

[54] DOOR PIVOT DEVICE

[72] Inventor: Robert E. Foltz, Sterling, Ill.
[73] Assignee: Lawrence Brothers, Inc., Sterling, Ill.
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16/185 V

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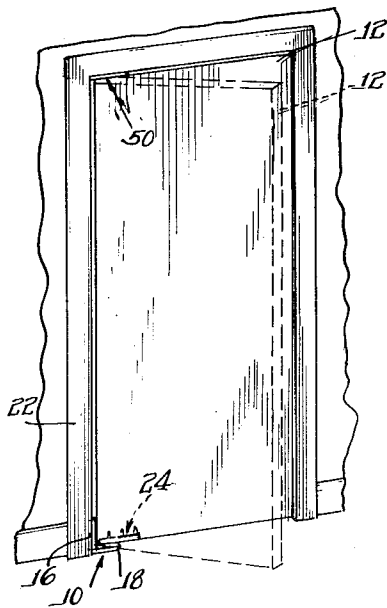
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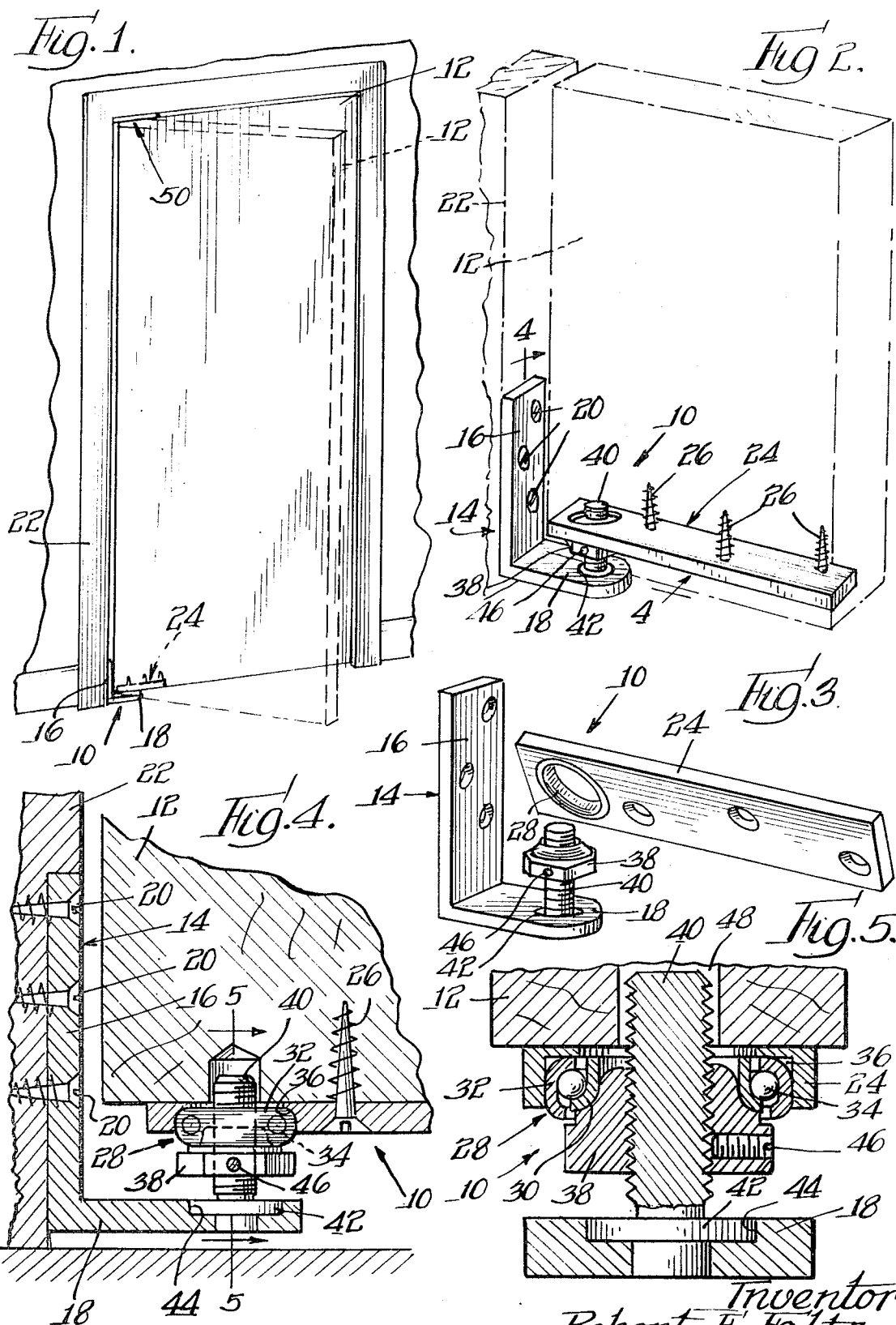
Primary Examiner—Kenneth Downey
Attorney—Olson, Trexler, Wolters & Bushnell

