broken line) is formed. A double tile undercloak, which gives a bold effect, is shown at S.

Two methods of treating the vertical tiles at the verge intersection are shown at O, K and S. That at O and K, known as the *Winchester cut* method, gives much the better appearance, the fan-shaped effect being produced by cutting at each end of each course the end tile and adjacent tile to the required splay and tilting the end tile. This tilt should not be excessive in order to ensure that one nail hole and nib of the adjacent splayed tile are preserved. The intersection between the vertical tiling and the undercloak is pointed in cement, as shown. The alternative finish at S shows that only each end tile in each course is splay cut, and this method is therefore cheaper than that of the Winchester cut, which necessitates the cutting of two tiles at each end. This second method is only possible if, as shown, a tile-and-a-half tile is used at the end and a nib and hole made available. The intersection between the undercloak and the vertical tiling is neatly pointed with cement mortar.

EAVES.—The finish of the vertical tiling at the eaves of the roof depends upon the projection. The detail at O shows one method in which a hard stone corbel is used to support the brickwork. It will be observed that the intersection between the bottom tilted tile and the angle tile coincides with the bottom of the corbel.

If the gable is not hung with tiles, an interesting feature is provided by tile corbels, such as is shown at T.

RIDGE.—The detail at K shows the appearance of the apex of the gable when the two top tilted tiles are mitred under a half-round ridge tile with tile insets.

WINDOW OPENINGS.—Details at the head and sill of the upper window are provided at L and M. The former shows a single projecting tile soffit at the head of the window and a proper double course of vertical tiling. The soffit may consist of two courses of tiles, projecting as shown at Q. Alternatively, like that at R, a tilting fillet or sprocket may be used and a pronounced bell-cast imparted. The edges of the tiles at the reveals must be well bedded and pointed with cement mortar. Tile-and-a-half tiles, and not half tiles, should be used at alternate courses at the reveals, especially in exposed positions.

The detail at M shows a sound and effective method which ensures watertight construction at the sill of the window. The desirability for not exposing lead to view when associated with plain tiling is referred to on p. 108. Hence, in this detail, a *secret apron* has been employed. The apron, hooked over the edge of the water bar before the window is fixed, is dressed over the tile course nailed to the battens immediately below the sill, as shown. If a water bar is not provided the upper edge of the apron should be tucked in the groove of the sill. A course of short tiles is then well bedded in cement mortar or haired lime mortar spread on the lead apron. The heads of the tiles are inserted in the groove provided in the sill, and their tails should line with the general tiling. The lead apron should be well scored (scratched) to afford a better key for the mortar.

A cheaper method is to dress the lead over the top course of the tiles, and it is therefore exposed to view, as in slating (see A, B and E, Fig. 73, Vol. I).

VERTICAL SLATING.—Slates are also used to cover walls, especially of buildings where severe weather conditions are likely to be met. Whilst vertical slating affords an excellent protection, its appearance is less pleasing than that of vertical tiling, especially if large, thin, smooth textured slates are employed. Like plain tiles, slates may be fixed to battens, concrete bricks, direct to mortar joints or to studs. The slates at external and internal vertical angles are mitred, and soakers are provided as explained on p. 111.

PANTILING

MANUFACTURE OF CLAY AND SHALE PANTILES.—The preparation of the clay or shale, and the drying and burning processes are as described for plain tiling (pp. 104 and 105). Pantiles are from 13 to 14-in. long, 9 to 10-in. wide and $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$-in. thick (see A, Fig. 44). They are not cambered but are flat from head to tail, and they are curved transversely to a flat-wave or S-section. One nib is provided at the head on the underside of the trough of the wave, a nail hole is formed below the nib, and two of the opposite diagonal corners are splayed or rounded, as shown at A and B, Fig. 44. Pantiles are hand and machine moulded.

The wood mould used in hand-moulding is similar to that described for bricks (p. 4, Vol. II), being rectangular in shape and with the two opposite diagonal corners blocked out with triangular pieces; the shaping of the slab is performed as explained on p. 104; the stockboard (see p. 4, Vol. II) has a small nib-shaped depression at one end, and the nib is accordingly made at this operation. The slab is removed and placed on a *washing-off frame*, which is simply a mould having its upper surface curved to an S-shape. The moulder with wet hands then presses the slab to the curved form. After being partially dried, the curved slab may be taken to the *thwacking frame* (a wood mould with an S-curved top) and beaten with a *thwacker* (a wood blade resembling a small cricket bat) to consolidate the clay and correct any twisting which may have developed. The edges are finally trimmed with a knife and the slab is removed to dry after it has been holed as described on p. 104. Because of the additional cost which it entails, this thwacking operation is now usually omitted, and the toughness and durability of the tiles are thereby affected adversely.

Pantiles are machine-made by the wire-cut process, the band of clay extruded through a mouthpiece shaped to the required cross-section being cut to length, nibbed and holed as described on pp. 104 and 105.

DETAILS.—There are several differences between plain tiling and pantiling. Whereas plain tiles are laid with butt side joints with three thicknesses at the lap and two thicknesses between laps, pantiles are laid with *overlapping side joints* with *two* thicknesses only at the head joints and a single thickness at the unlapped portions. Further, whilst plain tiles have a bonded appearance, pantiles are unbonded, having continuous side joints from eaves to ridge. Pantiles are thus