

do this, however, requires more than the customary standard plant—namely, a punch, a pair of shears, and drift-pins, which any old boiler-shop can furnish. Before leaving the subject of riveted work, it is well to call attention to “field-riveting”—that is, where spans are so large that they must be shipped in parts, which are riveted together in the final position of the work. Whatever objection has been urged against *shop-riveting* is intensified in a high degree when the field-riveter steps in to do his part of the work. He must work in constrained positions and in all sorts of weather. If the work in the shop has been well done, that in the field is pretty sure to be badly done; and as this last applies principally to the *joints*, the most vital parts of the whole structure, the work must be judged entirely by them. In contrast with riveted work, we have the *machine-made* bearings and connections, which may be attained either by means of *pins* or *screw-ends*, or a combination of both. It is through the adoption of this constructive idea that the Americans have been able to surpass the rest of the world in bridge-building.

This American system, as it is universally called, permits of the most economical use of material possible, is wonderfully well adapted for long spans, and enables the engineer to select the quality and shape of material best adapted for any given portion of his design. It is a system that permits of closer harmony between theory and practice than is possible to attain in the European method or its American imitation, concerning which