June 26, 1956 W. A. WATSON 2,752,014

EXTRUDED METAL DOOR FRAME AND HINGE ASSEMBLY

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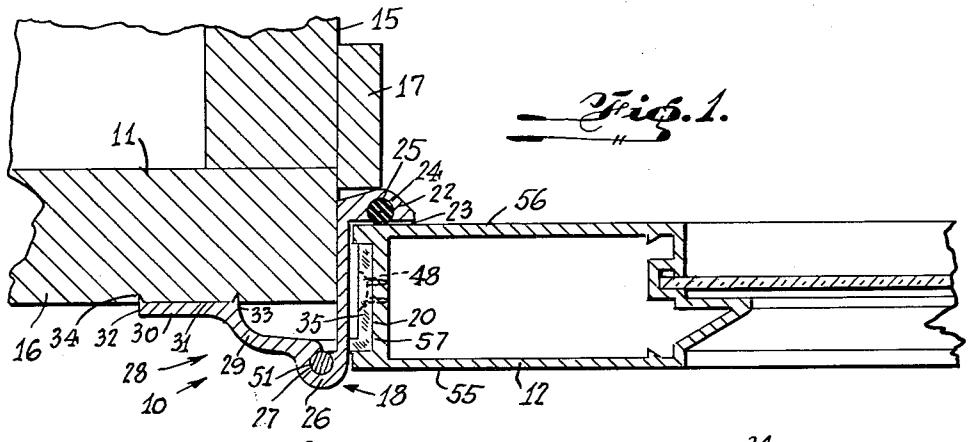


Fig. 1.

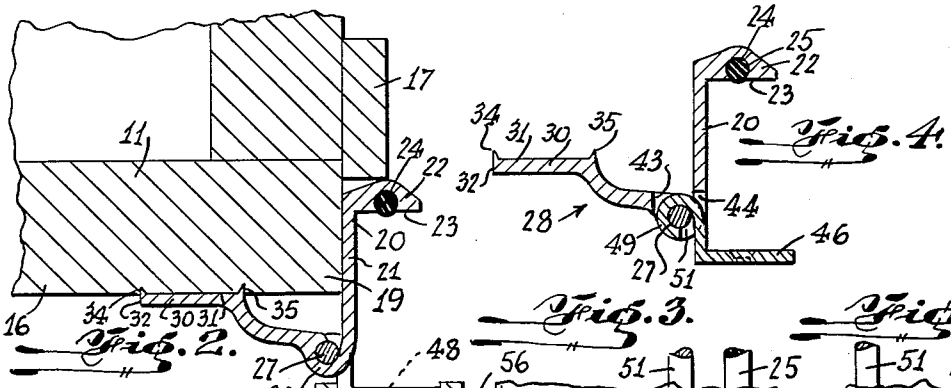


Fig. 2.

Fig. 4.

Fig. 3.

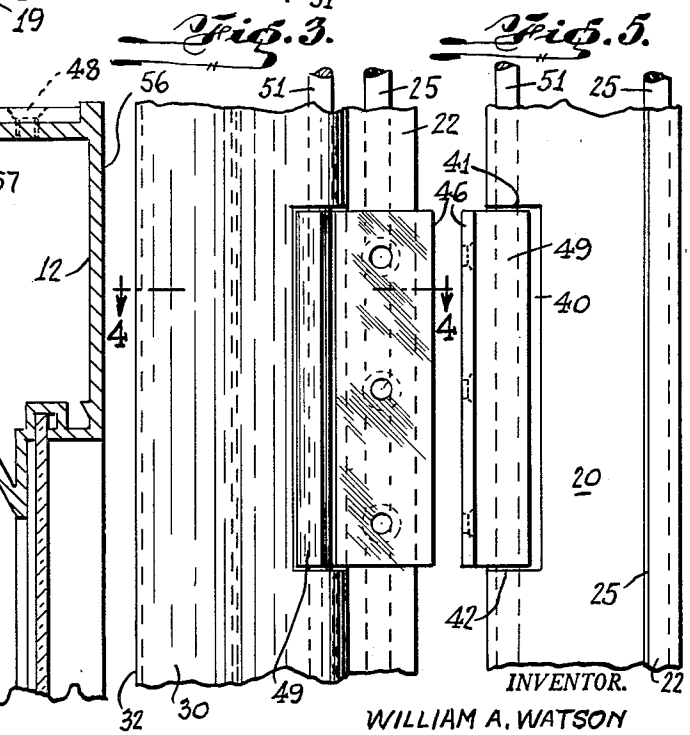


Fig. 5.

