

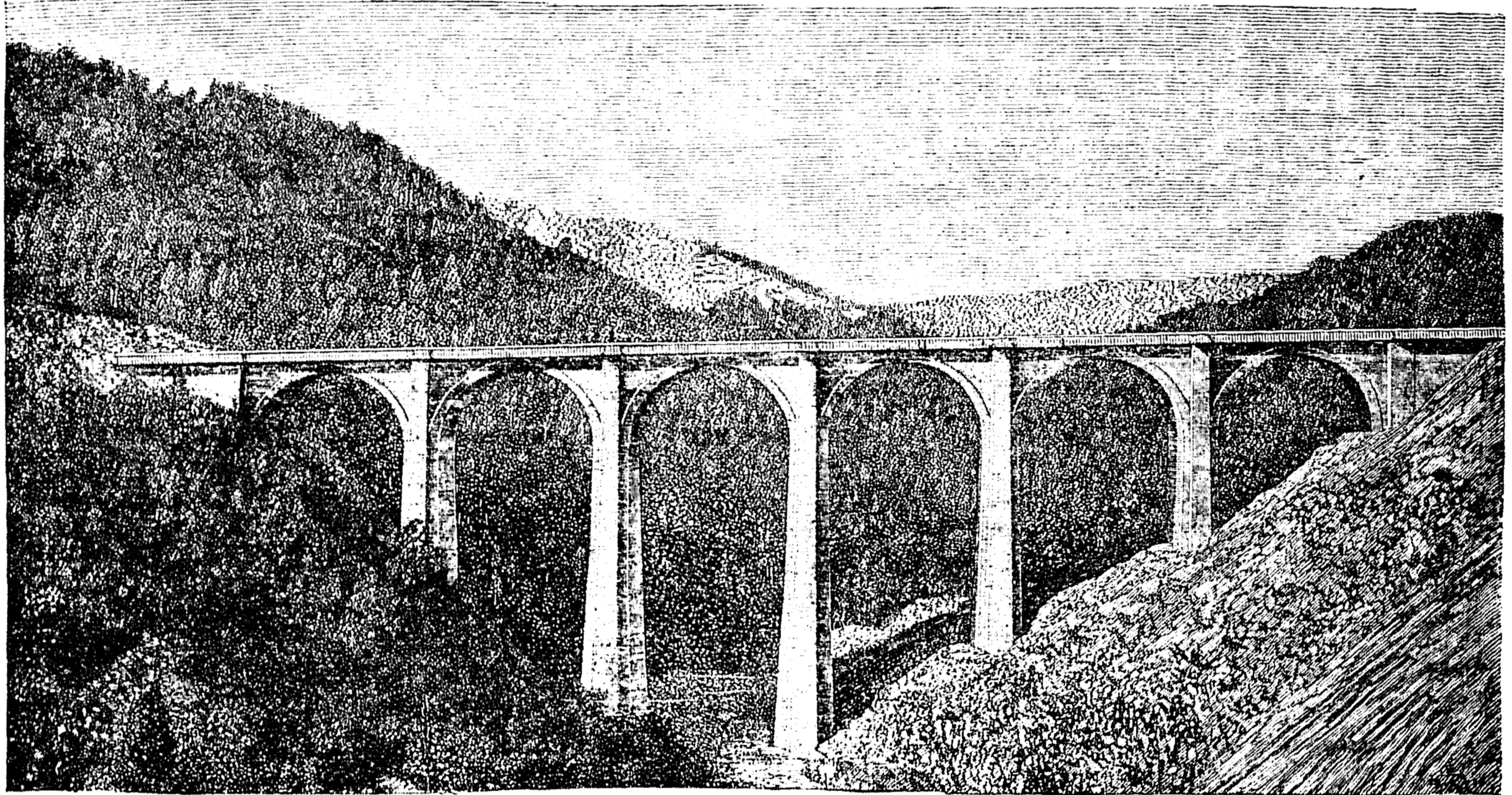
THE CRUEIZE VIADUCT.

THE accompanying illustrations, from *Le Genie Civil*, show the viaduct which carries the Marvejois-Nessargues Branch of the Midland Railroad of France over the deep valley or ravine of the little river Crueize—a valley so

(32.8 ft.) below the surface; the average depth is 6.5 m. (21.3 ft.).

The construction of the road-bed is shown in figs. 2, 3 and 4. The ballast rests on broken stone filling, above the masonry.

