

A DOOR AND WINDOW FRAME

The invention relates to a frame structure, more particularly to the connection of a door and a window frame thereof.

The moveable connection between frame and door is the basic function that in the structure of lamp house, advertising board, door and window, etc must be realized. A commonly known open-type lamp house chiefly consists of a revolution door and a main frame, both of which are composed of section bars. A hollow cylindrical heelpost is mounted in a brim of section bar on the main frame. A straight section is formed axially on the surface of heelpost and a cylindrical wheel sleeve is installed in the bead section frame on the revolution door, while an opening is formed on the wheel sleeve and the heelpost is chucked into the wheel sleeve with its straight section via the opening. In this open-type lamp house, the main frame is connected to the revolution door solely by the chucking of the heelpost and wheel sleeve. When the volume of lamp house is larger, the frame shall fall off in opening, which is unsafe. What's more, the main frame and the revolution door can only be separated on turning to a certain angle, so it is inconvenient for assembling and disassembling.

An object of the invention is to provide a safe door and window frame having a door frame and a main frame which shall not drop in operation.

To achieve the above object, a door and window frame of the invention chiefly consists of a door frame and a main frame, of which both are composed of section bars. It also comprises a T-head bolt for the connection between said door frame and main frame formed by an axle and a retaining member. An end of said retaining member tightly and perpendicularly fixed at the middle of the axle.

The main frame of the door and window frame of present invention consists of a straight section; a reinforced rib, which is set at the middle of the straight section; and a trapezoidal groove, separately connected to two ends of the

straight section, of which a side is a straight side and a semicircular notch is installed on the other side and is connected to the straight section; it also comprises a hole, which penetrates the bottom of the semicircular notch and the straight side of the trapezoidal groove.

In the bead of the door frame of the door and window frame is a hollow cylindrical heelpost mounted, with a cylindrical surface of the heelpost adapted to the semicircular notch of the trapezoidal groove, while the hollow county of the heelpost contains the axle of the T-head bolt and the T-head bolt is enabled to swing around the axle.

A tunnel of the door and window frame is installed on the heelpost, with the retaining member of the T-head bolt being exposed from the tunnel and penetrating the semicircular notch and a hole of straight side of the trapezoidal groove so as to fix the door frame and the main frame.

A nut of the door and window frame is mounted on an end of the retaining member of the T-head bolt for turning the T-head bolt tightly to fix the door frame and main frame. When necessary, the nut can be turned loose and dropped down to take down the door frame.

A cover plate of the door and window frame is mounted between the two straight sides of the trapezoidal groove for enhancing rigidity of the main frame and enclosing the main frame.

In present invention, there are several T-head bolt connecting the door frame and the main frame according to the length of the main frame.

Semicircular notches of the door and window frame are set on both ends of the main frame for installing the door frame.

Since in the door and window frame of present invention the door frame and main frame are movably connected via the T-head bolt, the door frame and main frame cannot fall off and the reliability and safety of the connection has been greatly enhanced.

Together with the following description of the drawings and specific embodiments, the invention shall be further described in details.

FIG. 1 is a front view of the door and window frame in present invention;

FIG. 2 is a top view of the door and window frame in present invention;

FIG. 3 is a diagram of T-head bolt of the door and window frame in present invention.

As shown in Fig. 1, Fig. 2, the door and window frame in present invention consists of door frame 1, main frame 2, T-head bolt 3. Both door frame 1 and main frame 2 are composed of section bars and the main frame 2 is formed by reinforced rib 21, straight section 22 and the approximately ladder-shaped trapezoidal groove 23 connected to the two ends of the straight section 22 respectively. A side 231 of trapezoidal groove 23 is a straight side, while a semicircular notch 233 is installed on the other side 232 and is connected to the straight section 22; a hole 24 penetrates the semicircular notch 233 and on the side 232 of the trapezoidal groove 23 and the other straight side 231 perpendicularly. The reinforced rib 21 is installed at the middle of straight section 22; a hollow cylindrical heelpost 11 is mounted in a bead of door frame 1. The cylindrical surface 111 of heelpost 11 matches with the semicircular notch 233 and the hollow cavity 112 of heelpost 11 may contain the axle 31 of T-head bolt 3. The bolt 3 is enabled to swing around its axle 31; a tunnel 113 is opened on the heelpost 11. After the retaining member 31 passed through the tunnel 113, it penetrates the straight side 231 of the trapezoidal groove and the hole 24 on semicircular notch 233, and is fixed on main frame 2. A cover plate 4 is fixed on a side 231 of the trapezoidal groove 23, greatly enhancing the rigidity of the main frame 2, while a cover plate 5 is fixed at the position of reinforced rib 21, not only enhancing the rigidity of main frame 2 but also enclosing the electric conductor in the main frame 2.

All the semicircular notches on both ends of the main frame 2 can be fixed to the door frame 1 by T-head bolts.

As shown in Fig. 3, T-head bolt 3 is composed of axle 31 and retaining member 32, and an end of retaining member 32 is fixed at the middle of axle 32 perpendicularly.



CLAIMS

1. A door and window frame, comprises
a door frame, composed of section bars;
a main frame, formed by section bars; wherein it also comprises
a T-head bolt, for connection to said door frame and main frame,
including an axle; and
a retaining member, of which an end is fixed at the middle of said axle
perpendicularly.
2. A door and window frame according to claim 1, wherein said main frame
comprises
a straight section;
a reinforced rib, mounted at the middle of said straight section; and a
trapezoidal groove, connected to both ends of said straight section
respectively; a side of said trapezoidal groove is a straight side, while a
semicircular notch is installed on another side and is connected to said
straight section;
it also comprises a hole, which penetrates the bottom of said semicircular
notch and the straight side of said trapezoidal groove.
3. A door and window frame according to claim 2, wherein in the bead of
said door frame is a hollow cylindrical heelpost mounted, a cylindrical
surface of said heelpost is adapted to the semicircular notch of said
trapezoidal groove, the hollow county of said heelpost contains the axle of
T-head bolt, and said T-head bolt is enabled to swing around said axle.



4. A door and window frame according to claim 3, wherein a tunnel is installed on said heelpost, with the retaining member of said T-head bolt being exposed from said tunnel and penetrating said semicircular notch and a hole of straight side of said trapezoidal groove so as to fix said door frame and said main frame.
5. A door and window frame according to claim 4, wherein a nut is mounted on an end of the retaining member of said T-head bolt for turning said T-head bolt tightly to fix said door frame and main frame.
6. A door and window frame according to claim 2, wherein a cover plate is mounted between the two straight sides of said trapezoidal groove for enhancing rigidity of said main frame.
7. A door and window frame according to claim 2, wherein a cover plate is mounted on said straight section and the bottom of reinforced rib for enhancing rigidity of said main frame and enclosing same main frame.