

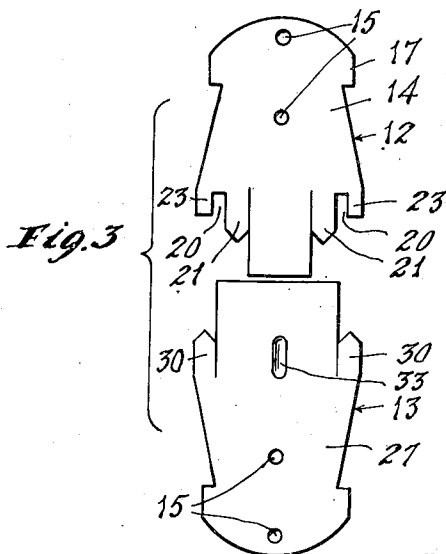
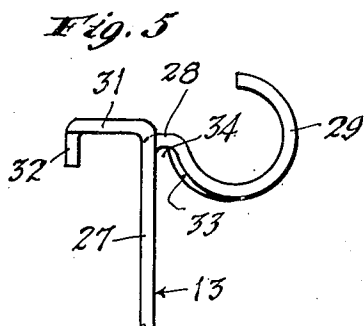
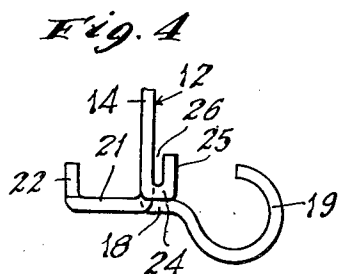
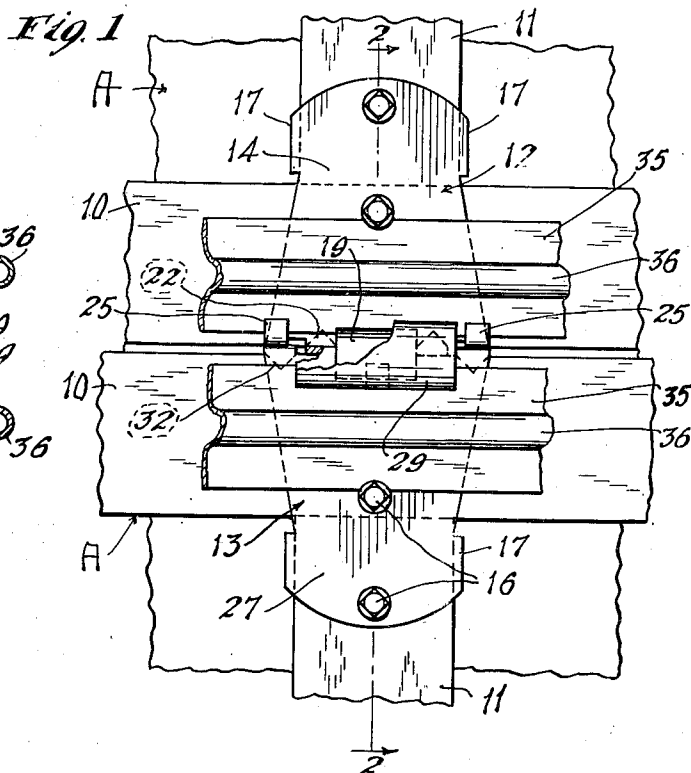
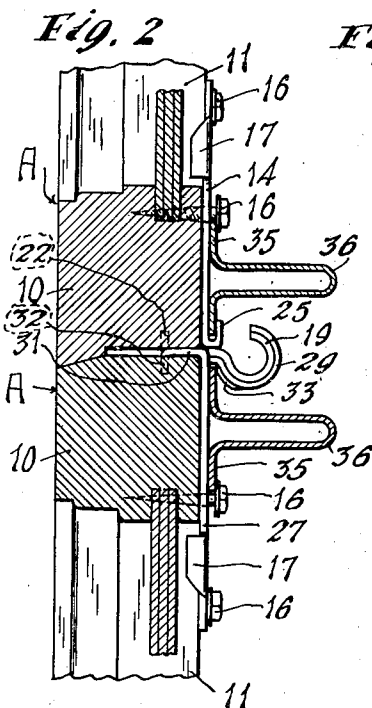
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2,484,609

HINGE FOR OVERHEAD DOORS

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HINGE FOR OVERHEAD DOORS

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This invention relates particularly to hinges especially designed for connecting the panel sections of doors of the so-called overhead type, such as shown in my Patent No. 2,262,451.

