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DOOR HANGER

Filed Sept. 2, 1932

Fig. 1

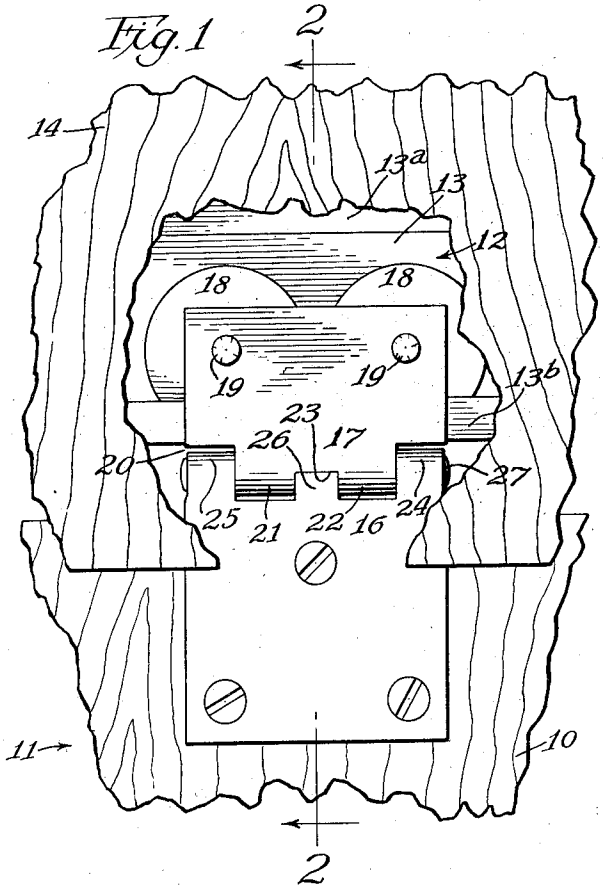


Fig. 2

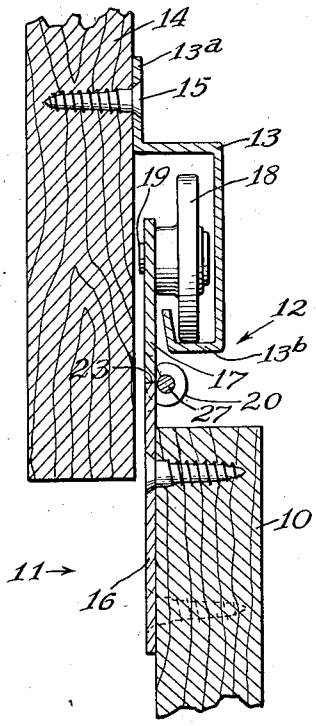


Fig. 3

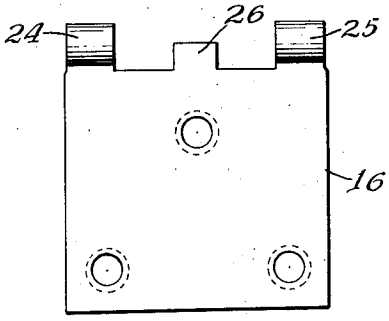
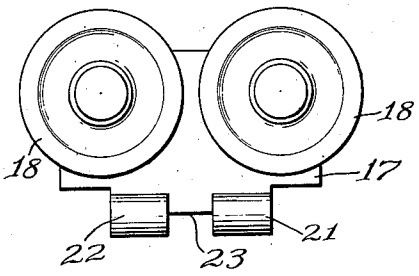


Fig. 4



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UNITED STATES PATENT OFFICE

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DOOR HANGER

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Application September 2, 1932, Serial No. 631,439

1 Claim. (Cl. 16—103)

This invention relates to door hangers of the trolley type, and it has for one of its objects the provision of an improved hanger of this character which is strong and durable, simple in construction and inexpensive to manufacture.

Another object is to provide a door hanger of the foregoing character which embodies uni-directional hinge means between the door and the trolley which permits the door suspended therefrom to swing in one direction in case the door is struck by an object moving through the doorway but insures a substantially rigid structure in the normal suspended position of the door and when pressure is applied to the door in an opposite direction.

A further object is to provide a hinge type hanger which is composed of but few parts and wherein the uni-directional hinge action is accomplished by a pair of hingedly-connected members secured to the door and the trolley, respectively, such members being relatively shaped to engage each other and form a relatively rigid connection under the control of the weight of a door suspended therefrom.

Additional objects and advantages will become apparent as this description progresses and by reference to the drawing wherein,—

Figure 1 is a rear elevational view of a door and hanger structure embodying this invention, certain of the supporting parts being cut away to more clearly illustrate the hanger structure;

Fig. 2 is a section taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a separated, elevational view of one of the hanger members which is adapted to be attached to the door; and

Fig. 4 is a separated, elevational view of the other of the hanger members.

My invention is particularly adaptable to a door structure which has its upper edge suspended from a trackway along which it may be slid to open and close the door, the bottom edge of the door being free. It is highly desirable to protect doors of this character, whether they be located for slide movement outside the building or on the inside thereof, against wind pressures exerted thereon as well as breakage due to an object striking the same in moving through the doorway. My invention takes care of these conditions in a simple and inexpensive manner as illustrated in the drawing.

