

section was 13 feet high, and as soon as this was completed it was lowered between the boats almost to the surface of the water, and a second section, 11 feet high, added to it. The lower edge was shaped to fit the irregularities of the rock, and the caisson was surrounded by a sheet piling of planks sharpened to a feather edge and secured by a double set of guides. The caisson was thoroughly caulked, braced internally, and fitted with a false bottom; this bottom, which was put in to facilitate handling, was built in sections, placed a little above the lower edge, and held in position by inclined braces bearing against the caisson timbers and adjusted with folding wedges. To aid in placing the caisson upon the rock, eight posts were provided, each 60 feet long and 16 inches square, built of 8 by 16 oak timber of shorter lengths, with a central hole three inches in diameter extending from end to end, through which a two-inch steel drill, welded to an iron rod 65 feet long, might be worked.

When complete, the caisson, still carried by the boats, was carefully floated into position, and four of the 60-foot posts with the drills, raised on either side of it. The posts sank by their own weight through the thin layer of sand, and were at once made fast by working the drills two feet into the rock; they were then well braced together and secured to the caisson by sets of rollers and shoes, the two sets of posts being placed about an inch nearer together at the top than bottom, to secure clearance in lowering the caisson. Four pairs of cross timbers, attached to the posts, were placed above the caisson, each of them carrying two suspension screws 20 feet long and two inches in diameter, with a thread cut from end to end. The total weight of the caisson being 72 tons, each screw was required to carry nine tons. On the 6th of September every thing was in readiness, the caisson had been attached to the screws and the lowering was begun. Three men at each screw were required to handle the weight. Ease and regularity of descent were secured by admitting water above the false bottom; when one half of the caisson had become submerged this was found to be no longer necessary, and the bottom was set free by striking the folding wedges which held the braces, and taken out in parts. On the 11th of the same month the caisson came to a bearing upon the sand, and the screws were removed. The use of long posts secured by drills rendered the matter of false works exceedingly simple; this device, which