Overhead doors usually include a plurality of panel sections hingedly connected at their edges on horizontal axes so that the panel sections may be arranged in a common plane in a door opening for closing the door and may pivotally relatively move to permit raising of the panel sections and movement thereof from the vertical plane into a horizontal plane overhead for opening the door, the panel sections being mounted on rollers running in tracks.

Such panel sections are ordinarily connected together by hinges that include leaves or plate portions secured by bolts to said sections and having aligned eyes or knuckle portions forming a continuous bearing for a pintle. This necessitates proper alignment of the bearing portions which is difficult and needs skill in assembling. Insertion or removal of the pintle in the aligned bearing portions is also difficult and the bolts loosen and damage the panel sections under strains incident to operation of the hinge.

One object of the invention is to provide a novel and improved strong hinge which shall comprise complementary parts so constructed that they can be easily mounted on door sections and assembled by an unskilled person without the use of bolts that penetrate the door sections, and when said parts are so applied the points of fastening of the hinge parts to the door shall be so related to the axis of hinging as to reduce bending strains on the hinge parts to the minimum.

A further object is to eliminate the necessity for a pintle in hinges of this kind.

Still another object is to provide a hinge structure in which the hinge leaves are easily nested together and easily separated.

A still further object is to provide a hinge of this kind with means for supporting and clamping bars for reinforcing the panel sections.

Yet another object is to provide a hinge of this kind that is simple and rugged in construction and inexpensive to manufacture.

The invention also consists in certain other features of construction and in the combination and arrangement of the several parts hereinafter described in connection with the accompanying drawing in which

Figure 1 is a fragmentary rear elevational view of a portion of an overhead door showing adjacent panel sections provided with a hinge embodying my invention.

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Figure 2 is a sectional view taken on the plane of the line 2—2 of Figure 1.

Figure 3 is a plan view of a pair of blanks from which the hinge sections are formed.

Figure 4 is a detail view showing the upper hinge section.

Figure 5 is a similar view of the lower hinge section.

In the drawing I have shown two adjacent panel sections A of an overhead door, the sections preferably being formed of wood and having horizontal rails 10 connected by mullions 11.

The panel sections are preferably connected together by my improved hinge at their centers. The hinge comprises an upper hinge section 12 and a lower hinge section 13, both sections being formed of sheet metal.

The upper hinge section comprises a plate 14 provided with vertically aligned openings 15 to receive screws 16 for fastening it to the mullion of the upper panel section. The extreme side edges of the plate near its top are bent rearwardly forming wings 17 which engage the side edges of the mullion. The lower end of the plate is slit at both sides of its center portion and bent outwardly at right angles to the plane of the body of the plate to form a horizontal limb 18 which terminates at its outer free end in a split cylindrical tube, curved roll or knuckle 19. The plate is cut-away at its end at each side as indicated at 20 to form two narrow strips 21 which are bent rearwardly or oppositely to the horizontal limb 18 and positioned on the same horizontal plane as the limb. The strips 21 engage the lower horizontal surface of the rail and are bent at right angles at their free ends to form pointed lugs 22 for penetrating the rail. The cut-away portion of the plate also provides two narrow strips 23 at the extreme side edges of the plate. Each strip is bent at right angles forwardly of the plate to form a horizontal portion 24 and is bent again at right angles to the horizontal portion to form a vertical portion 25 parallel to the body of the plate and providing a space or groove 26 between the body of the plate and the vertical portion 25.

The lower hinge section consists of a plate 27 of substantially the same shape as the plate 14 of the upper hinge section, and is formed with similar vertically aligned openings 15 for the screws 16 and side wings 17 at its lower end. The upper end of the lower plate 27 is slitted adjacent each side edge and the central portion thereof bent forwardly or outwardly at right angles to the plane of the body of the plate to form a horizontal limb 28 which terminates at its outer free

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end in a split cylindrical tube, curved roll or knuckle 29, said knuckle being substantially twice the width of the knuckle 19 on the plate 14 and having an inside diameter slightly greater than the outside diameter of the roll 19. The slits also provide two narrow strips 30 at the extreme side edges of the plate. Each strip is bent rearwardly at right angles to the body of the plate to form a horizontal arm portion 31 which engages the upper surface of the rail 10 of the lower panel section and is bent again at right angles to form a vertical lug or prong 32 which is pointed to penetrate the rail. At the juncture between the horizontal limb 28 and the curved knuckle 29 the body of the plate is stamped and bulged out to form an out-struck rib 33 which rib and the body of the plate provide a narrow groove or seat 34.

