Jan. 4, 1938. W. J. MacEVOY 2,104,430

GARAGE DOOR MOUNTING

Filed March 21, 1936

FIG. 1.

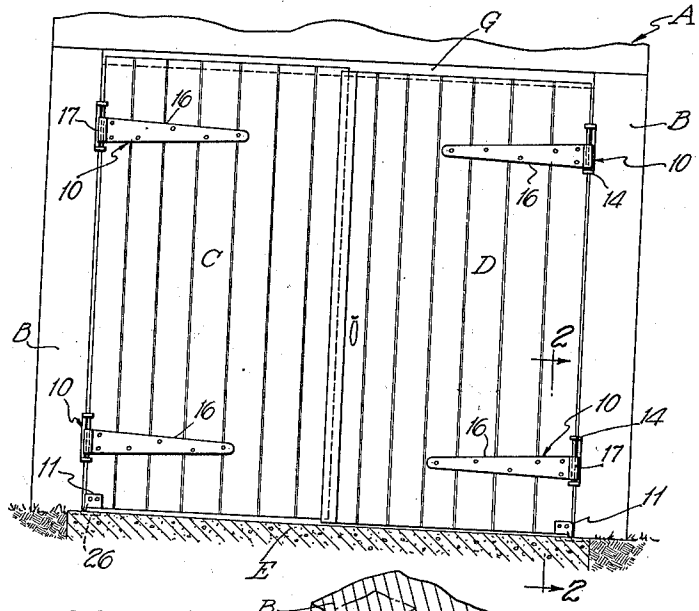


FIG. 2.

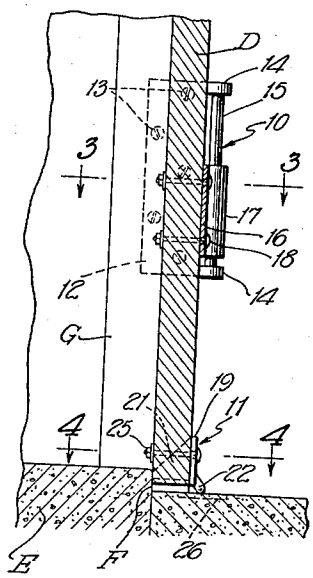


FIG. 5.

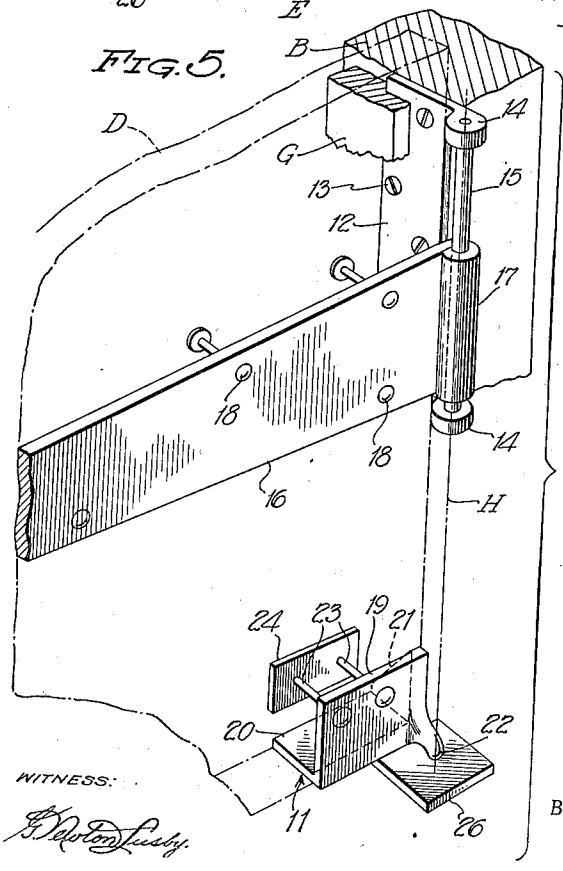


FIG. 3.

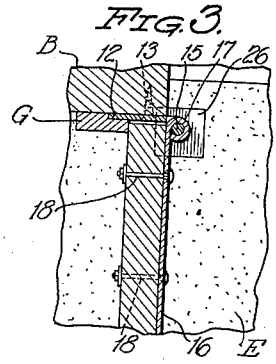
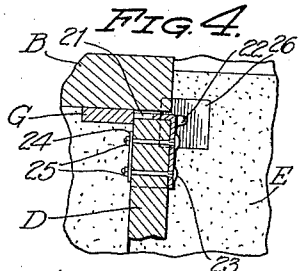


FIG. 4.



