

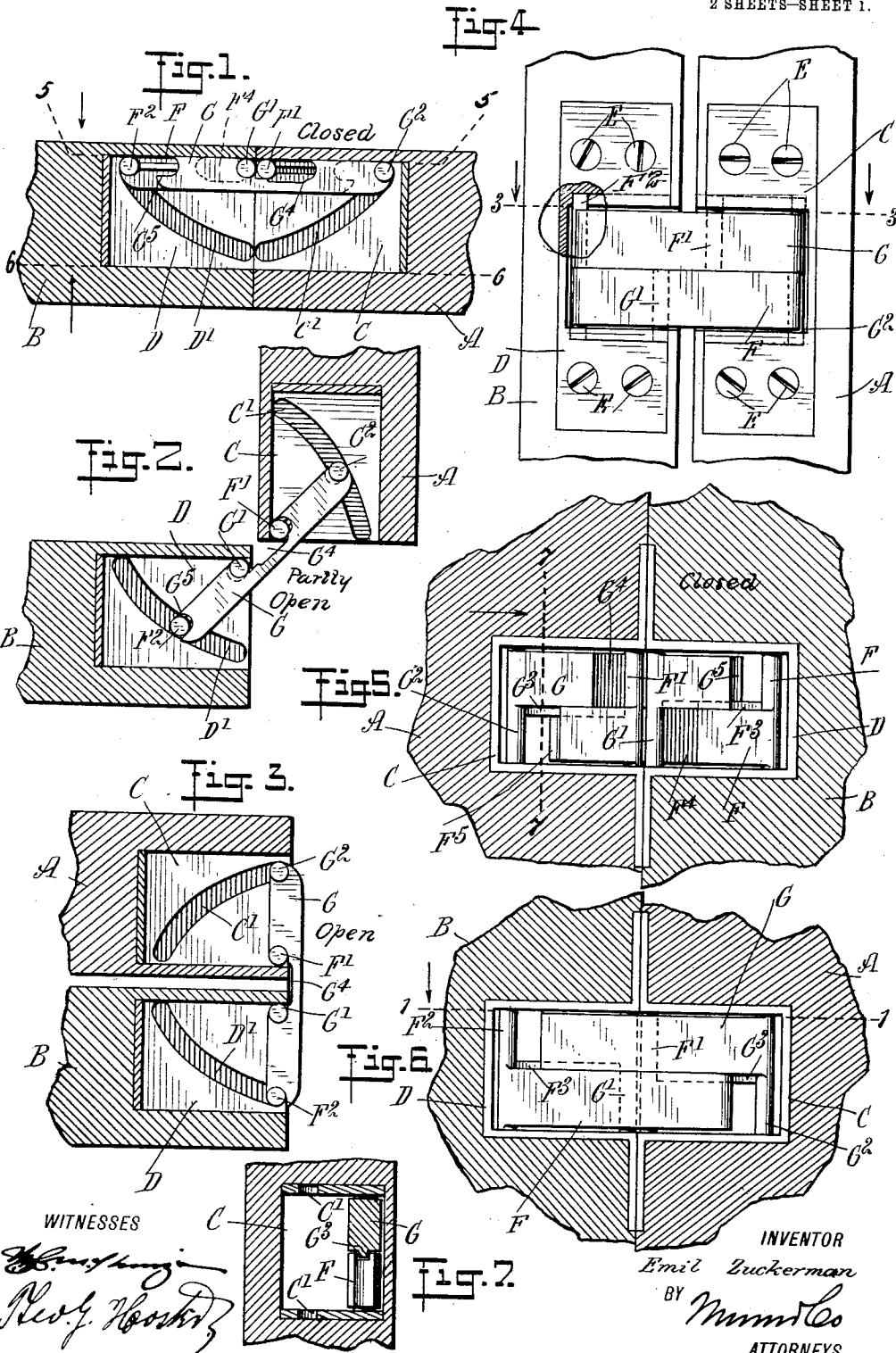
E. ZUCKERMAN.
INVISIBLE HINGE.

