D. WILLIAMSON.

CONCEALED HINGE.

APPLICATION FILED MAY 3, 1909.

949,949. Patented Feb. 22, 1910.

Fig. 1.

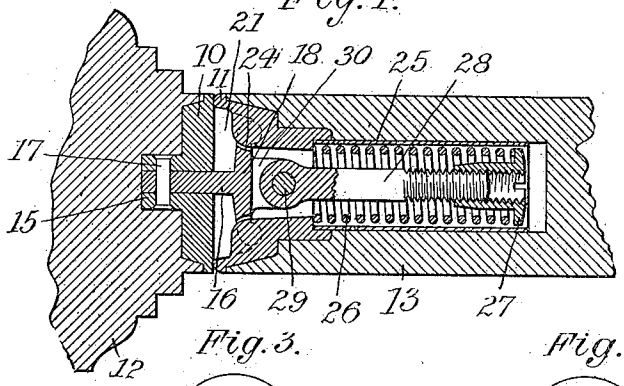


Fig. 2.

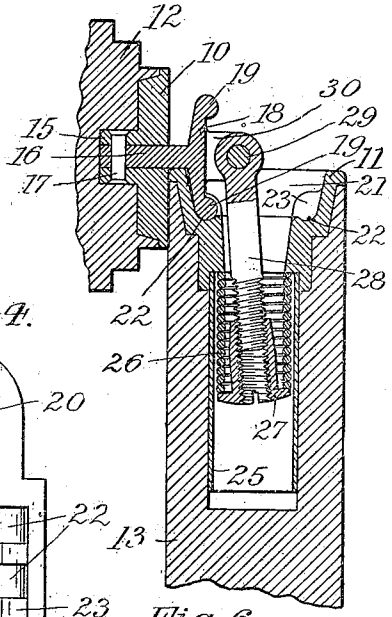


Fig. 3.

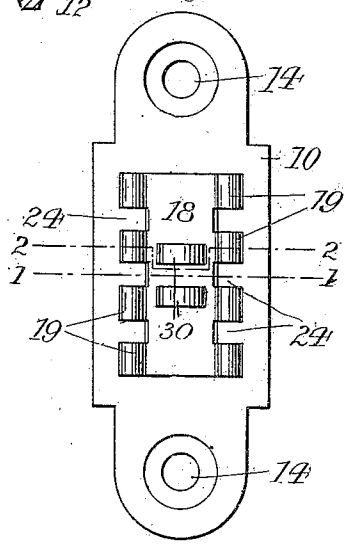


Fig. 4.

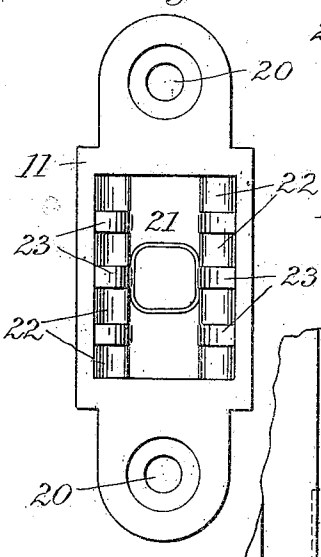


Fig. 6.

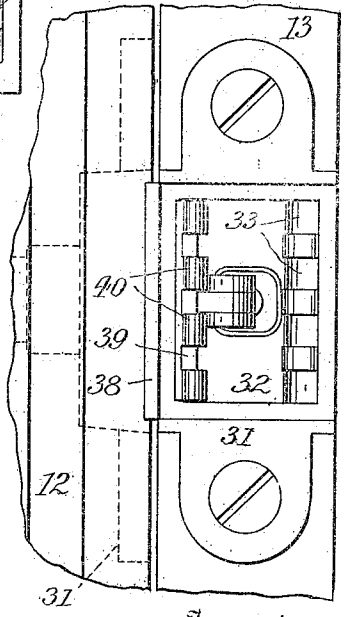
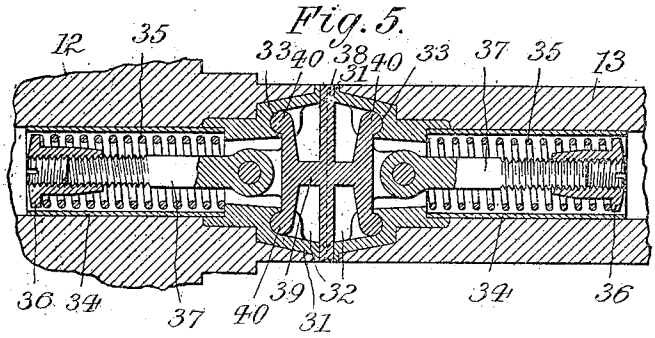


Fig. 5.



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UNITED STATES PATENT OFFICE.

DAVID WILLIAMSON, OF NEW YORK, N. Y.

CONCEALED HINGE.

949,949. Specification of Letters Patent. Patented Feb. 22, 1910.

Application filed May 3, 1909. Serial No. 493,507.

To all whom it may concern:

Be it known that I, DAVID WILLIAMSON, a citizen of the United States, residing at New York city, Manhattan, county and State of New York, have invented new and useful Improvements in Concealed Hinges, of which the following is a specification.

