

## CHAPTER V.

### SUPERSTRUCTURE.

IN the early part of August, 1867, letters were sent to a number of prominent American bridge-builders, inviting proposals for the superstructure of the Kansas City Bridge. These letters were accompanied by sets of specifications of general character, which were intended to serve rather as an indication of the quality of bridge wanted, than to contain the precise requirements of a contract. The lengths of the several spans, and the uses for which the bridge was building, were given in these specifications ; they also stated that it was designed to build the draw entirely of iron, and the fixed spans of a combination of iron and wood, the latter material being used only to resist compressive strains ; the moving loads to be assumed in the calculations were specified, as well as the strains to which the iron might be subjected, and the factor of safety to be used in the wooden parts. The builders, however, were invited to propose any form of truss which they might select, submitting plans of the same if novel, and to suggest such departure from these specifications as might in their judgment seem wise, with the reasons for the change, and a statement of the benefit resulting therefrom. At the same time a set of plans for the fixed spans was prepared by Mr. Tomlinson, under the direction of the chief engineer, which were to be adopted only if, on a fair examination, they were found to be preferable to those submitted by outside parties. It had been intended to prepare plans for the draw as well, but in consequence of the mass of detail which this would involve, and the shortness of the time, it was found impossible to do so.

Nine sets of proposals were received from five different parties, two being on the common Howe truss plan, with both chords of wood ; of the other plans, three were adaptations of the Pratt truss, one being entirely of iron, and the