s 9 ft., and of the centre 19 ft. It will be seen that the only stonework employed is a facing averaging 12 in. in thickness. Immediately below the springing of the girders a moulded stone course runs around the face and sides of the abutments, as shown in the figures.

The elevation, Fig. 1, Plate LXIX., shows the general design of the small piers at the sides of the abutments, whilst the details of the cylinders forming the piers of the bridge are shown in Figs. 6, 7, and 9, Plate LXX. The girders spring 6 ft. 4 in. above water level, and the cylinders descend to the rock through layers of mud, gravel, and clay, as shown in Fig. 9, which is a general section of one cylinder. The outside diameter of the cylinders is 5 ft., and the thickness of metal 1 in., excepting in the cap, where it is reduced to \( \frac{3}{4} \) in. Each cylinder is made in three lengths, bolted together, as shown by 1 in. bolts, through internal flanges of the same thickness as the metal of the cylinders. The interior is filled with concrete, and at the top a bedstone, 3 ft. 6 in. square and 18 in. deep, is placed to serve as a bearing for the girders. There are two cylinders to each pier, placed 22 ft. 6 in. apart, corresponding to the space between the centres of the girders. Figs. 1, 4, and 6, Plate LXX., as well as the general elevation, Plate LXIX., show the design of the cylinder cap, which is bolted to the internal flanges at the upper end of the top length of cylinder, while it will be seen that above the cap at the level of the bedstone is a loose piece, giving a good finish.

In Figs. 1, 4, and 6, Plate LXX., are shown the design adopted for the half-pier between the top of the cylinders and the parapets of the bridge. Fig. 1 is a front elevation, Fig. 4 a side elevation, Fig. 6 a vertical section, and Figs. 2, 3, and 5, sectional plans of this pier. From these figures it will be seen that it presents the appearance of an hexagonal pilaster, the base of which is seated on the domed cap of the cylinder, terminating with a neck moulding, from which three ornamental brackets extend beneath the footways, and end at the facia mouldings of the parapet.

The sectional plan, Fig. 2, Plate LXX., shows the way in which the base mouldings are adapted to the cap of the cylinder, and the section, Fig. 6, explains the method in which the pilaster is attached to the main girder. The base is cast separate from the shaft of the pilaster, and is bolted to the web of the main girder by \( \frac{3}{4} \) in. bolts. The shaft is bolted to the base, and the cap is secured to the shaft, and to the upper part of the main girder, also by \( \frac{3}{4} \) in. bolts. Fig. 10 is an enlarged section of the top of the shaft, and shows the form of the mouldings. Figs. 3 and 5 are sectional plans through the base of pier, looking upwards upon the underside of the footpath, and the manner in which the brackets radiate is clearly shown in the section.

The details of the two main girders are shown in Figs. 3 to 9, Plate LXIX. It will be seen from Fig. 1 on that plate that the height of springing of the arched girder is 6 ft. 4 in. at the piers, and 5 ft. 9 in. at the abutments. The clear headway in the centre of the middle arch is 9 ft. 5 in., and the height from water level to road surface is 13 ft. 6 in. The arched portions of the girder for each span have radii of 57.1 ft. and 181.8 ft. respectively for the centre and side spans, and the radius of the top of the girder is 1875.5 ft. The total length of the girder from end to end is 155 ft., and the arrangement of the plates of the top and bottom members is shown in the diagrams. From these it will be seen that the plates employed are all \( \frac{3}{4} \) in., and that they gradually increase from a single plate at each end to three plates in the centre, with cover plates 7 ft. in length. Rivets \( \frac{3}{4} \) in. in diameter, pitched 4 in. apart, are employed. Fig. 8 is a cross section of the main girders, through the centre of the middle arch.

The thickness of the web-plates throughout is \( \frac{3}{4} \) in., and the flanges are attached to the webs by angle irons, \( \frac{3}{4} \) in. by \( \frac{3}{4} \) in. by \( \frac{3}{4} \) in. Fig. 8 shows a bulb iron, 21 in. by 4 in., interposed between the plates of the flanges on the outer side. At a distance of 1 ft. 6 in. below the underside of the top flange an angle iron, 5 in. by 3 in. by \( \frac{3}{4} \) in., runs along the outer side of the girders, and is riveted to the web by \( \frac{3}{4} \) in. rivets. For the construction of the bridge, the designer has chosen to give a finish to the structure.

Fig. 7, Plate LXIX., shows the construction of the girder over the piers, and it will be seen that here T-iron stiffeners, 5 in. by 2 in. by \( \frac{3}{4} \) in., placed 2 ft. 6 in. apart, run down one side of the web of the girder, the middle one being exactly in the centre line of the cylinder, and extending as far as the upper flange, while the outer stiffeners reach only to the underside of the cross girders, as shown. To the two outer T-irons are rivetted (by \( \frac{3}{4} \) in. rivets, 4 in. pitch) stiffening plates, \( \frac{3}{4} \) in. thick, and to the outer edge of these plates an angle iron, 21 in. by 21 in. by \( \frac{3}{4} \) in., extending down to the bottom main flange, is fastened by rivets \( \frac{3}{4} \) in. in diameter, and 4 in. pitch. At a height of about 2 ft. above the underside of the girders an angle iron, 21 in. by 21 in. by \( \frac{3}{4} \) in., runs from one outside T-iron stiffener to the other, and to this angle iron and the T-irons a plate is rivetted, which extends down to the bottom flange. Of course these stiffeners are all on the inner side of the girder, the outer side being left quite clear for the sake of appearance. The depth of each girder over the cylinders is 6 ft., and that at the abutments is 5 ft. 4 in. The ends of the girders are not specially stiffened, but are finished simply with angle irons \( \frac{3}{4} \) in. by \( \frac{3}{4} \) in. by \( \frac{3}{4} \) in., and end plates. The flat bearing on the bedplates is 2 ft. 6 in. long.