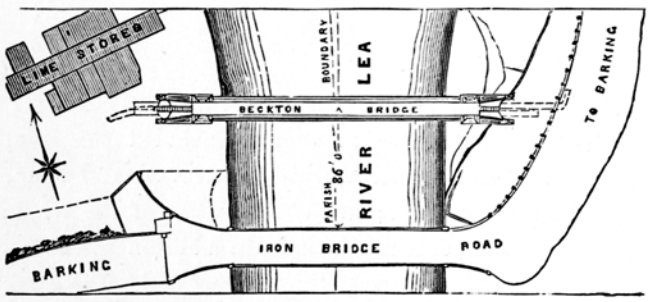
BRIDGE STRUCTURES AT THE BECKTON GASWORKS.

THE Gaslight and Coke Company, commonly known as the Chartered Gas Company, have now had in operation for a considerable time their new works at Beckton. For many years the large and ever-increasing demand upon their original and contracted premises in the Horseferry-road, Brick-lane, and Curtain-road, rendered an extension or a new establishment absolutely necessary, and after many efforts, parliamentary sanction was obtained for the acquirement of a sufficient area of land at Barking, immediately above the property owned by the Metropolitan Board of Works, in connexion with the northern outfall. Upon the land so obtained, a large and comprehensive plan for gasworks was laid out, and the works were formally commenced on the 19th of November, 1868. Having to make provision not only for the wants of the Company but also for the probable requirements of other gasworks, the capacity of the establishment was fixed at 10,000,000 cubic feet of gas per day—a quantity which even already is insufficient to meet the vastly increased demand, and the works are now being doubled in extent. The Beckton Works as they stand are, at the same time, the largest and most complete of their kind in the world, and reflect the utmost credit on their engineer, Mr. Frederick John Evans, M.I.C.E., and on his principal assistant, Mr. V. Wyatt, who has been associated with him on the works since its commencement. To enter into a description of these works would be out of place in the present volume, but there are several bridge structures included in the design, which, besides being good pieces of construction, have a special interest in their application. The works referred to are an arched bridge, 175 ft. span, crossing the River Lea, and carrying the mains of the company, the river pier, the viaducts connecting the pier with the retort houses, and some special forms of construction for carrying the mains through localities where space was limited. These structures we shall describe in the order in which we have mentioned them.

BRIDGE CARRYING GAS MAINS OVER THE RIVER LEA.

PLATES VI. AND VII.

THE bridge carryingt he mains over the Lea is situated about three miles from the Beckton Works, and its centre line is 86 ft. north of the north face of the old bridge built by James Walker many years ago, and which carries the Barking-road across the river. The clear span between the abutments is 175 ft., the rise of the arch above springing is 13 ft., or a little more than one-thirteenth the span, and the soffit of the arch is 21 ft. above Trinity high water mark. The width of



the structure from centre to centre of ribs is 12 ft. The general plan annexed shows the position of the site.

In Plate VI., Fig. 1 shows the general elevation of the bridge; Fig. 2 the plan; Fig. 3 a longitudinal section of part of the span and the western abutment; Fig. 4 a section of the eastern abutment; Fig. 5 a transverse section through the centre of the bridge; Fig. 6 an end elevation of one of the abutments; and Figs. 7 and 8 sections through the west and east abutments respectively, showing the mode of attaching the gas mains to the tubes which the bridge is designed to carry. Other details, to which reference will subsequently be made, are shown in Plate VII. The elevation, Fig. 1, and the longitudinal section, Fig. 3, show the position of the sheet piling which retains the river frontage on each bank above and below the bridge. On the west side some 50 ft. of new piling were driven 6 ft. in advance of the old line of the wharf, and on the eastern side a length of 200 ft. connects the abutment of the old road bridge with the new river frontage formed under and beyond the new bridge. This sheathing is formed of whole timbers 12 in. × 12 in., creosoted, and 28 ft. long, driven about 5 ft. into the gravel at intervals of 6 ft. from centre to centre. These piles are protected with 20 lb. iron shoes, and are hooped at the