This invention relates to a hinge for doors and similar objects, which is so constructed that its members may be completely countersunk within the wood-work and that neither knuckles nor other parts thereof are exposed when the door is closed.

In the accompanying drawing: Figure 1 is a horizontal section of my improved hinge, on line 1—1, Fig. 3, showing the door closed; Fig. 2 a similar section on line 2—2, Fig. 3, showing the door open; Fig. 3 a front view of the fixed hinge-member; Fig. 4 a similar view of the movable member; Fig. 5 a horizontal section of a modification of the hinge, and Fig. 6 a side view thereof, showing the door open.

The hinge is composed of a fixed member and a movable member, comprising, respectively, securing plate 10, and socket plate 11, which are adapted to be countersunk into the door frame 12 and door 13. Plate 10 has screw holes 14 and an inwardly projecting boss 15. From plate 10 there extends outwardly an arm which is T-shaped in cross-section and passes with its web 16 into boss 15, to which it is secured by rivets 17. The head 18 of the T-shaped arm is provided along each of its two upright edges with a rounded knob 19 constituting a bearing and set back from the corresponding edge of plate 10.

Plate 11 of the movable member has screw holes 20 and is made box-shaped, it being provided with a central recess 21. Within this recess are formed a pair of parallel grooves or bearing sockets 22 spaced to correspond to the distance between knobs 19 which they are adapted to accommodate. It is preferred to traverse each groove 22 by a number of ribs 23 engaging corresponding slots 24 of knobs 19, said ribs serving to reduce wear and also to sustain the weight of the door.

With recess 21 there communicates an outwardly extending tubular casing 25 containing a spiral spring 26. The outer end of this spring is engaged by a headed nut 27 into which is tapped the outer threaded end of a rod 28, the inner end of which is pivotally connected by pintle 29, to knuckles 30 projecting from head 18 intermediate knobs 19. When the hinge is closed, spring 26 is distended and the entire operative mechanism is concealed, (Fig. 1). When the door is swung outward, it will turn on outer knob 19, while spring 26 will become compressed to automatically close the door upon its release. The operation is reversed in obvious manner when the door is swung inward.

The hinge shown in Figs. 1–4, permits the door to be swung through an angle of about 90° in either direction, while with the construction shown in Figs. 5 and 6, it may be swung through an angle of about 180°. With the latter construction, the two countersunk members of the hinge are substantial duplicates of the movable member shown in Fig. 1. That is to say, each member comprises a plate 31 adapted to be countersunk into door frame 12 or door 13, and provided with recess 32 and grooves or bearing sockets 33. Recess 32 communicates with a tubular casing 34 containing spiral spring 35, headed nut 36 and rod 37. Between the two members, constructed as described, is interposed a fixed member comprising a plate 38, from each face of which projects a T-shaped arm 39. The two heads of these arms are hingeably connected to rods 37 and are provided at their edges with rounded knobs 40 adapted to engage the grooves 33 of plates 31. One of the springs 35 should be somewhat weaker than the other spring, the weaker spring being shown to be contained in door 13. When the door is swung outward, it will first turn 90° on the outer right hand knob 40, and then an additional 90° on the outer left hand knob, so that a sweep of 180° is obtained. If the door is swung inward, the operation is reversed, as will be readily understood.

It will be seen that with my improved hinge, the knobs carried by the fixed member are entirely inclosed within the movable member when the door is closed, so that no unsightly protuberances of any kind are exposed during the normal position of the parts.

I claim:

1. A hinge comprising a fixed plate, a head projecting therefrom and having a pair of knobs set back from the edges of said

plate, a movable plate having a pair of bearing sockets adapted to seat said knobs, and means for yieldingly connecting the plates.

2. A hinge comprising a fixed plate, a head projecting therefrom and having a pair of knobs set back from the edges of said plate, a movable plate having a pair of bearing sockets adapted to seat said knobs, and a spring-influenced rod operatively connected to the movable plate and pivotally connected to the head.

3. A hinge comprising a fixed plate, a T-shaped head projecting therefrom, knobs at the upright edges of said head, a second recessed plate adapted to receive said head and having bearing sockets for said knobs, and means for yieldingly connecting the plates.

4. A hinge comprising a plate adapted to be secured to a fixed object, a T-shaped head projecting therefrom, knobs at the upright edges of said head, a recessed plate adapted to be secured to a movable object and to receive said head, said recessed plate having bearings for said knobs, a tubular casing opening into the recessed plate, an inclosed spring, a rod controlled thereby, and means for pivoting the rod to the head.

5. A hinge comprising a plate adapted to be secured to a fixed object, a T-shaped head projecting therefrom, knobs at the upright edges of said head, a recessed plate adapted to be secured to a movable object and to receive said head, said recessed plate having bearings for said knobs, a tubular casing opening into the recessed plate, an inclosed spring, a headed nut engaged thereby, a rod engaging the nut, and means for pivoting the rod to the head.

Signed by me at New York city, (Manhattan,) N. Y., this 1st day of May, 1909.

DAVID WILLIAMSON.

Witnesses:

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