

is secured with at least two nails, give a much stronger job than do half slates each of which may be secured with one nail only. The application of these wide slates is indicated at A and N, Fig. 69.

*Hip and Valley Slates.*—Extra wide slates are required for these positions and each is usually formed from a slate and a half. Hip slates are shown at R, Fig. 69, and valley slates are similar.

*OPEN OR SPACED SLATING.*—Roofs of temporary and certain farm buildings, etc., may be covered with slates which are laid with a space of from  $1\frac{1}{2}$  to 3-in. between the sloping edges. Whilst this method results in an economy of material, it does not give a “drop-dry” roof, and is now seldom used.

*RIDGES.*—Slated roofs are finished at the ridges with shaped pieces made in slate, tile, stone and lead.

*Slate Ridges* (see M, Fig. 69) are formed in two pieces, each from  $\frac{3}{8}$  to  $\frac{1}{2}$ -in. thick and up to about 18-in. long; one is a plain rectangular wing holed for screws and the other is a 6 or 7-in. wide wing with a 2 to  $2\frac{1}{2}$ -in. roll (birdsmouthed beneath) worked on the top edge. As shown, the top edge of the wood ridge is chamfered and is about 2-in. above the battens; the plain wing is bedded in mortar on the top course of slates and secured to the wood ridge by brass or copper screws; the rolled wing is bedded on the slates and over the top edge of the plain wing; in addition, the joint between each roll section is secured with a copper or small slate dowel. The joints of the ridge should “break joint” with the top course of slates. This ridge is not now much used, chiefly on account of its indifferent appearance.

*Tile Ridges* are made of clay, moulded to a variety of patterns, and kiln-burnt. The *half-round* ridge tile shown at D, Fig. 69, and the *hog-back* ridge illustrated at H and K, Fig. 69 and B, Fig. 70 give a satisfactory finish, *provided the colour conforms with that of the slates*; they are usually in 18-in. lengths, the width varies from 9 to 11-in. and the thickness from  $\frac{1}{2}$  to  $\frac{3}{4}$ -in. A V-ridge, having a flanged or rebated joint, is shown at B, Fig. 69; this is  $\frac{7}{8}$ -in. thick and the wings should not be less than 7-in.; the angle between the wings varies to suit the pitch of the roof. As shown, the ridges are bedded and pointed in cement mortar which is preferably waterproofed, and the transverse joints are formed of the same material or oil mastic.

It is not wise to bed the ridges solidly with mortar as this has been the cause of wood ridges becoming defective on account of air being excluded. Whilst the flanged joint at B is effective and is often used, ridges formed of these pieces are unsightly and the simple butt joint is preferred. The latter gives a watertight job if formed with good material and especially if a slate slip is inserted under each joint. Alternatively, certain makes of ridge tile are obtainable having internal flanges, and these provide a sound joint and a ridge with an uninterrupted outline. The appearance of the ridge is improved if the end one or two pieces are given a slight tilt upwards as shown at A and G, Fig. 69. These end pieces are “solid ended.”

Ridge tiles can be obtained in several colours and they should therefore be carefully selected to harmonize with the slating; hence the common practice (in speculative work especially) of using a red-coloured ridge on a blue-slatted roof is inexcusable as it is execrable.

*Stone Ridges* (see C, Fig. 69) are sawn out of the solid. They are from 9 to 10-in. wide, about  $1\frac{1}{2}$ -in. thick, and from 1 to 3-ft. long. The joints are rebated in good work (see sketch) and the pieces are bedded, jointed and pointed in cement mortar. They provide an effective finish to a Westmorland slated roof, and are commonly employed in Yorkshire and the Cotswold District where comparatively thick slates from local stone form the covering material.

*Lead Ridges* are described on p. 148. These form a suitable finish if Welsh slates are used, but the lead is apt to stain certain green slates.

HIPS are finished with either half-round or V-shaped tiles, sawn stone, lead, or cut and mitred slates with lead soakers.

*Tiled Hips* (see O and P, Fig. 69) are commonly employed, and whilst they provide a sound finish, the appearance is far from pleasing, especially if the roofs are small. As shown at O, the top of the jack rafters finish level with the top of the hip rafter, the ends of the battens are brought over it and the slates are roughly mitred. A *hip hook* should be screwed to the back and at the foot of the hip rafter to prevent the tiles from slipping (see P). Hip tiles, like those for ridges, should be of a satisfactory colour.

*Sawn Stone Hips* are formed of pieces of similar section to that shown at C, Fig. 69; the dihedral angle between the wings should conform with that of the roof.

*Lead Hips* are described on p. 148.

*Cut and Mitred Hips with Lead Soakers* provide the best finish to a slated roof; the method is sound, especially for pitches not less than  $45^\circ$ , and the appearance is effective (see G, Fig. 69). The construction is shown in the section at Q and the plan at R; it is customary to provide two 4-in. wide hip boards (which are mitred over the hip rafter) to form a good bearing for the slates and a fixing for the soakers, against which the ends of the battens are butt jointed; alternatively, the top edge of the hip rafter may be bevelled and finished level with the top of the battens which mitre against the rafter. Both methods provide a true line up the hip rafter to which the edges of the slates are cut. Wide slates (slate and a half) are used and these must be carefully cut and mitred as shown. *Lead soakers* (see p. 143) are placed between the slates; as shown at R, these soakers are square, measuring from 12 to 14-in. across the diagonals (depending upon the size of the slates); each soaker is bent over the upper edges of each pair of mitred slates and twice nailed to the hip boards; the soakers lap each other at each course. The mitred slates must be securely nailed (especially in exposed positions) otherwise they are liable to be stripped by strong winds.

*VALLEYS.*—It is customary to form “open” valleys in slated roofs. These are covered with lead and their construction is described on p. 148 and shown at P, Fig. 73. An alternative and suitable finish is provided by cut and mitred slates with soakers as described above. Another very effective, but expensive, finish is the “swept valley”; the sharp angle at the valley is blocked out by means of a 9 or 11-in. by 1-in. board which is fixed above the valley rafter,