

for the purpose of withdrawal. These heads are sunk flush into the under side of the shelf and cannot slip out.

Shelves, if made out of 1-in. stuff, should not be longer than 3 ft. without support. The edges may be taken off or nosed. Shelves that are intended to receive books with expensive bindings should be covered with cowhide, and two pads or rolls of leather inserted in grooves in the standards, to protect the sides of the end books.

The Pedestal of the case illustrated is fitted with drawers, trays, and cupboards covered with doors hung folding. The drawers are useful for loose papers, circulars, indicator slips, cash, &c. The trays, the openings for which are covered by dummy drawer fronts, as shown at B, f. 1 & 3, opposite, are suitable for newspapers, maps, extra large folios, &c. The cupboards are fitted with sliding divisions to accommodate large folios and other volumes too large for the ordinary shelves. The top and bottom of the cupboard portion have a series of $\frac{3}{8}$ -in. grooves cut about 6 in. apart, extending to within $2\frac{1}{2}$ in. of the back. The loose divisions slide easily within these grooves, and may be placed where required. Two of these are shown in position in the elevation on the left hand, where the door is supposed to be open. The doors are in pairs and hung folding, *i.e.*, they each fold back flat on the face of the adjacent door. The method by which this is accomplished without intervening divisions is shown in the detail and sketch, f. 1 & 2. The cupboard division or standard is kept back flush with the insides of the doors, which are separated from each other by a $\frac{1}{4}$ -in. bead grooved into the standard. This bead lies flush with the face of the doors. Special butts are used called butterfly hinges. These consist of an ordinary brass butt hinge mounted on a pivot, which is fixed between two lugs projecting from a brass plate screwed to the edge of the division, as shown in f. 2. The butt moves freely round the pivot, the two leaves opening out back to back like the wings of a butterfly, hence the name. One wing is screwed to each door, and of course either door may be reversed upon its neighbour. The pivot of the hinge is continued through the projecting lugs about $\frac{3}{8}$ in. and is turned to a sharp point. These points enter the ends of the dividing bead, which is exactly the size of the hinge knuckle, and keep it in position, thus showing an unbroken line from top to bottom of the door. The tray compartment is shown at B in f. 3 opposite, the tray itself being omitted for the purpose of showing the construction of the carcass. The flap, which is made to match the drawer fronts, is hung at the lower edge, and falls over on the doors, to allow the tray to be withdrawn. The dustboards in these compartments should be flush on the top side, and in the cupboards where the folio divisions are used. They should also be flush underneath, as shown in the vertical section,

