Jan. 29, 1952 H. E. KIRSCHNER 2,583,950

ADJUSTABLE HINGE

Filed March 18, 1946 2 SHEETS--SHEET 1

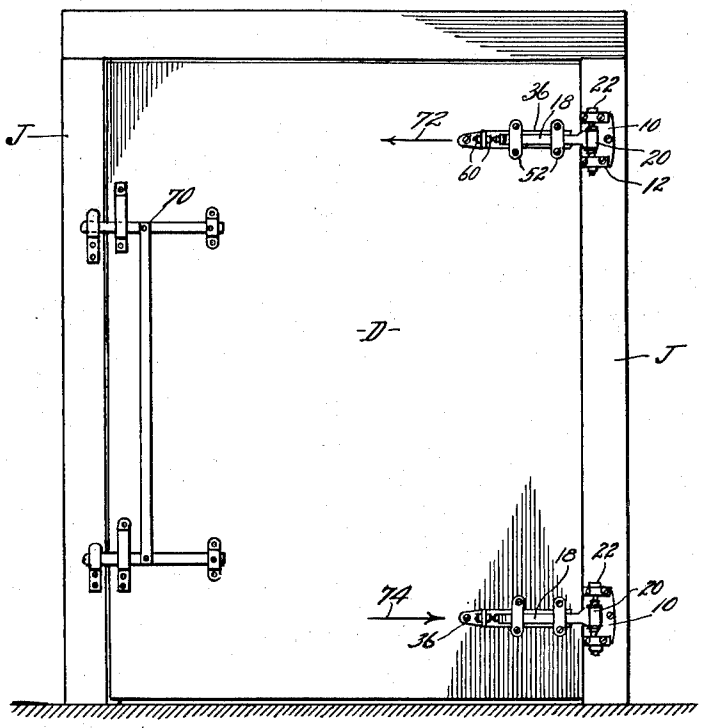


Fig. 1

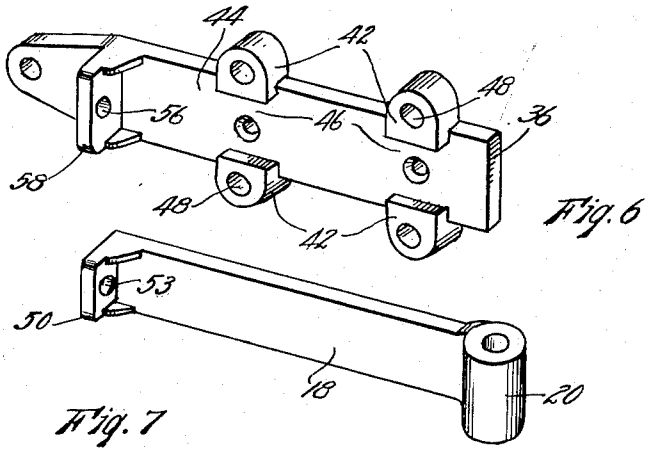


Fig. 6

Fig. 7

INVENTOR,
Henry E. Kirschner.
BY
Roy F. Hamilton,
Attorney.

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Filed March 18, 1946 2 SHEETS--SHEET 2

Fig. 2

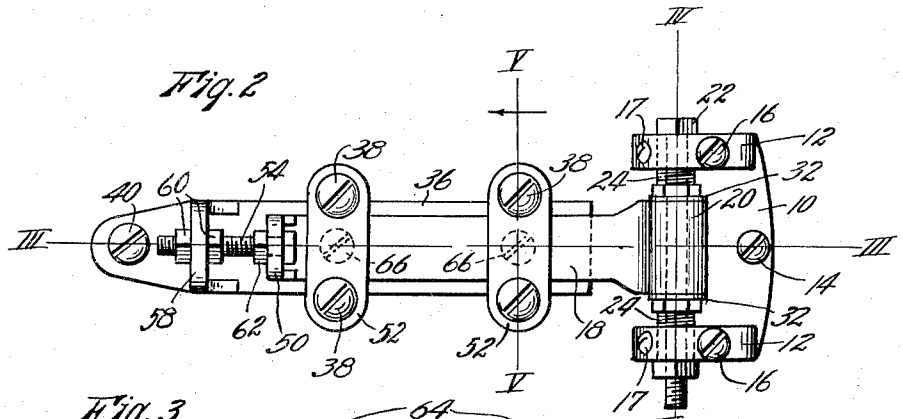
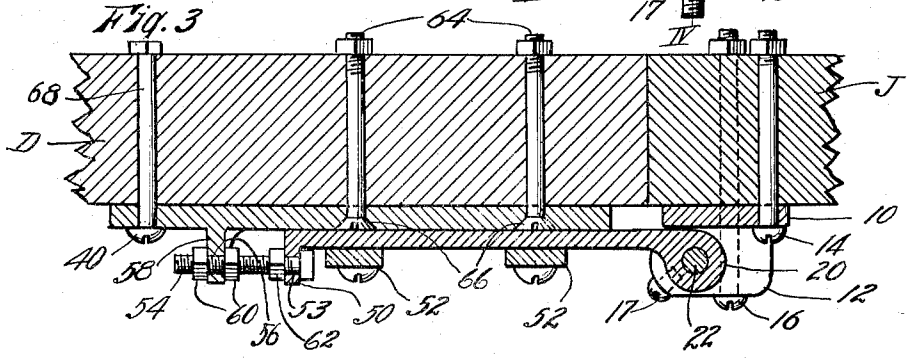