APPLICATION FILED JAN. 4, 1912.

1,039,628.

Patented Sept. 24, 1912.

2 SHEETS—SHEET 1.

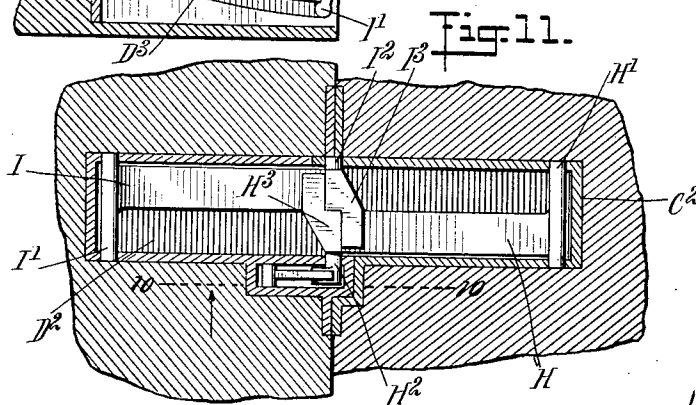
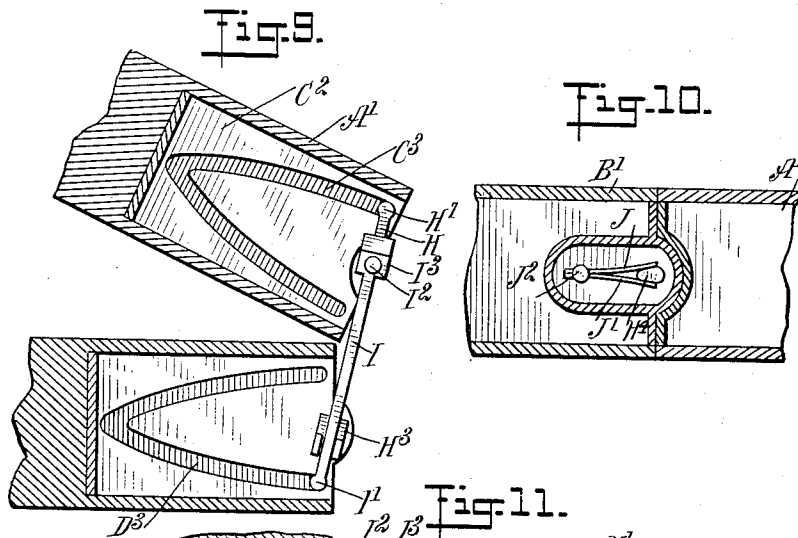
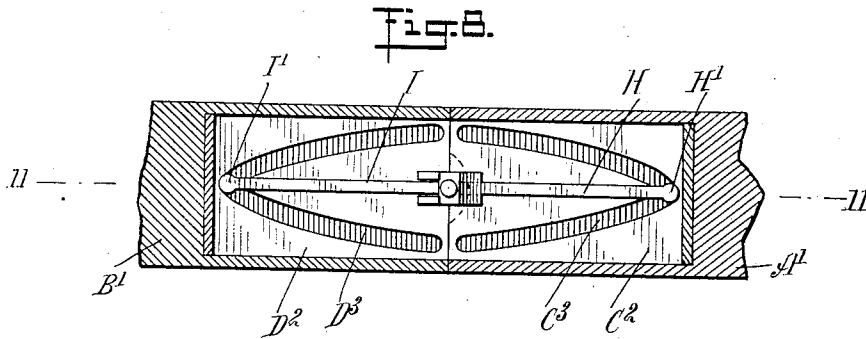


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WITNESSES

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INVISIBLE HINGE.

1,039,628.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed January 4, 1912. Serial No. 669,302.

