

No. 845,971.

PATENTED MAR. 5, 1907.

G. L. NOE & C. S. WEILAND.
HINGE.

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Fig. 1.

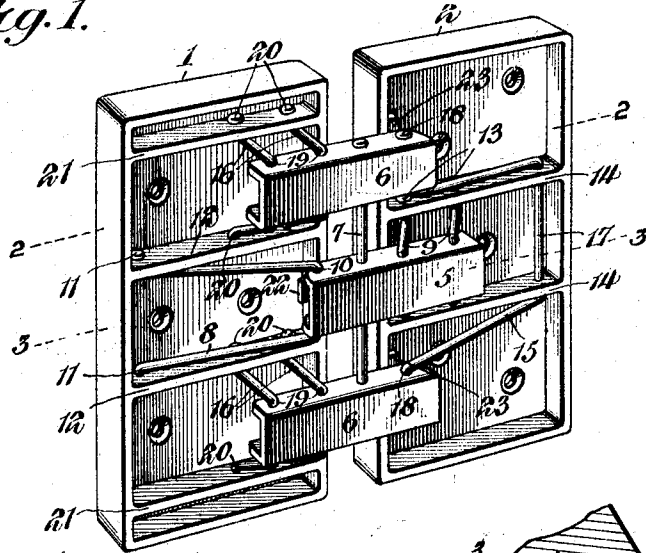


Fig. 2.

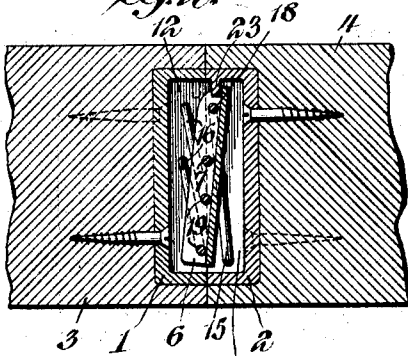


Fig. 3.

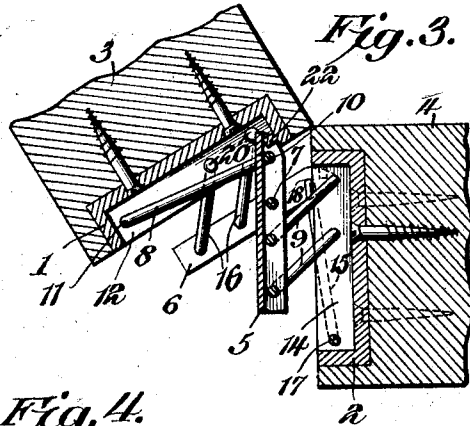
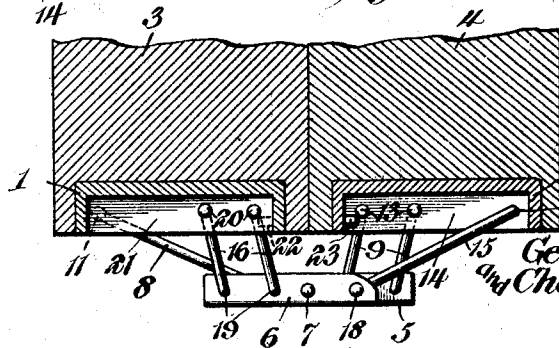


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE L. NOE AND CHARLES S. WEILAND, OF ELKO, NEVADA.

HINGE.

No. 845,971.

Specification of Letters Patent.

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Application filed December 14, 1905. Serial No. 291,754.

To all whom it may concern:

Be it known that we, GEORGE L. NOE and CHARLES S. WEILAND, citizens of the United States, residing at Elko, in the county of Elko and State of Nevada, have invented a new and useful Hinge, of which the following is a specification.

The invention relates to improvements in hinges.

The object of the present invention is to improve the construction of hinges and to provide a simple and comparatively inexpensive one which will be wholly concealed between a door and its casing when the former is closed.

A further object of the invention is to provide a concealed hinge of this character in which the parts in the closing movement of the hinges will interlock and positively draw the movable leaf and the door to which it is secured closely to the door-casing and hold the hinged edge of the door securely in position against inward or outward movement while the door is closed.

