July 25, 1939. E. H. GRAVES ET AL 2,167,569

DOOR MOUNTING

Filed July 6, 1938 2 Sheets-Sheet 1

Fig. 1.

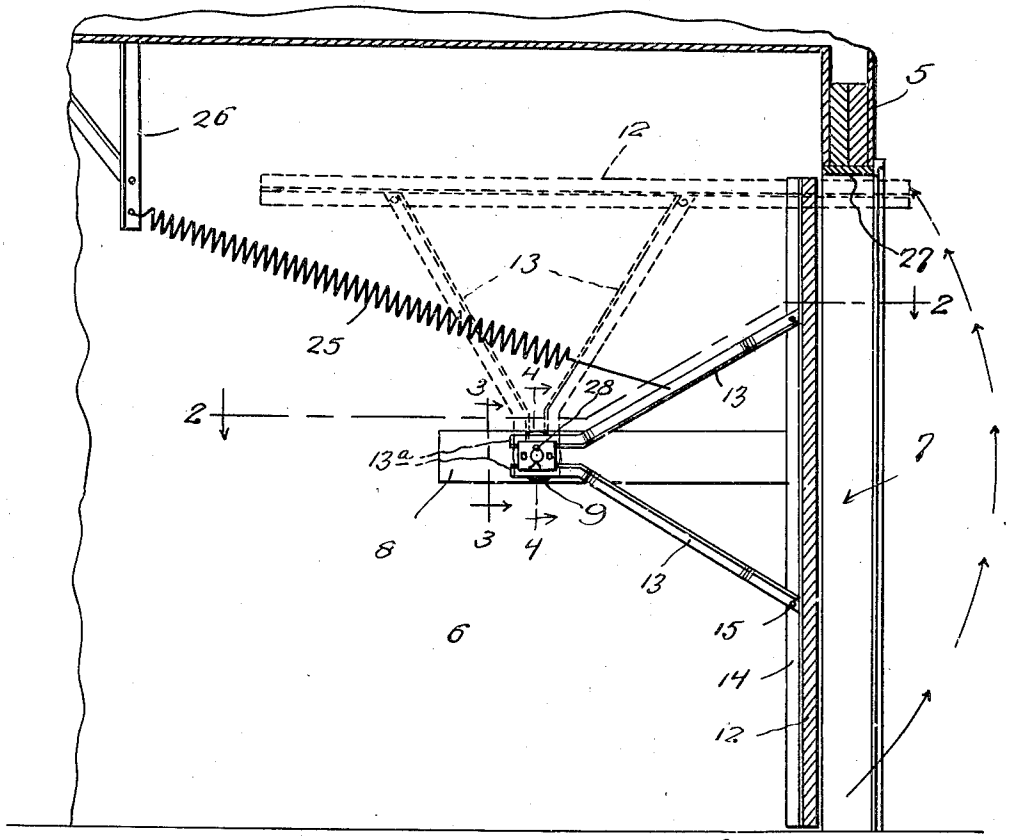


Fig. 3.

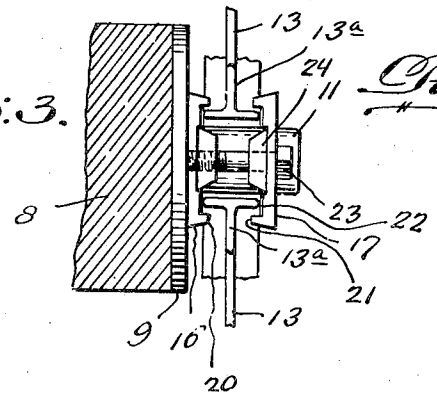
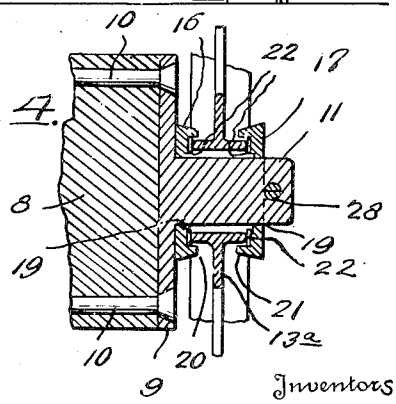


Fig. 4.



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Filed July 6, 1938 2 Sheets-Sheet 2

Fig. 2.