To all whom it may concern:

Be it known that I, EMIL ZUCKERMAN, a citizen of the United States, and a resident of Yonkers, in the county of Westchester and State of New York, have invented a new and Improved Invisible Hinge, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved invisible hinge for use on doors, boxes, pianos, furniture and other articles and devices, and arranged to be invisible when the door or other movable member is in a closed position, and to provide a space between the movable member and the fixed member when the door is opened. For the purpose mentioned use is made of attaching members arranged for attachment to the fixed and movable parts of the device on which the hinge is to be used, and links mounted to slide one on the other in the direction of the length of the links, the links being pivotally connected with and guided by the attaching members.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional plan view of the invisible hinge as applied to a door and door casing, the door being shown in closed position and the section being on the line 1—1 of Fig. 6; Fig. 2 is a like view of the same with the door partly open; Fig. 3 is a similar view of the same with the door fully open; Fig. 4 is a face view of the same; Fig. 5 is a sectional face view of the same on the line 5—5 of Fig. 1; Fig. 6 is a similar view of the same on the line 6—6 of Fig. 1; Fig. 7 is a cross section of the same on the line 7—7 of Fig. 5; Fig. 8 is a sectional plan view of a modified form of the hinge as applied to a door for allowing the latter to swing inward and outward, the door being shown in closed position; Fig. 9 is a similar view of the same showing the door open; Fig. 10 is an inverted sectional plan view of the same on the line 10—10 of Fig. 11; and Fig. 11 is a sectional side elevation of the same on the line 11—11 of Fig. 8.

As shown in the drawings, the hinge is applied to a door A and a door casing B, and the hinge is provided with attaching members C and D of approximately box

shape and mortised in the adjacent ends of the door A and the door casing B and fastened thereto by screws E, as plainly indicated in Fig. 4. The attaching members C and D are connected with each other by links F and G mounted to slide one on the other in the direction of the length of the links, the link F being provided between its ends with a pivot F' journaled in the attaching member C, and the said link F is provided at the end extending into the member D with lugs F² engaging segmental guideways D' formed in the member D at the top and bottom thereof. The link G is provided with a pivot G' journaled in the top and bottom of the attaching member D; the end of the link G extending into the attaching member C is provided with a lug G² engaging guideways C' formed in the top and bottom of the attaching member C. Thus the link F is fulcrumed in the attaching member C and engages the guideways D' in the other attaching member D, and the link G is fulcrumed in the attaching member D and engages guideways C' in the attaching member C. In order to slide the links F and G lengthwise one on the other the links are provided with longitudinally-extending ribs F³ and G³ engaging corresponding grooves in the links F and G (see Fig. 7). Now when the door A is in a closed position the hinge is completely concealed as the links F and G are contained within the attaching members C and D. When the door A is swung into an open position it swings on the pivot F' of the link F as a fulcrum but the link F slides on the link G and the latter swings on its pivot G' in the member D. Now the guideways C' and D' are made segmental and eccentric relative to the pivots F' and G' so that when the door A is swung open the latter is held spaced from the casing B owing to the lugs F² and G² traveling in the segmental slots D' and C'.

From the foregoing it will be seen that the links F and G pivoted in the attaching members C and D are mounted to slide one on the other in the direction of the length of the links, and the link F is guided in the attaching member D and the link G is guided in the attaching member C. In order to permit the links F and G to pass the pivots G' and F' the said links are provided with cut-out portions F⁴, G⁴ at or near the middle thereof, and the ends of

the links F and G are provided with recesses F⁵, G⁵ adapted to engage the corresponding lugs G², F² (see Fig. 3).

