

Fig. 1756
Details of a ventilator

opened or closed by use of two chords, one attached to its top rail and the other to the bottom rail.

179. FIXTURES AND FASTENINGS FOR DOORS AND WINDOWS

The fixtures and fastenings for doors and windows can be of iron, brass or aluminium. It is however important to ensure that the item should be reasonably smooth and free from sharp edges and corners. The screw holes in the item should be of counter sunk type. Iron fixtures and fastening are normally black enamelled or copper oxidised. Brass fittings on the other hand are oxidised or finished bright or chromium plated. Aluminium fittings are normally anodised. The fixtures and fastening are manufactured in different shapes and sizes to suit the requirements of the different size and type of doors or windows. The fittings and fastenings can be broadly grouped as under.

- (1) Hinges
- (2) Bolts
- (3) Handles.

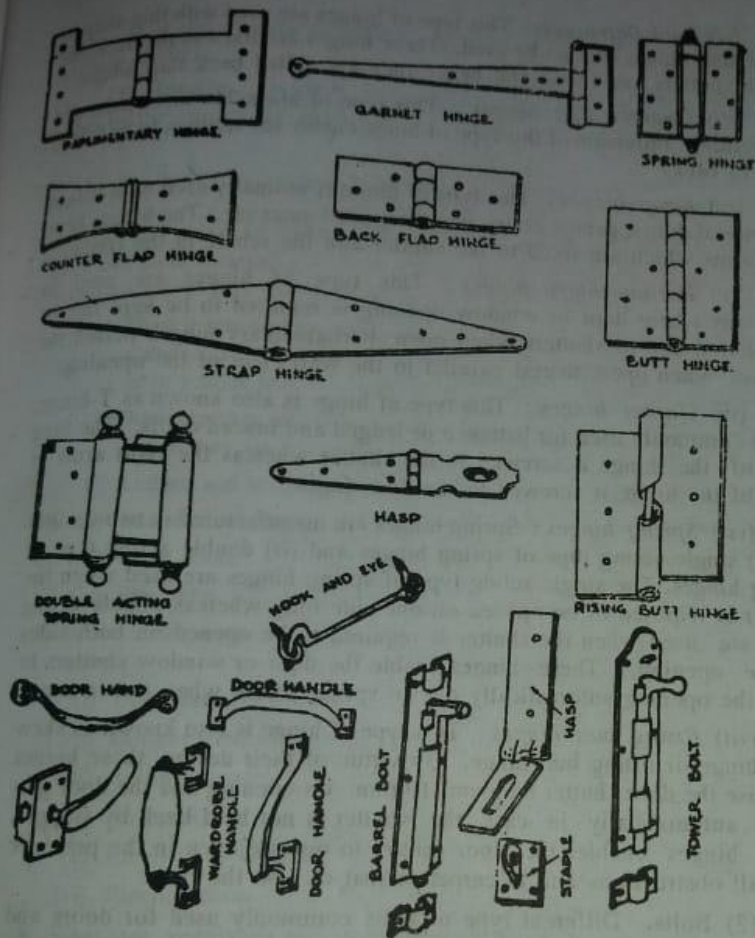


Fig. 17-57

Fixtures and fastening for doors and windows

(1) **Hinges.** Different types of hinges commonly used for doors and windows are described below,

(i) **Butt hinges :** This type of hinge is most commonly used for fixing door or window shutters to the frame. The sizes of hinges vary from 50 mm. long x 37 mm wide to 125 mm long x 75 mm wide. One flange of hinge is screwed on to the edge of the shutter and the other flange is screwed to the rebate in the frame. For normal size of door or window three hinges are used for each shutter.

(ii) *Back flap hinges*: This type of hinges are used with thin shutters where butt hinges can not be used. These hinges are fixed to the back side of the shutters and frame and hence they are called back flap hinges.

(iii) *Counter flap hinges*: This type of hinge has three parts and two centres. Provision of this type of hinge enable the shutters to be folded back to back.

(iv) *Strap hinges*: This type of hinge is normally used with ledged and braced doors, garage doors, boundary wall gates etc. The hinges have long arms which are fixed to the shutter and the rebate in the frame.

(v) *Parliamentary hinges*: This type of hinges are used in situations where door or window opening is required to be kept free of obstruction due to shutters when open. Parliamentary hinges permit the shutters, when open, to rest parallel to the wall clear of the opening.

(vi) *Garnet hinges*: This type of hinge is also known as T-hinge, and is commonly used for battened or ledged and braced doors. The long arm of the hinge is screwed to the shutter whereas the short arms or plate of the hinge is screwed to the door frame.

