rail post, and to the floor once in, at most, every five (5) feet, by three-quarter (\( \frac{3}{4} \)) inch bolts.

When there are no wooden hand-rail posts, the guard rails must be bolted through joists placed symmetrically below them, care being taken that there be no bolt within two (2) feet of the middle point of any joist.

The joints in the guard rails are to be lap joints, six inches long, and are to have a bolt passing through the middle of each lap.

About every eighth or tenth plank, there is to be a crack left between flooring boards to let the water run through: this crack should be less than a quarter (\( \frac{1}{4} \)) of an inch in width.

Should it be considered desirable to elevate the guard rails in order to let the air and water pass beneath, it is to be accomplished by inserting hard-wood shims — one (1) foot long by two (2) inches deep, and six (6) inches wide — beneath the guard rails at each bolt hole; the bolt passing through the middle of the shim, and each shim being fastened to the floor by four (4) five (5) inch cut spikes.

**Iron Hand Railing.** — Bridges with sidewalks will not require the wooden hand railing inside the trusses, but are to be provided with a neat, substantial iron hand rail on the exterior of each sidewalk. It is to be rigidly attached to the floor beams and exterior sidewalk joists.

**Details not previously Mentioned.** — Finally, as regards the proportioning of any structure, if cases should occur which are not covered by the preceding specifications, the following rule is in all such cases to be adhered to: “Details must always be proportioned so as to resist every direct and indirect stress that may ever come upon them under any probable circumstances, without subjecting any portion of their material to a stress greater than the legitimate corresponding working-stress.”

**Cast-Iron.** — No cast-iron is to be used except for washers for timber bolts, and for ornamental work and name plates.

**Name Plates.** — The names of the designer and the manufacturer of the bridge must be attached thereto in a prominent position and in a durable manner.

**Field Riveting.** — Field riveting must be done with the button