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BY A. P. C.

L. CENCIONI
CONCEALED HINGES
Filed Dec. 6, 1940

Serial No.
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2 Sheets-Sheet 1

Fig. 1a

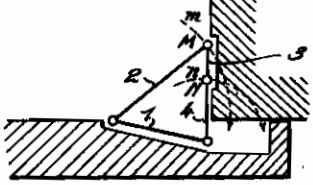


Fig. 1b

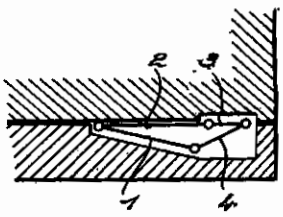


Fig. 2a

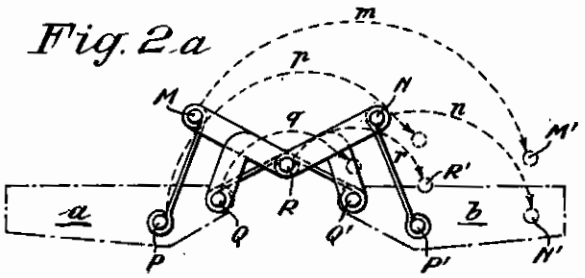
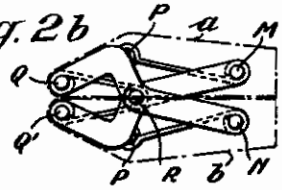


Fig. 2b



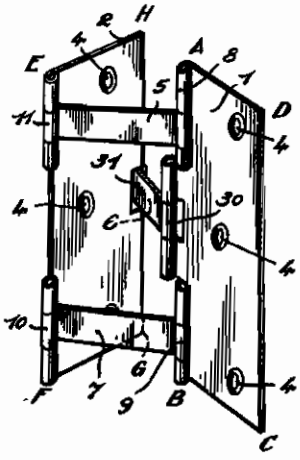


Fig. 3

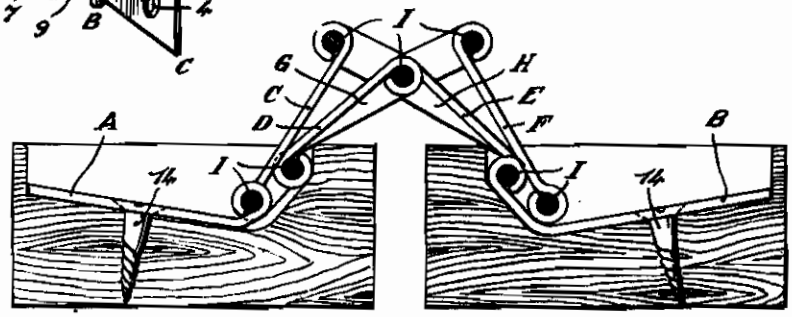


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Fig. 6

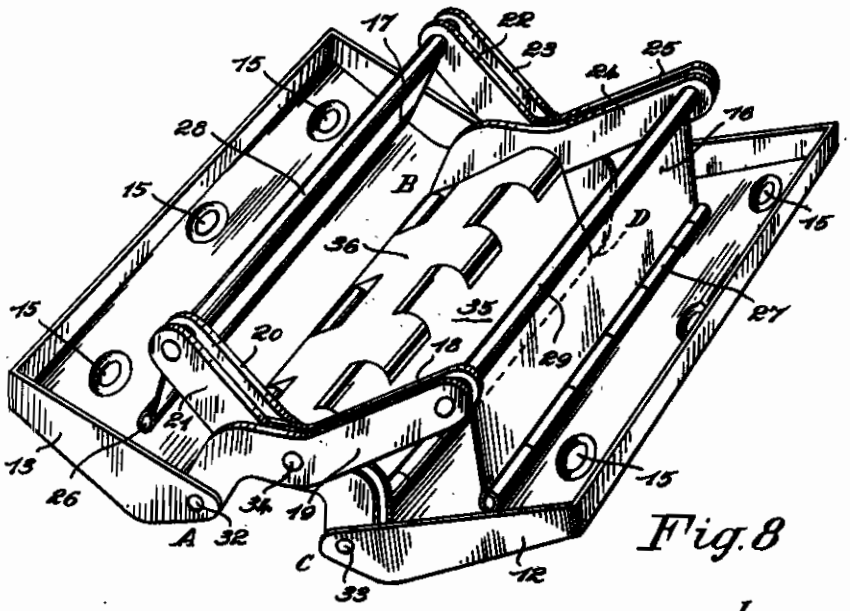


Fig. 8

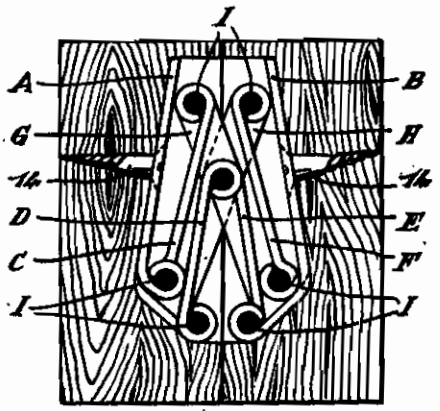


Fig. 4

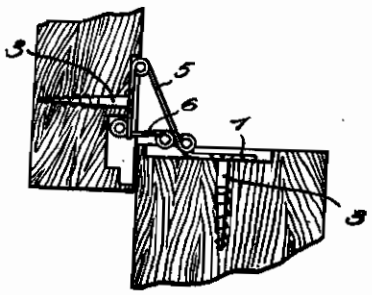
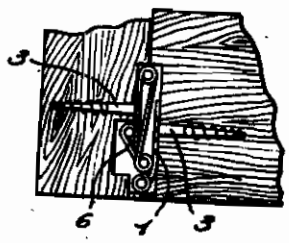


