United States Patent

Stermac

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[45] Mar. 7, 1972

[54] ADJUSTABLE JOURNALLING MEANS

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[52] **U.S. Cl.** **16/129**

[51] **Int. Cl.** **E05d 5/06**

[58] **Field of Search** 16/129, 130, 131, 151, 158, 16/166; 160/206, 118, 199

[56] **References Cited**

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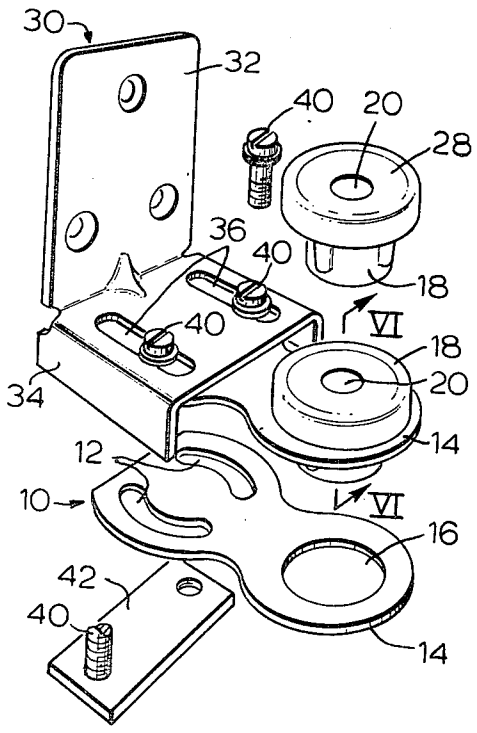
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[57] **ABSTRACT**

A jamb bracket providing a bearing for a pivot pin projecting from the lower edge of a swinging door panel; said bracket including a pair of respectively fixed and movable plates held together in superposed relation by a pair of screws engaged in registering slots in the plates; the slots in the movable plate being concentrically arcuate and mutually confronting while those in the fixed plate are elongated, rectilinear and parallel; the bearing being mounted in an exposed and cantilevered lobe of the movable plate.

