

strands each of which will but little exceed the one eighth of an inch in diameter.

It will however be remembered that ships of the line are held safely to their moorings amid the thunder of the storm which lays her on her broadside, by the fibres of hemp cables, each one of which is not more than the one hundredth part of an inch in thickness.

The spiders and the silkworms thread which may be woven into a fabric of prodigious tensile strength, is composed according to Biot of more than 5000 strands, (Bartlett's Mechanics) and a stick of oak, with a transverse section, capable of supporting safely fifty tons, is composed of capillary tubes, each one of which is scarcely larger than a human hair.

If then, it can be shewn that one single strand of wire stretched across the span proposed for the bridge, will sustain its own weight and something more, which quantity is known, it needs only the most simple rules of primary arithmetic, to determine how many strands are wanted to carry any required load.

Now it is proposed that the cables of the bridge shall contain suitably disposed, *eighty thousand strands of No. 10, best bridge wire*, each strand reaching the entire length of the bridge.

This wire will weigh one pound and one fiftieth of a pound for every twenty feet in length, consequently as the curve will require about twenty feet, the length of each strand from the points of support in the centre span, will be about sixteen hundred and thirty feet long, and each strand will weigh about eighty three and thirteen hundredths by pound.

By a series of the most careful experiments it has been ascertained, that a strand of the size and weight specified, will sustain before breaking, a load equal to *one thousand*