The ends of the bars are tenoned and scribed to the sash stiles or rails.

The sash is rebated for glazing; these rebates are from $\frac{5}{8}$ to $\frac{3}{4}$-in. wide by approximately $\frac{1}{4}$-in. deep. The glass is secured by either putty [1] (see Figs. 56 and 57, and D and F, Fig. 58) or small fillets called *glazing beads* (see E and G, Fig. 58). Note that the rebates for the glass are on the outside when putty is used and are on the inside when beads are adopted. The glass is usually *sheet glass* [2] and is specified by its weight per superficial foot, *i.e.*, 18, 24, 26 and 32-oz., which are respectively $\frac{1}{12}$, $\frac{1}{9}$, $\frac{1}{8}$ and $\frac{1}{6}$-in. thick. The weight of glass for small panes is usually 18 or 24-oz. *Polished plate glass* [3] is sometimes used for glazing windows in first class work. This is specified according to its thickness, the usual thickness being $\frac{3}{16}$-in., although $\frac{1}{4}$-in. plate glass is used for large sheets. Small metal sprigs (which are without heads) are driven in as shown in the various details to temporarily retain the glass in position until the putty is set. Glazing beads should be secured by small screws—" cups and screws " (see J and R, Fig. 60, and O, Fig. 66)—rather than nails to allow for ready removal when broken panes have to be replaced. The glass should be well bedded in putty before the beads are fixed to prevent the entrance of water.

Scantlings of Sashes.—These vary with the size of sash. Small sashes may be $1\frac{1}{2}$-in. (nominal) thick, average sized sashes should be $1\frac{3}{4}$-in. thick and large sashes may be 2-in. thick. The stiles and top rails are generally 2-in. wide with deeper ($2\frac{1}{2}$ to $3\frac{1}{2}$-in.) bottom rails to give added strength and an improved appearance. The glazing bars are equal to the thickness of the frame and are out of 1 or $1\frac{1}{4}$-in. thick stuff, the latter being reduced to 1-in. finished thickness unless the sheets of glass are large.

The bottom of the inside of the opening is shown finished with a 1 or $1\frac{1}{4}$-in. (nominal) thick *window board.* This is tongued into the wood sill (to prevent any open joint showing when the board shrinks). To prevent it casting or twisting, it is secured to plugs driven into the vertical joints of the wall or nailed to $1\frac{1}{2}$-in. thick bearers plugged to the top of the wall. Tiles may be used instead of a wood window board to form an internal sill; these may be white or coloured glazed tiles (about $\frac{3}{8}$-in. thick) or they may be square quarry tiles (about 1-in. thick) bedded on cement. An example of the latter finish is shown at F, Fig. 16, and A, Fig. 57.

The following items, not already referred to, should be considered in connection with Figs. 56, 57 and 58. The panes of glass are comparatively small and the design is particularly suited for houses as the small sheets conform in scale. A satisfactory proportion of pane is obtained if its height approximates to the length of the hypotenuse of a right-angled triangle having both sides

[1] Putty is whiting ground in raw linseed oil.

[2] Briefly, sheet glass is produced by fusing a mixture of sand, silicates of soda and lime, etc. A tall hollow cylindrical sheet of uniform thickness is withdrawn from the tank containing this molten glass, cut into lengths, divided longitudinally, flattened and annealed.

[3] Polished plate glass is formed by casting the molten material on to a metal table, rolling it to a uniform thickness, and subsequently grinding and polishing it smooth by machinery.

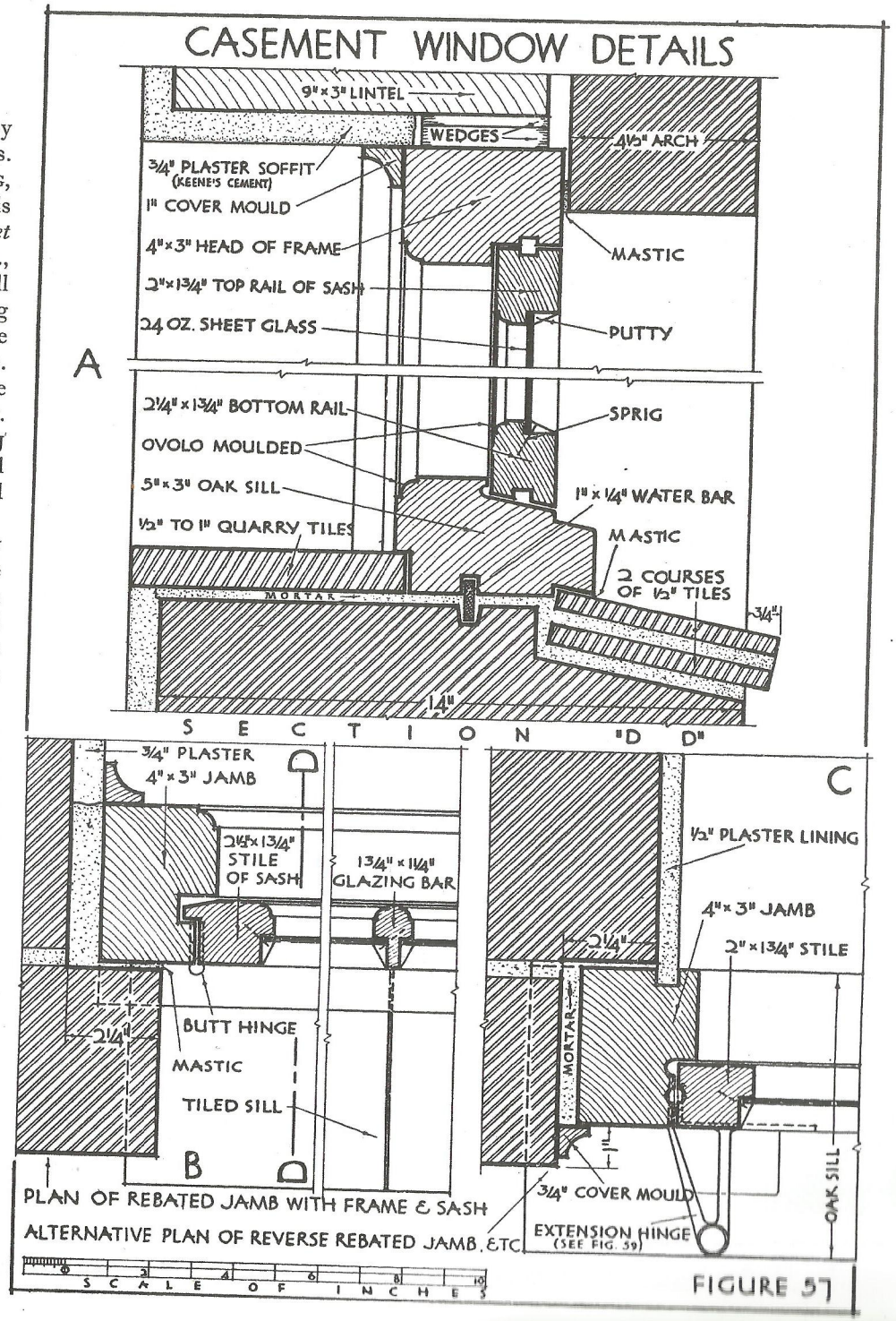

FIGURE 57