THE DESIGNING

OF

ORDINARY IRON HIGHWAY-BRIDGES.

CHAPTER I.

INTRODUCTION.

That many bridge designers will have fault to find with the contents of this book goes without saying, but it will be found that the principal objections will come from those who design the lightest and poorest structures. The weights of iron in the bridges here treated are probably from twenty to fifty per cent greater than those in the bridges ordinarily built; but it is to be remembered that most American iron highway-bridges are not what they ought to be, and that the author has endeavored to design structures first-class in every respect.

The principal differences between these bridges and those ordinarily built are the stiffening of the end panels wherever necessary; the use of C. Shaler Smith’s formula, involving, as it generally does, an increase of sectional area; the peculiar lower lateral system, which avoids using the floor beams as lateral struts; the large lateral rods employed; the allowance for initial tension in all adjustable rods; the variation of the intensity of working-stress for main diagonals; the assumption that all stresses at joints in top chords and at upper ends of posts are carried by the connecting plates and their rivets, no reliance being placed upon the abutting ends of channels; the limiting sizes of the sections of iron employed; and the unusual strength