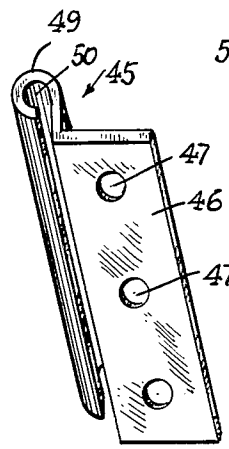


Fig. 6.

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EXTRUDED METAL DOOR FRAME AND HINGE ASSEMBLY

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2 Claims. (Cl. 189—46)

This invention relates generally to door constructions, and is particularly directed to a highly improved means for mounting swinging doors and other like closures.

The particular embodiment of the present invention, which is illustrated in the drawings and which will be described hereinafter in greater detail, comprises generally, an elongated member adapted to be secured to a door jamb and including spaced, longitudinal extending portions interconnected by a knuckle, and hinge means pivotally mounted within the knuckle to swingably support a door or other closure.

It is a principal object of the present invention to provide a simple and efficient means for mounting a swinging door or other closure on a door jamb, in which mounting means the fasteners used to mount the door are completely concealed and inaccessible when the door is in closed position. Thus, when the door is in closed position it cannot be surreptitiously removed. To insure this end, the mounting means is provided with means adapted to penetrate the outer face of the door jamb such that a wedge cannot be entered intermediate the door jamb and mounting device. The penetrating means further serves to exclude water, air, and particles of dirt, as well as to fixedly position the mounting means with respect to the door jamb to prevent any relative movement therebetween.

It is another object of the present invention to provide a highly improved door mounting means which is particularly well adapted for mounting storm doors, and in which each of the component parts is of constant transverse cross section, thus being capable of inexpensive, mass manufacture by extrusion processes.

It is a further object of the present invention to provide a storm door mounting means which is simple and durable, which presents a neat and attractive appearance, and which can be quickly and easily assembled at the site of installation.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combination of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope will be indicated by the appended claims.

In the accompanying drawings, wherein has been illustrated a preferred embodiment of the present invention:

Fig. 1 is a transverse sectional view of a device constructed in accordance with the present invention, showing the door in closed position.

Fig. 2 is a sectional view similar to Fig. 1, showing the door in open position.

Fig. 3 is a fragmentary front elevational view of the mounting device of the present invention.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a fragmentary side elevational view of the mounting device of the present invention.

Fig. 6 is a perspective view of the hinge means of the present invention, removed therefrom.

Referring now more particularly to the drawings, the embodiment of the invention illustrated therein comprises the mounting means, generally designated **10**, secured to a door jamb **11**, and swingably mounting a door **12**. The door jamb **11** has one face **15** facing the door opening, and has its outer face **16** disposed at a right angle with respect to the face **15**. However, the present invention is adaptable to door jambs of different configurations, as will become apparent hereinafter. The jamb surface **15** is provided with the conventional stop strip, as at **17**.

The mounting device **10** includes an elongated member, generally designated **18**, which is adapted to be arranged longitudinally of and against the door jamb **11**, and fixedly secured thereto by screws **19** or other suitable securing means. The member **18** is formed with a longitudinally extending strip or portion **20** which is arranged in face-to-face abutting relation with respect to the surface **15** of door jamb **11** and provided with apertures **21** for the reception of screws or fasteners **19**. At the inner edge of strip or portion **20**, and coextensive therewith, is formed a flange **22** having one face **23** provided with a longitudinally extending groove **24**, which groove forms an arc of greater than 180°. Extending longitudinally of and disposed within the groove **24** is a tubular or cylindrical element or gasket **25**, preferably fabricated of yieldable, resilient material, such as rubber, all for a purpose appearing hereinafter.

The strip or portion **20** extends outwardly beyond the outer jamb face **16** and there forms a bend or knuckle **26** having an internal surface **27** forming an arc greater than 180°. A second longitudinally extending strip or portion, generally designated **28**, is formed integrally with the knuckle **26** and includes a curved portion **29** spaced from the outer face **16** of the door jamb **11** and a straight or flat portion **30** having one face **31** arranged in face-to-face abutting engagement with the outer surface **16** of the door jamb. On the opposite edges **32** and **33** of the portion **30** are formed longitudinally extending, sharp ridges **34** and **35**, respectively. As the elongated member **18** is preferably extruded of metal, such as aluminum, the ridges **34** and **35** may be caused to penetrate the outer surface **16** of a conventional wooden door jamb **11**, for a purpose appearing more fully hereinafter.

