Dec. 29, 1931. R. A. ALDEEN 1,838,898

HINGE

Filed July 5, 1929

Fig. 1.

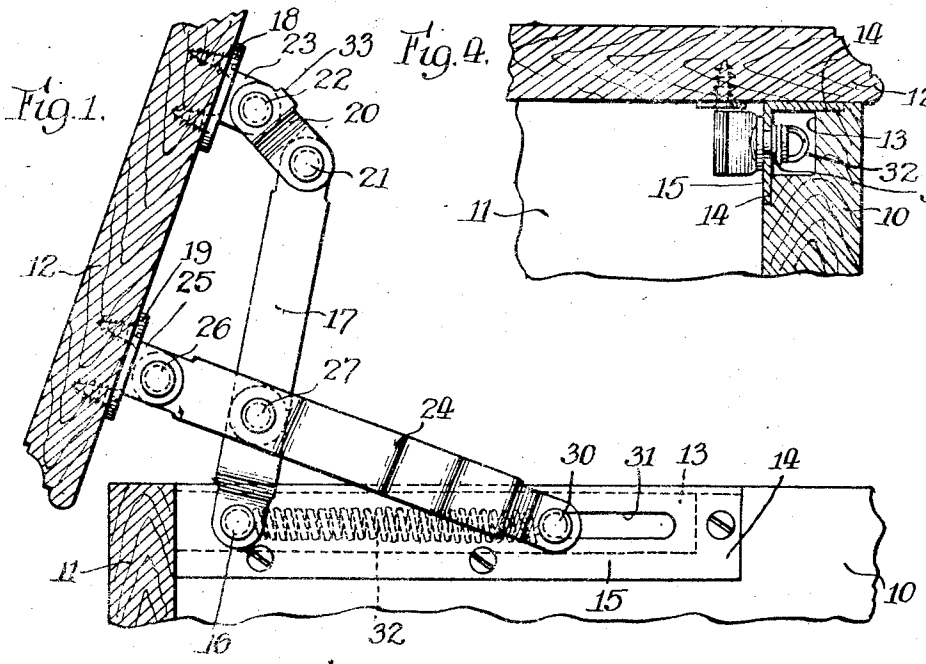


Fig. 4.

Fig. 2.

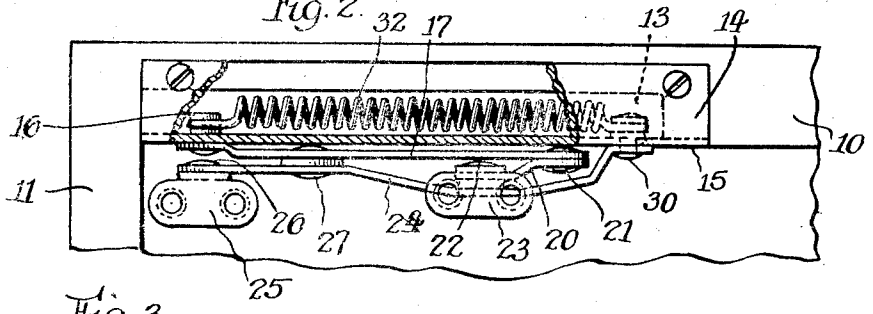
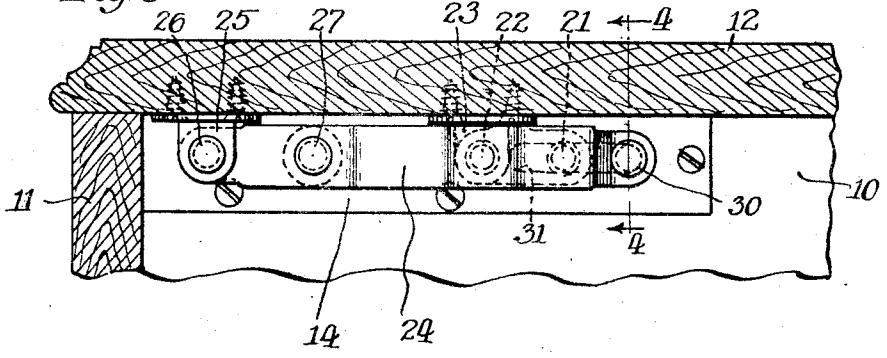


Fig. 3.