7 Claims, 7 Drawing Figures



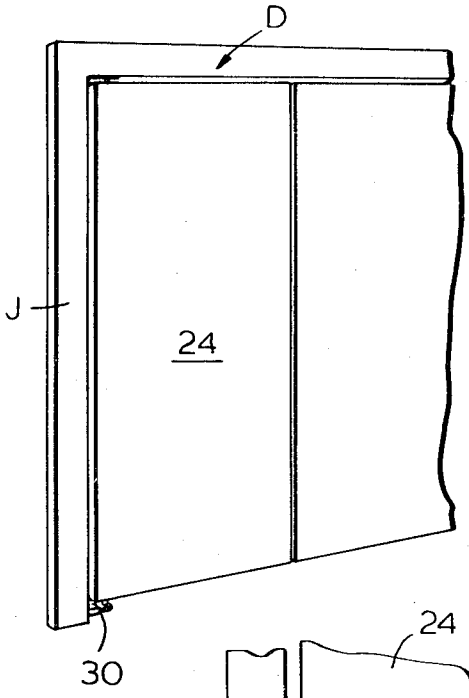


FIG. 1

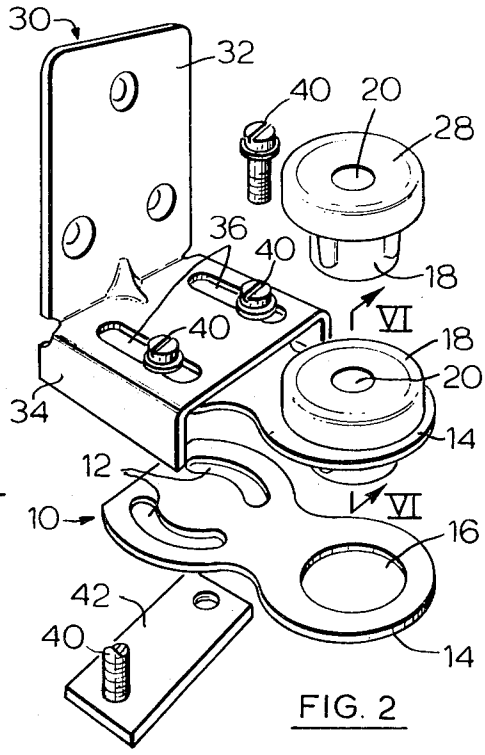


FIG. 2

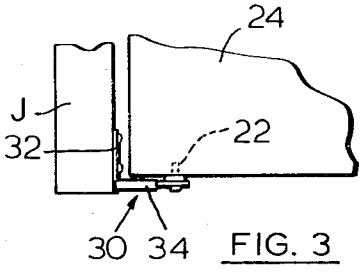


FIG. 3

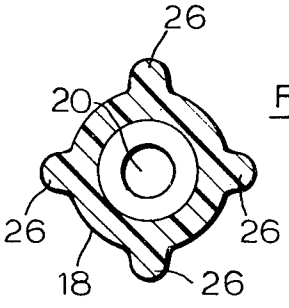


FIG. 4

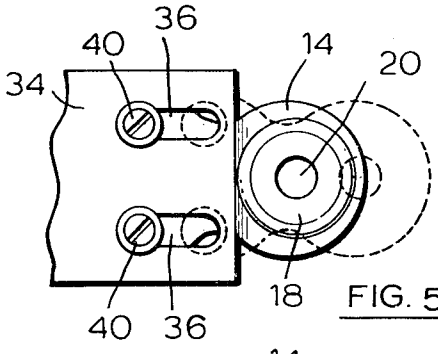


FIG. 5

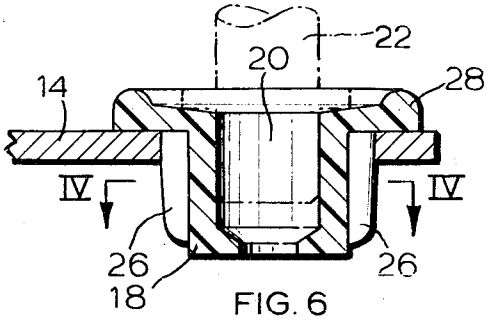


FIG. 6

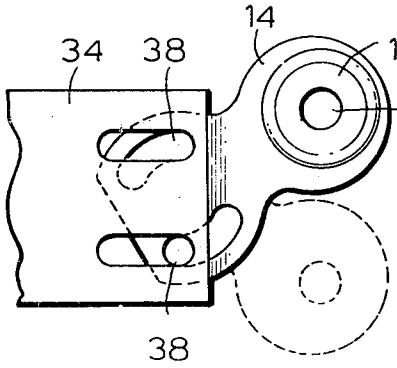


FIG. 7

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ADJUSTABLE JOURNALLING MEANS

The present invention relates to hardware for pivotably mounting a door panel in a doorway. In particular, the invention is concerned with the provision of means for journaling a spindle or equivalent pivoting part extending from such door panel.

A door panel as herein visualized may constitute the specific swinging panel of a bifold door which is usually comprised of two panels of which one is normally mounted for swinging or rotation about an axis between its side edges and adjacent one of them. In a common and well-known construction, trunnions are provided for this purpose at upper and lower corners of the panel, i.e.: at opposite ends of the axis aforesaid; such trunnions being intended for journaling in bearing disposed at vertically opposite upper and lower corners of the doorway. Said bearings are normally provided by so-called brackets or jamb brackets which are usually mounted on the proximal jamb and in the respective corners of the doorway.

As is known to those in the art, hardware for mounting a panel as herein visualized is expediently adjustable, inter alia, for tilting the rotary axis of the swinging panel engaged therein to a desired inclination—for example, to plumb the said axis or to square the panel with the doorway. Such tilting is usually achieved by linear and/or angular movement of the specific panel engaging parts of said brackets.

It will be apparent from the foregoing observations that the specific bearing support portion of a bracket as herein visualized should be freely movable on the one hand to permit tilting the rotary axis of the door panel as aforesaid and to be clampable, on the other hand, to fix the said bearing support and render it relatively immovable in a selected position, i.e.: with the panel axis at its preferred inclination.

It will be appreciated that the constant swinging of a door panel in a journaling means as herein visualized exerts forces thereon tending to throw it out of adjustment; this tendency being inspired or aggravated by many factors including, amongst others, friction in the bearing and imbalance of the door panel engaged therein.

The brackets of the prior art were not always equal to the task of resisting these stresses and a broad object of the invention is, therefore, to provide adjustable journaling for a swinging door panel in a doorway including a pivot element which is pivotally engageable with the said door panel and a mounting element assembled in superposed relation therewith; said pivot element being readily and smoothly adjustable to the required setting and then firmly clampable in relatively immovable relation to the mounting element to maintain said setting and to resist the misalignment forces normally exerted thereon by the swinging door panel.