[57] ABSTRACT

The present invention relates generally to double acting pivot devices for doors mounted between top and bottom pivots and more particularly to improvements in vertically adjustable bottom pivot devices. One embodiment of the invention disclosed herein comprises a bracket member having a vertical section for the attachment to a door jamb, and a lateral or horizontal section for supporting the weight of a door member. A second bracket means is adapted for attachment to the bottom edge of a door in superimposed relation with respect to the horizontal section of the first bracket member. Interposed between these superimposed bracket sections is an antifriction bearing device of improved practical construction which may be vertically adjusted without the necessity of first separating the door member from its supporting pivot.

5 Claims, 5 Drawing Figures





Inventor
Robert E. Holtz
By: Olson, Trexler, Wolter & Bushnell attys.

DOOR PIVOT DEVICE

SUMMARY OF THE INVENTION

One of the problems incident to the installation of double acting pivoted door members is that of vertically adjusting the door member to fit properly within the door opening, and particularly to adjust the bottom of the door to provide required floor clearance. Bottom pivot devices have a very practical application to pivoted door members of the double acting type. In order to effect vertical adjustment of such doors by the use of certain prior pivot devices heretofore available, it is necessary that the door be detached from the top and bottom pivot thereof to effect such adjustment. It is one of the important objects of the present invention to provide an improved practical pivot device for supporting the weight of a door member which may be vertically adjusted while the door is mounted thereon.

More specifically, the present invention contemplates a novel door pivot structure, wherein an antifriction thrust bearing supporting the weight of the door member may be vertically adjusted with the door member remaining in its mounted position.

It is a further object of the present invention to facilitate the ease with which pivot devices of the above-mentioned type may be positively secured in any desired position of adjustment.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a double acting pivot type door member mounted between top and bottom pivots and having at its lower left corner, a pivot device of the type contemplated by the present invention;

FIG. 2 is an enlarged perspective view of the adjustable pivot device shown in the lower left hand corner of FIG. 1, the door member being shown by dot and dash lines in order to reveal structure otherwise obscured;

FIG. 3 is an enlarged perspective view of the adjustable door pivot device of FIG. 2, with the door bracket or plate tilted upwardly, more clearly, to expose the bearing arrangement;

FIG. 4 is a vertical, sectional view taken substantially along the line 4—4 of FIG. 2, illustrating the structural details of the adjustable pivot; and,

FIG. 5 is a fragmentary, vertical, sectional view taken substantially along the line 5—5 of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawing more in detail wherein like numerals have been employed to designate similar parts throughout the various figures, it will be seen that an adjustable door pivot device of the type contemplated by the present invention, is designated generally by the numeral 10. In FIG. 1, the pivot device 10 is disclosed in association with the lower left hand corner of a double acting pivot type door member 12. The pivot device 10 includes bracket means in the form of an "L" shaped bracket member designated generally by the numeral 14. Bracket 14 comprises a vertical section 16 and an integral laterally extending section 18, extending horizontally from the lower margin of the section 16. The vertical section, or arm 16, is suitably apertured to accommodate screw members 20 for securing the bracket 14 in a recessed lower portion of a door jamb 22.