In the modified form illustrated in Figs. 8, 9, 10 and 11, the attaching members C² and D² are secured to the door A' and the door casing B' in the same manner as above described relative to the single hinge shown in Figs. 1 to 7, and the said attaching member C² and D² are provided with double guideways C³, D³ engaged by lugs H' and I' of links H and I provided at their inner ends with pivots H², I² journaled in the attaching members D² and C², respectively. The inner ends of the links H and I are also provided with saddles H³, I³, of which the saddle H³ slidably engages the link I and the saddle I³ slidably engages the link H, so that the links H and I slide one on top of the other in the direction of the length of the links. The pivot H² of the link H is provided with a lug H⁴ engaged at its opposite faces by springs J, J' attached to a stud J² secured to the attaching member D². When the door A' is swung into an open position in one direction, as shown in Fig. 9, then the lugs H' and I' travel in one portion of the double guideways C³, D³, at the same time the pivots H², I² turn in their bearings in the attaching members D², C² so that the spring J' is placed under tension, and when the door A' is released the spring bears on the lug H⁴ with sufficient force to return the door A' to closed position. When the door A' is swung open in an opposite direction then the lugs H² and I² travel in the other portion of the double guideways C³, D³, and the spring J is now placed under tension and when the door A' is released the pressure of the spring J on the lug H³ causes the door A' to swing into closed position.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A hinge, comprising attaching members arranged one for attachment to a fixed part and the other to a movable part of the device on which the hinge is to be used, and a connection for connecting the said attaching members with each other, the said connection consisting of links slidable one on the other and pivotally connected with and guided by the said attaching members.

2. A hinge comprising box members, and links slidable one on the other, each being pivotally connected with one box member and guided on the other box member.

3. A hinge comprising attaching members arranged for attachment to fixed and movable parts of the device on which the hinge is to be used, the said attaching members having guideways, and links mounted to slide one on the other in the direction of the length of the links, the links being jour-

naled in the said attaching members and guided in the said guideways.

4. A hinge comprising attaching members arranged for attachment to fixed and movable parts of the device on which the hinge is to be used, the said attaching members having guideways, and links mounted to slide one on the other in the direction of the length of the links, the said links being provided with pivots journaled in the said attaching members and the said links having lugs engaging the said guideways.

5. A hinge comprising attaching members arranged for attachment to fixed and movable parts of the device on which the hinge is to be used, the said attaching members being box shape and provided with segmental guideways, and links mounted to slide one on the other in the direction of the length of the links, the links having pivots journaled in the open entrance ends of the said attaching members and eccentric to the said guideways, and the said links being provided with lugs engaging the said guideways.

6. A hinge comprising attaching members adapted to be mortised in the fixed and movable parts of the device on which the hinge is to be used, the said attaching members being of box shape and provided with guideways, and links mounted to slide one on the other in the direction of the length of the links, the links having pivots intermediate their ends and journaled in the entrance ends of the said attaching members, and the said links being provided at their free ends with lugs of which the lug of a link pivoted on one attaching member engages the guideway of the other attaching members.

7. A hinge comprising attaching members adapted to be mortised in the fixed and movable parts of the device on which the hinge is to be used, the said attaching members being of box shape and provided with guideways, and links mounted to slide one on the other in the direction of the length of the links, the links having pivots intermediate their ends and journaled in the entrance ends of the said attaching members, and the said links being provided at their free ends with lugs of which the lug of a link pivoted on one attaching member engages the guideway of the other attaching member, the said guideways of one link being segmental and eccentric relative to the pivots of the link journaled in the corresponding attaching member.

8. A hinge, comprising attaching members, connecting members pivoted to the said attaching members, means to slide one connecting member on the other connecting member, and means to guide one connecting member pivoted in one attaching member in the other connecting member.

9. A hinge, comprising attaching mem-

bers for attachment to the fixed and movable parts of the device on which the hinge is to be used, connecting links pivoted between their ends to the said attaching members, means slidably connecting the links with each other, and means to guide one end of a connecting link, pivoted in one attaching member, in the other attaching member.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMIL ZUCKERMAN.

Witnesses:

A. H. DAVIS,

PHILIP D. ROLLHAUS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."