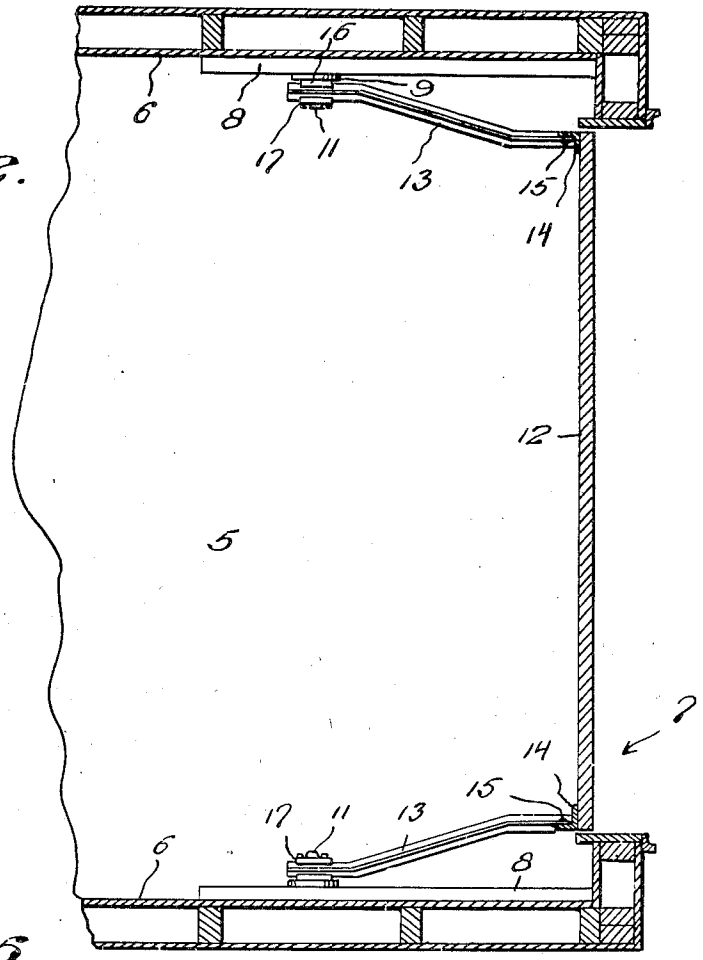
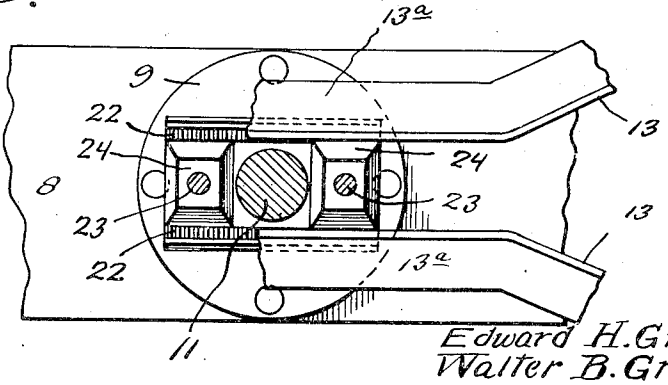


Fig. 5.



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DOOR MOUNTING

Edward Harrison Graves and Walter Ballard Graves, Arlington, Tex.

Application July 6, 1938, Serial No. 217,798

3 Claims. (Cl. 16—130)

This invention relates to relatively large heavy doors used in garages and the like where the space is restricted and where ease of operation is a primary consideration.

The primary object of the present invention is to provide an improved mounting or suspension means for doors of the above kind, such mounting or suspension means being extremely simple and durable in construction and comprising a small number of simple parts capable of being cheaply manufactured and readily installed.

Another object of the present invention is to provide a door mounting or suspension means of the above kind which is efficient in use and otherwise adapted to meet with the requirements for a successful commercial use.

Other objects and advantages of our invention will become apparent from the following description, when considered in connection with the accompanying drawings.

In the drawings:

Figure 1 is a fragmentary, vertical sectional view of the front portion of a garage or similar building having a door equipped with a mounting or suspension means constructed in accordance with the present invention.

Figure 2 is a horizontal section on line 2—2 of Figure 1.

Figure 3 is an enlarged fragmentary vertical section on line 3—3 of Figure 1.

Figure 4 is a view similar to Figure 3 on line 4—4 of Figure 1; and

Figure 5 is an enlarged fragmentary detailed view partly in side elevation and partly in section, showing details of the construction illustrated in Figures 3 and 4, parts being broken away.

Referring in detail to the drawings, 5 indicates a garage or like building having side walls 6 and provided with a front door opening 7.

Secured to the inner faces of the side walls 6 at opposite sides of the doorway 7, preferably horizontally so as to extend rearwardly from the front of the building, are flat supporting boards or bars 8. Carried by each supporting bar 8 is a hinge bracket including a base plate 9 securely fastened as at 10 flatly against and to the associated bar 8 and provided with an inwardly projecting rigid journal pin or stud 11.

