

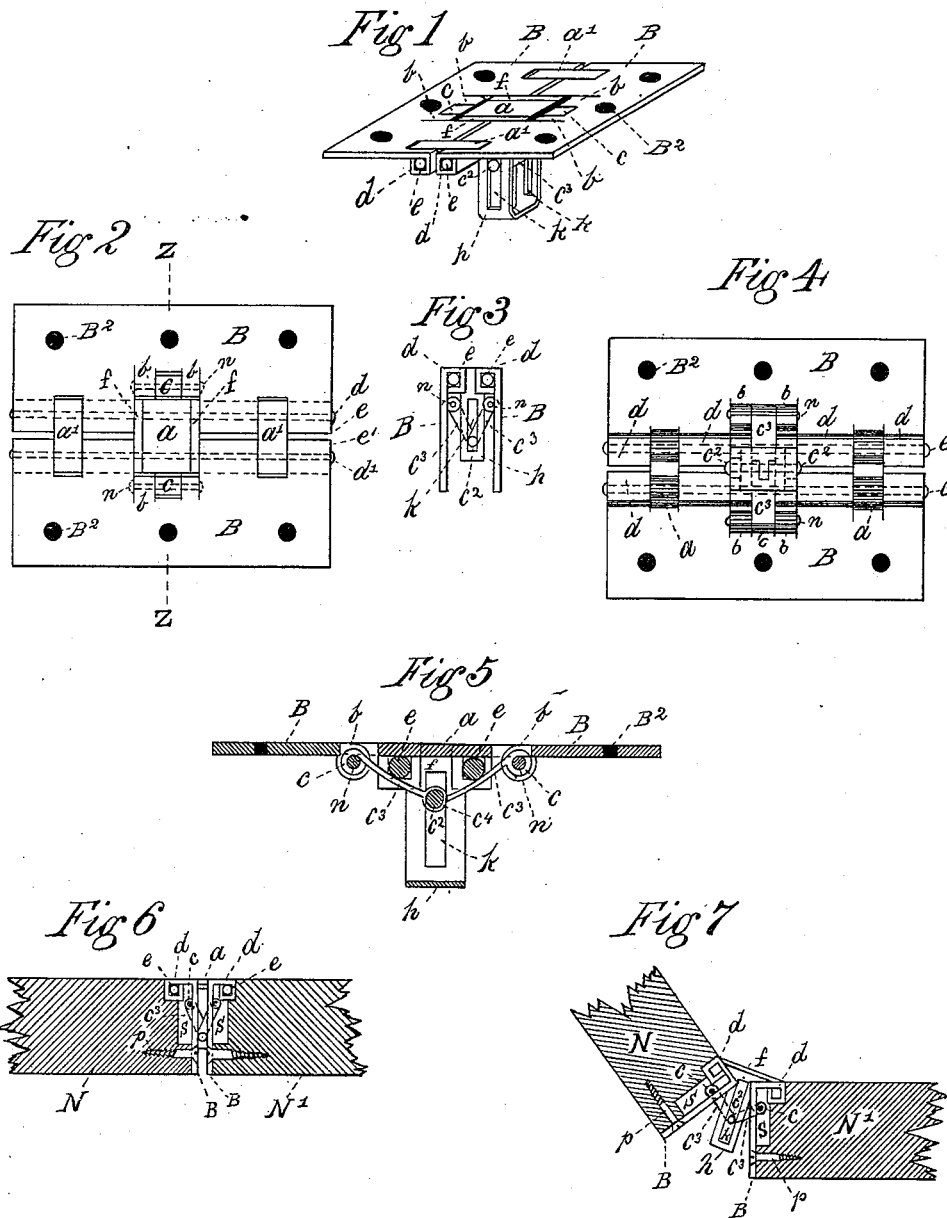
(Model.)

J. A. LUDLOW & D. CARLOUGH.

HINGE.

No. 348,133.

Patented Aug. 24, 1886.



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ASSIGNORS OF ONE-THIRD TO JARED T. SEELY, OF SAME PLACE.

HINGE.

SPECIFICATION forming part of Letters Patent No. 348,133, dated August 24, 1886.

Application filed April 21, 1886. Serial No. 199,657. (Model.)

To all whom it may concern:

Be it known that we, JOSIAH A. LUDLOW and DANIEL CARLOUGH, of the city of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Hinges, of which the following is a specification.

The object of our invention is to provide a new and improved hinge, which is simple in construction, strong and durable, and which shall not project beyond the wood-work or other material in which it is secured, but be perfectly flush with the same.

The invention consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and then pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is an outside perspective view of our hinge, the same being shown opened. Fig. 2 is an outside face view of the same opened. Fig. 3 is an end view of the same closed. Fig. 4 is an inside face view of the same opened. Fig. 5 is a cross-sectional view of the same on the line *z z*, Fig. 2, the hinge being opened. Fig. 6 is an end view of a modification of the hinge, the door to which it is attached being shown closed. Fig. 7 is a like view, the door being open.

Like letters of reference indicate like parts in all the figures.

Hinges are usually formed of two plates provided on the adjacent edges with projecting tubular loops for receiving the hinge pivot or pin which unites the two plates, the said tubular loops interlocking when the pin or pivot is passed through them.

