the weight of the bridge itself, and the additional weight of the transitory loads that may pass over it:

2. That the flooring will be firm enough to resist the pressure of passing weights without injurious bending:

3. That there will be no dangerous or inconvenient horizontal oscillation, due either to the action of the wind or to any other probable cause:

4. That the cost will not exceed some reasonable limit, justified by the object for which the bridge is intended.

The first, and obviously the most important of these questions, after admitting the importance of the work, is that which determines the strength of the cables that uphold the bridge.

As already stated, these cables are composed each of 1000 strands of No. 10 iron wire, and there will be twenty-four of them, containing in the aggregate 24,000 strands.

A strand of No. 10 wire weighs the 1-20th of a pound for each lineal foot, and if sound and of good quality will bear about 1500 pounds avoirdupois before breaking. In the bridge it will sustain 500 pounds permanently and safely.

The absolute strength of one thousand strands—the number composing one of the cables—will therefore be 1,500,000 pounds, or 750 tons.

The aggregate strength of the twenty-four cables which uphold the bridge, will be 36,000,000 pounds, or 18,000 tons.