June 19, 1934. C. T. JOHNSON 1,963,703

CONCEALED HINGE

Filed June 12, 1933

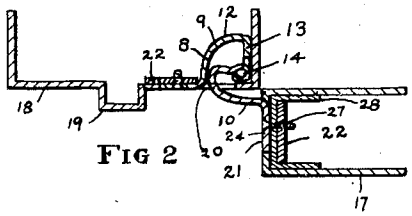


FIG 2

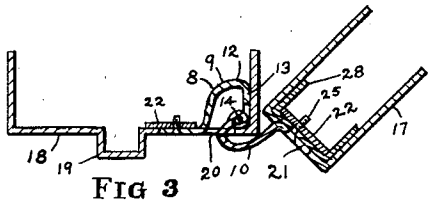


FIG 3

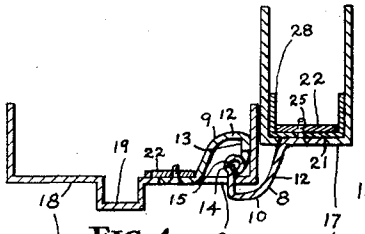


FIG 4

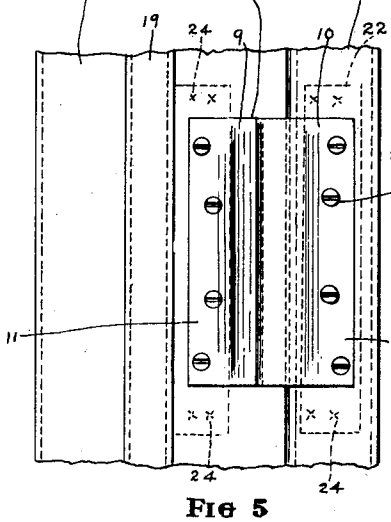


FIG 5

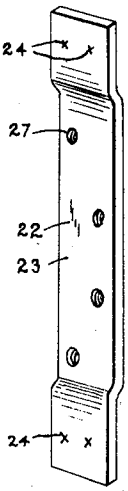


FIG 7

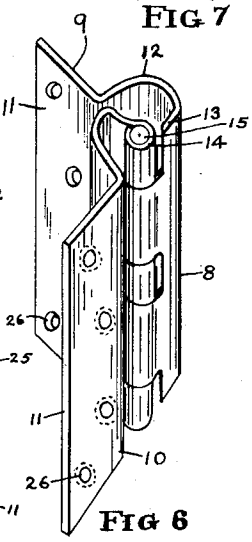


FIG 6

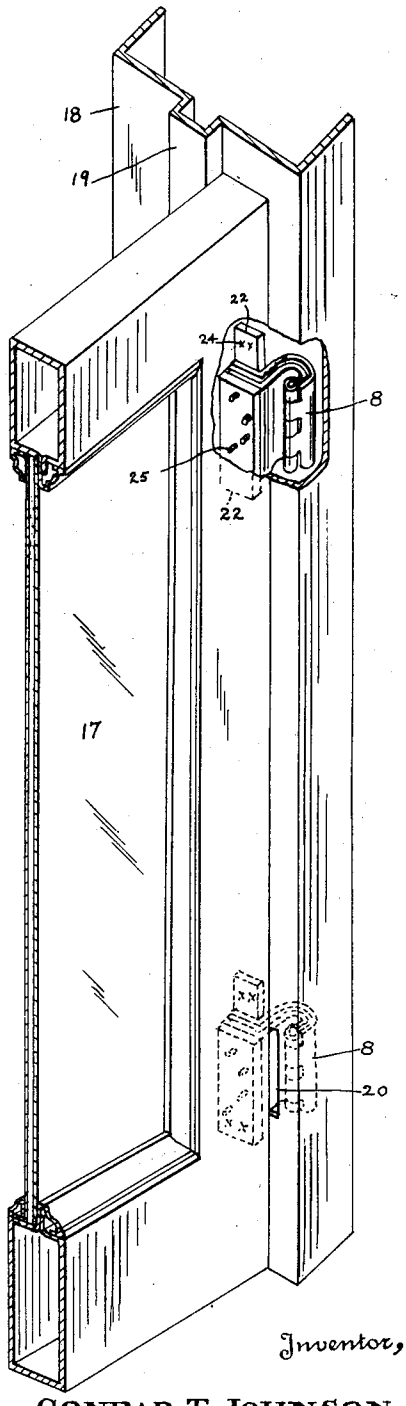


FIG 1

Inventor,

CONRAD T. JOHNSON,

By M. E. Jones

His Attorney.

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UNITED STATES PATENT OFFICE

1,963,703

CONCEALED HINGE

Conrad T. Johnson, Jamestown, N. Y.