With these and other objects in view the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing, Figure 1 is a perspective view of a hinge constructed in accordance with this invention and shown open. Fig. 2 is a horizontal sectional view taken substantially on the line 2 2 of Fig. 1 and showing the hinge in its closed position and applied to a door and its casing. Fig. 3 is a horizontal sectional view taken substantially on the line 3 3 of Fig. 1, the door being partially open. Fig. 4 is a horizontal sectional view, the door being open and the casing being arranged at right angles to that shown in Figs. 2 and 3 for convenience of illustration.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

1 and 2 designate two leaves, which are in the form of casings, each consisting of an oblong plate provided at its side and end edges with walls or flanges. The casings are adapted

to fit together, as clearly illustrated in Fig. 2 of the drawing, when the door 3 is closed, and the parts which connect the leaves are housed within the casings formed by the leaves 1 and 2. The door 3 and the frame or casing 4 are provided with suitable recesses or mortices to receive the leaves 1 and 2, which have the edges of the side and end flanges or walls flush with the adjacent faces of the hinged edge of the door and the abutting face of the casing 4. The leaves are provided with suitable countersunk openings for the reception of screws or other suitable fastening devices for securing the hinge to the parts to which it is to be applied.

The leaves 1 and 2 are connected by intermediate and end pivotal and oscillatory floating members which are supported by the links hereinafter explained. By "floating" members we mean the parts 5 and 6, the term "floating" indicating that they are not attached directly to the leaves, but are connected therewith by U-shaped links 8, 9, 15, and 16, hereinafter described, or equivalent mechanism. These floating connecting members, which are carried into and out of engagement with the leaves by the opening and closing movements thereof, are interlocked with the said leaves when the same are closed, and they are carried out of such interlocked relation by the opening movement of the leaves. The said connecting members 5 and 6 consist of narrow horizontally-disposed substantially oblong plates provided with side flanges which have eyes for the reception of a vertical pintle 7. The pintle 7 is carried by the connecting means 5 and 6 in the opening movement of the door, and it is moved outward from the position illustrated in Fig. 2 of the drawing to that shown in Fig. 3. The intermediate connecting member 5 is located at the center of the hinge and is connected with the outer portion of the leaf 1 by the long substantially U-shaped link 8 and with the other leaf 2 by the pair of short spaced substantially U-shaped links 9. The eyes for the pintle 7 are located at a point between the center and one end of the intermediate connecting member 5, the short arm being connected with the U-shaped link 8. The U-shaped link 8 is composed of two sides and a transverse connecting pivot portion 10, which is arranged in bearing eyes or openings of the adjacent end of the connecting member 5. The outer terminals of the sides

of the links 8 are bent at right angles to form pivots 11, which are arranged in suitable eyes or openings of the intermediate ribs or webs 12 of the leaf 1.

5 The short spaced U-shaped links 9 are composed of two sides and a connecting transverse portion, which is arranged in suitable bearing eyes or openings of the flanges of the intermediate connecting member 5, and the
10 terminals of the sides of the links 9 are bent outward at right angles to form pivots 13, which are arranged in bearing openings or eyes of the intermediate webs 14 of the leaf 2. The link 8 connects the intermediate connecting member 5 with the outer portion of
15 the leaf 1, and the short links 9 connect the intermediate connecting member 5 with the leaf 2. The outer connecting members 6 are arranged the reverse of the intermediate connecting member 5 and are connected with
20 the leaf 2 by the long substantially U-shaped link 15 and with the leaf 1 by the short U-shaped links 16. The long U-shaped link 15 is composed of two sides and a connecting
25 transverse pivot portion 17, which is arranged in suitable bearing eyes or openings of the intermediate webs or flanges 14, and the terminals of the sides of the links 15 are bent outward to provide pivots 18, which are ar-
30 ranged in eyes or openings in the inner ends of the side flanges of the connecting members 6. The short U-shaped links 16 are also composed of opposite sides and transverse connecting portions 19, which are arranged
35 in bearing eyes or openings of the connecting members 6, and the terminals of the sides of the links 16 are bent outward to provide pivots 20, which are arranged in bearing eyes or openings of the intermediate webs or
40 flanges 12 and outer webs or flanges 21. The pintle-receiving eyes of the flanges of the outer connecting members 6 are eccentrically arranged, and the short arms of the connecting members 6 are connected with the long
45 link 15. The long arms of the said members 6 are connected with the leaf 1 by the short links 16. The outer connecting members 6, which are connected by the short spaced U-shaped links with the swinging leaf 1, are
50 swung through one-half of a revolution when the door is being opened or closed, and the intermediate connecting member 5 oscillates with the pintle 7 as the latter is carried to the open position (shown in Fig. 1) to the closed position, (illustrated in Fig. 2 of the
55 drawing,) or vice versa. The hinge is adapted to be reversed, and the leaf 2 may be applied to the door or other moving part, and the intermediate member, which is connect-
60 ed with the leaf 2 by the short links 9, will then have a pivotal movement through one-half of a revolution, while the outer connecting members 6 will swing inward and outward with the pintle 7.