The pivot device 10 also includes a bracket member or plate 24. The bracket member 24 is apertured to accommodate fastener screws 26 for securing said member to the lower edge of the door member 12 in partial superimposed spaced relation with the horizontal section 18 of the bracket 14. The bracket member 24 is also apertured to accommodate an antifriction or ball bearing unit 28. The ball bearing unit 28 includes a conventional inner race 30, and outer race 32 and ball members 34 housed between said race members. The outer race member 32 is fitted within a companion recess 36 provided on the underside of the plate or bracket member 24.

The inner race member 30 provides an inner annular bearing surface conforming with and resting upon a complementary peripheral bearing surface of an internally threaded thrust or load supporting bearing member 38.

The internally threaded bearing member 38 is supported by a complementary threaded vertically disposed screw member 40. The lower extremity of the screw member is provided with an integral flange 42, the periphery of which is preferably serrated and has forced fit within a recess 44 of the horizontal bracket member 18. The periphery of the bearing member 38 is multi-sided to accommodate the conventional turning tool or wrench (not shown). A set screw 46 carried by the bearing member 38 serves to secure said bearing member in the desired position of vertical adjustment upon the screw member 40. The lower edge of the door member 12 is provided with a recess or bore 48 to accommodate the upper extremity of the screw member 40. A suitable upper or top door pivot is provided at the upper left hand corner 50 of the door member 12.

From the foregoing it will be apparent that the degree of elevation of the door member 12 conforms with the vertical relation of the bearing member 38 to the upper surface of the horizontal bracket member 18. By loosening the set screw 46 and applying a turning tool or wrench to the periphery of the bearing member 38 the door member 12 may be raised or lowered as desired. With this arrangement the vertical adjustment may be accomplished without disengaging the door member from the bearing as must be done with certain pivot devices heretofore available. Obviously the antifriction bearing unit 28 is representative of only one type of antifriction bearing which might be interposed between the upper surface of the adjustable bearing member 38 and the underside of the bracket member or plate 24. Applicant's pivot device is of extremely simple construction and capable of being produced by following conventional shop practice, thereby enabling the production thereof at minimum cost. The ease with which the vertical adjustment may be accomplished by following the teachings of the present invention greatly enhances the commercial acceptability thereof.

I claim:

1. A vertically adjustable bottom pivot device for swingable doors including first bracket means having a section for attachment to a door jamb, a section extending laterally therefrom for positioning below the bottom of a door for supporting the weight of a door, second bracket means for attachment to the bottom edge of a door in superimposed spaced relation with respect to the door supporting section of said first bracket means leaving access space therebetween and including a recess for receiving a thrust bearing, a vertically disposed screw member supported at one extremity by said first bracket means and traversing the access space and said recess, and an internally threaded thrust bearing member associated with said screw member intermediate the end thereof and readily accessible in the access space for adjustment, said screw member and internally threaded bearing member thereon being relatively rotatable for vertical adjustment, and a second thrust bearing member engaging said internally threaded bearing member and the recess in said second bracket means, said bearing member presenting a pivot door support with the screw member traversing both bearing members and terminating at a position proximate to the bottom edge of the door and within said recess.

2. A vertically adjustable bottom pivot device for swingable doors as set forth in claim 1, wherein means is provided for securing the internally threaded thrust bearing member and associated screw member in a relatively fixed position.

3. A vertically adjustable bottom pivot device for swingable doors as set forth in claim 1, wherein the vertically disposed screw element is secured at one extremity to bracket means and the internally threaded thrust member is rotatable with respect to said screw member.

4. A vertically adjustable bottom pivot device for swingable doors as set forth in claim 1, wherein the first bracket means is

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L-shaped, with the vertical arm thereof for attachment to a door jamb, and the horizontal arm being adapted to support the weight of a door member, and the second bracket means is in the form of a plate adapted for attachment in the bottom edge of a door member with a portion of said plate member disposed in superimposed vertically spaced relation with a

portion of the horizontal arm of the first bracket means leaving the access space.

5 5. A vertically adjustable bottom pivot device as claimed in claim 1, wherein the screw member is elongate to extend into a door recess.

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