

each block is then tapped into position and further secured with panel pins which are subsequently punched below the surface, and the small holes stopped with special putty or wood mastic, coloured to conform to that of the wood. The surface is finally planed (large surfaces being usually dressed with an electrically driven portable machine planer), scraped, sand-papered, waxed and polished.

3. *Plywood* (see G and H, Fig. 10).—This is a cheap covering of good appearance, consisting of squares and narrow strips (for borders) cut from boards of 3-ply (see pp. 97-103). The stock sizes of the squares are 9, 12, 18 and 36-in. and from $\frac{3}{16}$ to $\frac{3}{8}$ -in. thick; the thicker the surface veneer the better. Oak, birch, walnut, maple and ash plywoods are suitable for this purpose. The plywood can be obtained with the top veneer stained as required for its full thickness. The squares are usually laid with the grain alternating or woods of contrasting colours can be effectively employed.

The covering is laid on a sub-floor of boarding as shown, or this may consist of sheets of $\frac{3}{8}$ or $\frac{3}{4}$ -in. softwood plywood (such as Oregon pine), a common size being 48-in. wide and 84 to 96-in. long, depending upon the spacing of the joists (see sub-floor at K). The plywood should be resin bonded (see p. 101) for ground floor sub-floors as a precaution against effects from dampness; the sheets should be well nailed at the edges and at about 12-in. along each joist. The square and strip covering should be well glued and panel pinned in the centre and at about 4-in. intervals round the edges, although the adhesive is sometimes omitted; the pins are punched and the holes stopped as described above. The surface should be well wax polished before use and this should be maintained as a protection to the relatively thin top veneer.

This is rather a noisy covering; the "drumming" can be minimized if strips of felt or similar insulating material are laid on the joists before the sub-floor is fixed.

Existing boarded floors which have defective surfaces can be readily renovated by covering them with plywood squares. If badly worn, the existing surface should be machine planed or levelled up with mastic before the new covering is fixed. This covering is cheaper than a good carpet or linoleum (see p. 41).

4. *Parquet or Parquetry*.—There are two kinds, *i.e.*, (a) ordinary and (b) inlaid.

(a) *Ordinary Parquetry* consists of thin, small pieces of richly decorative hardwood (chiefly oak and teak) which are hot glued and panel pinned to a softwood or plywood sub-floor, the pins being punched and the holes stopped as described above. The thicknesses are $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ -in., the former being used in most cases and the latter when likely to be subjected to heavy traffic. The pieces are square-edged and arranged according to pattern; sometimes timbers of various colours are made to conform to elaborate designs.

It is advisable to introduce a layer of ($\frac{3}{16}$ -in.) plywood between the softwood boarded sub-floor and the parquetry. The plywood boards are nailed to the

sub-floor, the joints between them are filled with wood mastic or putty, planed off and sand-papered, and the parquetry is then fixed. The object of this intermediate layer is to afford a perfectly level surface for the thin covering and prevent any movement (expansion and shrinkage) and cupping of the softwood boards being transmitted to the parquetry. Of course, this intermediate layer is not required if the sub-floor is formed of the thicker plywood boards referred to in the preceding column and if the joints between the latter are sealed.

(b) *Inlaid or Plated Parquet* (see K, Fig. 10) is considered to be the best form of this class of covering and consists of a surface veneer of richly figured and coloured hardwood which is glued under great pressure to a softwood backing. The veneer varies from $\frac{3}{16}$ to $\frac{3}{8}$ -in. in thickness and the backing is either $\frac{3}{4}$ or 1-in. thick. It is cut into slabs of various shapes and sizes, blocks 1 to 2-ft. square being common. These are glued and pinned to the softwood boarded or plywood (see detail) sub-floor already described; the pins are punched and the holes stopped.

Parquet flooring is surfaced and polished as described in the preceding column.

5. *Cork*.—This is now used extensively for both public and domestic buildings. It is attractive in appearance, durable if properly treated, non-slip even when highly polished, resilient, noiseless, dustless, and can be readily cleaned. It is obtained in the form of (a) tiles and (b) carpet.

(a) *Cork Tiles* are in squares of various sizes, stock sizes being 4, 6, 8, 9, 12, 18 and 24-in.; special border strips are made, and these are from 1 to 18-in. wide and 36-in. long. The thicknesses are $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$ and $\frac{9}{16}$ -in. The colours range from light brown to dark chocolate. The tiles may have tongued and grooved edges or they may be square-edged.

They are laid on both wood and concrete floors. If the former, the sub-floor may be either softwood boards or plywood—see above. The sub-floor must be free from surface irregularities, and it is usually covered with felt paper to prevent any movement in the timber affecting the tiles, which are fixed with a special bituminous mastic and nailed with panel pins at the corners. If, as shown at J, Fig. 10, a concrete floor is to be covered, the screed (composed of 1 part cement to 3 parts sand) must be perfectly level, dry and free from dust; a similar adhesive is used. Skirtings, of various sections and lengths, are made of this material; these are fixed to grounds (see J) and their vertical joints are usually made to coincide with those of the border strips or squares.

After laying, the tiles, if square-edged, are surfaced to a uniform level with a planing or sand-papering machine; tongued and grooved squares do not require this. They are then wax polished.

Manufacture.—These tiles are made from the bark of an evergreen species of oak tree which grows in Portugal, Spain, France and countries bordering the Mediterranean. The bark, which grows to a great thickness, is removed every eight or ten years, softened by boiling, scraped, ground, pressed (at 75-tons per sq. ft.) and heated. The heat (which influences the colour) is applied whilst the cork is being pressed and maintained until the resin in it is released and binds the particles together in a dense mass; it is then cut into tiles.