WITNESS:

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GARAGE DOOR MOUNTING

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8 Claims. (Cl. 20—16)

This invention relates to improvements in door hanging constructions, and more particularly to a means for hanging swinging garage doors.

Private garages are usually constructed with concrete aprons at the entrances thereto, and it is not uncommon for such aprons to rise under the action of frost in the ground beneath the concrete apron. This action generally occurs in a cold climate and has proven a source of annoyance and inconvenience to owners of garages, in that the rising of the apron causes the swinging doors to jamb, thus preventing the doors from being fully swung to their open position. It is therefore one of the primary objects of this invention to provide a means for swingingly mounting the doors of a garage so they may rise and fall with the concrete apron during changes in climatic conditions, and which assures free swinging movement of the doors at all times.

Another feature of the invention resides in providing a point of bearing support for the door directly upon the concrete apron and in line with the pivoted axis of the door, whereby the weight of the door upon the hinges is somewhat relieved, and the frictional contact between the door and the apron is reduced to the minimum.

Another feature of the invention is the provision of a set of hardware for garage doors which compensates for the upward and downward movement of the doors during periodic rising and setting of the concrete apron, and which is inexpensive of construction and easy to apply for use.

With these and other objects in view, the invention resides in the details of construction, combination and arrangement of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawing, in which:

Figure 1 is a fragmentary front elevational view of a garage illustrating my invention in use upon the doors thereof, the left door being shown raised above the plane of the right door.

Figure 2 is an enlarged vertical sectional view on the line 2—2 of Figure 1.

Figure 3 is a horizontal sectional view on the line 3—3 of Figure 2.

Figure 4 is a horizontal sectional view on the line 4—4 of Figure 2.

Figure 5 is a perspective view of the hardware at the bottom of the right door, the door being shown in dot and dash lines.

Referring to the drawing by reference characters, the letter A designates a portion of a garage or like building structure having a jamb B surrounding a door opening therein, while two doors C and D are swingingly supported by the jamb for closing the door opening when the same are in closed position. A concrete apron E disposed exteriorly of the garage leads to the door opening and the floor of the garage is disposed above the plane of the apron and forms a stop shoulder F for the bottom of the doors when the latter are closed. Each of the doors C and D is similarly mounted for swinging movement so that a description of the mounting of one door will suffice for the other.

The hardware for the mounting of each door consists of a set and includes a pair of hinges 10—10 attached to the top and bottom of the door and jamb, and a shoe 11 secured to the bottom of the door at the inner corner thereof. The shoe 11 is made in rights and lefts to fit the right and left doors C and D.

Each hinge 10 comprises a butt 12 having staggered openings therein for the passage of screws 13. The butt 12 fits against the inner side of the jamb B and is secured thereto by the screws 13. Extending from the front edge of the butt 12 at the top and bottom thereof are alined ears 14—14 which support the ends of a vertical pintle 15. Pivoted to the pintle 15 is a strap 16 having a cylindrical eye 17 through which the pintle 15 freely extends. The width of the eye 17 is less than that of the pintle 15 to enable upward and downward sliding movement of the strap 16 relative to the butt 12, the range of sliding movement being limited by the spaced eyes 14—14. The strap 16 fits against the outer side of the door and is provided with openings for the passage of fastening bolts 18. The height of each door is less than the distance between the apron E and the top of the jamb B to permit of a limited vertical movement of the door, while a stop G extends across the top of the jamb against which the top of the door may abut when closed.

The shoe 11 is constructed of metal and comprises a front flange 19, a bottom flange 20, an inner vertical end flange 21, and a bearing foot 22. The bearing foot 22 extends from the inner corner or joinder of the flanges 19 and 21, and the terminal end of the foot is rounded and disposed in vertical alinement with the axis of the pintle 15 of the hinges 10—10, and extends downward below the plane of the underside of the flange 20. The flange 20 is countersunk in the bottom of the door with the flange 19 fitting against the outside and the end flange 21 fitting against the inner vertical side thereof. The front

flange 19 is provided with openings for the passage of bolts 23 which extend through the door to the inside thereof. A clamping plate 24 fits against the inside of the door through which the bolts 23 pass and against which the securing nuts 25 of the bolts 23 abut.

