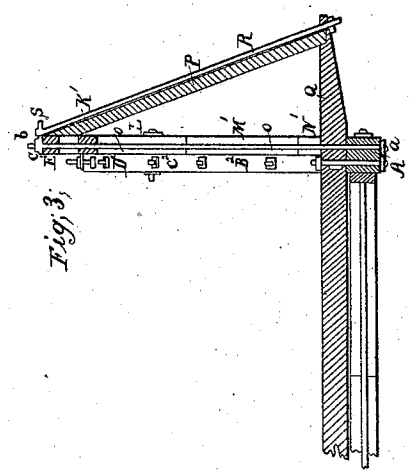
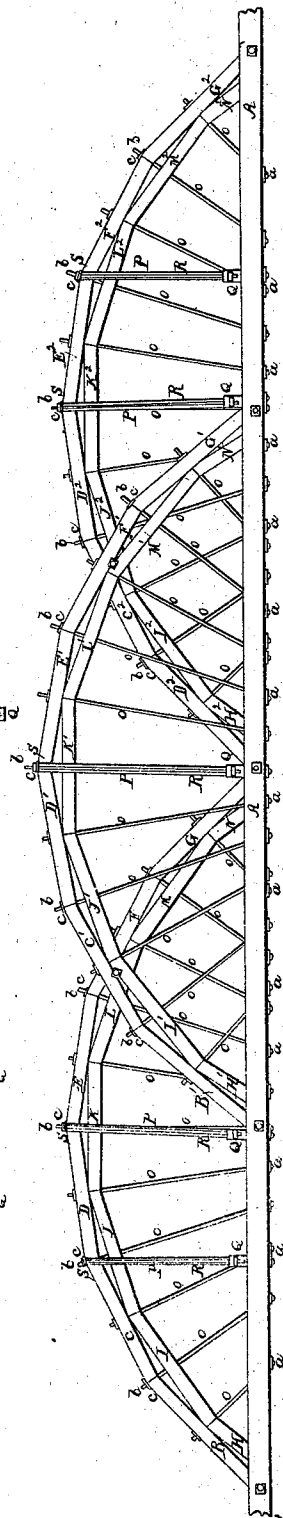
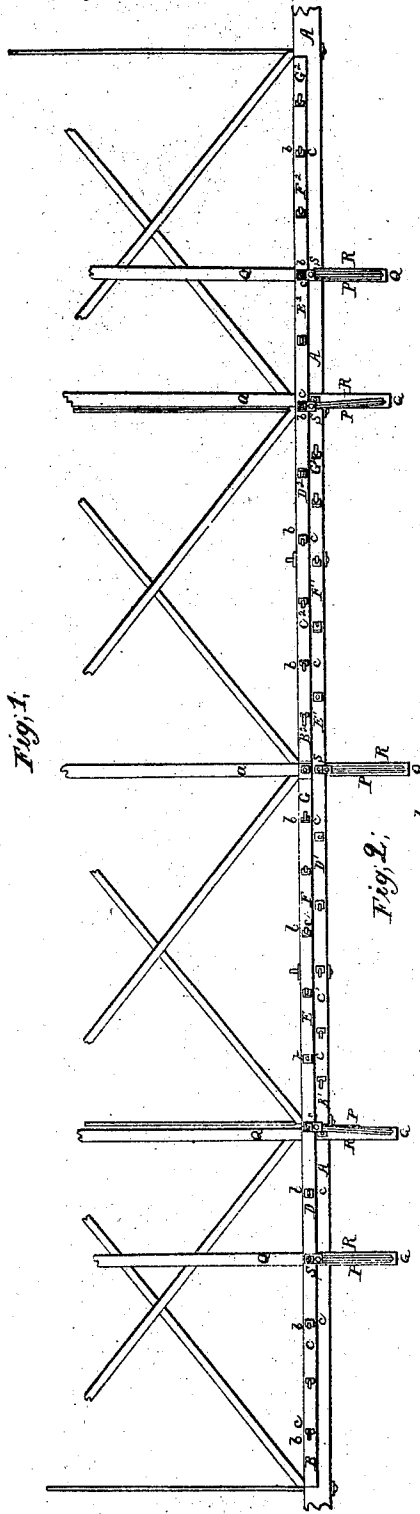


H. Lanergan.
Truss Bridge.

N^o 7,305.

