

vary from $\frac{1}{2}$ to $1\frac{3}{4}$ -in. thick; those shown are $\frac{5}{8}$ -in. thick. Ordinary roofing tiles—(known as *plain tiles* (see Fig. 70)—are sometimes used; these are $10\frac{1}{2}$ -in. by $6\frac{1}{2}$ -in. by $\frac{1}{2}$ -in. Purpose-made tiles, called *quarry tiles*, are thicker than plain tiles and are usually square of 6 to 12-in. length of side. The tiles are given a $\frac{3}{4}$ -in. projection beyond the face of the wall (see section) and a $\frac{3}{4}$ -in. projection beyond the jamb (see elevation); they are laid to break joint (see also A, Fig. 43). The tiles must be solidly and uniformly bedded in mortar otherwise they may be easily damaged.

An alternative arrangement is shown at B, Fig. 16, where a double course of tiles is bedded on a brick-on-edge course. An equally satisfactory and inexpensive finish is provided by a double course of tiles bedded on the top course of the general walling (see B, Fig. 14). The tiles may be given a much greater slope if desired (see A, Fig. 57), and the brick-on-edge course may project $\frac{3}{4}$ to 1-in. beyond the face of the wall.

An internal sill of one course of tiles (F) is shown at A, Fig. 16, and A, Fig. 57. Lead-covered brick-on-edge sills are shown in Figs. 58 and 59.

The sill at C, Fig. 16, consists of two courses of purpose-made bricks or terra-cotta blocks (made from special clay which may be either glazed or unglazed on the outside). The top course is weathered and slightly moulded; it has a groove to receive a wrought iron *weather bar* (see p. 108). The bottom course is grooved or *throated* on the underside to throw off the water and prevent it from passing along the underside of the sill and staining the brickwork below it. The ends of the sill are called *stools* or *seatings* and provide level beds to receive the jambs.

In all cases the sills should course with the adjacent walling in order to avoid the unsightly split courses which have been referred to on p. 21.

Sills should be protected during the construction of the building, otherwise falling bricks, etc., may cause damage. This protection is usually in the form of pieces of wood which rest upon the sills and are tightly fitted between the reveals.

Stone sills are described on p. 47.

THRESHOLDS

The bottom of an external door opening is provided with one or more steps which form a threshold. Such may consist of bricks, stone or concrete.

Fig. 14 shows a threshold consisting of three steps which are formed entirely of bricks laid on edge.

An alternative to this, to a larger scale, is shown at D, Fig. 16. Ordinary standard bricks may be used, but they must be very hard, otherwise the edges or arrises will be readily damaged. The steps must have a satisfactory foundation, hence the concrete bed. The height of each step, called the *riser*, is 5-in., although this varies from $4\frac{1}{2}$ to 7-in. The risers consist of bricks laid on end and the rest of each *tread* (or horizontal portion) comprises bricks laid on edge. Treads should be at least 11-in. wide so as to afford adequate foot space. The

top step is given a slight fall (about $\frac{1}{8}$ -in.) to discharge water away from the door. The two lower steps have returned ends; this gives a much better appearance than when all steps are of the same length. The bonding of the bricks is shown on the plan and elevation. The whole of the brickwork should be in *cement* mortar.

A single step in bricks on edge is shown in Fig. 13.

The threshold at E, Fig. 16, consists of two steps having brick-on-edge risers and $2\frac{1}{4}$ -in. thick stone treads. The stone must be extremely hard and fine-grained, and the upper surfaces should not be polished, otherwise they become slippery, especially in wet weather. Unless the stone is hard it will wear badly and the arrises will be readily damaged. The edges may be slightly rounded, or splayed (chamfered) or—providing the stone is particularly hard—square as shown. The treads must be well and uniformly bedded in cement mortar. This form of step is also detailed in Figs. 44 and 50.

Stone steps are shown in Figs. 24 and 45. Similar steps may be formed in concrete, although these do not look so well as those in stone. A concrete step, which is a continuation of the concrete floor, is shown in Fig. 46.

It is advisable to defer the construction of thresholds until the completion of the building, otherwise they may be damaged during the building operations unless adequately protected.

COPINGS

Copings are provided to serve as a protective covering to walls such as boundary walls (yard and garden walls) and parapet walls (those which are carried up above roofs). Their object is to exclude water from the walling below.

Very serious damage may be caused to a wall if water gains access, especially during cold weather when the water may freeze. Under such conditions the resulting expansion may rapidly disintegrate the upper courses of the brickwork. In addition, the water may penetrate sufficiently to cause dampness to bedrooms, etc.

The most effective coping is that which throws the water clear of the wall below. The fewer joints in the coping the better, and the jointing and bedding material should be *cement* mortar. Copings may be of bricks, bricks and tiles or slates, stone, terra-cotta and concrete, and all must be sound and durable.

Some of the simpler brick copings are shown in Fig. 17. They form an effective finish to a brick building.

A portion of a garden wall is shown at A, Fig. 17, and alternative copings which would be suitable for this and similar walls are shown at B to L inclusive.

Brick-on-Edge Coping.—The section at B and part elevation at C shows this type, which consists of ordinary hard and durable bricks laid on edge. It has a simple but satisfactory appearance, is inexpensive and is adopted extensively. Another application is shown at M, Fig. 36, and in Fig. 72. Sometimes the bricks are placed on end, or as shown in Fig. 13, the coping may consist of two courses with the lower set back about $\frac{1}{2}$ -in. and comprising bricks-on-end and the upper course set back a similar amount and consisting of bricks-on-edge.