

Extracts from Bt. Lt. Col. S.H. Longs' pamphlet on his patent bridges Concord N.H. 1836

Patent of
March 6th
1830

" The improvements under consideration consist of the following modifications or arrangements, in the construction of the main longitudinal truss frames necessary to the formation and support of a bridge, viz;

1st. Two modes of splicing the string pieces, one by means of wooden, and the other by means of iron splicing pieces, of a construction different from any heretofore adopted in bridge architecture.

2nd. A system of bracing, by means of which, the truss frames are exempted from leverage in every ~~direction~~ liable to be effected by such an action, and the stresses or thrusts communicated by the braces, are resisted by shoulders or steps as nearly as may be at right angles with the grain, or fibres of the timber.

3d. A system of counter bracing, by means of which the truss frames are rendered stiff and unyielding, and the bridge kept in uniform action, whether loaded or unloaded.

4th. A mode of furnishing the main braces and posts with metallic bearings, by the introduction of thin plates of iron copper or other suitable metal, between the toe and heel of each main brace, and the steps in the posts against which they thrust, and

5th. A mode of keying or wedging, by means of which the central parts of the truss frames, and consequently of the bridge, may be elevated and sustained, in case of subsidence or sinking of those parts, which is liable to happen from shrinkage or extraordinary compression of the timber.

These several improvements which are claimed as new, useful and original, together with a variety of other arrangements many of which are believed to be unprecedented in bridge architecture, will be more fully clearly illustrated by the drawing and explanatory references hereto annexed, and exhibited under the designation of the Jackson Bridge "

Patent of Jan. 23d. 1836

" The object of these improvements is to produce and ensure lateral stiffness or inflexibility in wooden or Frame bridges, which object is effected by means of a plan or system of bracing applied either to the upper or the lower strings of the bridge, or to both should it be deemed advisable, which plan or system I shall designate by the name of the Lattice Bracing, and which is of the following description; The Lattice Bracing consists of timbers of suitable dimensions, (about 3 by 9 to 12 inches transversely, and of any appropriate length) applied diagonally, either above or below the strings of the bridge, (an application to the upper strings being deemed preferable in ordinary cases) and is confined to the strings by bolts, spikes or trenails, or by any or all these modes of fastening combined, the bolts, &c. passing through the brace timbers at their intersections, and through ~~and~~ or into the strings at the places where the former are attached to the latter, &c. &c." " The improvements described in the foregoing specification, and claimed as new and useful consist in the application and use of Lattice work in the manner and of the description herein explained, for the purpose of imparting the requisite lateral stiffness to wooden bridges, in a manner more simple, economical and efficient, than the means heretofore employed for that purpose; it being understood that Lateral and horizontal stiffness, in contradistinction to vertical and transverse inflexibility, is the object of this invention "

Patent of 1837 1st. The application and use of arch braces in connection with the truss frames of ~~any bridges~~ my bridges, in a manner and form different from those heretofore in use.