

from floor to floor (or ceiling). Those at A are of 4-in. by 3-in. stuff. The top of each post is tenoned to the head and the foot is usually slot tenoned as shown at K. The wedged tenoned joint shown at A, B and C affords an effective connection between the door head and post. Ample space must, of course, be allowed at the door opening to receive the casing, and either wedges are driven or blocks are fixed between the casing and framing. A detailed part plan of the door is shown at F.

This class of partition is in common use. Because of its lightness, it is usefully employed when there is no supporting wall below. Its efficiency in preventing the transmission of sound is at least equal to that of a solid 4½-in. brick wall (see p. 48). Sanitary fittings, such as certain lavatory basins, and heavy fixtures cannot, of course, be supported by this type of structure, and the hanging of pictures presents a difficulty unless their means of support are secured to studs or noggings. An additional disadvantage is its deficient fire-resisting quality; its capacity for harbouring vermin is a further defect, especially in certain classes of property.

Examples of stoothings are shown in Figs. 14, 15 and 34.

Another form of this class of structure in which studs are employed is the *brick-nogged partition*. This is practically obsolete. It consists of studs and panels of brickwork between, the former being placed at three or four stretchers apart. The studs are 4½-in. by 3-in. when the brickwork is 4½-in. thick, and of 3-in. square stuff if the bricks are laid on edge. Nogging pieces or bonding strips, 4-in. by ½-in., are housed into the studs at 2 to 3-ft. vertical intervals. The object of the studs and bonding strips is to increase the rigidity of thin brick walls, especially long and high walls. This object can be more readily effected by the use of metal reinforcement, and hence reinforced brickwork (see p. 45, Vol. II) and the fire-resisting partitions described on p. 45 have superseded the brick-nogged type.

(b) *Trussed or Framed Partitions*.—These are seldom employed nowadays except for buildings of a temporary or semi-permanent character, or in those countries where timber is abundant and can be readily and cheaply obtained. Preference is now given to the use in this type of structure of materials of high fire-resisting and insulating qualities, many of which can be speedily erected.

Trussed partitions are designed to be self-supporting. They may also be required to carry one or more floors and ceilings. They are illustrated in Fig. 12.

A truss is a combination of members forming a rigid framework, and a trussed partition is therefore a triangulated structure composed of at least a head, sill, posts, inclined members called *braces* or struts, and studs (with noggings) spaced according to the nature of the covering material to be applied. An intermediate horizontal member, called an *intertie*, is usually provided in partitions exceeding 10-ft. in height. In addition to transmitting a portion of the load direct to the sills, an intertie has the effect of reducing the length and consequently the scantlings of the braces and posts, and of increasing the rigidity of the frame.

The partition at A supports two floors. In addition to the wood members already described, it has two long wrought iron or mild steel rods which pass

through the sill, intertie and head. Both ends of each rod are *tapped*, i.e., screw-threads are formed, and provided with nuts and washers. Close timber joints are assured when the nuts are tightened.

The braces, being in compression, assist in transmitting the weight to the walls. The sill, like a tie beam of a king post roof truss (see p. 76, Vol. I), forms a tie and is in tension. The head acts as a *straining beam* (see the queen post roof truss in Fig. 18) for the braces, forms a fixing for the posts and studs, and supports the floor joists which are coggled to it (see H, Fig. 7). In order to avoid transverse stresses, the centre line principle should be observed wherever possible when setting out the members at the joints (see details at C, E, F, K, O and P. Satisfactory bearings for the sill, head and intertie are obtained if their ends are supported on 3 to 6-in. thick hard stone pads, as shown.

The left side of the elevation at A shows a typical arrangement of the studs when the partition is to be plastered. The edges of the braces should be chamfered to reduce the width of the faces next to the plaster to at least 3-in. in order that an adequate key for the plaster is obtained (see p. 31). For braces of greater width than 4-in., laths are nailed centrally along each outer face; the ordinary horizontal laths are nailed over these and bent down over the studs; the intertie is counter-lathed with short vertical pieces of laths spaced at 15-in. centres. The right side of the elevation shows the partition boarded. For this and similar treatment, such as plywood, etc. panelling, the studs and noggings are so spaced to provide the necessary means for fixing the covering.

Alternative details showing the connection between an upper brace, post and head are illustrated at C and D. The former shows the centre line principle of setting out, the brace and post being respectively bridle jointed and mortised and tenoned. The alternative detail at D shows an additional member, a *straining piece*, which is sometimes introduced to increase the rigidity at the heads of the posts.

The detail at E shows the connection between the two portions of the post, the lower brace and the intertie. The studs are stub-tenoned into the latter and notched over 1-in. square fillets at the brace (see F). In cheap work the ends of the studs are cut to the required bevel and nailed to the brace.

In the detail at F, the foot of the brace is bridle jointed to the sill and a ½-in. diameter wrought iron bolt is provided to make a rigid connection. The seating block shown is preferred to the alternative of notching the underside of the sill for the washer, as the latter would unduly weaken the sill. The section at G shows the 1-in. square fillets which are nailed to the brace and over which the ends of the studs are notched.

Just before the covering material is applied or fixed, the tension rods are given a final tightening by applying a spanner to the nuts. This is to ensure close joints, which may have opened slightly during the erection of the partition and owing to shrinkage of the timbers.

In lieu of the tension rods, wrought iron straps, such as are shown at K, O and Q, may be fixed at R, T and at the connection between the post and sill