Spaced along the knuckle **26** are milled, or otherwise formed, cut-out portions **40**, which cut-out portions extend inwardly intermediate the side walls **41** and **42**, and terminate in end walls **43** and **44** in the longitudinally extending portions **28** and **20**, respectively. The cut-out portions **40** are adapted to receive a hinge means, generally designated **45**. The hinge means **45** comprises a hinge plate **46** having a plurality of apertures **47** formed therein for the reception of screws or fasteners **48**, and is formed along one edge with a transversely extending curved portion or knuckle **49**. The knuckle **49** has a cylindrical internal surface **50**, which surface is of approximately the same curvature as the surface **27**.

In order to assemble the mounting device, the knuckle **49** of the hinge means **45** is inserted in the cut-out portion **40** of the member **18**, with the knuckle **49** in registry with the knuckle **26**, and a pintle or rod **51** is inserted through the knuckles **26** and **49**, to thereby mount the hinge means **45** for rotative movement with respect to the member **18**. The member **18** is now ready for securement to the door jamb **11**. The portion **20** is disposed in abutting engagement with the surface **15** of the door jamb and the portion **30** may be tapped with a hammer or mallet to effect penetration of the ridges **34** and **35** through the surface

16 of the door jamb, and screws or fasteners 19 inserted through the apertures 21 and into the door jamb.

A closure, generally designated 60, is shown for purposes of illustration as a hollow metal door having an outer surface 55, and inner surface 56, and being formed with an edge channel 57. The door 12 is arranged so that the hinge plates 46 are disposed in the channel 57 and the fasteners 48 are inserted through the apertures 47 and into the door. Thus, the door is pivotally mounted for movement between closed and open positions, as illustrated in Figs. 1 and 2, respectively. When the door is in closed position, it will be noted that the surface thereof 56 is in abutting engagement with the seal or gasket 25, to thereby seal the door opening.

Of course, the above-described assembly steps may be varied, as for example, the mounting device and door may be assembled prior to securement to the door jamb, or the hinge plates may be secured to the door prior to assembly with the member 18.

From the foregoing, it will be noted that the present invention provides a door mounting means, particularly well adapted for storm doors, in which the fasteners or screws are completely concealed, and inaccessible when the door is in closed position, and in which the ridges 34 and 35 serve to exclude foreign matter, fixedly position the member 18, and prevent the entering of a wedge intermediate the portion 30 and door jamb 11.

It will be further noted that the present invention provides a door mounting device in which each of the component parts is constant in transverse cross section, to thereby permit manufacture by extrusion processes, and further provides a highly improved door mounting construction which is well adapted to meet practical conditions of use.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention and the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A device for mounting a door in a doorway, said device comprising an elongated member adapted to be arranged longitudinally of and secured to the jamb of said doorway, said member including a first longitudinally extending portion arranged within said doorway in face-to-face abutting relation with respect to said jamb, a first knuckle formed on one edge of said first longitudinally extending portion and extending outwardly of said doorway and having an internal surface forming an arc of more than 180°, said first knuckle being provided with a plurality of transversely extending cut-outs, a second longitudinally extending portion formed integrally with said first knuckle and arranged in abutting relation with respect to the outer face of said jamb, a longitudinally extending ridge on said second longitudinally extending portion adjacent the free edge thereof and adapted to penetrate the outer face of said jamb, a plurality of single hinge plates secured to a door to support it for swinging movement into and out of said doorway, each said hinge plate having a hinge knuckle disposed transversely thereof and extending into one of said cut-outs, the internal surface of said hinge knuckles defining an arc of more than 180°, said arc being of a radius substantially equal to that of said first knuckle and a hinge pintle made of a continuous rod extending through all of said hinge knuckles and said first knuckle.

2. A device for mounting a door in a doorway, said device comprising an elongated member adapted to be arranged longitudinally of and secured to the jamb of said doorway, said member including a first longitudinally extending portion arranged within said doorway in face-to-face abutting relation with respect to said jamb, a first knuckle formed on one edge of said first longitudinally extending portion and extending outwardly of said doorway, said knuckle being provided with a plurality of transversely extending cut-outs, a second longitudinally extending portion formed integrally with said knuckle and arranged in abutting relation with respect to the outer face of said jamb, and a single hinge plate pivotally mounted in each said cut-out and adapted to support a door for swinging movement into and out of said doorway, said hinge plate arranged in facing relation with respect to said first longitudinally extending portion, a second knuckle on each said hinge plate disposed transversely thereof and extending into one of said cut-outs, and a single pintle extending through said first and second knuckles to adapt them for relative rotation with respect to each other.

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