

sash is fixed to the transome by a pair of hinges. The head of the frame and the top rail of the sash must be slightly splayed, as shown, to permit of the necessary opening clearance. One of several types of gear available for opening and closing the fanlight consists of a small ratchet wheel and bar arrangement, the small wheel fitting and the bar being fixed at one side (preferably the "hanging side" of the door) at the top of the sash and to the frame respectively, and operated by a cord. The details show the usual rebates and capillary grooves (described on p. 111, etc., Vol. I) necessary to exclude water and draughts between the sash and frame. The front edge of the transome is sunk-panelled as an alternative to that at L.

The top-hung transome light at C is detailed at P and Q. The sash is fixed to the head of the frame by a pair of hinges and opens outwards. A casement peg stay (see Fig. 59, Vol. I) will serve to maintain the sash in an open position; alternatively, a patent opener similar to that described above may be preferred. The transome is moulded, as shown, as a further alternative to those at L and O. All three transomes may be throated, as shown at M, Fig. 21.

The glass may be secured by either putty, as shown at P and Q, or beads (bedded in putty and secured with small brass screws with cups), as shown at K, L, N and O.

(b) SEMICIRCULAR HEADED DOOR (see Fig. 23).—The construction of the head of the frame is detailed at D, E and F. These show it built-up of two ribs or "thicknesses," glued and either screwed together or secured by  $\frac{1}{2}$  or  $\frac{3}{8}$ -in. hardwood pins or dowels; the outer rib consists of three pieces and the inner of two pieces. The joints at the springing between the posts and the head are formed of *hammer-headed key tenons*. These tenons are shaped on the posts and the head is morticed to receive them and the glued wedges (see F). When the two wedges are tightly driven in at each joint the shoulders are brought close together and exceptionally strong joints result. The maintenance of a tight fit is further assured if two small glued *shoulder tongues* (see footnote to p. 72), as shown, are employed, but these are often dispensed with. These springing joints may be formed of loose hammer-headed keys similar to that used at the crown of the door (see J, K and L) or by handrail screw bolts (see Q, Fig. 26) and hardwood dowels, but these are less effective than the tenon shown at F.

The construction of the head of the door is shown at J, K and L. The head consists of two pieces which are jointed at the crown. The joints between the stiles and the head are similar to those of the frame, the hammer-headed tenons being formed on the stiles; the upper tapered portion of the tenon (and mortice) is commonly cut square (and not radial as shown) to facilitate the entry of the tenon. It will be observed, however, that these radial joints are slightly ( $1\frac{1}{4}$ -in.) above the springing. This is necessary because of the presence of the top rail which is, of course, tenoned into the stiles. Very weak joints would result if they coincided with the springing. Shoulder tongues are not necessary because of the reduced thickness of the framing. A hammer-headed key joint is shown at the crown. This is tightened up by means of the four small glued wedges.

A handrail screw bolt and dowels or pins may be used in lieu of the key (see Q, Fig. 26).

One or more of the central panels of the door may be glazed, as shown at A, B and C, antique glass (tinted glass) being specified. The small glazing bars are stub-tenoned (see K). Enlarged details of the door are shown at G and H. These indicate an entire absence of mouldings, the arrises of the rails, muntins, stiles, frame, etc., being pencil-rounded, *i.e.*, rounded off by sand-papering. The small simple architrave conforms. A weather board is not considered to improve the appearance of a door, and in this example it has been omitted, as it is assumed that the door opens into an outer lobby. A weather board and threshold, as illustrated in Figs. 21 and 22, are, however, necessary to exclude water if the entrance is in an exposed position and if the door opens directly into a living-room or hall.

This entrance is also illustrated at A, B and C, Fig. 19, Vol. II. Because of the reduced thickness of the splayed brick jambs at the door frame, it is especially necessary for the brickwork to be constructed of sound materials and workmanship if dampness is to be avoided. Under certain conditions, such as excessive exposure, it may be desirable to increase the thickness by  $4\frac{1}{2}$ -in. for the full width of the lobby.

(c) GLAZED OR SASH DOORS (see Fig. 24).—These are wholly or partially glazed and are adopted to light lobbies, halls, corridors, landings, etc., occasionally to supplement the lighting provided by windows, or to make the interior of one room visible from another. Several designs, most of which are of doors now mass-produced on a large scale, are illustrated at A to H inclusive.

The joints between the stiles and rails of the door framing are either morticed and tenoned or dowelled (see p. 98, Vol. I). The joints between the glazing bars are usually tenoned and scribed (see p. 108, Vol. I).

*The details on this and other sheets show architraves, panel moulds, etc., of various shapes and sizes. The reason for this is to provide for reference a wide range of sections, and it must not be assumed, therefore, that any particular moulding is the most appropriate for the detail concerned. Further, whilst for the above reason, two different architraves are shown in each of the details K, T and P, it is customary in practice to adopt a common section throughout a building or for similar rooms on the same floor. Glass shown fixed with glazing beads may be secured with sprigs and putty, and vice versa.*

The five horizontal panels of the door A are of glass. The detail at J shows the glass bedded in putty and beaded. The weather board is alternative to those shown in Figs. 21 and 22, and the wrought iron water bar, caulked with lead and covered with cement (see p. 98, Vol. I) is alternative to a hardwood threshold. It is again noted that persons are more apt to trip over a bar, which has only a small projection, than over the more conspicuous thick wood threshold.

The fifteen glass-panelled door at B is detailed at K. The small half-round architrave is shown with a plinth block to provide a suitable finish for the skirting. Alternatively, if a thicker skirting is used, as shown by the broken line, the blocks