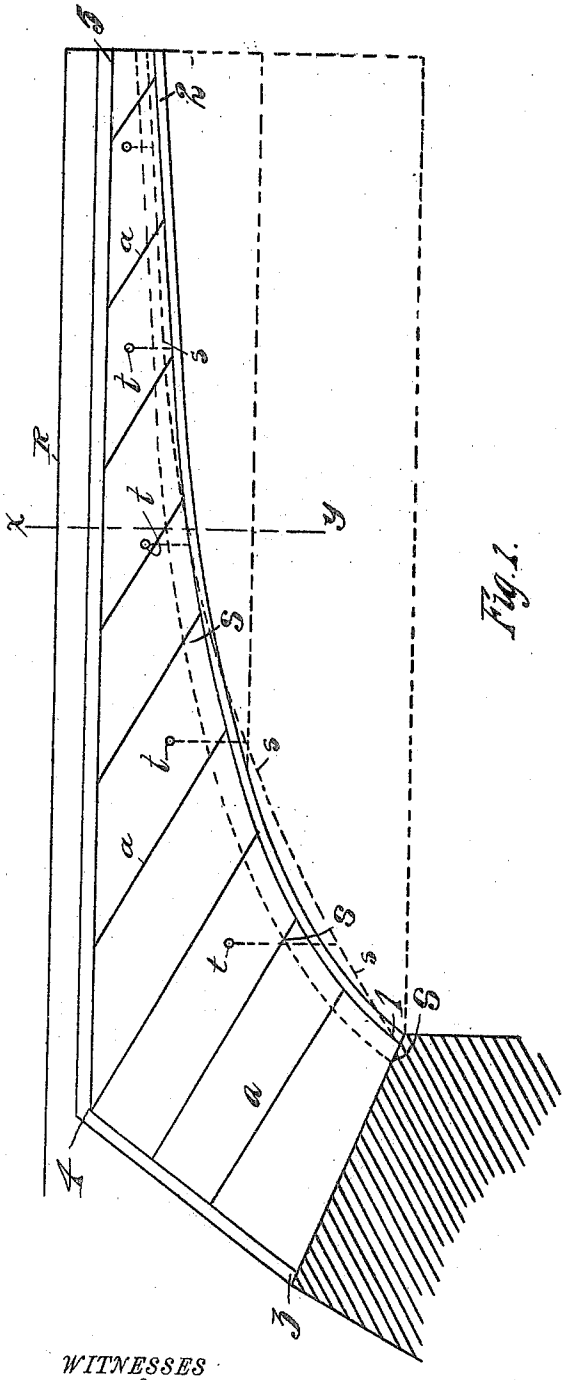

Fig. 1.

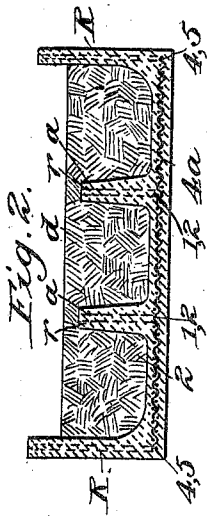

Fig. 2.

WITNESSES

C. F. Osgood.

Lotta Lei Hayton.

INVENTOR

Olney A. Slater

By Parker & Burton Attorneys.

UNITED STATES PATENT OFFICE.

OLNEY A. SLATER, OF PONTIAC, MICHIGAN.

BRIDGE CONSTRUCTION OF REINFORCED CEMENT.

No. 820,743. Specification of Letters Patent. Patented May 15, 1906.

Application filed May 25, 1905. Serial No. 262,127.

To all whom it may concern:

Be it known that I, OLNEY A. SLATER, a citizen of the United States, residing at Pontiac, county of Oakland, State of Michigan, have invented a certain new and useful Improvement in Bridge Constructions of Reinforced Cement; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to bridge construction of reinforced concrete.

It has for its object an improved construction of bridges, arches, and similar structures.

In the drawings, Figure 1 is an elevation showing one-half a bridge. Fig. 2 is a cross-section at *x y* of Fig. 1.

1 2 indicate a stretcher-beam, of metal, which is curved to correspond with the under curve of the arch.

3 4 represent an upright beam.

4 5 represent a stringer.

The beam 3 4 and the beam 4 5 are tied to the curved beam 1 2 by inclined ties *a*. The stringer and beam are of course united at their point of intersection and the ground end of the beam suitably anchored in the terminal abutment of the structure. When the inclined ties *a* are attached, a skeleton structure is formed, which as regards longitudinal strains then contains all of the tension-resisting members.

For purposes of binding together the lengthwise-extending members a number of the stretcher-beams 1 2 are tied together by a web 4^a, whose under surface corresponds in curvature with that of the stretcher-beams and from whose upper surface rise ribs R at each edge of the bridge, which are of a height to extend above the surface of the filling, which is subsequently added, and stay-ribs *r*, which similarly run lengthwise of the structure through the middle portion, but whose height is less than the layer of filling and still less than that of the ribs R. Thus while in the completed structure the ribs R extend somewhat above the finished roadway those in the center are completely covered by the filling material, though the structure partakes of the reinforcing rigidity furnished by them. The entire trough-shaped structure thus erected, divided, as it is, by the longitudinally-extending stringers and ribs and traversed by the inclined ties *a*, is then filled with dirt or any suitable road-making material which is thick and heavy over those points where the structure would tend to rise under a breaking strain and thin and light at the middle.

In Fig. 1 the line of resilient strain is indicated at S S S and is seen to fall partly outside of the concrete structure. *t t* indicate centers of gravity of segments taken arbitrarily for the purpose of determining the strain-line *s s s*.

What I claim is—

1. A reinforced concrete bridge structure, having in combination an arched floor structure, and concrete ribs having reinforcing-bars therein extending broadly from the floor structure at the ends and narrowing toward the middle, substantially as described.

2. In a reinforced concrete bridge structure, the combination of a deeply-ribbed concrete structure arched on the under side and arched beams at the under part, horizontal beams at the upper part, inclined beams supporting the ends of the horizontal beams, the arched beams and the horizontal and inclined beams being tied together in concrete, whereby there is produced a ribbed bridgework adapted to support a heavy layer of earthwork at the quarters of the arch and a light layer of earthwork at the crown of the arch, substantially as described.

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

OLNEY A. SLATER.

Witnesses:

C. F. BURTON,

ELLIOTT J. STODDARD.