For reinforcing the panel sections A and keeping them from warping and becoming deformed, an elongated bar 35, preferably of metal, is positioned along each longitudinal rail of each panel section. Each bar is formed with a central elongated rib 36 for strengthening it. The bar on the upper panel section has its lower edge seated in the groove 26 and its upper edge clamped between the head of one of the bolts 16 and the plate 14. The bar on the lower panel section has its upper edge seated in the groove or slot 34 between the plate 27 and the rib 33 and its lower edge clamped between the head of one of the screws 16 and the plate 27.

In assembling the parts, the hinge plates are first fastened to the rails and mullions by the fastening lugs and screws. The free edge of the knuckle 19 on the upper hinge section is inserted into the knuckle 29 on the lower hinge section and the upper section is then swung in an arc into vertical alignment with the lower section whereby the two knuckles become nested as shown in Fig. 2, with the knuckle on the lower section overlapping the knuckle on the upper section. The reinforcing bars are then positioned on the hinge plates with their edges placed in their respective seats and the screws are then tightened whereby the plates become clamped in position. By reason of this construction and arrangement of parts, any unskilled person may easily mount and assemble the parts at the site of the job.

It will be seen from the foregoing that I have designed a hinge construction that is simple in construction and economical to manufacture. Furthermore, any unskilled person can easily mount and assemble the parts at the place where the door is to be installed.

Changes in details might be resorted to without departing from the principle of the invention and I desire therefore to be limited only by the state of the prior art and the appended claims.

I claim:

1. The combination of two panels, each having an edge adjacent to an edge of the other, a reinforcing bar to extend along one side of each

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panel adjacent said edge thereof, and a hinge for connecting said panels comprising two plates having cooperating tubular portions forming hinge knuckles for pivotally connecting said plates, one of said plates having a projection at its edge to be underlaid by one edge of one of said reinforcing bars and said tubular portion of the other plate being formed to overlie one edge of the other reinforcing bar, said plates having holes in spaced relation to said projection and said tubular portion respectively, and headed screws passing through said holes into the respective said plates with their heads overlying the other edges of the respective reinforcing bars whereby to fasten both said hinge plates and said reinforcing bars to said panels.

2. A hinge for connecting adjacent panel sections of an overhead door, comprising a pair of plates having telescopically associated split tubular portions hingedly connecting said plates together, the hinged edge of each plate at opposite ends of said split tubular portion having integral arms perpendicular to the plane of the plate and each provided with an inturned pointed prong whereby each plate may be arranged in abutting relation to one side of one panel section with its arms overlying the adjacent edge of said panel section and with its prongs penetrating said panel section, one said plate having a projection at its hinged edge to be underlaid by the edge of a reinforcing bar and said split tubular portion of the other plate being formed to overlie one edge of a second reinforcing bar, said plates having holes in spaced relation to said projection and to said split tubular portion, respectively, to receive headed screws for fastening said plates to the respective panel sections with heads of said screws overlying the other edges of the corresponding said reinforcing bars whereby to fasten said reinforcing bars in position.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
189,866	Long	Apr. 24, 1877
472,825	Rouse	Apr. 12, 1892
880,757	Rugg	Mar. 3, 1908
1,888,162	Eklund	Nov. 15, 1932
1,931,166	McCloud	Oct. 17, 1933
1,989,511	Ginder	Jan. 29, 1935
2,090,146	Pixley	Aug. 17, 1937
2,134,397	Clark	Oct. 25, 1938
2,262,451	Clark	Nov. 11, 1941
2,285,011	Buehler	June 2, 1942
2,354,976	Robinson	Aug. 1, 1944

FOREIGN PATENTS

Number	Country	Date
5,916	Great Britain	Mar. 17, 1908