It will be understood that an important factor in the efficiency of adjustable journaling as herein visualized is the scope of the angular and linear movements of which it is capable, a further important object of the invention being to provide a device of this character capable of such movements to a substantial degree.

A more specific object of the invention is to provide a device as aforesaid with improved means for holding the pivot and mounting elements in loose, relatively movable assembly or in clamped relatively immovable relation.

It is a further object of the invention to provide journaling means as aforesaid having a pivot pin-receiving bearing which is tightly and more or less irremovably attached thereto.

It is a still more specific object of the invention to provide improved journaling means as aforesaid which is installable in a lower corner of a doorway and which is thereafter easily adjustable to provide a relatively large range of possible positions for said bearing in the direction extending through said doorway as well as a range of possible positions for said bearing in the direction extending from side to side of said doorway.

Further and other more or less broad objects of the invention are achieved by the provision of adjustable journaling means which include a pair of elements respectively comprising a pivot element and a mounting element assembled in superposed relation therewith and installable in a doorway to position the pivot element for pivotal engagement with cooperating structure on the horizontal edge of a door panel in the doorway. A pair of spaced rectilinear slots are provided on one said element; the slots on said element being paired and registering with slotting on the other and said elements being retained in assembly by fastening means which include studs respectively engaged in the paired and registering slotting. Said studs are capable of manipulation to clamp the aforesaid elements in relatively immovable relation to each other or to retain them in loose assembly with each other, permitting both angular and linear movement of the pivot element relative to the mounting element with the studs engaged in the slotting; the whole being in accordance with the selected embodiment of the invention which is hereinafter described and illustrated, by way of example only, in the annexed drawing, wherein like reference characters refer to like parts of the invention throughout the several views and wherein:

FIG. 1 is a somewhat isometric but mainly front elevational view of a bifold door in a doorway as herein visualized;

FIG. 2 is an isometric view showing the journaling device of the invention both in assembled and exploded forms;

FIG. 3 is an enlarged view of the left lower corner of FIG. 1;

FIG. 4 is a section along the line 4—4 of FIG. 6;

FIG. 5 is a top plan view of the journaling means of FIG. 2 showing two positions thereof in respectively full and dotted lines;

FIG. 6 is a section along the line 6—6 of FIG. 2, and

FIG. 7 is a view corresponding to FIG. 5 showing in full and dotted lines two positions of the present journaling means.

As best shown in the exploded view of FIG. 2 and other views of the drawing, the journaling means of the invention comprises pivot element 10 formed of flat plate material which is provided with slotting, in this embodiment comprised of arcuate slots 12—12 concentrically disposed in diametrically opposite and mutually confronting relation to each other. Said pivot element 10 also includes a lobe 14 having an aperture 16 providing accommodation for a bearing 18 shown isometrically in FIG. 2 as comprised more or less of a short stub sleeve with an axial bore 20 which is open at one end, at least, to receive pivot 22 depending from the horizontal edge of door panel 24 installed in doorway D in which the present journaling means is also installed as shown in FIGS. 1 and 3.

Said bearing 18 has ribs 26 formed on its surface rendering it capable of being wedged more or less irremovably in said lobe aperture 16. The bearing 18 is preferably formed of a suitable bearing material such as nylon, for example, which has the added advantage of being slightly compressible and thereby facilitating wedging of bearing 18 in aperture 16. Stop means for retaining the bearing 18 in the lobe 14 is constituted by an integral collar 28 surrounding its entry end at which pivot 22 enters bore 20; said collar 28 overlying and resting on lobe 14 when the bearing 18 is forced home into lobe aperture 16.

The pivot element 10 is assembled in superposed relation with the mounting element 30 also illustrated in the exploded view of FIG. 2 and in other views. As will be observed, the mounting element 30 of the present embodiment is of angular conformation having a tongue 32 for attachment to door jamb J and a channelled base 34 which faces downwardly when said mounting element 30 is installed at the floor of doorway D as shown in FIGS. 1 and 3.

A pair of parallel, rectilinear slots 36—36 are provided on said base 34; said slots 36—36 being elongated in the direction of the intended linear movement of the pivot element 10 and being spaced and oriented to respectively pair and register with the arcuate slots 12—12 formed in the pivot element 10 as shown in FIGS. 5 and 7, for example, when these parts are assembled in superposed relation with each other as aforesaid.