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UNITED STATES PATENT OFFICE

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HINGE

Application filed July 5, 1929. Serial No. 376,042.

This invention relates generally to a hinge for furniture or the like and more particularly to a counter-balanced hinge for the lids of chests, phonograph cabinets, or the like.

The general object of this invention is to provide a novel hinge which has means for counter-balancing the weight of the closure or lid so that the latter will remain in any position to which it is opened, which is entirely concealed when the lid is closed, and most of the parts of which may be made of sheet-metal and hence are inexpensive to construct.

More specifically, I aim to provide a hinge for a closure or lid of a chest adapted to hold the lid in any position to which it is opened and comprising two members adapted to be mounted on the under side of the lid, a body member adapted to be mounted in a mortise cut in the upper edge of the side wall of the chest, a first lever having a pivotal connection with the rear end of the body member and extending outwardly along the lid, a link having a pivotal connection with the free end of the first lever and another pivotal connection with the front lid member, a second lever having a pivotal connection with the rear lid member and a slidable connection with the front end of the body member, means for pivotally connecting the levers together adjacent their rear ends, and means tending to urge the front end of the second lever rearwardly to counter-balance the weight of the lid.

Other objects and advantages will become apparent from the following description and from the accompanying drawings, in which:

Figure 1 is a fragmental side elevation of a section taken through a cabinet with the lid open, showing the preferred form of my invention.

Fig. 2 is a fragmental plan view with the lid removed, a portion of the body member being broken away.

Fig. 3 is a section similar to that shown in Fig. 1 except that the lid is closed.

Fig. 4 is a section taken along the line 4—4 of Fig. 3.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

I show in the drawings, a cabinet comprising a body portion having a side wall 10 and a rear wall 11, and a closure or lid 12. While I have shown only a right-hand hinge, it is contemplated that two hinges will be used, one at each side, the other being similar except left-handed.

The hinge illustrated herein comprises generally, a pair of members adapted to be secured to the under side of the lid 12, a body mounting member adapted to be secured to the side wall 10 of the cabinet body, and means for hinging the lid to the body member comprising a first lever pivotally connected at one end to the body member and adjustably connected at its other end to the front lid member, a second lever pivotally connected to the rear lid member and slidably connected to the front of the body member, and a tension spring carried between the front end of the second lever and the rear end of the body member to counter-balance the weight of the lid.

In the present instance, two similar lid members 18 and 19 are adapted to be attached to the under side of the lid, and have downwardly extending lugs 23 and 25 respectively. A body member 14 is mounted in a mortise 13 cut in the upper edge of the side wall adjacent the rear end thereof and comprises a strip of metal bent to a right angle, the sides of which lie flush with the inside and upper surfaces of the side wall and form an enclosed space with the mortise 13. The side of the body member 14 lying flush with the inside surface has a longitudinal slot 31 adjacent the front end thereof.

As mentioned hereinbefore, the invention includes a means for hinging the lid to the body including a first lever pivoted to the

body member 14 and a second lever pivoted to the rear lid member 19. The first lever 17 is pivotally connected at one end to the rear end of the body member 14 by means of a pin 16 and extends outwardly along the lid. Means is provided for amplifying the movement of the free end of the first lever imparted to the lid by causing the free end of the first lever 17 to move in an arcuate path relative to the lid, which means comprises a link 20 pivotally connected at one of its ends to the free end of the first lever 17 by a pivot 21 and at its other end to the lug 23 on the front lid member 18 by a pivot 22. A second lever 24 is pivotally connected at one end to the lug 25 on the rear lid member 19 by a rivet 26 and extends forwardly therefrom in a substantially horizontal position. At its front end the second lever 24 has a pin 30 sliding in the slot 31 in the body member 14, the abutment of the pin with the rear end of the slot 31 determining the maximum opening of the lid as shown in Fig. 1. The two levers 17 and 24 are pivotally connected together adjacent their rear ends by a pivot 27. In this manner the lid is given an upward and backward tipping movement on being opened from the position shown in Fig. 3 to the position shown in Fig. 1, and when the lid is closed the parts of the hinge lie parallel to and adjacent the body member 14 in a compact form with the pivotal connections and the pin 30 horizontally alined, as is clearly shown in Fig. 2 and Fig. 3. It is to be noted that the pivot 27 approaches a dead center along the line connecting the pivot pin 16 and the sliding pin 30 when the lid approaches its closed position.