(vii) *Spring hinges*: Spring hinges are manufactured in two designs i.e. (i) single acting type of spring hinges and (ii) double acting type of spring hinges. The single acting type of spring hinges are used when the shutter is required to be opened on one side only whereas double acting type are used when the shutter is required to be opened on both sides of the opening. These hinges enable the door or window shutters to close the opening automatically due to spring action when not in use.

(viii) *Rising butt hinges*: This type of hinge is also known as skew butt hinge or lifting butt hinge. By virtue of their design, these hinges can raise the door shutter by about 10 mm. on opening and the door gets closed automatically in case the shutter is not held back by stopper. These hinges enable the door shutter to operate even in the presence of small obstructions due to carpet or mat etc. on the floor.

(2) **Bolts**. Different type of bolts commonly used for doors and windows are described below.

(i) *Tower bolts*: In this type, the bolt passes through two or three staples attached to the base plate. The plate is screwed to inside face of the door shutter and the bolt engages in a metal socket screwed to the frame.

(ii) *Barrel bolt*: This type of bolt is similar to tower bolt except that the staples are replaced by a barrel.

(iii) *Hasp and staple bolt*: In this case the hasp is secured to the shutter whereas the staple is screwed to the door frame.

FIXTURES AND FASTENINGS FOR DOORS AND WINDOWS

The different fixtures and fastenings used for doors as well as for windows are discussed below :

1. **Hinges.** The hinges are fixed to the frame and shutters by means of wooden screws. These are used for hanging the shutters to the frame of doors and windows.

The different types of hinges commonly used for doors and windows are discussed below :

(i) **Butt hinges.** These hinges are made of either *cast iron, malleable iron* or *steel*. These are commonly used in doors and windows [see Fig. 10.15 (a)].

(ii) **T-hinges.** These are wrought iron strips pivoted to metal plates. The straps or long arm of the hinges are fixed to the shutters, whereas the plates are screwed to the door posts. These hinges are mainly used for wooden shutters [see Fig. 10.15 (b)].

(iii) **Back-flap hinges.** These are used where the shutters provided are thin and space is not available on their edges for butt hinges [see Fig. 10.15 (c)].

(iv) **Pin hinges.** This type of hinge is used for hanging heavy doors [see Fig. 10.15 (d)].

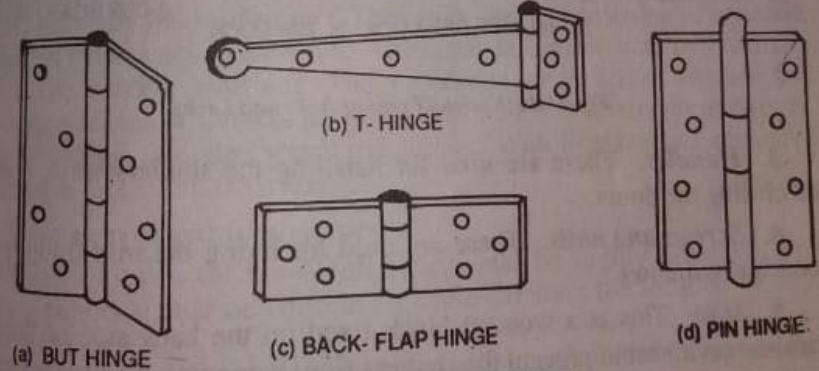


Fig. 10.15. Various Types of Hinges.

2. **Bolts and locks.** The different types of bolts and locks being commonly used for doors are discussed below :

(i) **Tower bolt.** This is used for joining to the back faces of external and internal wooden doors. These are usually 8 to 38 cm long and made of *iron, brass or bronze* [see Fig. 10.16 (a)].

(ii) **Aldrop bolt.** This is fixed on external doors where a pad lock or simply a lock is to be provided. This is usually made of *iron* [see Fig. 10.16 (b)]. This is also known as a *sliding bolt*.

to the sill of the window frame and the eye is fixed to the bottom rail of window shutter.

(3) **Handles.** Handles are manufactured in a variety of designs. Some of the commonly used types of handles are shown in Fig. 17-57.

Questions for Review

1. Give full details of construction with neat sketches of a corner window of a bed room measuring 6.1 m x 4.9 m x 3.6 m high with 38 cm thick wall on all sides. The window is to be glazed with venetians.
2. (a) Draw a neat dimensioned sketch showing plan, elevation and section of a door 2/3 glazed and 1/3 panelled, to fit in an opening 2.29m x 1.22 m in a brick wall. Assume all necessary and reasonable particulars.
(b) Draw sketches of the following types of doors and windows and state where they are generally used.
 - (i) Ledged and braced doors
 - (ii) Louvered windows
 - (iii) Flush doors
 - (iv) Sky-lights
3. Write short notes on the following with suitable sketches wherever necessary :
 - (i) Door frame
 - (ii) Dormer windows
 - (iii) Rolling shutters
 - (iv) Swing doors
 - (v) Clere-storey window