on which the beam rests. The end of each leg is furnished with a nut, sometimes with a jam-nut in addition, which, when drawn up, holds the beam securely in place. Inasmuch as these hangers are short, and always feel at once the effect of the passing load, they should be of first-quality iron, and have a factor of not less than six at the root of the screw-thread. They should have a flat bearing on the pin, and may be either single or in pairs. When the beams are riveted to the posts, usually between them, the connection is made by means of angle-iron brackets, one on either side of the web, and in length equal to the whole depth of the beam at the bearing; and since this attachment depends solely on the strength of the riveting, and since the riveting must be done on the ground after the work is in position, an excess of rivets should be arranged for, to compensate for the imperfections of field-riveting, which is usually more difficult to get at than in the shop, and consequently not so well done.*

The horizontal or sway bracing may consist of very light rods, if the floor is well laid, forming as it does a very effective system of bracing against lateral movement. Rods from 1/2 to 1 inch round will cover all but extreme requirements, and they are attached by any convenient means to the floor-beams near their point of support. They require a screw-adjustment of some kind, turnbuckles or end-screws, in order that they may be drawn up taut. On top of the floor-beams, and lengthwise with the bridge, are laid the stringer-beams. These beams

* See Plainfield Bridge, page 63.