D. B. LUTEN.

CONCRETE BRIDGE.

APPLICATION FILED MAR. 29, 1909.

933,771. Patented Sept. 14, 1909.

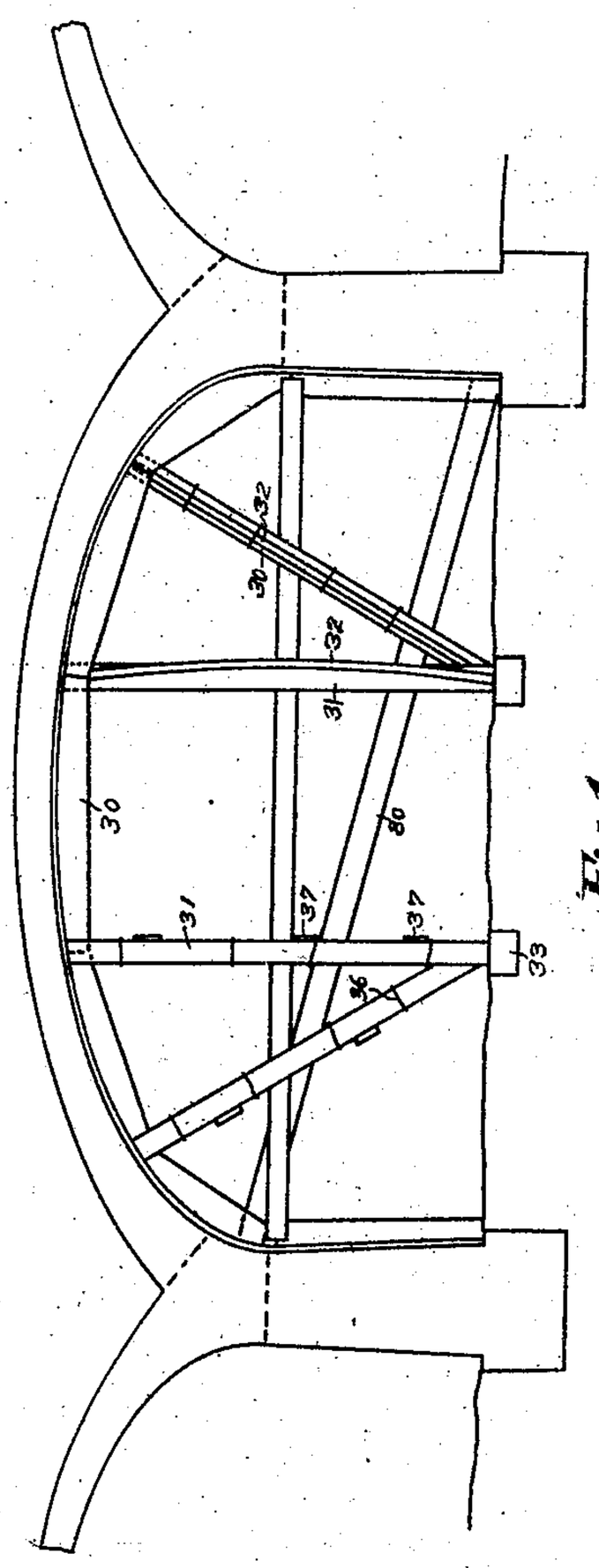

Fig. 1.

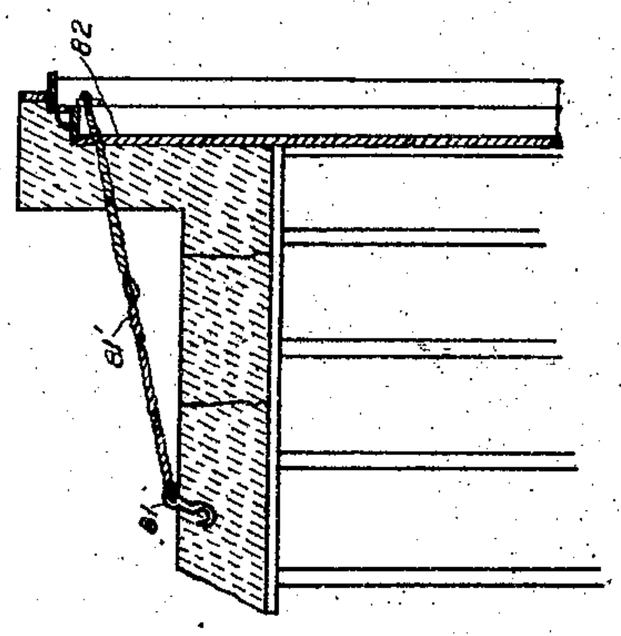

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

DANIEL B. LUTEN, OF INDIANAPOLIS, INDIANA.

CONCRETE BRIDGE.

933,771. Specification of Letters Patent. Patented Sept. 14, 1909.

Original application filed November 1, 1906, Serial No. 341,605. Divided and this application filed March 29, 1909. Serial No. 486,642.

To all whom it may concern:

Be it known that I, DANIEL B. LUTEN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Concrete Bridges, of which the following is a specification.

My invention relates to concrete structures and the object of my invention is to provide improved centering for arch structures and to provide improved means for constructing spandrel walls and copings so that irregularities will be avoided. And to provide such improvements in details and methods of construction as shall hereinafter be pointed out.

This application is a division of an application filed by me Nov. 1, 1906, Serial No. 341,605.

The accompanying drawings illustrate my invention.

Figure 1, is a vertical longitudinal section of an arch supported on its centering: and Fig. 2, is a detail of my improved means for obtaining a substantially straight spandrel wall.

The abutments or piers 21 are built to the springing lines S and centering is then erected for one of the arches, the centering being wide enough to support a ring. The concrete is laid upon this centering until the entire ring is produced from skewback to skewback in the manner already described, the spandrel walls and the spandrel posts being left until the last. The end rings of the arch and spandrel walls are then formed together, or substantially together, thus bringing the joint in the intrados of the arch instead of the end face of the structure.

In building a concrete wall with a projecting ledge or coping, as for instance the coping of a spandrel wall, it is a very difficult matter to maintain the form in true lines, as the wet concrete tends to warp the forms. In building the center rings of the arches, anchors 81 are embedded in the concrete so that, when the spandrel wall and final arch ring are formed, double wires are attached to the anchors 80 at one end and to the upper edge of the wall forms 82 so that by twisting the wires together the spandrel wall forms may be brought to accurate alinement. These wires may be readily clipped at the inner faces of the spandrel walls when the same have hardened.

I claim as my invention:

1. That improvement in the art of building an arch or bridge comprising erecting forms for spandrels or walls, connecting said forms by adjustable tension members to anchors in the arch or bridge, alining the forms by adjusting the tension members, and subsequently concreting the spandrels or walls in the forms.

2. That improvement in the art of building an arch or bridge comprising erecting forms for spandrels or walls, attaching adjustable members to the forms, alining the forms by adjusting the tension members, and subsequently concreting the spandrels or walls.

3. That improvement in the art of building an arch or bridge comprising erecting forms for the spandrels or walls, providing adjustable tension members transverse to the forms, and alining the forms by adjusting the tension members while filling the forms with hardening plastic.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this fifteenth day of March, A. D. one thousand nine hundred and nine.

DANIEL B. LUTEN. [L. S.]

Witnesses:
C. H. KNIGHT,
THOMAS W. MCMEANS.