The viaduct contains in all 894,645 cu. ft. of masonry, not including the foundations. Its total cost was \$247,680,



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deep, rocky and deserted that it is locally known as the Valley of Hell.

The viaduct consists of six equal arches of masonry and is 218.8 meters (717.7 ft.) long; the height at the center, above the river bed, is 63.3 m. (207.6 ft.). It carries two tracks, which are at that point on a grade of 2.75 per cent., or 145.2 ft. to the mile.

The arches are 25 m. (82 ft.) span; in order that the springing of the two adjacent arches may be on a level, the radius of the lower half of each arch is 12.915 m. (42.4 ft.) and of the other half 12.085 m. (39.6 ft.). In the accompanying illustrations the first is a general view of the bridge; fig. 2 is a longitudinal section through two of the arches; fig. 3 is a half cross-section through a pier, and fig. 4 a half cross-section through the center of an arch.

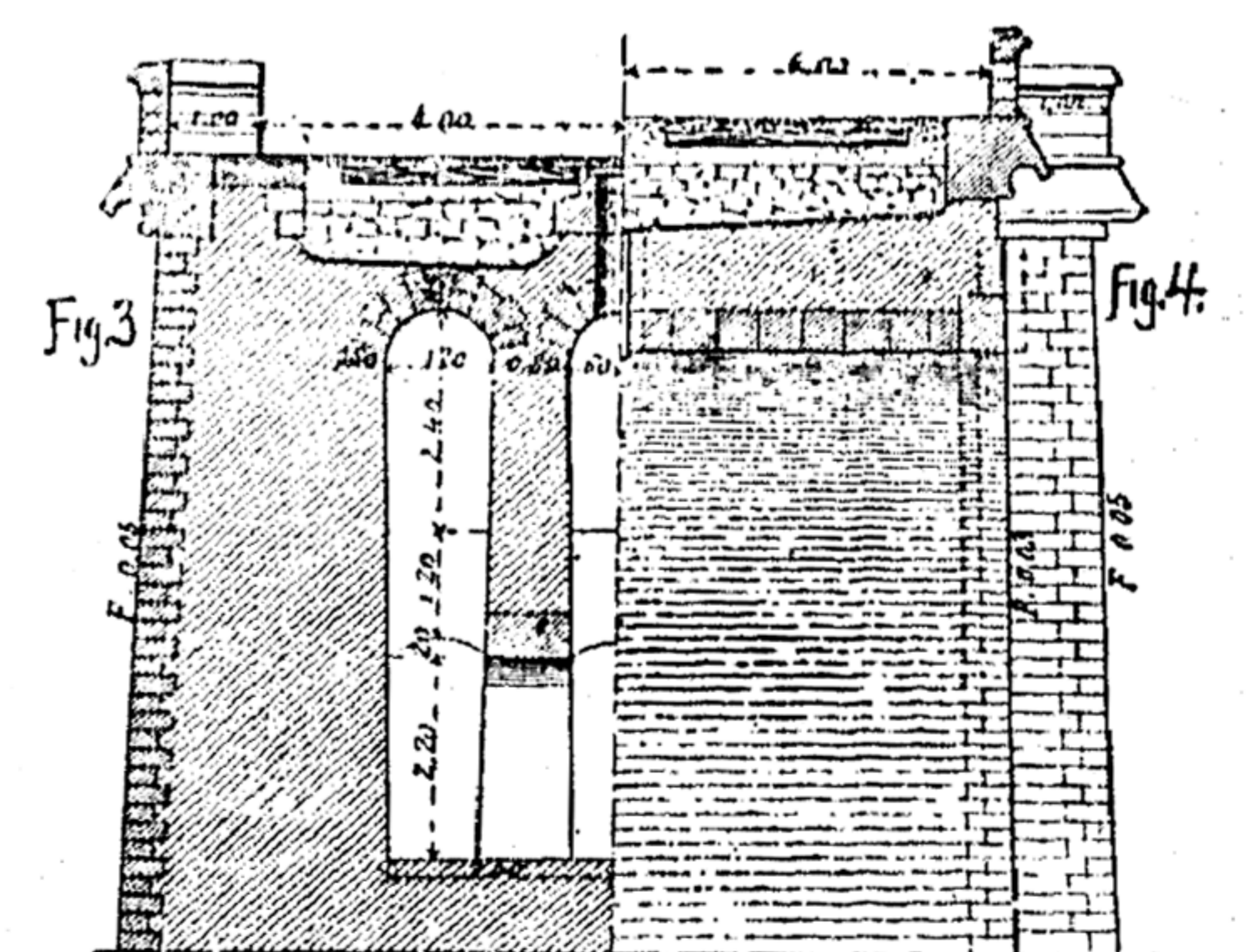
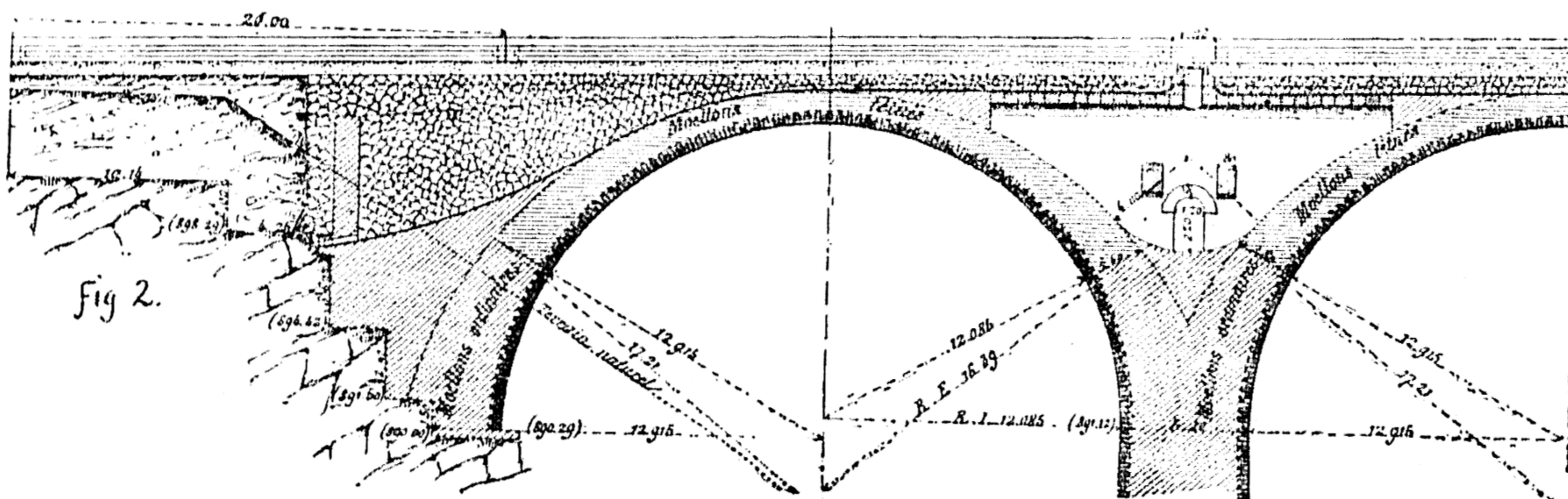
The foundations presented no difficulty, as the rock is everywhere near the surface. The piers are of the buttressed form shown by the engraving. They are all 11.55