Fig. 3



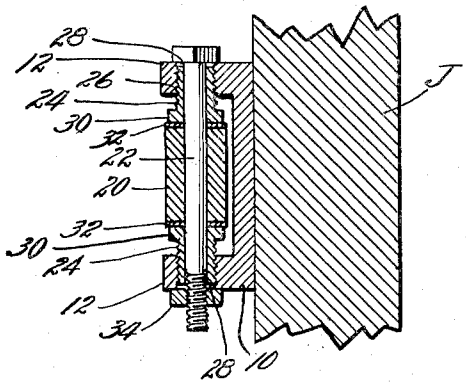


Fig. 4

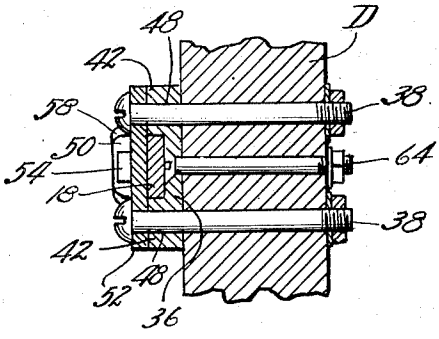


Fig. 5

INVENTOR,
Henry E. Kirschner.
BY
Roy I. Hamilton,
Attorney.

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ADJUSTABLE HINGE

Henry E. Kirschner, St. Joseph, Mo.

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4 Claims. (Cl. 16—129)

1

This invention relates to improvements in hinge and has particular reference to an adjustable hinge.

The principal object of the present invention is the provision of a hinge having adjustable means whereby it may be vertically and horizontally adjusted to properly position and support a closure in the door opening.

Another object of this invention is the provision of an adjustable hinge that is adapted to operate to support a door which exerts both a tensional pull and a compression action against the hinges disposed at the top and bottom portions of the door.

Other objects are rigidity and sturdiness of construction, ease and accuracy of operation and adaptability for use in hanging closures in various positions.

With these objects in view as well as other objects which will appear during the course of the specification, reference will be had to the drawings wherein:

Figure 1 is an elevational view of a door mounted in a door casing and supported by hinges embodying this invention.

Fig. 2 is an enlarged elevational view of one of the hinges.

Fig. 3 is a sectional view taken on line III—III of Figure 2, with portions of the door and door jamb shown.

Fig. 4 is a vertical, central sectional view taken on line IV—IV of Figure 2.

Fig. 5 is a cross sectional view taken on line V—V of Figure 2.

Fig. 6 is a perspective view of the attaching plate.

Fig. 7 is a perspective view of the hinge strap.

Throughout the several views like reference characters refer to similar parts and the numeral 10 designates a hinge base having spaced apart bearings lugs 12 and adapted to be attached to the door jamb by means of bolts 14 and 16. It will be noted that the bolts 16 extend through the lugs 12 and the door jamb J while the bolt 14 is shorter and extends through the base 10 and the door jamb J. A hinge strap 18 having a sleeve 20 at its one end is mounted for rotation and vertical adjustment on pintle 22 which extends through sleeve nuts 24 externally threaded at 26 to enter the threaded openings 28 formed in axial alignment through the two bearing lugs 12. Each of the sleeve nuts 24 is provided with a formed head 30 which rests against washers 32 positioned on pintle 22 between the head 30 and the end of the sleeve 20. These sleeves are sufficiently long to allow vertical adjustment in the

2

base 10 to provide for sufficient latitude of adjustment for the ordinary door. It will be noted by referring to Figure 4 that the nut 34 on pintle 22 is resting against the wall of lug 12, however, if the hinge strap is adjusted downwardly a considerable distance this nut 34 will rest against the lower end of sleeve nut 24. As lower sleeve nut 24 is adjusted downwardly the upper sleeve nut 24 will also be adjusted downwardly so as to maintain the hinge strap in a relatively secured position to the base 10. Thus, it is apparent that the hinge strap may be easily adjusted vertically on the fixed base 10 to raise or lower the door or closure D for adjustment. A set screw 17 mounted in each of the lugs 12 serves to engage sleeve nuts 24 to prevent accidental movement thereof. This hinge strap 18 is adjustably mounted in an attaching plate 36 which is attached to the door D by means of bolts 38 and 40.

