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E. J. SCHAUWECKER.

CONCRETE STEEL SUSPENSION ARCH.

APPLICATION FILED NOV. 3, 1906.

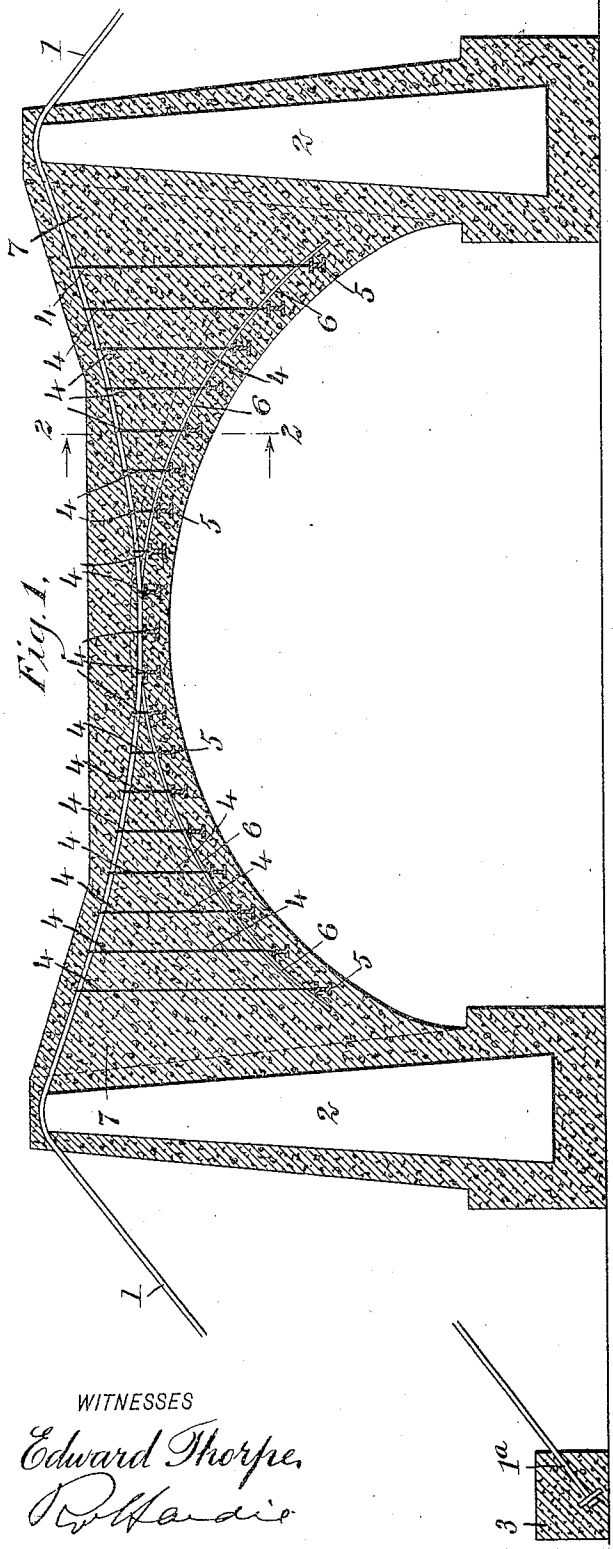


Fig. 1.

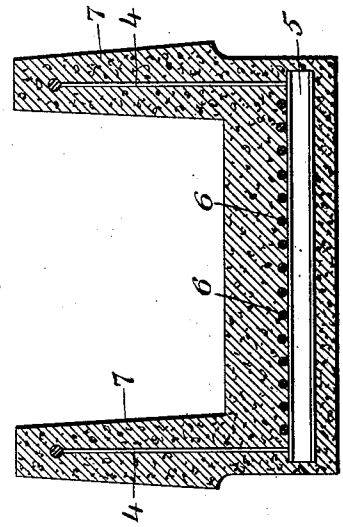


Fig. 2.

WITNESSES

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EDGAR J. SCHAUWECKER, OF CLAY CITY, INDIANA.

CONCRETE STEEL SUSPENSION-ARCH.