Rigidly attached to and extending inwardly from each side of the door 12 are arms comprising a pair of T-iron members 13 which are attached at their forward ends to the door 12 in vertically spaced relation as shown in Figure 1, and which converge rearwardly where they terminate in adjacent but spaced parallel inner end portions 13a. As shown, angle bars 14 are preferably fastened along the vertical edges of the door 12, and the forward ends of the arm members 13 are rigidly attached to the inwardly extending flanges of these bars 14 as at 15. Also, the T-iron members 13 are disposed with their cross flanges adjacent and with their intermediate flanges projecting away from each other.

The inner parallel end portions 13a of the arm members 13 are securely clamped between elongated hinge plates 16 and 17 having central openings 19 for reception of the journal pin or stud 11. The plates 16 and 17 are provided along their longitudinal edges with lateral flanges 20 and 21 behind which the cross flanges of the arm members 13 are engaged so that their inner ends 13a are securely held against spreading, and the plates 16 and 17 are also provided on their inner faces adjacent the inner sides of the flanges 20 and 21 with roughened portions as at 22 engaging the edges of the cross flanges of arm members 13 so that longitudinal displacement of the inner end portions 13a of said arm members 13 relative to the hinge plates 16 and 17 is effectively prevented when said hinge plates are firmly clamped together. The hinge plates 16 and 17 are firmly clamped together by means of transverse clamping bolts 23 extending through reinforced apertured ends of the hinge plate 17 and threaded into reinforced apertured ends of the hinge plate 16 as shown clearly in Figure 3. The ends of these plates 16 and 17 are preferably reinforced by providing them on their inner faces with bosses 24 surrounding their end openings which receive the bolt 23.

It will be readily seen that, by means of the construction described, the door 12 is mounted for vertical swinging movement about the axes of journal pins or studs 11 for swinging from the vertical operative position shown by full lines in Figure 1 to the horizontal open position shown by dotted lines in Figure 1, or vice versa. When open, the door occupies practically no space exteriorly of the building, and does not move a material distance forwardly of the door opening when being opened or closed. The door may be easily opened by a lifting movement and easily lowered to close the same, said door being counterbalanced by suitable means such as a helical tension spring 25 connected at one end to the upper arm member 13 at each side of the door and connected at its other end to a suitable bracket 26 mounted in the building rearwardly of and above the point where each journal pin 11 is

located. When open, the door is completely out of the way with its normally lower end abutting the lintel 27 at the top of the door opening, the upward swinging movement of the door being thereby limited to the desired substantially horizontal overhead position. Any suitable means may be provided for retaining the hinge plates 16 and 17 upon the associated journal pin or stud 11, such as a cotter pin 28 placed in a transverse opening provided in the outer end of said journal pin or stud 11.

It will be seen that the present mounting is such as to effectively carry out the stated objects of the invention, and it will be apparent that the specific construction illustrated and described is susceptible of changes and modifications such as fairly fall within the spirit and scope of the invention as claimed.

What we claim as new is:

1. In a hinge mounting for a counterbalanced door, a bracket adapted to be fixed at one side of and inwardly of the door opening and having a laterally projecting horizontal journal stud, arms adapted to be rigidly secured to and to project inwardly from a side of the door and comprising a pair of bars having adjacent spaced parallel inner end portions and outwardly diverging outer end portions, and a pair of hinge plates bolted together against opposite sides of said inner end portions of said bars, said hinge plates having alined openings pivotally receiving the journal stud of said bracket.

2. In a hinge mounting for a counterbalanced door, a bracket adapted to be fixed at one side of and inwardly of the door opening and having a laterally projecting horizontal journal stud, arms adapted to be rigidly secured to and to project inwardly from a side of the door and comprising a pair of bars having adjacent spaced parallel inner end portions and outwardly diverging outer end portions, and a pair of hinge plates bolted together against opposite sides of said inner end portions of said bars, said hinge plates having alined openings pivotally receiving the journal stud of said bracket, said bars being of T-iron form and arranged with their intermediate flanges projecting away from each other, said hinge plates having side flanges projecting inwardly toward each other, the cross flanges of said bars being engaged behind said side flanges of the hinge plates.

3. In a hinge mounting for a counterbalanced door, a bracket adapted to be fixed at one side of and inwardly of the door opening and having a laterally projecting horizontal journal stud, arms adapted to be rigidly secured to and to project inwardly from a side of the door and comprising a pair of bars having adjacent spaced parallel inner end portions and outwardly diverging outer end portions, and a pair of hinge plates bolted together against opposite sides of said inner end portions of said bars, said hinge plates having alined openings pivotally receiving the journal stud of said bracket, said bars being of T-iron form and arranged with their intermediate flanges projecting away from each other, said hinge plates having side flanges projecting inwardly toward each other, the cross flanges of said bars being engaged behind said side flanges of the hinge plates, said hinge plates being further formed with straight parallel roughened portions behind said side flanges thereof engaged by the edges of said cross flanges of the bars.

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