

broken lines at D) are similar to those shown at D, Fig. 32, Vol. II, because of the restricted headroom.

The open balustrades illustrated in these sections and in previous figures show plain vertical balusters, spaced at 3 or 4-in. apart. Whilst such simple treatment of this type of balustrade is generally preferred, the balusters can be arranged to give a big variety in design. One design is shown at G, Fig. 36, and this is an alternative to the elevation of the balustrade at T (see D). Details of this alternative balustrade are given at κ and κ . With the exception of that housed into the moulded handrail, the whole of the balusters are out of $\frac{1}{4}$ -in. square stuff, the vertical members being stub-tenoned into the horizontal members.

The application of a solid panelled balustrade to this open well stair is shown at H, Fig. 36. This is an example of framed panelling 1 and is an alternative to the type illustrated in Fig. 35. It shows the balustrade at T divided into three panels. A detail is given at L; the $\frac{3}{8}$ -in. thick panels (which may also be of plywood) are framed to top and bottom rails, in addition to vertical members called stiles; the handrail consists of a moulded member surmounting a rail into which the top rail of the panelling is housed. The caps and drops of the newels, moulded from the solid, are more elaborate than those shown hitherto, but a simpler design may, of course, be adopted if preferred.

Some idea of the general appearance of the open well stair detailed in Fig. 36, but with a solid balustrade conforming to the detail at L, may be obtained by reference to the axonometric sketch shown in Fig. 37. When designing a balustrade of this type, it is sometimes difficult to obtain panels of uniform width, although a slight re-adjustment of the position of the newels will assist in avoiding a big variation. Note that a portion of the large window is shown. The need for increased natural lighting when a stair has a solid balustrade is stated on pp. 80 and 90.

The use of laminboard (see p. 103) for the construction of solid balustrades is likely to increase. A detail incorporating this relatively new material is shown at F, Fig. 39. The old-fashioned plain mop-stick handrail has been included, as this affords a firm grip; a moulded rail similar to that at L, Fig. 36, would be equally suitable. The laminboard would be housed into the newels and string.

WINDERS

Attention is drawn to the references to winders on pp. 80 and 82. The plan of a portion of a stair, having three winders at the foot, is shown at D, Fig. 38. Two sections, an elevation developed from the plan, and a sketch of the necessary framing are also shown.

Treads should be of uniform width, and the going at the "walking line" (which is usually taken to be along an arc struck from the centre of the newel at 1-ft. 6-in. radius) should be at least equal to that of the fliers, *i.e.*, 9-in. One method of setting out the winders on plan is briefly described below D.

¹ See footnote to p. 93.