The roadway of the bridge consists of a timber platform carried on the cross girders, and supporting longitudinal timbers, 7 in. x 6 in. placed about 2 ft. apart. Upon these timbers is laid, transversely, 4\(\frac{1}{2}\) in. planking, and upon this again rest oak blocks 5 in. thick. The footpath is laid with 3 in. oak longitudinal deckings, upon which the wearing planks are spiked. This forms a somewhat heavy roadway, but it should be borne in mind that timber is exceedingly cheap at Czernowitz.

The two main girders rest upon roller bearings at each of the piers, each of these bearings being composed of three castings. The first or upper portion is fixed to the girder between the frames, the underside of the casting being arched, and resting upon the second or intermediate casting, to which a corresponding arch is given. This arrangement allows for oscillation in the bridge from moving loads, and also insures the central action of the load upon the rollers, and consequently upon the pier. The second casting rests upon eight cast-iron rollers, each 4 in. in diameter; these rollers rest upon a cast-iron bedplate bolted down to the masonry of the pier. The rollers are omitted from the bearings over the central pier, whilst the arched form is retained to provide against oscillation. The main girders being thus prevented from moving horizontally at this point, the expansion from increase of temperature extends outwards from the centre, and elongates the bridge equally at each end. The section of channel iron used in this bridge is the same as that in the Midland Railway roof, at St. Pancras, and is 10 in. x 8\(\frac{1}{2}\) in. The flange plates connecting them vary in thickness. The ironwork of the Czernowitz Bridge, erected complete, has cost the sum of 11,000£, but it has been saddled with heavy expenses in the shape of costly freights and long railway journeys; the cost of carriage, in fact, formed a very serious item. The first span of the structure did not leave England until May, 1870, but the whole bridge was erected complete by the end of October following.

During the erection of the bridge a heavy flood brought down masses of débris, and amongst others a timber mill, which entirely carried away the scaffolding under one span. The ironwork, however, had been carefully prepared, so that it should carry itself, by the temporary fastenings of bolts and cold rivets in the rivet holes, and thus this span sustained no injury whatever.

The Czernowitz Bridge was thrown open for public traffic, after having undergone a careful and searching test at the hands of the Government engineer, Herr Ohmann. All the spans were tested individually and collectively; the proof loads, which consisted of bricks, being applied in a variety of ways, so as to try the continuous girder system to the utmost in every respect. The test load appointed by the Austrian Government for bridges is 30 cwt. per square fathom, or 96 lb. per square foot English. This is considerably higher than the proof load used in England, which may be taken at from 70 lb. to 80 lb. per square foot of road surface. On account, however, of the increased weight of timber introduced into the platform during construction, the test load was reduced to 25 cwt. per square fathom, or 89 lb. per square foot. According to the test originally proposed, the load brought on the ironwork of the structure would have been 6 tons per square inch of sectional area. As it is, however, with the increased weight of the platform, this rate would appear to be increased. But as in continuous girders the maximum strains do not depend upon the amount of the maximum load alone, but also very considerably upon the difference between the greatest and smallest loads, the proof load really remains within the original test. The highest deflection in any one span was 1 in., and the permanent set varied in the different spans from \(\frac{1}{2}\) in. to \(\frac{1}{6}\) in. The work was carried out under the superintendence of the resident engineer, Mr. R. C. Grant.