In the herein selected and illustrated relationship of the parts in their aforesaid superposed assembly, each pair of registering slots **12** and **36** in the respective elements **10** and **30** cross each other at an intersection **38** (see FIG. 7) accommodating a headed screw-threaded stud **40** engageable by a correspondingly threaded compression plate **42** which cooperates therewith more or less as a nut to form fastening means for holding said elements in assembly in an understood manner. As will be obvious, said fastening means is selectively adjustable to retain the parts in loose assembly permitting the pivot element **10** to move more or less freely relative to mounting element **30** in the directions shown in full and dotted lines in FIGS. **5** and **7** for the purpose of tilting the axis of door panel **24** either to plumb it or to impart a desirable inclination thereto in a manner which will be obvious after which the said fastening means may be adjusted or manipulated to draw up compression plate **42** and so to clamp the pivot and mounting elements **10–30** together in relatively immovable relation to each other as shown in the assembled portion of FIG. **2**.

It will be recalled that the arcuate slots **12—12** are concentrically disposed on pivot element **10** which is thus rendered capable of swinging rather widely between left and right angular positions while retained in assembly with mounting elements **30** by the studs **40—40** of FIG. **2** which remain relatively stationary in the process substantially as will appear from FIG. **7**.

The elongation and rectilinearity of slots **36—36** in mounting element **30** also permits linear movement of pivot element **10** to extend and retract the bearing **18** as shown in FIG. **5** although, in such movement, the studs **40** do travel back and forth in the slots **36—36**.

The drawing also reveals, and it will be understood that, each slot **36** is disposed at a side of the present device and harbors one stud **40** only; this layout endowing pivot element **10** with comparatively substantial scope of movement relative to mounting element **30**. In addition, the herein visualized lateral placement of the slotting **12** on pivot element **10** makes it possible and feasible to shorten the base **34** of mounting element **30** whereby to reduce the extent to which it projects into doorway D and hence to make it less obtrusive; there being a corresponding shortening of that specific portion of pivot element **10** which is in the aforesaid superposed relation with mounting element **30**, excluding lobe **14** which always extends beyond the periphery of mounting element **30** in order to remain accessible to pivot **22**.

The foregoing description of the invention has been particularly related to the instant embodiment which is the best form thereof presently known to the inventor. Said embodiment may, however, be varied to a greater or lesser degree without departure from the inventive concepts which are laid down by this submission and claimed in the claims now following.

What I claim is:

1. Adjustable journalling means comprising:

a pivot element;

a mounting element assembled in superposed relation therewith and installable in a doorway to position said pivot element for pivotal engagement with a horizontal edge of a door panel in a doorway;

a pair of concentric arcuate slots on one said element and a pair of spaced-apart parallel elongated slots on the other said element arranged thereon in spaced and opposite relation to each other, each slot on each said element being disposed in paired, superposed and registering relation with a slot on the other said element, the slots on one said element crossing the slots on the other at spaced intersections, and

fastening means including a stud engaged in the intersection of each said pair of superposed and registering slots; said fastening means being adjustable to clamp the aforesaid elements in relatively immovable relation to each other or to retain them in loose assembly with each other permitting both rotatable and linear movement of said pivot element relative to said mounting element, with said studs serving as foci about which the pivot element is rotatable as aforesaid.

2. Adjustable journalling means as set forth in claim **1** wherein:

said pivot element includes a bearing accommodating journalling of a spindle extending from the said door panel.

3. Adjustable journalling means as set forth in claim **2** wherein:

said pivot element includes a lobe in which the said bearing is mounted; said lobe and bearing extending beyond the periphery of the mounting element.

4. Adjustable journalling means as set forth in claim **1** wherein:

the arcuate slots are formed on the pivot element.

5. Adjustable journalling means as set forth in claim **3** wherein:

said bearing is formed of a slightly compressible material and is mounted in an aperture in the said lobe; said bearing having a plurality of ribs formed on its outer surface wedging said bearing within said aperture.

6. Adjustable journalling means as set forth in claim **5** wherein:

said bearing has an entry end through which it is entered by the spindle extending from the said door panel and a collar extending radially of the bearing about its said entry and overlying the lobe about said aperture.

7. Adjustable journalling means as set forth in claim **6** wherein:

the said arcuate slots are formed on the pivot element.

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