Application June 12, 1933, Serial No. 675,470

2 Claims. (Cl. 16—135)

This invention relates to a concealed hinge capable of general use but particularly adapted for swinging doors or windows of houses, offices, garages, vaults and the like and aims to provide a novel installation having the joined portions of the leaves substantially hook-shaped for maximum strength, rigidity and service, especially in the case of heavy doors or windows.

A particular aim is to provide such a concealed hinge in which the moving part will not contact with or mar the adjacent edge or corner of the door jamb and will permit opening to the same extent as an ordinary hinge.

In addition, an object is to produce such a hinge as may be expeditiously and inexpensively stamped and in which the leaves are substantially similar, each having walls at a right angle to each other connected by an arch or bow, with the pivotal axis disposed inwardly of the intersecting planes of said walls and between such planes and said arch.

Various additional objects and advantages will become apparent from a consideration of the description following taken in connection with the accompanying drawing illustrating one embodiment thereof, and wherein:

Figure 1 is a fragmentary perspective view of a closed door pivoted to a jamb by means of hinges constructed in accordance with the invention;

Figure 2 is a horizontal sectional view through said door, jamb and a hinge, the door being open to the extent of 90°;

Figure 3 is a sectional view similar to Figure 2 showing the door in a three quarter open position;

Figure 4 is a sectional view similar to Figure 2 showing the door fully open, or to the extent of 180°;

Figure 5 is a fragmentary elevation of the parts of Figures 2 to 4, the door being open as in Figure 4 and looking toward the hinge-mounting wall of the jamb;

Figure 6 is a perspective view of the novel hinge open to the extent of 90°, and

Figure 7 is a perspective view of an offset mounting bar for the hinge.

Referring specifically to the drawing wherein like reference characters designate like or corresponding parts throughout the different views, numerals 8 designate hinges constructed in accordance with the invention. Each hinge 8 has substantially similar leaves 9 and 10 provided with flat attaching portions 11 and 11ª, arched portions 12 and 12ª, respectively, and flat portions 13 and 13ª respectively, at right angles to and returned toward the portions 11 and 11ª, respectively. Said portions or walls 13 and 13ª are terminally curled into interfitting eyes 14 and 14ª, respectively, in which a pintle 15 is disposed to pivotally connect them. It will be particularly noted that the axis of said pintle 15 is spaced inwardly from the intersecting planes passing through the portions 11 and 11ª and 13 and 13ª.

By way of example, a pair of said hinges 8 are shown in connection with a door 17 and jamb 18 of metal, although obviously similar parts of wood may be used. Said jamb 18 has a door stop 19 and the usual hinge slots 20 in which the leaves 9 are disposed with their walls 13 abutting the adjacent surface of the inner side wall of the jamb, the wall 11 remaining flush with the outer surface of the jamb and the axis of the hinge being located within the confines of the jamb adjacent the inside corner as best shown in Figures 2 to 4.

The attaching walls 11ª are fixed in slots 21 of the door flush with the back edge of the door.

Bars 22, with or without an offset 23, according to the thickness of attaching portions 11 and 11ª are spot welded as at 24 and 24ª to the inner surface of the jamb 18 and the door, screws 25 and 25ª being passed through the holes 26 and 26ª of the portions 11 and 11ª and screw threaded in holes 27 of said bars 22. In the case of door 17, a reinforcing channel 28 is preferably first spot welded into the door jamb and the hinge bar 22 then spot welded to the channel.

The hinge as shown in Figures 2 and 3, opens to the same extent as an ordinary hinge or to any intermediate degree and there is no contact of the leaf 10 incidental to movement, with the adjacent corner or edge of the jamb.

It will be observed that the pintle is so located that it is practically impossible to remove it without first removing the entire hinge, thus guarding against tampering with a view to removing the pintle and then removing the door, for criminal purposes.

When desired, the hinge may be equipped with ball bearings for free action, as where heavy doors are used in connection with door closers.

Various changes may be resorted to provided they fall within the spirit and scope of the invention as defined by the appended claims.

I claim as my invention:

1. A hinge comprising leaves adapted for substantially parallel disposition in closed condition, each leaf having an attaching portion, an arch portion extending therefrom and a portion re-

turned from the arch portion toward the plane of the attaching portion and terminally spaced from the junction of the attaching portion and arch portion, and means at the terminal longitudinal edges of the third mentioned portions pivotally connecting them together, each attaching portion being located along one longitudinal margin of the respective leaves and the said means being located along the other longitudinal marginal edges of the leaves.

2. A hinge comprising leaves adapted for substantially parallel disposition in closed condition, each leaf having an attaching portion, an arch portion extending therefrom and a portion returned from the arch portion toward the plane of the attaching portion and terminally spaced from the junction of the attaching portion and arch portion, and pivot means connecting the longitudinal terminals of the third mentioned portions together, the attaching portion of each leaf being spaced from the pivot means by the arch portion and returned portion of the same leaf, said means being spaced from the arch portion and surrounded by the arch portion and the intersecing planes of the attaching portion and third mentioned portion.

CONRAD T. JOHNSON.