Referring to Figures 5 and 6 it will be noted that the lugs 42 are integral with the attaching plate 36 and extend above the outer surface 44 thereof to form passageways 46 therebetween to receive the hinge strap 18. These lugs 42 are each provided with an opening 48 which is adapted to receive a bolt 38 which extends through cross bars 52 and the door D. These cross bars 52 rest against the top side of strap 18 as the lower side of the strap rests against the outer surface 44 of attaching plate 36.

The outer end of hinge strap 18 is provided with a transversely disposed tongue 50 which is disposed adjacent the outer cross bar 52 and is provided with a central opening 53 in which adjusting bolt 54 is freely mounted. This bolt is relatively long and extends through a hole 56 formed through a transverse lug 58 disposed adjacent the outer end of attaching plate 36. The threaded bolt 54 passes freely through the opening 56 and is held in position relative to lug 58 by means of nuts 60 disposed respectively on opposite sides of said lug. Also, nut 62 positioned on the threaded portion of bolt 54 is adapted to be forced tightly against the tongue 50 thus preventing relative longitudinal movement between the hinge strap 18 and the attaching plate 36. For securing the attaching plate 36 in position on the door it is also provided with bolts 64 having countersunk heads 66 disposed beneath the strap 18, and by bolt 68 adjacent the end of plate 36. It is quite apparent that by adjusting nuts 60 the hinge strap may be moved longitudinally of the attaching plate for adjusting the door in the door jamb opening.

Referring to Figure 1, where the door D

mounted in door jamb J by means of an upper and a lower adjustable hinge is shown with securing means 70, it will be noted that the force exerted against the upper hinge is a tensile strain in the direction of arrow 72, while the force exerted against the lower hinge is compression action in the direction indicated by arrow 74. These forces are carried by the nuts 60 and 62 to support the door at a definite position relative to the door jamb regardless of the type of force applied to the hinges.

When the door sags or warps to cause a misfit in the door jamb, the door may be adjusted universally in the plane of the hinge strap by simply adjusting the sleeves 24 and the nuts 60. When adjustments are made, the door will be secured against accidental movement in the plane of the hinge strap.

It is quite apparent that minor changes might be made in the construction of the hinge without departing from the sprit of the invention.

What is new and is desired to be protected by Letters Patent is:

1. An adjustable hinge comprising a base having a pair of spaced apart bearing lugs, a pintle mounted in said lugs, a hinge strap pivotally mounted on said pintle intermediate said lugs, externally threaded sleeves positioned one at each side of said strap on said pintle to operatively engage threads formed in the respective adjacent lugs whereby said hinge strap is adjustable along said pintle, and an attaching plate mounted for longitudinal adjustment on said hinge strap.

2. An adjustable hinge comprising a base having a pair of spaced apart bearing lugs, a pintle mounted in said lugs, a hinge strap pivotally mounted on said pintle intermediate said lugs, externally threaded sleeves positioned one at each side of said strap on said pintle to operatively engage threads formed in the respective adjacent lugs whereby said hinge strap is adjustable along said pintle, an attaching plate mounted for longitudinal adjustment on said hinge strap, and means to secure said hinge strap and attaching plate in a predetermined fixed relative relation.

3. An adjustable hinge comprising a base having a pair of spaced apart bearing lugs, screw threaded sleeves adjustably positioned one in each of said bearing lugs and disposed in axial alignment, means for locking said sleeves against rotation in said bearing lugs, a pintle mounted in said sleeves, a hinge strap pivotally mounted on said pintle and between said sleeves, and an attaching plate mounted for longitudinal adjustment on said hinge strap.

4. An adjustable hinge comprising a base having a pair of spaced apart bearing lugs, screw threaded sleeves adjustably positioned one in each of said bearing lugs and disposed in axial alignment, means for locking said sleeves against rotation in said bearing lugs, a pintle mounted in said sleeves, a hinge strap pivotally mounted on said pintle and between said sleeves, an attaching plate mounted for longitudinal adjustment on said hinge strap, and screw adjusting means whereby said attaching plate is fixed at a predetermined position on said hinge strap.

HENRY E. KIRSCHNER.

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