



II. From these considerations grew the plan finally adopted, the following description of which we quote from our former article :

“The viaduct as now constructed consists of three spans of 375 feet each, resting on the bluffs and on two iron piers, which latter in turn are supported by stone piers, each 120 feet long by 42 feet in width at the base. The iron piers consist of four legs each, and while having a base of 71 ft. 6 in. by 28 ft., their longitudinal profile terminates in a point at the top, or rather in a 12-inch pin upon which the truss rests as on a rocker. The entire pier is a complete structure within itself and can be rolled about on the masonry, the pedestals resting on double roller beds for this purpose.

“The truss itself is, during erection, a continuous girder of the Whipple type ; but after erection it will be converted into

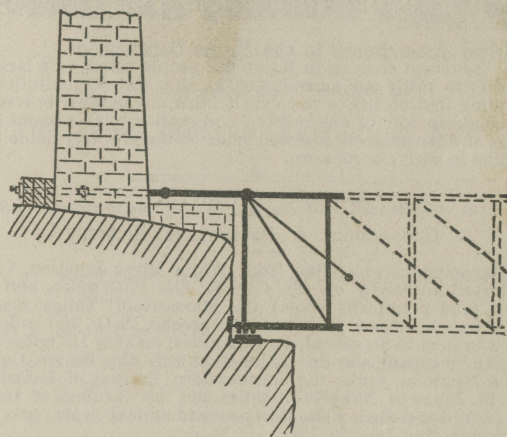


Fig. 1.

one continuous girder 525 ft. long, projecting at each end 75 ft. over its points of support, and carrying from each of these cantilevers a 300-foot span, which bridges the distance from the end of the cantilever to the bluff.

“The truss is 37.5 ft. deep and 18 ft. wide, and each bay is divided into 20 panels of 18.75 feet each. All connections between ties, posts and chords are hinged or pin connections, but the chords are riveted to each other throughout, with the novel addition that the pin carrying the tie bars is forced into the chord splice by hydraulic pressure, and thus does duty as a rivet. It will be seen that the details combine both the American principles of pin joints and of massing the materials in approved shapes along the lines of strain, together with the European practice of continuous riveted chords fitted to resist both tension and compression. This peculiar mode of construction was adopted in order to erect the truss in the manner which we are now about to describe.

After the bridge seat was cut out of the cliff, the end posts were set up and the first section of bottom chord laid in place, each chord being continued back to the rock by a large screw-jack placed between its rear end and the face of the bluff. Then the top of each end post was bolted back to Roebling's towers by anchor bolts, which had a screw adjustment. From this point the end or main tie was carried to the bottom chord at the foot of the second post, and then post No. 2 and the first panel of top chord were put in place. When the first panel was in position the work looked as shown

No. 7. Pier No. 1. Side view, from Road below.

2099AV002 #5
177' 3" high
1 or 15 on face
1 in 6 1/2 on ends
7 panels 25' 4"