Fig. 5



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ALIEN PROPERTY CUSTODIAN

INVISIBLE HINGE FOR FURNITURE, DOORS, WINDOWS, ETC.

Livio Cencioni, Rome, Italy; vested in the Alien Property Custodian

Application filed December 6, 1940

The movement of two parts connected by a hinge is a rotating motion about the hinge pin, which, in order to enaable this movement to take place, must be situated outside the two parts or at least very near their juncture. In other words it is impossible to fit the hinge wings into the two parts because such an arrangement would produce a contrast between the two parts at the moment of the rotating motion and accordingly the opening movement would not be able to take place.

My invention relates to a hinge which solves the problem of pin's invisibility of substituting the simple rotating motion of the two parts with another movement consisting in a translating and rotating motion. Said motion separates the two parts during the opening, thus avoiding that contrast which would render the opening action impossible.

Two structures for carrying out my invention are disclosed in the accompanying drawings.

Figs. 1*a* and 1*b* show the diagrammatical operation of the embodiment for opening angles up to 90°.

Figs. 2*a* and 2*b* show the diagrammatical operation of the embodiment for opening angles up to 180°.

Fig. 3 shows a prospective view of the invisible hinge for opening angles up to 90°.

Fig. 4 shows the invisible hinge for opening angles up to 90° fitted on two parts to be hinged and closed.

Fig. 5 shows the invisible hinge for opening angles up to 90° fitted on the two parts to be hinged and opened.

Fig. 6 shows a prospective view of the invisible hinge for opening angles up to 180°.

Fig. 7 shows the invisible hinge for opening angles up to 180° opened and fitted on two parts to be hinged.

Fig. 8 shows the invisible hinge fitted on two parts to be hinged and closed.

The diagrammatical operation of the structure for opening angles up to 90° is that of an articulated parallellogram with bars exactly dimensionated in their length and two of them, **1** and **3** (Figs. 1*a* and 1*b*) are connected to the two parts to be hinged.

When the bars assume the positions as in Fig. 1*a* the hinge is opened and the two parts to be hinged are at an angle of 90°; when the part connected to bar **3** begins its shutting movement, the ends M and N of bar **3** describe the slewing paths *m* and *n* in the directions indicated by the arrows, and the bars of the articulated parallelogram assume the position shown in Fig. 1*b* and the hinge is closed and concealed inside the two parts.

The diagrammatical operation of the invisible hinge for opening angles up to 180° may be obtained matching two articulated parallelograms as shown in Figs. 2*a* and 2*b*.

The invisible hinge for opening angles up to 90° comprises two wings **1** and **2** (Fig. 3) fitted on the two parts to be hinged by screws **3** which pass through holes **4** and three clips **5**, **6** and **7** connecting the wings. In order to realise the movement of the articulated parallelogram, this connection is made in the following manner: clips **5** and **7** respectively connect the upper and lower ends of side AB of wing **1** to the upper and lower ends of side EF of wing **2** by means of pins **8**, **9**, **10** and **11**; clip **8** connects the middle of side AB of wing **1** to the middle of side GH of wing **2** by means of pins **30** and **31**. Thus it is possible to realise the movement of an articulated parallelogram for opening angles up to 90°.

The diagrammatical operation of the invisible hinge for opening angles up to 180° is that of two matched articulated parallelograms; with reference to Figs. 2*a* and 2*b*, one may see the movement of part *a* relative to part *b*: points M, N and O describe the slewing paths *m*, *n* and *r* and take up the positions M', N', O' on part **10**, and points P and Q describe the slewing paths *p* and *q* and take up the positions P' and Q' on part *b* and thus the hinge is closed.

The invisible hinge for opening angles up to 180° according to my invention comprises the two wings **12** and **13** (Fig. 5) fitted on the two parts to be hinged by screws **14** which pass through holes **15**, and clips **16** and **17** for connecting by means of ribs **18**, **19**, **20**, **21**, **22**, **23**, **24** and **25** of pins **26**, **28**, **27**, **29**, **32**, **33** and **34**, the wings **12** and **13**; these wings are case-like in shape with a flap of their bottom part folded inwards. Pins **26** and **27** lie along the folding line. Another connection between wings and ribs is afforded by clips **36** and **35** hinged on one side to pin **34** and on the other respectively to pins **32** and **33**.

Thus it is possible, in this case, to realise the movement of two matched articulated parallelograms for opening angles up to 180°.

LIVIO CENCIONI.