In order to firmly interlock the parts of the hinge when the latter is closed and to effectually prevent any lateral movement of the leaves on each other when in such position, the said leaves are provided with projecting lugs 22 and 23. The lug 22 extends
65 from the inner face of the inner side wall or flange of the leaf 1 and interlocks with the adjacent end of the connecting member 5 when the hinge is closed. The lugs 23 extend
70 from the inner face of the inner wall or flange of the leaf 2 and are arranged to be engaged by the adjacent ends of the outer connecting members 6. This interlocking connection between the leaves and the connect-
75 ing members 5 and 6 serves to draw the parts of the hinge tightly together and provides a construction of great strength. The connecting members 5 and 6 are carried out of their interlocked relation with the lugs 22 and 23
80 of the leaves by the opening movement of the latter.

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

1. A hinge of the class described comprising two leaves arranged in the form of casings, and connecting means interlocked with the leaves when the hinge is closed, whereby the leaves are positively held against lateral movement on each other, said connecting
95 means being carried out of such interlocked relation by the opening movement of the leaves.

2. A hinge of the class described comprising two leaves arranged in the form of casings, and connecting means housed within the leaves and interlocked therewith when the hinge is closed, whereby the leaves are held against lateral movement on each other, said connecting means being carried out of
105 such interlocked relation by the opening movement of the leaves.

3. A hinge of the class described comprising leaves provided with projecting lugs, and connecting means arranged to interlock with
110 the lugs when the hinge is closed and carried out of engagement with the lugs when the hinge is opened.

4. A hinge of the class described comprising two leaves, floating connecting members, a pintle carried by the connecting members and located at an intermediate point on each member, and links to support the said connecting members located at opposite sides of the pintle and connecting the said members
120 and the leaves.

5. A hinge of the class described comprising two leaves, floating connecting members, a pintle carried by the connecting members and located at an intermediate point on each member, and reversely-arranged long and short links connecting the said members and the leaves.
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6. A hinge of the class described comprising a pair of leaves, intermediate and outer floating connecting members, a pintle carried by the said connecting members, oppositely-disposed long links connecting one end of the intermediate connecting member with one of the leaves and the opposite ends of the outer members with the other leaf, and the reversely-arranged short links connecting the other ends of the members with the leaves.

7. A hinge of the class described comprising a pair of leaves, intermediate and outer floating connecting members, a pintle carried by the said connecting members, long oppositely-arranged U-shaped links connecting the said connecting members with the leaves, and short U-shaped links also connecting the said connecting members with the leaves.

8. A hinge of the class described comprising a pair of leaves arranged in the form of casings and having transverse webs or flanges provided with bearings, floating connecting members, a pintle carried by the said connecting members, and reversely-arranged long and short links connecting the said connecting members with the leaves and arranged in bearings of the members and having pivots arranged in the bearings of the webs or flanges.

9. A hinge of the class described comprising two leaves, a pintle, floating connecting members provided with eccentrically-arranged eyes receiving the pintle, said connecting members being composed of reversely-arranged long and short arms, and links connecting both of the arms of each of the said members with the leaves.

10. A hinge of the class described comprising two leaves, a pintle, floating connecting members provided with eccentrically-arranged eyes receiving the pintle, said members being composed of reversely-arranged long and short arms, and reversely-arranged

long and short links connecting both of the arms of each of the said members with the leaves.

11. A hinge of the class described comprising two leaves, a pintle, floating connecting members provided with eccentrically-arranged eyes receiving the pintle, said connecting members being composed of reversely-arranged long and short arms, reversely-arranged long and short links connecting both the arms of each of the said members with the leaves, and means for interlocking the short arms of the connecting members with the leaves.

12. A hinge of the class described comprising two leaves, a pintle floating connecting members provided with eccentrically-arranged eyes receiving the pintle, said connecting members being composed of reversely-arranged long and short arms, reversely-arranged long and short links connecting the arms of the said members with the leaves, and lugs projecting from the arms and arranged to interlock with the arms of the connecting members.

13. A hinge of the class described comprising two leaves, oscillatory floating connecting members, a pintle carried by the floating connecting members, and means for connecting the floating connecting members with the leaves, said connecting members being movable into and out of engagement with the leaves and interlocked with the latter when the hinge is closed.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

GEORGE L. NOE.
CHARLES S. WEILAND.

Witnesses:

HAYDEN HENDERSON,
CARROLL HENDERSON.