No. 855,986. Specification of Letters Patent. Patented June 4, 1907.

Application filed November 3, 1906. Serial No. 341,844.

To all whom it may concern:

Be it known that I, EDGAR J. SCHAUWECKER, a citizen of the United States, and a resident of Clay City, in the county of Clay and State of Indiana, have invented a new and Improved Concrete Steel Suspension-Arch, of which the following is a full, clear, and exact description.

This invention has for its object to provide means adapted to enable concrete arches to be constructed with a much larger span than is practical at the present time, with less concrete and with a smaller rise.

Such objects I accomplish by the means illustrated in the accompanying drawings, in which drawings like characters of reference indicate like parts throughout the views, and in which

Figure 1 is a longitudinal sectional elevation of an arch embodying my invention; and Fig. 2 is a transverse section of the same taken on the line 2—2 of Fig. 1.

As illustrated in the drawings, cables 1 are supported upon steel columns 2, the ends 1ª of which cables being firmly anchored in any suitable manner, preferably in beds 3 of concrete. Pendent cables 4 are secured at their upper ends to the main cables, and carry transverse beams 5 secured to the lower ends of said cables. Reinforcing bars 6 are arranged in parallel series, curved longitudinally and supported upon the transverse beams 5. An arch ring of concrete is formed around the transverse beams 5 and reinforcing bars 6, thereby embedding said bars and beams within the arch ring, and reinforcing said ring. Parapets 7 are formed on the arch ring and inclose the pendent cables 4 and main longitudinal cables 1. The steel columns 2 are also preferably embedded with concrete walls formed integral with the concrete arch ring and its parapets. By means of such construction the arch may be made with a span of any desired length and with a minimum amount of concrete and with the least possible rise.

The metallic reinforcing parts of my invention may be modified materially both in construction and arrangement without departing from my invention. Thus the pendent cables 4 or main cables 1 may be made of strands or of links in the form of a chain. I prefer the latter construction for the reason that the concrete obtains a better hold on the cables, and the cables exert a lifting force on the concrete, as well as on the cross beams 5. The reinforcing bars 6, moreover, may be made of flat iron twisted or corrugated bars, instead of round bar iron, as shown in the drawings.

It is obvious, moreover, that the reinforcing bars 6 and transverse beams 5 may be used without the pendent cables 4. In that case I prefer to arrange the transverse bars 5 above the longitudinal bars 6 instead of below, as shown in the drawings. Such construction is especially desirable where there are no longitudinal supporting cables or steel columns used.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An arch comprising concrete columns, an arch ring connected therewith, and parapets formed on the sides of said ring, metallic columns embedded within the concrete columns, longitudinal metallic cables supported on said metallic columns and provided with pendent cables embedded in said parapets, and transverse bars connected with said pendent cables and embedded in said arch ring.

2. An arch comprising concrete columns having an arch ring connected therewith, and parapets formed on the sides of said ring, metallic longitudinal cables embedded in said parapets, metallic columns supporting the ends of said cables, pendent cables secured to said main cables, a plurality of curved reinforcing rods, and a series of transverse beams supporting said rods, all being embedded within the concrete columns, ring and parapets.

3. An arch comprising concrete columns, an arch ring and parapets formed on said arch ring, in combination with curved metallic longitudinal main cables and pendent cables secured thereto embedded within said parapets, and a plurality of longitudinal rods curved oppositely to the curvature of the main cables, and a series of transverse bars arranged below said reinforcing bars and connected with said pendent cables.

4. An arch comprising concrete columns, ring and parapets, in combination with metallic columns embedded within said concrete columns, longitudinal cables supported on said metallic columns, extending outward

from said columns at their ends and curved between said columns, metallic hangers secured to said main cables embedded within said parapets, and a plurality of curved reinforcing bars embedded in said arch ring.

5. A concrete arch having embedded therein metallic longitudinal main cables, pendent cables secured thereto, a plurality of curved longitudinal rods, and a series of transverse bars connected with said pendent cables.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDGAR J. SCHAUWECKER.

Witnesses:
B. M. DAVISON,
ARTHUR POORMAN.