I will now proceed and specify the gradual process of erection in the same succession in which the various steps must be taken in practice.

After the masonry of the first central pier has been completed, the erection of the wrought-iron shafts composing the tower will be commenced, and the saddles placed on top and secured. On the second centre pier where the superstructure is not to be fixed permanently, but allowed to contract and expand freely, the roller-plates and rollers have to be laid down first, before the erection of the towers can be proceeded with. The same must be done on the abutments. First lay down the roller-plates, then put up the posts, chords, and transverse beams, so far as the masonry furnishes support. Also put up the anchor-plates, and secure these to the posts. It is also necessary to secure the stability of the ends of the trusses on the abutment still further by temporary wooden and iron braces. Great security will be obtained from the lateral wire-rope braces, when put up and screwed tight.

A temporary anchorage will now have to be prepared for the purpose of meeting the strains caused by the cables. I have already spoken of this, and will only repeat that the wire-ropes provided for the storm-cables may be used for this purpose.

By making an excavation of about 10 feet deep and about 25 feet long by 25 feet wide, and by driving a few piles in front, and setting some of the 12 in. iron beams, railroad bars, timber, and stone, a temporary anchorage may be made at the cost of a few hundred dollars, which will safely resist a strain of 500 tons.

In order to have the means of regulating the tension of the temporary anchor-cables, and to provide, to a certain extent, for contraction and expansion while engaged in raising, it will be advisable to deflect the anchor-cables a few feet, and anchor them in the centre between the anchorage and abutment to another temporary anchorage, by means of long screw-bolts and stirrups, or by block and tackle. This will afford the means of allowing the anchor-plates to move forward toward the river just enough to close the arches and chords. Allowance must also be made for the stretching of the cables.

We have now proceeded far enough to take across the river two of the smaller cables or ropes which are to form parts of the large cables. An easy mode of accomplishing this will be to remove the reel which contains one coil of wire-rope upon the deck of a flatboat or barge, and to mount it upon a strong, well-secured frame, on a spindle which rests on bearings, and is allowed to revolve. Now provide one or two good brakes to check and regulate the speed of the revolving reel, and employ a strong tug to tow the barge across the river, either above or below the line of piers.

The end of the rope should of course be first secured to one of the anchor-plates before starting. On crossing the river, the rope is simply dropped upon its bed. The other end being hauled, is now temporarily secured to its anchor-plate, and preparations are made to hook up the rope at the centre piers, and to raise it to the top of the towers. Here it is rested on temporary timber-blocks, which serve as saddles, and are secured alongside of the cast-iron saddles.

After two wire-ropes have been taken across and suspended, their deflection must be adjusted, and they are then further secured to the middle towers by screw-clamps and bolts, to prevent their slipping. The object of these temporary suspension-cables being to facilitate the construction of the main cables, it is advisable to deflect them about 2 to 3 feet below the main cables, so that they will run nearly parallel to them. This being done, light timber-beams or scantling, say 24 feet long, may be thrown across the two opposite ropes, and lashed to them from below by hemp lines at distances of about 4 to 5 feet apart. This process should commence at the two middle towers, and should be carried on both ways, so that the spans will be equally weighted, and their equilibrium be maintained. Planks are pushed forward over the beams and secured by hoists, so that two foot-walks are formed, each about 4 feet wide, in line of the main cables and underneath. Where these walks are very steep, the planks may be elated, to secure a better foothold.

Two footways have now been put up, extending across the river from one abutment to the other. To facilitate the crossing of men not used to high elevations, two small wire-ropes 1 to 3 in. diameter may be suspended just above the position of the main cables, and connected laterally every fifty feet by smaller chords. The men will take hold of these ropes while crossing, and use them as hand-rails.

This being accomplished, we are now enabled to go from pier to pier and to perform work independent of the river. As the stays are placed in the bottom of the saddle, they must be raised first and put in place, allowing their ends to hang down the piers. This being done, the first permanent cable-rope may now be fastened to its respective anchor-plate at one end, then taken across the river and run off the reel in the same manner as done before. These ropes are to be dropped upon the bed of the river, either above or below the piers, always on the side of their respective towers. Whenever a rope has thus been run off, it must be raised and placed upon the saddles before another one is launched on the bed of the river. It is also necessary that each rope should be properly placed and its deflection adjusted correctly before the next one is taken up.