respectively, in addition to similar straps at the corresponding connections of the opposite post. Such straps are less effective than the rods owing to the absence of provision for final tightening.

A sectional plan through a portion of the door, etc., is shown at H, and an enlarged section of the match-boarding is shown at J. Ordinary t. and g. vee-jointed boarding in narrow widths, or plywood sheets (as shown in Fig. 40), etc., may be preferred. As already mentioned (p. 43), the door casing must be well secured to the posts and head (intertie), blocks as required being packed between.

A two-tier trussed partition, *i.e.*, one that extends through two stories, is shown at B. Provision is made for two side doors in the lower storey and a central door in the upper. The partition supports three floors. Details are shown at K, L, M, N, O, P and Q. The various metal straps may be omitted if the three wrought iron or steel rods shown by broken lines at B (a central one at the lower storey, which extends from the sill to the binder, and two at the upper storey, from the binder to the head) are provided. There are several alternatives to these details (*e.g.*, a $\frac{3}{4}$-in. diameter bolt may be substituted for the stirrup strap at Q—see Fig. 40, Vol. I—and in the same detail, and for economy, a shaped cleat may be well nailed to a 4-in. by 4-in. post to form an abutment for the brace) which are typical of timber jointing as applied to partitions and framed carpentry generally. Also, as explained in connection with the design of floors, the sizes of the various principal members of a truss vary according to the load to be supported, span, etc.

Multi-ply boards and laminboards (pp. 98 and 103) provide additional examples of the use of timber for partitions and screens.

2. Clay and Terra-cotta Brick and Block Partitions.—The commonest type of clay partition is, of course, the ordinary solid brick wall of $4\frac{1}{2}$-in. (or 3-in. if laid on edge) or more in thickness. Whilst such walls are relatively strong and fire-resisting, their weight precludes their use for partitions on upper floors unless provision in the form of girders or lower walls is made for their support. Hence several manufacturers have turned their attention to the production of clay units, either bricks or blocks, which are comparatively light and yet are sufficiently strong for the construction of non-load bearing partitions. Lightness is obtained either by making them hollow and/or by using diatomaceous earth which produces units having a very porous structure.

Examples of hollow bricks are illustrated at V and W, Fig. 5, Vol. II.

An example of a hollow block is shown here at A, Fig. 13. The tongues and grooves on the beds assist in making the joints rigid and facilitate erection. The grooved faces afford a good key for the plaster. Some blocks are made without keyed faces, and these may be glazed on one or both sides in a variety of colours for use as partitions in lavatories, etc. The sizes are specified in the figure; solid blocks are also made which are only $1\frac{1}{2}$-in. thick. In general, the blocks are built in either cement mortar or compo and are bonded in the usual way with staggered vertical joints. A good form of hollow block is shown at Y, Fig. 5, Vol. II (see also pp. 17 and 19 of that volume). Hollow blocks are made of gault clay, fireclay (these two are described on pp. 1 and 17, Vol. II), terra-cotta (from carefully prepared clay or shale, moulded, dried, sometimes glazed, and burnt) and diatomaceous earth.

The following are the merits of these blocks: Satisfactory mechanical strength, lightness in weight, good heat and sound insulation, fireproof, non-shrinkable and vermin proof. Those made of diatomaceous earth can be sawn to required size and shape and provide a firm hold for nails and screws.

A patent pressed clay brick, manufactured by the London Brick Co. Ltd., and employed in the construction of partitions, is shown at M, Fig. 13. These bricks are bedded in cement mortar (composed of 1 part Portland cement and 4 parts sand) in bonded courses with half-brick laps. When so constructed, the diagonal grooves—of approximately $\frac{1}{8}$-in. depth—are in continuous alignment from top to bottom. The $\frac{1}{8}$-in. thick vertical joints are left free from mortar. Short lengths (extending over two and a half courses) of 14-gauge galvanized mild steel wires are fixed in the diagonal grooves as the work proceeds and on completion of each second course. The bent upper ends of the wires are hooked over the bed grooves of the bricks, and their lower ends are hooked under the preceding wires. Under normal circumstances, and for partitions up to 15-ft. high, only single reinforcement is required, *i.e.*, the wires are run on each side of the wall from bottom to top and from left to right, as shown by broken lines; double reinforcement is required for larger partitions, up to 30-ft. by 30-ft., the wires being fixed in both grooves and on both sides, and thus running both right and left. On completion of the laying of the bricks and fixing of the reinforcement, both sides of the partition are rendered in cement mortar of 1 : 3 mix. Although these partitions are only 2-in. thick, excluding the rendering, they are very strong and resistant to side pressure or vibration. These bricks are also used for cavity walls consisting of two 2-in. thick leaves and a 2-in. cavity. In such walls the diagonal wires are only fixed on the outer faces of the leaves and normally only single reinforcement is required. In addition, it is recommended that three rigid galvanized wrought iron wall ties be used per square yard of walling. Both sides of the wall are rendered in cement mortar.

The construction of this patent partition is facilitated if a temporary "timber liner" is fixed. That recommended consists of 3-in. by 2-in. studs fixed at 3 to 4-ft. apart, to which 3-in. by $\frac{3}{4}$-in. wood slats are nailed at $13\frac{1}{2}$-in. centres. The patent bricks are then built-up against the slats, and a saving in plumbing thus results. If several partitions have to be constructed, the liner may consist of a frame of the above members which can be readily removed and erected.

3. Pre-cast Concrete Slab and Block Partitions.—The relatively thin units used for non-load bearing partitions, usually composed of lightweight concrete (p. 29, Vol. II), are referred to as "slabs," whilst the thicker units, intended for the construction of external walls, load-bearing partitions, and the backing of brickwork and masonry, are generally known as "blocks."

Concrete slabs, whilst strong enough for the purpose, should be as light as