Referring particularly to the drawing, the door 10 is supported by a track and trolley structure 12 for movement to open and close the doorway 11. Specifically, I employ a track 13 comprised, preferably, of an integral piece having an upstanding flange 13^a adapted to be secured to the door frame or building member 14 by screws or other fastening devices 15 above the door opening 11. The track is shaped to provide a body portion extending outwardly and then downwardly from its flange 13^a, and then inwardly and upwardly to provide an enclosed channel-shaped trackway 13^b which is shielded against the weather, dirt, etc., so that a clean and unobstructed trackway is insured. The track may be formed of one piece or in longitudinal sections dependent upon the length of the trackway; and, where two or more sections are employed, the joint between the same may be secured and closed in any desired manner in furtherance of the above features.

The hanger structure is of the trolley type and comprises a pair of hinge-leaf-like members 16 and 17, connected, respectively, to the door 10 and the trolley wheels 18. The trolley wheels 18 may take any desired form but, preferably, that shown in the drawing, and they are mounted upon the hanger member 17 by roller shafts 19 between which and the rollers are, preferably, roller bearings (not shown).

It will be noted by reference to Fig. 2 that the hanger members 16 and 17 are of flat-sheet form, they are connected to the inner sides of the door and trolley wheels, and they are connected together by a uni-directional hinge structure, indicated generally at 20. The axis of this hinge is located to one side of (inwardly of) the longitudinal median line of the door and the central plane of the roller devices 18. It will, therefore, be obvious that the weight of the door tends to swing the lower hanger or hinge member 16 rearwardly. Utilizing the weight of the door in this respect, my invention contemplates the use of a uni-directional hinge structure which comprises hinge parts so related that when they are moved, under control of the weight of the door, into a position in the same plane, they abut each other and become as if a rigid piece.

Specifically, the hanger member 17 to which the trolley wheels 18 are attached, is of general T-shape in plan, the end of its T-stem portion being provided with a pair of slightly spaced extensions rolled or formed to one side of the plane of the member to provide a pair of spaced hinge knuckles 21, 22. These hinge knuckles are so formed that an inset shoulder or ledge 23 is provided in the plane of the member 17 in approximate alignment with the axes of

the knuckles (Fig. 4). Also, with this arrangement the member 17 is offset from the central plane of the track.

The other hanger member 16 which is adapted to be connected to the door, is of general rectangular-shape and is provided at the opposite edges of its upper end with a pair of spaced hinge knuckles 24, 25 between which the knuckles 21, 22 of the member 17 are received. Midway between the knuckles 24, 25 of this member 16, I provide, in the plane of such member, a projecting tongue 26 which projects into approximate alignment with the axes of the knuckles 24, 25 (Fig. 3). This tongue 26 is so positioned that, when the knuckles 24, 25 are placed over and axially align with the knuckles 21, 22, it projects into the space between the knuckles 21, 22; and this tongue is of such length that, when the hinge members 16, 17 are moved into the same plane, it abuts the ledge or shoulder 23 and prevents further hinging movement of the parts in that direction. A hinge pintle 27 is passed through the several knuckles 21, 22, 24 and 25, and, since the axes of these knuckles are offset from the planes of the members 16, 17, the hinge pintle may be inserted and secured without interfering with the above-described movement and action of the stop-tongue 26.

The operation of my invention will be obvious from the foregoing. The weight of the door 10 always tends to swing the hanger parts 16, 17 in a direction to bring the tongue 26 and the shoulder 23 into engagement and, when these elements are engaged, the structure, as a whole, under the control of the weight of the door, becomes as if a rigid piece opposing wind pressures, impacts and the like which would tend to swing the door in a direction opposite that of its normal hinging direction. However, should the door be struck from the inside, referring to the illustration shown in the drawing, the hinge will permit the door to swing outwardly under the impact or pressure and prevent injury thereto.

It will be understood that the door may be mounted on the inside or outside of the doorway and this is also true as to the track structure 13; and it will be appreciated that in either event the desired hinge action will be accomplished as above described. Furthermore, it is to be understood that while I have shown only one form of structure embodying my invention, other changes in details and arrangements of parts may be made without departing from the spirit and scope of my invention as defined by the claim which follows.

I claim:

In a door hanger structure, means for suspending a door for free rolling movement along a horizontally disposed track which comprises a flat sheet-like hinge member, a pair of spaced roller shafts directly connected to the upper part of said hinge member, a roller journaled on each of said shafts, a second flat sheet-like hinge member connected to one side of said door at the top edge thereof and adapted under the suspended weight of said door to lie in the same plane as said first hinge member, a pair of spaced hinge knuckles at the inner part of the lower edge of said first hinge member, a pair of hinge knuckles on the upper edge of said second hinge member and between which the knuckles of said first hinge member are disposed, a pin passing through all said knuckles and connecting said hinge members for hinging movement, and means for limiting hinging movement of said hinge members in one direction to a position wherein they are disposed in the same vertical plane which includes a projection on said second hinge member at the central part of its upper edge and wholly within the plane thereof and terminating short of the upper edge of said hinge member, a shoulder element between the knuckles of said first hinge member and wholly within the plane of said hinge member and adapted to be engaged by said projection when said hinge members are moved in one direction into the same vertical plane, the hinge connection between said hinge members being offset from the central plane of both said door and rollers whereby said hinge members are normally moved into and held in the same vertical plane under the weight of said door toward the opening adapted to be closed by said door without hinging movement of the hanger structure in any direction other than away from the doorway.

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