ever come upon one panel; consequently, it will be the same as was determined for the weight upon the arch suspension rods, or 31,989 pounds.

There are 4 rods at each panel, 2 to each truss.

The rods at the middle of the bridge are 1½ inches diameter. The united cross-section of the 4 rods will be 7 square inches, and the strain per square inch 4,569 pounds.

The end rods sustain the weight of one-half the bridge and its load. Continuing the same hypothesis as formerly, the weight of the half-span and its half-load has been found to be 262,500 pounds.

This is sustained by 4 rods, each 1½ diameter, the united cross-section of which will be 9.6 square inches. And the strain therefore 27,344 lbs., or one-half the breaking weight.

The pressure upon the braces will bear to the strain upon the rods, the proportion of the diagonal of the panels to the perpendicular; this proportion is, in the present case, as 19:16. We have therefore

\[ \frac{31,989 \times 19}{16} = 38,000 \text{ pounds nearly.} \]

The cross-section of the braces in the middle is 168 square inches.

The pressure per square inch on the middle brace is 226 pounds.

For the pressure upon the end braces, we have

\[ \frac{262,500 \times 19}{16} = 311,718 \text{ pounds.} \]

The 2 trusses at the ends contain 6 braces, 4 of which are of pine, 6 \times 7; the others are of oak, 7 \times 7.

The united cross-section will therefore be 266 square inches.

The pressure per square inch will be 1172 pounds.

It is necessary to inquire whether this pressure of 1172 pounds per square inch will cause the brace to yield by flexure.

The braces at the ends are three in number, placed side by side, and supported in the middle by the counter-brace. Two cases present themselves for consideration