including clearing and foundation work. It is certainly a very symmetrical and handsome work in appearance.

RAILROADS IN SIAM.

THE fact that the Government of Siam has advertised for proposals to build a railroad, and that some effort has been made to get bids from American contractors, will give interest to the following notes from our correspondent in Siam:

The line for which bids are asked is to run from Bangkok northward to Ayuthia, and thence northwest to Korat, a distance of about 167 miles. For about 47 miles the road runs through the low alluvial plains of the Menam, where embankment will be necessary to keep it above flood level; then for 37 miles over level plain country. The next sec-



m. (37.9 ft.) extreme length, by 5.20 m. (16.1 ft.) extreme width, at the springing of the arch; their size at the foundation varies according to the height. The batter of the faces varies with each 5 m. (16.4 ft.) of the height, making the face of the pier practically a curve. This system has been adopted in a number of the larger French viaducts. The curve corresponds to the total pressure on the pier. The highest pier is 45 m. (147.6 ft.) from the foundation to the springing of the arch. The greatest depth to which it was found necessary to carry the foundations was 10 m.

tion of 27 miles includes the ascent from this plain to a high table-land, nearly 1,000 ft. above sea level; the summit, as located, is 1,292 ft. above sea level. The remaining 56 miles to Korat is over nearly level table-land.

The gauge of the road is to be 4 ft. 8½ in. Bids, which are to be sent to K. Bethge, Director-General of Railroads at Bangkok, may be for a section or the whole line. The time allowed is from four to five years; the Government will furnish rails and equipment. The bridges will be of wood and the rails 56 lbs. to the yard. The approximate