

lintel is shown at P and Q; the number and size of the reinforcement depend upon the span, width and load to be supported; the steel is placed in the moulds and at about 1-in. from the bottom; the concrete is poured in, care being taken in packing it round the reinforcement. The ends of the bars are hooked as shown in order to increase the bond or grip between them and the concrete. If precast, the top of the lintel should be marked so that the fixer will bed it with the reinforcement lowermost. Other examples of a reinforced concrete lintel are shown at A and C, Fig. 25, and B, K and O, Fig. 60. See footnote to p. 26.

### ARCHES

An arch is a structure comprising a number of relatively small units<sup>1</sup> such as bricks or masonry blocks which are wedge-shaped, joined together with mortar, and spanning an opening to support the weight above. Because of their wedge-like form, the units support each other, the load tends to make them compact and enables them to transmit the pressure downwards to their supports.

**TERMS.**—Most of the technical terms applied to an arch and adjacent structure are illustrated in the isometric sketch (Fig. 13), and the following is a brief description of them:—

**Voussoirs.**—The wedge-shaped bricks or blocks of stone which comprise an arch; the last voussoir to be placed in position is usually the central one and is known as the *key brick* or *key stone*; it is sometimes emphasized by making it larger and projecting it above and below the outlines of the arch. The key shown in the sketch consists of several  $\frac{1}{2}$  or  $\frac{3}{4}$ -in. tiles.

**Ring, Rim or Ring Course.**—The circular course or courses comprising the arch. The arch in Fig. 13 consists of three half-brick rings, each of those at C and L, Fig. 15, has two half-brick rings, and those at D and M Fig. 15, and F and J, Fig. 43, have each a one-brick ring.

**Extrados or Back.**—The external curve of the arch.

**Intrados.**—The inner curve of the arch.

**Soffit.**—The inner or under surface of the arch; in some localities the terms "soffit" and "intrados" are accepted as meaning the same.

**Abutments.**—The portions of the wall which support the arch.

**Skewbacks.**—The inclined or splayed surfaces of the abutments prepared to receive the arch and from which the arch springs (see A, Fig. 15).

**Springing Points.**—The points at the intersection between the skewbacks and the intrados (see A, Fig. 15).

**Springing Line.**—The horizontal line joining the two springing points.

**Springers.**—The lowest voussoirs immediately adjacent to the skewbacks (see P at C, Fig. 15).

**Crown.**—The highest point of the extrados.

**Haunch.**—The lower half of the arch between the crown and a skewback.

<sup>1</sup> Steel and reinforced concrete arches of large span are adopted in bridge construction.

