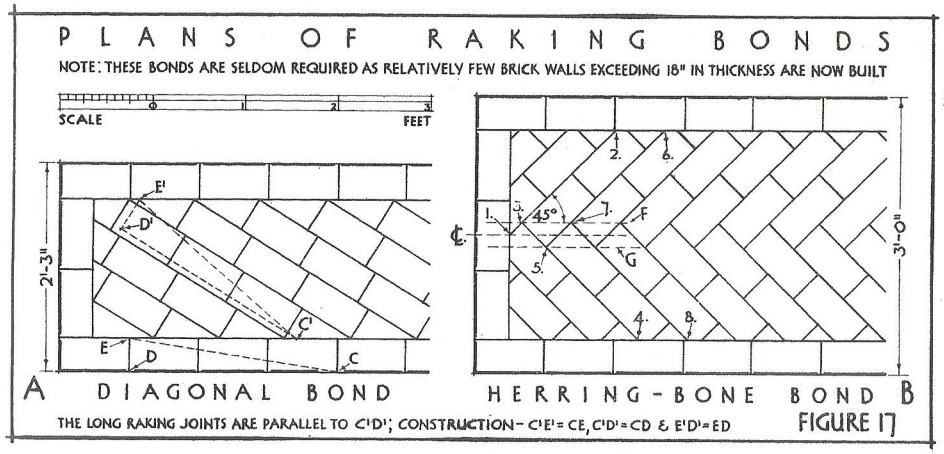

FIGURE 17

of stretchers, with exception of a row of queen closers adjacent to each outer row of stretchers. The inner rows of stretchers are arranged to break joint to give a $4\frac{1}{2}$-in. lap. This bond may be applied at every fifth course.

The above three bonds are seldom required for constructional purposes, as modern steel-framed and reinforced concrete construction has, to a large extent, eliminated thick walls. Both forms of raking bonds are, however, often used with good effect in decorated brickwork. Examples of such brickwork are shown in Fig. 24, the panel at M.1 indicating diagonal bond and that at M.2 showing the bricks arranged to a herring-bone pattern (see p. 62).

SPECIAL BONDS

Bonds which have not already been described include Garden, Cross, Dutch, Brick-on-edge and Facing Bonds.

GARDEN WALL BOND.—As its name implies, this bond is suitable for garden, division and similar walls which usually do not exceed 1-brick in thickness. Owing to the slight variation in the lengths of bricks it is difficult to construct a 9-in. wall in English bond if a fair or uniform face is required on both sides (see p. 7, Vol. I). As fewer headers are employed in garden wall bond than in either English or Flemish bonds, it is usually possible to select from the bricks available sufficient of the longer bricks of uniform length as headers for a garden bonded wall, the remaining bricks being used as stretchers and built flush with both faces of the headers. Fair faces on both sides of a garden bonded wall are thus ensured. Whilst garden wall bond is not as strong as English bond (the transverse tie being inferior), it is sufficient for most dwarf walls and for those not required to withstand large stresses. As mentioned on p. 40, garden wall bond is sometimes used instead of stretching bond for the construction of the outer leaves of cavity walls. It has a good appearance, and on this account is greatly to be preferred to stretching bond.

There are two forms of garden wall bond, *i.e.*, (*a*) English garden wall bond and (*b*) Flemish garden wall bond.

(a) *English Garden Wall Bond* (see A, Fig. 18).—This consists of one course of headers to three or five courses of stretchers. As in English bond, a queen closer is introduced next to the quoin header in the heading course. A header is placed at the quoin of each middle (or alternate) course of stretchers to give the necessary lap and face appearance of stretching bond (see also H, Fig. 3, Vol. I). The longitudinal vertical joint between each three (or five) successive stretching courses is continuous, and this causes the deficiency in transverse strength stated in the preceding column. This bond, because of its economy, is very frequently adopted in the construction of 9-in. thick rough-casted external walls, especially for houses not exceeding two stories in height.

(b) *Flemish Garden Wall Bond* (see B, Fig. 18).—This is also known as *Sussex* and *Scotch* bond. It consists of three or five stretchers to one header in *each* course. A three-quarter bat is placed next to the quoin header in every alternate course, and a header is laid over the middle of each central stretcher.

In a modified arrangement at the quoin of a Sussex bonded wall, a queen closer is placed next to the quoin header of each alternate course, and this is followed by a series of three stretchers and a header. Each alternating course comprises a quoin stretcher with a stretcher adjoining, followed by a series consisting of a header and three stretchers. Excepting at the quoin the appearance is similar to the above, as each header is centrally over the middle stretcher.

MONK BOND is a variation of Flemish garden wall bond, *each* course consisting of a series comprising a header and two stretchers, the header falling centrally over the joint between a pair of stretchers.

ENGLISH CROSS BOND (see C, Fig. 18).—This is similar to English bond, in that it consists of alternate courses of headers and stretchers, with queen closers next to the quoin headers. Each *alternate stretching* course has, however, a header placed next to the quoin stretcher. This causes the stretchers to break joint in alternate courses.

DUTCH BOND (see D, Fig. 18).—This is another modification of English bond. The bond consists of alternate courses of headers and stretchers, but *each stretching* course begins at the quoin with a three-quarter bat, and every *alternate stretching* course has a header placed next to the quoin three-quarter bat. This also has the effect of the stretchers breaking joint in alternate courses. The presence of the quoin three-quarter bats makes it unnecessary for queen closers to be placed next to the quoin headers as in English bond.

BRICK-ON-EDGE BONDS.—These differ from normal bond in that at least alternate courses are $4\frac{1}{2}$-in. high, the bricks being laid on edge and not on bed. They are economical as, compared with English bond, considerably fewer bricks and less mortar are required. Their strength is deficient, and the appearance is unsatisfactory on account of the large scale of the brick units and the light colour which is characteristic of the beds of most bricks. Only wire-cut bricks should be used. These bonds are sometimes employed for garden and similar walling,