

all of the above some variety of lime stone is employed.

Previous to building however, very accurate experiments should be made on the particular kind of stone to be used, on which alone the ultimate proportions should be based.

If the lines of the apex of the curve of the centre span and the attachments at the retaining walls remained always on the same level, there would be no occasion to provide for any motion of the cables on the towers. But as the atmospheric changes, by contracting and expanding them, will cause the entire roadway from the revetments to the centre to rise and fall, it becomes necessary to adopt such saddle and bearing plates under the cables, between them and the masonry of the towers, as shall allow a slight movement to keep an equilibrium established between the centre and land spans.

The saddles consist of iron plates so constructed as to receive the cables where they pass through the tops of the towers. They will be made segmental in form, on the upper side, with grooves for the cables to lie in.

A system of cylindrical rollers is to be so placed between the saddle and a lower plate of cast iron, which rests on the masonry, that as the cables expand and contract an oscillatory motion will take place upon the rollers, and so continue the direction of the forces in parallel lines to the axes of the towers.

Similar rollers set in vertical planes on the inside of the saddles will transmit the horizontal strain of the cables on to the masonry arch, between one saddle plate and the other.

It will thus be seen that although the pressure of the cables will not always be quite in the axes of the towers, it will never be oblique to them, but always either directly through or parallel to them slightly on one side or the other.