There is no difficulty in this. All we require is more material, judiciously applied.

But have we provided that material in this plan? The cables of the Fairmount bridge were composed of about 2500 strands of No. 10 iron wire, and those of the bridge before us will contain twenty-four thousand strands of the same wire.

To move the Fairmount bridge, or send a vibration through it, 135 tons must be put in motion. To disturb the bridge which it is proposed to build at the "Narrows," 2000 tons must be displaced.

But the relative stability of the two works is greater even than their relative weights, per lineal foot, would indicate; for the cables hang much more loosely on the Fairmount than is proposed for the Middletown bridge—another element in such computations.

OF THE STIFFNESS OF SUSPENSION BRIDGES AS DEPENDENT ON THE FORM OF THE CURVE OF THE CABLES.

The stiffness of the bridge depends, as already observed, mainly on the weight, when the proportions are constant; but when the weight is the invariable quantity, the stiffness depends mainly on the form of the curve which the cables are permitted to assume.

For example:—If we have a bridge of any given weight and span, in which the deflection of the cables is any given amount, and place a given load in the centre of the arch, and note the depression; then draw the cables more tightly, so that the deflection is reduced to one-half its previous value, and apply the