railing is used, with ornamental cast posts and three lines of 1¼-in. pipes.

As this is one of the latest Strauss bascule bridges, it embodies the newest features peculiar to this type. For instance, the machinery house is attached to the counterweight tower, whereas in former spans the machinery house has been beside the portal of the moving leaf. This new location provides greater accessibility to the machinery and ease of operation by hand-power if the electric power should fail. Another feature that is different from that in the earlier bridges is the location of the main trunnion. This trunnion is now raised to come above the level of the roadway, and it is, therefore, more accessible for greasing, and, what is more important, it is now in a position where all the dirt of the roadway will not run down and cover it when the bridge is raised.

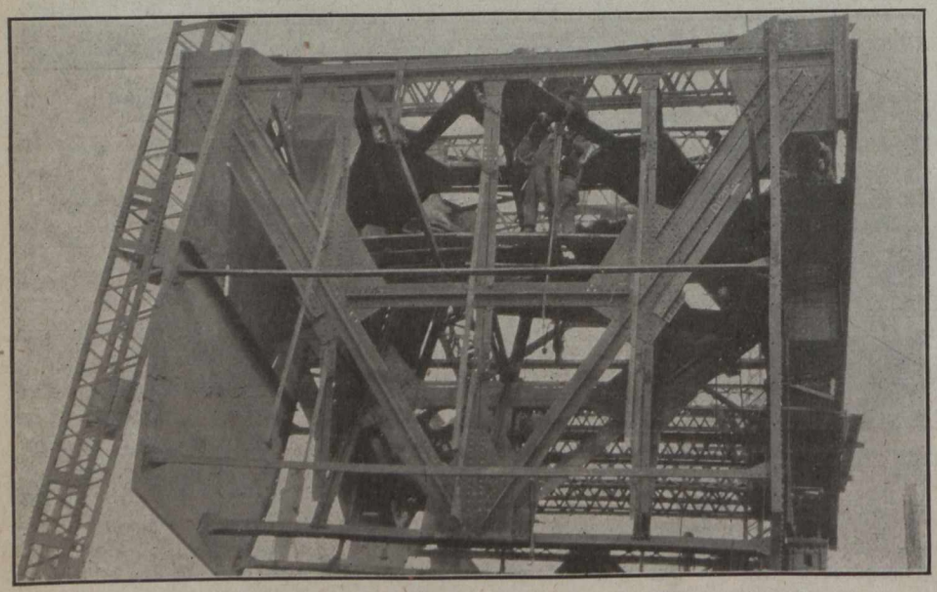
While this structure is called a bridge, it is in reality a machine, and the structural portion is the frame of the machine.

The processes of manufacture of this bridge are not different from those used for other high-grade structural and heavy machine work, except that in this case the two are more or less combined and require special care to secure proper working fits.

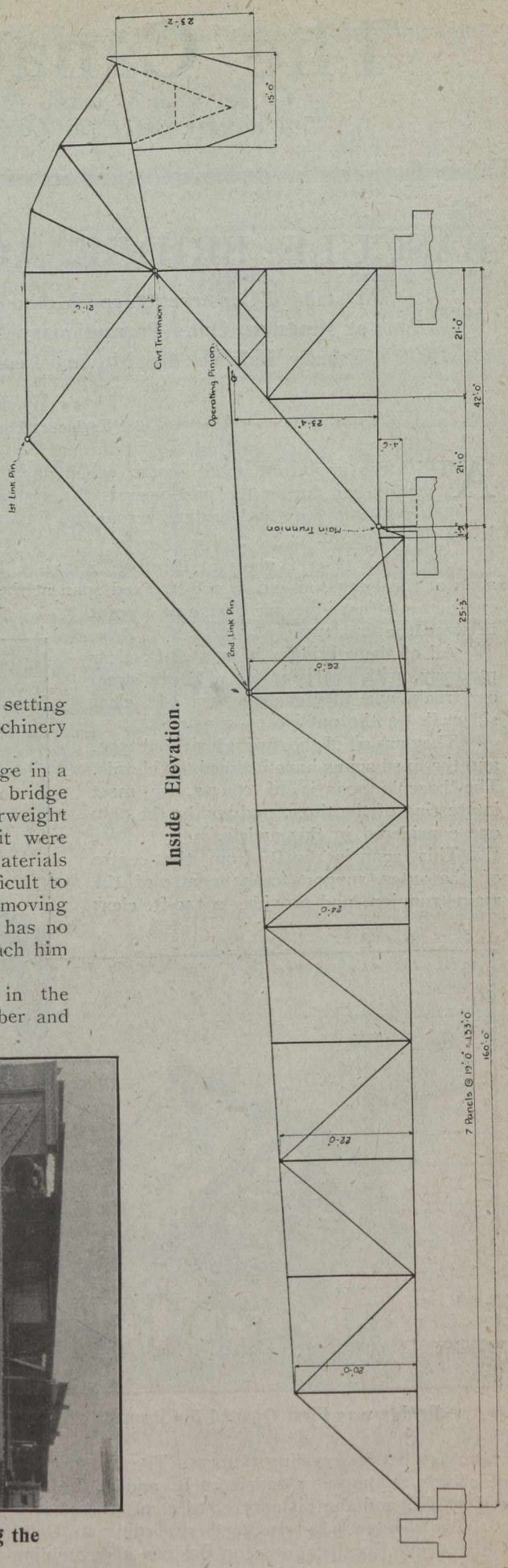
The erection of this bridge required expert attention to secure proper levelling and lining up of the various machine parts, as well as the securing of a static balance between the concrete counterweight and the rest of the structure for all positions within the range of the required movement. Careful work with transit and level served in properly setting the main and counterweight trunnions and the remainder of the machinery was placed in position by machinists in the usual way.

While the machinery is sufficiently heavy to operate the bridge in a partially unbalanced condition, as it, of course, must do when the bridge is operated under wind load, it is desirable to have the counterweight exactly balance the moving leaf under normal conditions. If it were possible to know in advance the exact weight of each of the materials used in building such a bridge, it would not be particularly difficult to design and build a counterweight that would exactly balance the moving leaf, but, owing to practical conditions over which the designer has no control, he had to wait for data on the weight of materials to reach him from the field.

The designer knows very accurately the weight of steel in the structure, and he assumes approximate unit weights for the timber and



Showing the Structural Steel Enclosed in and Supporting the Concrete Counterweight.



Inside Elevation.