The joints of the framing of the door may be either (*a*) morticed and tenoned or (*b*) dowelled.

(a) *Morticed and Tenoned Joints.*—These are similar to the joints of the framed, ledged, braced and battened door shown in Fig. 46, and are illustrated at H and L, Fig. 50. The width of each tenon is 2¼-in. The grooves formed along the inner edges of the framing to receive the panel are shown. The depth of the grooves is usually made equal to the thickness of the panel, although it should not be less than ½-in. (see P, Fig. 50, and the details in Fig. 48). A clearance of ⅛-in. is shown at P to allow for the free movement of the panel (see p. 95).

(b) *Dowelled Joints.*—Typical dowelled joints are shown at J and M, Fig. 50; that at J shows two dowels used to connect the top rail to the stile, and the detail M shows the connection between the bottom rail and the stile where four dowels are used. The dowels, which are machine-made, are of hardwood. Their diameter should not be less than about one-third the thickness of the framing, and a common size is 5-in. by ⅝-in. (see O); they are placed at about 2-in. centres (see M). The ends of the rails are bored, glue is applied to the edges of the rails and the inside of the holes, and the glued dowels are inserted; the stiles are bored, the holes are glued, and the projecting portions of the rail dowels are inserted. The dowels are grooved (see O) to increase the holding power of the glue. Only well seasoned timber should be used if the joints are to be dowelled, otherwise the shrinking and warping of unseasoned timber may cause the dowels to snap, followed by the destruction of the joints.

This method of jointing is almost universally adopted for doors made by machinery as it is a cheaper form than the mortice and tenon joint on account of the saving of timber and labour which results. Whilst there is still much prejudice against the dowelled joint it is being increasingly recognized that modern methods of production have evolved a door, having dowelled joints, which is eminently satisfactory considering its relative low cost. Drastic changes have taken place in the making of doors; most imported doors and thousands of doors made daily by mass production methods in this country have dowelled and not morticed and tenoned joints.

The door shown in Fig. 50 has a ⅞-in. (finished) thick raised, sunk and fielded panel with bolection mouldings on both sides (see P); alternative mouldings may be selected from Fig. 48. Whilst certain timbers, such as mahogany, can be obtained of sufficient width to enable this wide panel to be formed in one piece, it may be formed in two or three pieces carefully jointed together. This jointing is done by shooting the edges of each piece to a true plane so that the adjacent edges will make a good fit throughout the length of each piece; the edges are glued, fitted together, securely cramped until the glue has set, when the panel is planed over to a smooth finish; this is called *jointing*. Any panel exceeding 11-in. in width for an average good quality internal door should be jointed in this manner.

Attention is drawn to the construction at the bottom of the door to prevent the access of water (see Q). An oak (or similar hard wearing timber) sill or threshold extends the full width of the door opening, well screwed to the floor and bedded on mastic. The larger groove on the inside serves to catch any water which may have penetrated and which escapes down the two boreholes. The top of this threshold is approximately on a level with that of a door mat (assuming that a "mat well"—which is not recommended as it is difficult to keep clean—has not been provided). There is therefore little danger of anyone tripping over the threshold. Incidentally, small sills or projecting weather-bars are more dangerous in this respect than are deeper and wider sills. An alternative method of weather exclusion is shown at R, Fig. 50, the wrought-iron weather-bar being let into the dovetailed sinking and secured with molten lead, run in hot and afterwards well caulked (consolidated with a blunt chisel); this lead is covered flush with the top of the step with cement mortar so as to exclude rain-water which may otherwise cause discoloration. The moulded weather-board is tongued into the bottom rail as shown and should fit as tightly as practicable between the door posts; this throws rain clear of the threshold.

HARDWARE.—The door would be hung with three 4-in. butt hinges as described on p. 94. It would be fitted with a 3-in. four-lever *upright mortice lock* with *striking plate* (see S, Fig. 50). This type of lock is necessary, for, owing to the absence of a middle rail, the usual type of mortice lock (see H, Fig. 45) would be too long, and the two handles should be of the *lever* type as shown, for if knobs were used (as illustrated at X′, Fig. 45), injury to the hand may be caused owing to their close proximity to the door post. The striking plate serves a similar purpose for a mortice lock as does a staple for a rim lock, and is housed and screwed to the rebate of the post after two small mortices to receive the ends of the bolts have been cut in the post. The projecting lug on the plate is slightly bent so that, when the bevelled latch bolt strikes it as the door is being closed, the bolt will be gradually pressed in. This furniture may be obtained in bronze, brass, chromium plated or oxidized silver metal, bakelite, etc.

A *Cylinder Rim Night Latch* with staple (see M, N, O, P and Q, Fig. 54) would be required in addition to the above lock. This is one of many patent locks which are on the market and the complete latch consists of a bronze *cylinder* fitting N, the latch O, and the staple P; Q shows a section through the latch attached to the door. The fitting N comprises a separate circular rim with its inner edge rebated to receive the circular *face plate* which is cast on the *case* (see N and Q); the case contains the cylinder to which the spindle is attached and this cylinder is caused to rotate within the case by the action of a key. The latch bolt may be operated from the outside by the key which is inserted in the cylinder to rotate both it and the spindle for the latter to cause the bolt mechanism to function, or the bolt may be shot back from the staple by turning the knob of the latch from the inside. The *locking arm* (see O) is used when required to permanently fix the bolt so that it cannot be operated by either the key or the knob, and thus the bolt may be fixed in the staple to afford greater security or it may be fixed when it is clear of the staple.

The directions for fixing this cylinder latch are as follows: A 1¼-in. diameter hole is bored through the door, the centre of the hole being 2⅜-in. from the edge of the door;