Countersunk in the apron E directly in vertical alinement with the axis of the door is a metal bearing plate 26 on which the foot 22 rests. The bearing plate 26 receives the weight of the door by reason of the foot 22 which relieves the strain upon the hinges 10—10, the said hinges serving to hold the door in an upright position and guide the same during its inward and outward swinging movement.

In Figure 1 of the drawing, I have illustrated the left door C as being raised above the right door D, due to the upheaval of the apron E at the left, or vice versa, due to the dropping of the right side of the apron. When mounting the doors in position upon the jamb, sufficient clearance is provided between the top and bottom of the doors and the jamb and apron to facilitate vertical up and down movement thereof. The construction of the hinges 10—10 permits of the free sliding movement of a door and permits of the free swinging of the same at all times, for the bearing foot 22 is in axial alinement with the hinge pintles 15 as illustrated by the vertical dot and dash line H in Figure 5 of the drawing.

From the foregoing description, it will be understood that I have provided a set of hardware for the mounting of a garage door which will prevent jamming of the door caused by the raising and lowering of concrete door aprons during changes in climatic conditions. By affording free swinging movement of the door at all times, the life of the door is greatly increased, since forcing of the door to open and closed positions weakens the door and causes loosening of the supporting hardware.

Whereas, I have illustrated and described the invention for use upon garage doors, it will be understood that the same may be used upon any other types of outside doors, such as warehouses, factories, or wherever exposed swinging doors are subjected to the jamming caused by the raising and lowering of aprons or sills. Furthermore, I do not limit myself to the use of concrete aprons, for other paving such as brick, flag stones, and the like are sometimes used as the apron approach or sill at the entrance to building structures and would likewise be subjected to the action of frost in the ground therebeneath.

While I have shown and described what I consider to be the preferred embodiment of my invention, I wish it to be understood that such changes and alterations in the construction of my invention as come within the scope of the appended claims may be resorted to if desired.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In combination with a door and jamb, an apron, hinge means for swingingly connecting said door to said jamb and for permitting vertical sliding movement of said door relative to said jamb, and means located at the inner bottom corner of the door for resting engagement upon said apron for supporting the bottom edge of said door clear of said apron.

2. In combination with a door and jamb, an apron, hinge means for swingingly connecting said door to said jamb and for permitting vertical sliding movement of said door relative to said jamb, and means in alinement with the pivotal axis of said hinge means for resting engagement upon said apron for supporting the bottom edge of said door clear of said apron.

3. In a building structure having a door opening therein and an apron leading to said door opening, a door, hinge means for swingingly connecting said door to one side wall of said door opening for vertical sliding movement relative thereto, and means for supporting the weight of said door on said apron in vertical alinement with the pivotal axis of said hinge means.

4. In a building structure having a door opening therein and an apron leading to said door opening, a door, hinge means for swingingly connecting said door to one side wall of said door opening for vertical sliding movement relative thereto, and means for supporting the weight of said door on said apron in vertical alinement with the pivotal axis of said hinge means, said means comprising a metallic plate anchored to said apron, and a bearing foot carried by said door and resting upon said bearing plate.

5. In a building structure having a door opening therein and an apron leading to said door opening, a door, hinge means for swingingly connecting said door to said building structure at one side of said door opening and for permitting free vertical sliding movement of said door relative to said building structure, and a shoe member secured to said door at the bottom inner corner thereof for bearing engagement with said apron, whereby raising and lowering of said apron due to changes in climatic conditions will cause said door to move up and down a corresponding distance.

6. In a building structure having a door opening therein and an apron leading to said door opening, a door, and means for swingingly and slidably mounting said door to the building structure at one side of the door opening, and means carried by the bottom of said door and resting upon said apron for causing said door to move up and down upon the raising and lowering of said apron when effected by changes in climatic conditions.

7. In combination with a hinged door having vertical sliding movement, a shoe member carried by the bottom of said door at the hinged side thereof, and a bearing foot extending from said shoe member below the plane of the bottom edge of said door for bearing engagement with a supporting surface.

8. In a building structure having a door opening therein and a floor of a material which is subject to raising and lowering relative to a normal predetermined plane due to atmospheric temperature changes, a door, hinge means for swingingly connecting said door to one side wall of said door opening for vertical sliding movement relative thereto, and means for supporting said door for vertical movement with said floor during the raising and lowering of said floor when caused by changes of atmospheric temperatures.

WARREN J. MacEVOY.