In accordance with the objects of my invention, I provide a means for counter-balancing the weight of the lid in order to hold it in any position to which it is opened. It is evident, on inspection of the drawings, that the weight of the lid tends to cause the pin 30 in the front end of the second lever 24 to slide forwardly in the slot 31. To counteract this tendency, the counter-balancing means is attached to the pin 30 and tends to cause it to move rearwardly, and thus counter-balance the weight of the lid. This means in its preferable form comprises a tension spring 32 lying within the enclosed space formed by the body member 14 and having one end anchored to the inner end of the pin 16 on the first lever 17 and the other end attached to the inner end of the pin 30 on the front end of the second lever 24. The spring 32 is made of sufficient strength to counterbalance the tendency of the weight of the lid to move the pin 30 forwardly at any position to which the lid is opened. Thus the lid will remain in any position to which it is opened.

Because of the fact that the members are mounted on the under side of the lid and in a mortise cut in the upper and inner part of the side wall and that the parts of the hinge lie parallel to and adjacent the body member 14 in a compact form when the lid is closed, the hinge is entirely concealed within the chest. The parts of the hinge, it is obvious, are inexpensive to construct in that they may be made of sheet-metal.

I claim as my invention:

1. A hinge for the lid of a chest adapted to hold the lid in any position to which it is opened, said hinge comprising, in combination, a body member adapted to be mounted in a mortise cut in the upper edge of the side wall of the chest adjacent the rear end thereof and comprising a strip of metal bent to a right angle, the sides of which lie flush with the inside and upper surfaces of the side wall and form an enclosed space with the mortise, means for hinging the lid to said member, and a tension spring lying within the enclosed space formed by the body member and adapted to counter-balance the weight of the lid, the parts of said hinging means lying parallel to and adjacent the body member in a compact form when the lid is closed.

2. A hinge for the lid of a chest adapted to hold the lid in any position to which it is opened, said hinge comprising, in combination, a body member adapted to be mounted in a mortise cut in the upper edge of the side wall of the chest and comprising a strip of metal bent to a right angle, the sides of which lie flush with the inside and upper surfaces of the side wall and form an enclosed space with the mortise, the side lying flush with the inside surface having a longitudinal slot adjacent the front end thereof, means for hinging the lid including a lever lying substantially horizontally with its front end sliding in the slot in the body member, the weight of the lid tending to cause the front end of said lever to slide forwardly in said slot, and a tension spring lying within the enclosed space formed by the body member having one end attached to the front end of said lever and tending to draw the front end of said lever rearwardly to counter-balance the weight of the lid.

3. A balanced hinge for a lid of a chest comprising, in combination, a member attached to the body of the chest and having a slot, a lever pivotally attached to said member, a link pivotally attached to said lever and to the lid, a second lever pivotally attached to the lid and to said first lever, said second lever being adapted to slide in said slot, and a tension spring attached to said member and to said second lever whereby to balance the weight of the lid.

4. A hinge for the lid of a chest adapted to hold the lid in any position to which it is opened, said hinge comprising, in combination, a body member adapted to cover a mor-

tise cut in the side wall of the chest adjacent the rear end thereof and comprising a strip of metal forming an enclosed space with the mortise, means for hinging the lid to said member, and a tension spring lying within said enclosed space and connected at one end to said member and at its other end to said hinging means, said spring being adapted to counter-balance the weight of the lid, the parts of said hinging means lying parallel to and adjacent the body member in a compact form when the lid is closed.

In testimony whereof, I have hereunto affixed my signature.

REUBEN A. ALDEEN.