end of which fits into a recess cast for it on the top of the bracket, the latter being notched to it (the size of cotter is 2 in. by \( \frac{1}{2} \) in.), while at the other end it is fixed by two \( \frac{1}{2} \) in. rivets to the top of the flange of the main girder. A small sole-plate at the end of the bracket serves to attach the parapet standards. The section, Fig. 8, and plan, Fig. 9, show this arrangement. Fig. 14 is an enlarged section of the facia parapet moulding. It is of cast iron, \( \frac{1}{4} \) in. thick at the bottom, and reduced to \( \frac{1}{2} \) in. at the top. This moulding is connected to the ends of the brackets, which are adapted to receive it. Between each bracket is placed a cast-iron panel laid at an angle corresponding to the slope of the footpath. The contour of these panels is shown in Fig. 8. From the same section it will be seen that at one side they take a bearing on the inner part of the facia moulding, and at the other on the flange of the main girder, whilst longitudinally they rest upon the \( \frac{1}{2} \) in. projection of the top of the brackets, as represented in Fig. 9, Plate LXIX., which shows a bracket in plan with two panels. The whole of that part of the bridge underneath the footways is thus enclosed with ornamented cast-iron plates, about 5 ft. 8 in. long and 3 ft. wide, except those next abutment, which are rather larger on account of the increased distance between the last cross girder and the abutment.

Figs. 5 and 8, Plate LXXX., show the details of the parapet, Fig. 5 being an elevation, Fig. 8 a section, and Fig. 16 an enlarged section of the parapet capping. The height of the parapet is 3 ft. 5\( \frac{1}{4} \) in., and the standards are four inches square. They are bolted down to the sole-plate cast on the end of the brackets by four bolts \( \frac{3}{4} \) in. in diameter. Fig. 8 shows the base of the standard, and the way in which the facia moulding is disposed in order to break the line of parapet. Each bay between the standards is filled with an ornamental cast-iron fence of the design shown in Fig. 5. The hand-rail of the parapet is 7 in. deep (Fig. 16), finished with a separate capping resting on the top of the fence castings, and fitting into recesses in the standards, as shown in Fig. 8.

Figs. 1, 6, and 8, Plate LXXX., show the details of those parts of the parapets over the cylinders. It will be seen that they are designed to harmonise with the abutments. They are of \( \frac{1}{4} \) in. metal throughout, and are framed in different pieces fastened by tapped screws. Each of these parts of the parapet have three sole-plates (Fig. 6), by which they are fastened down to corresponding plates in the brackets projecting from the cylinder piers. Fig. 3, which is a plan of this detail, shows the manner in which the fastening is effected. An ornamental lamp surmounts the parapets over each pier, as shown in the general elevation, Fig. 1, Plate LXIX.

The roadway of the bridge is made with a formation of concrete, with which the sagged floor plates are covered to a depth of about \( \frac{1}{3} \) in. above the level of the top of the cross girders, and which slopes down towards the sides. Above this concrete is laid ordinary granite pitching. The footways are also formed in concrete, which is filled in over the brackets and panels, and on the concrete, with a slope of \( \frac{1}{2} \) in, is laid \( \frac{1}{2} \) in. Yorkshire paving, with a 12 in. curbstone running along the edge of the footways. (See Fig. 8, Plate LXIX.)

The following is an approximate list of the quantities of material employed in the Peterborough Bridge:

**Wrought Iron:**
- In main girders: 44 tons
- In cross girders and floor plates: 42 tons

**Cast Iron:**
- In floor-plates, pillars, and hand-rails: 44 tons
- In cylinders: 52 tons

**Excavations:**
- In cylinders: 40 cubic yards
- In abutments: 90 tons

**Concrete:**
- In cylinders: 72 tons
- In abutments: 100 tons

**Stone:**
- In piers and bedstones: 1670 cubic feet
- Stone curb 12 in. x 6 in.: 324 feet linear
- York landings \( \frac{1}{4} \) in. thick: 1154 square feet
- Concrete in road formation 4 in. thick: 360 square yards

The total cost of the bridge, exclusive of approaches, will be only about 35000£. The following are the calculations upon which the bridge was designed:

**Calculations of Strains upon the Ironwork.**—The main girders are calculated to sustain a dead load of \( \frac{1}{2} \) cwt. per superficial foot, and a live load made up of one 30-ton herry at the centre of each span, two 6-ton wagons at intermediate points, and a distributed load of \( \frac{3}{4} \) cwt. per square foot upon the footpaths.

The average load per superficial foot will consequently be as follows:

- Centre Span of 70 ft.
  - 30 tons at centre: 1200 cwt. distributed.
  - Footpaths \( 9 \times 70 \times \frac{1}{2} \): 400 cwt.
  - Two 6-ton wagons near centre: 400 cwt.

  Total: 2000 cwt.

  Hence average live load \( = \frac{2000}{70} = 28 \) cwt. per superficial ft.

- Dead load: \( \frac{1}{2} \) cwt.

- Average gross load on centre span: \( = \frac{28 + \frac{1}{2}}{70} \) cwt. per superficial ft.

- Side Spans of 35 ft.
  - 30 tons at centre: 1200 cwt. distributed.
  - Footpaths \( 9 \times 35 \times \frac{1}{2} \): 200 cwt.
  - One 6-ton wagon near centre: 200 cwt.

  Total: 1600 cwt.

  Hence average live load \( = \frac{1600}{35} = 45 \) cwt. per superficial ft.

- Dead load: \( \frac{1}{2} \) cwt.

- Average gross load on each side span: \( = \frac{45 + \frac{1}{2}}{35} \) cwt. per superficial ft.