Patented Apr. 23, 1850.



UNITED STATES PATENT OFFICE.

HENRY LANERGAN, OF BOSTON, MASSACHUSETTS.

ARCH-TRUSS FOR BRIDGES.

Specification of Letters Patent No. 7,305, dated April 23, 1850.

To all whom it may concern:

Be it known that I, HENRY LANERGAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Trusses for Bridges or Roofs; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1, denotes a top view, and Fig. 2, a side elevation, of my improved truss, or a series of arched trusses, combined or arranged together on my improved plan.

In the said drawing A, denotes the main chord, or horizontal beam of the truss, which chord or beam may be straight or curved more or less as occasion may require. It may be constructed of planks or timbers, applied, and bolted or fastened together in any proper manner.

B, C, D, E, F, and G, or B', C', D', E', F', and G', or B², C², D², E², F², and G², are separate series of straight timbers, disposed together in a curve, and made to rest on the chord A, as seen in the drawings. Directly underneath each of the said series of arched timbers, another series is placed, and its timbers arranged with respect to those of the series above it, as seen at H, I, J, K, L, M, and N, or H', I', J', K', L', M', and N', or H², I², J², K², L², M², and N².

The several timbers of each arc are arranged in chords of the curve of the same, each two timbers thereof making a very obtuse angle with each other. Through their angle of junction, and the middle of the timber which lies either directly above or below them, one of a series of suspension rods O, O, O, &c., is carried and in a radial direction, or in that of the line which divides into two equal parts, the obtuse angle above mentioned. These rods are to be provided with head screws, and nuts, there being a head *a*, at one extremity of each, and a screw *b*, and screw nut *c*, on the other end of each of the said rods. Besides being passed through the arched beam, they are made to extend through the chord or beam A.

On screwing the nuts against the timbers of the arch, they will not only be drawn toward one another, but toward the chord or

beam A; so that should any sagging or settlement of the chord A, take place, it may be corrected by means of the screws and nuts. Each arch is made to lap, or extend by the one on one or both sides of it, as seen in the drawings, or so that one or both of its feet shall rest upon the beam A, directly or nearly under the crown of the arch or arches by the side of it, as seen in Figs. 1, and 2. The suspension rods of nearly half of one arch, are thus made to cross those of nearly half of another arch, and to act in connection with them to support the beam A, thus insuring to the beam a compensation for the thrust of the two arches. The thrust of one arch being in a direction opposite to that of the other, causes the resultant, or force sustaining the beam, to operate in a vertical or nearly vertical direction. Such an arrangement of the arches and suspension rods, upon the main beam A, contributes greatly to its strength, and enables one to carry out the system of trussing it by arches and suspension rods, to a very great extent of span.

Each arch may be supported by one or more inclined timber struts P, extending down from it, and resting on a timber Q, bolted transversely upon and to the timber A, as seen in Fig. 3, which denotes a cross section of the truss, taken through one of the struts. Besides a strut, a tension rod R, is used. This rod extends through the outer part of the timber Q, and downward from a metallic lap plate S, disposed on the top of the arch, and held in place by one of the suspension rods O, being made to pass through it.

The timbers of the arches are held in place, or prevented from parting in lateral directions, by the suspension rods, each of which besides being carried entirely through one timber of one arch, has its passage between the two abutting timbers of the other arch, cut or formed in such manner as to cause the rod to project as much into the end of one of the timbers as it does into that of the other.

I do not claim a series of arched supporting beams, constructed as herein specified and extended in line, but

What I do claim, is—

The so combining or arranging them with respect to each other, and with the radial

suspension rods, and on the chord or beam to which they are applied, that they and their suspension rods, may overlap one another, and have the feet or parts of each
5 which rest on the chord, upheld by the crown, and suspension rods of the central part of an adjacent arch, all substantially as above specified.

In testimony whereof I have hereto set my signature this eleventh day of March A. D. 10 1850.

HENRY LANERGAN.

Witnesses:

R. H. EDDY,
FRANCIS GOULD.