Our improved hinge is formed of the two plates *B*, having the holes *B*² for the fastening-screws *p*, and the tubular loops *d* at the adjacent edges, said loops projecting from the inner faces of the plates—that is, from those faces opposite the ones that rest against the edges of the door or other part to which the hinge is fastened. Through the said loops *d* the hinge pins or pivots *e* are passed, one of said pins or pivots *e* being held in the loops *d* of each plate *B*; but the said pins do not connect the two plates *B* pivotally, as the pins in ordinary hinges do.

Between the loops *d* recesses are formed in

the adjacent edges of the plates, and at the inner edges of the said recesses the metal of the plates is bent over to form the loops *b*, which are parallel with the loops *d*, but are a slightly greater distance from the adjacent edges of the plates *B* than the loops *d* are, as shown in Fig. 4. Pins *n* are passed through the loops *b* and through eyes or loops *c*, formed on the ends of links *c*², inserted between the ends of the loops *b* of each plate. Loops *c*¹ are formed on the adjacent ends of the links *c*², and through the said loops *c*¹ the pin *c*² is passed, which projects some distance beyond the ends of the loops *c*¹, and has its ends passed into the slots *K*, formed in the shanks of a U-shaped frame, *h*, provided on the ends of its shanks with the wings *f*, having apertures through which the hinge-pins *e* are passed.

Between the ends of the loops *d* the plates *B* are united by the joint-plate *a*, which has its ends bent to form pockets or loops through which the hinge-pins *e* are passed. If more than two loops *d* are provided on each plate *B*, joint-plates *a*¹ are provided between each two additional loops *d* of each plate *B*, said joint-plates *a*¹ having their ends bent over to form loops or pockets through which the hinge-pins *e* are passed, in the same manner as they are passed through the loops formed on the ends of the plate *a*, which is only provided at the middle of the hinge. The plate *a* is between the wings *f* on the ends of the shanks of the U-shaped frame *h*, as shown in Fig. 2. When the hinge is closed, as shown in Fig. 3, the pin *c*², uniting the links *c*², is at the outer ends of the slots *k* in the shanks of the frame *h*; but when the hinge is opened the pivot *c*² moves through the slots *k* toward the inner ends of the same—that is, toward the loops *d*. The slots *k* guide the pivot *c*², and thus the frame *h* is at all times midway between the two plates *B*, which insures an even and smooth working of the hinge.

In place of passing the pivot or pin *c*² through the slots *k* in the shanks of the frame *h*, a pin may be provided to project from the said pivot *c*² through a guide-aperture in the cross-piece of the frame *h*; but we prefer the construction shown.

If desired, the hinge may be so constructed that the loops *d* project from those faces of the

plates B which are to be fastened to the edge of the door, as shown in Figs. 6 and 7. In this case the plates B must be provided with slots for the links c^2 , and with slots for receiving the frame h when the hinge is closed. Recesses s are formed between the plates B and the edges of the door and frame. In all other respects the hinge is like the one described above.

- 10 In case our improved hinge is used, the hinged or pivoted edge of the door always moves from the edge or rabbet of the door-frame to which the hinges are fastened, and thus the hinges are not subjected to any undue twisting or like strains in case the door or its frame sag or settle or warp.

Our improved hinge can be made in all sizes.

N N' represent a door and its frame.

- 20 If desired, the joint-plate a and the frame h may be made of one piece of metal by prolonging the two sides of said joint-plate a , each provided with slots, as in the shanks k , and bent down and under to form a box or frame like the frame h .

25 The hinge as shown in Figs. 6 and 7 illustrates the object of having the loops d so constructed as to form the recesses s , and by varying the size of the recesses s the space between the hinge-plates B may be regulated as desired.

- 30 What we secure by the construction shown is the moving of the adjacent edges of two hinge-plates in conjunction around a common center situated between the adjacent edges of said hinge-plates and equidistant from the same, whether the leaves of hinge be at rest or in motion. All of which is accomplished by means of the sub-hinge or under hinge secured to the under sides of the outer hinge-plates, and by the central piece or frame which forms a guide. The pivot connecting the leaves of the under hinge is directed and held so that when the outer hinge or hinge proper moves both

the plates of the under hinge move together, 45 the pivot connecting the same moving up and down in the guide-frame, the guide being always perpendicular to the plate which joins the leaves of the hinge proper. The under hinge and guide prevent the sagging or lateral motion of the hinge-plates. 50

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a hinge, the combination, with two 55 plates, each having a hinge-pin parallel with and at the inner edge, of a link pivoted to each hinge-plate, which links are united by a pivot, and of a U-shaped frame mounted on the hinge-pins of the two plates, and provided with 60 longitudinal slots in its shanks, through which slots the ends of the pivot uniting the links are passed, serving to guide the pivot uniting the two above-mentioned links, substantially as herein shown and described. 65

2. In a hinge, the combination, with two 65 plates, of joint-plates pivoted to each plate at the inner edges of said plates, and thus uniting the plates, links pivoted to the said plates and having their adjacent ends united by a 70 pivot, and of a frame mounted on the hinge-pins of both plates, at the inner edges of said plates, which frame guides the pivot uniting the links, substantially as herein shown and described. 75

3. In a hinge, the combination of the hinge-plates with a sub-hinge or under hinge secured to the under sides of the outer hinge-plates, and the guiding piece or frame which guides the pivot connecting the leaves of the inner 80 hinge, causing the hinge-plates to move in unison, all constructed substantially as shown and specified.

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Witnesses:

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