

June 7, 1949.

A. CLAUD-MANTLE

2,472,285

LID FASTENER

Filed June 12, 1944

Fig. 1.

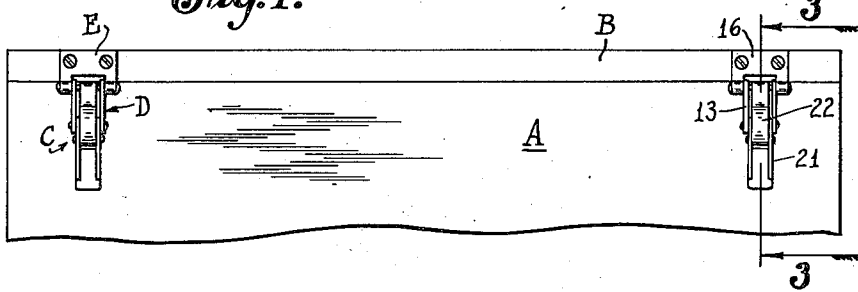


Fig. 2.

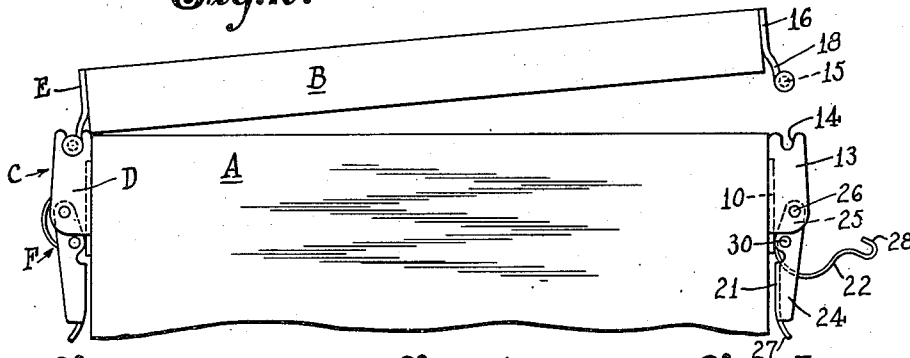


Fig. 3.

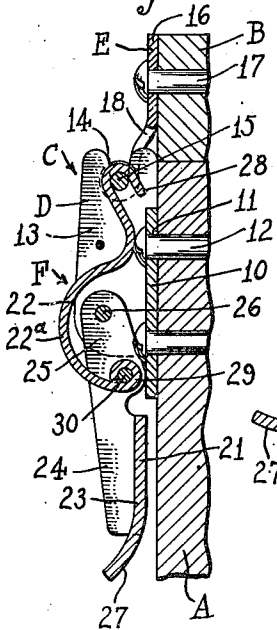


Fig. 4.

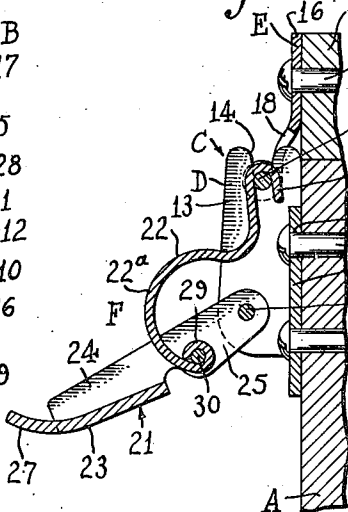
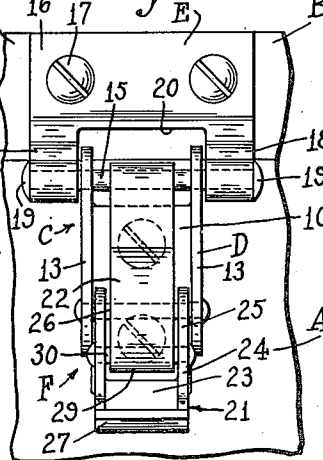


Fig. 5.



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UNITED STATES PATENT OFFICE

2,472,285

LID FASTENER

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Application June 12, 1944, Serial No. 539,936

12 Claims. (Cl. 16—147)

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This invention relates to lid fasteners such as employed for fastening or clamping the lids of wooden boxes and containers of a like character. It relates more particularly to a separable fastener of the type in which one member is fastened to the body of the box and another member fastened to the lid or cover, there being a member in the nature of a toggle carried by the first-mentioned member, which by its manipulation is adapted to fasten and release the lid or cover.

One of the objects of the invention is to provide a very simple device having a minimum number of parts that can be produced at low cost and will give effective service.

Another object is to provide a fastener of this type adapted to serve as a readily separable hinge for a lid or cover.

Another object is to provide an improved form of toggle for a lid fastener.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and finally pointed out in the claims.

In the accompanying drawing:

Fig. 1 is a side elevation of the upper portion of a box equipped with fasteners embodying the invention;

Fig. 2 is an end view of the box shown in Fig. 1, on a larger scale, showing the lid in partly raised position;

Fig. 3 is an enlarged section on line 3—3 of Fig. 1, showing the position of one of the fasteners when the lid is fastened;

Fig. 4 is a sectional view similar to Fig. 3, showing the position of the parts when the lid is being released; and

Fig. 5 is an elevational view with the parts in the position of Fig. 4.

In the form of the invention selected for illustration, the fastener is of a kind adapted to serve as a readily separable hinge used for connecting the body of the box or other container to the lid or cover, and a box is illustrated which may be assumed to have four of the improved fasteners applied thereto, two at points spaced along one side and the other two similarly spaced along the opposite side. Fig. 1 shows two of the improved fasteners on the box at one side, and in Fig. 2 the fasteners along one side are released to permit the upward swinging of the lid, the fasteners at the opposite side serving as hinges. All of the four fasteners are alike and description of one will suffice.

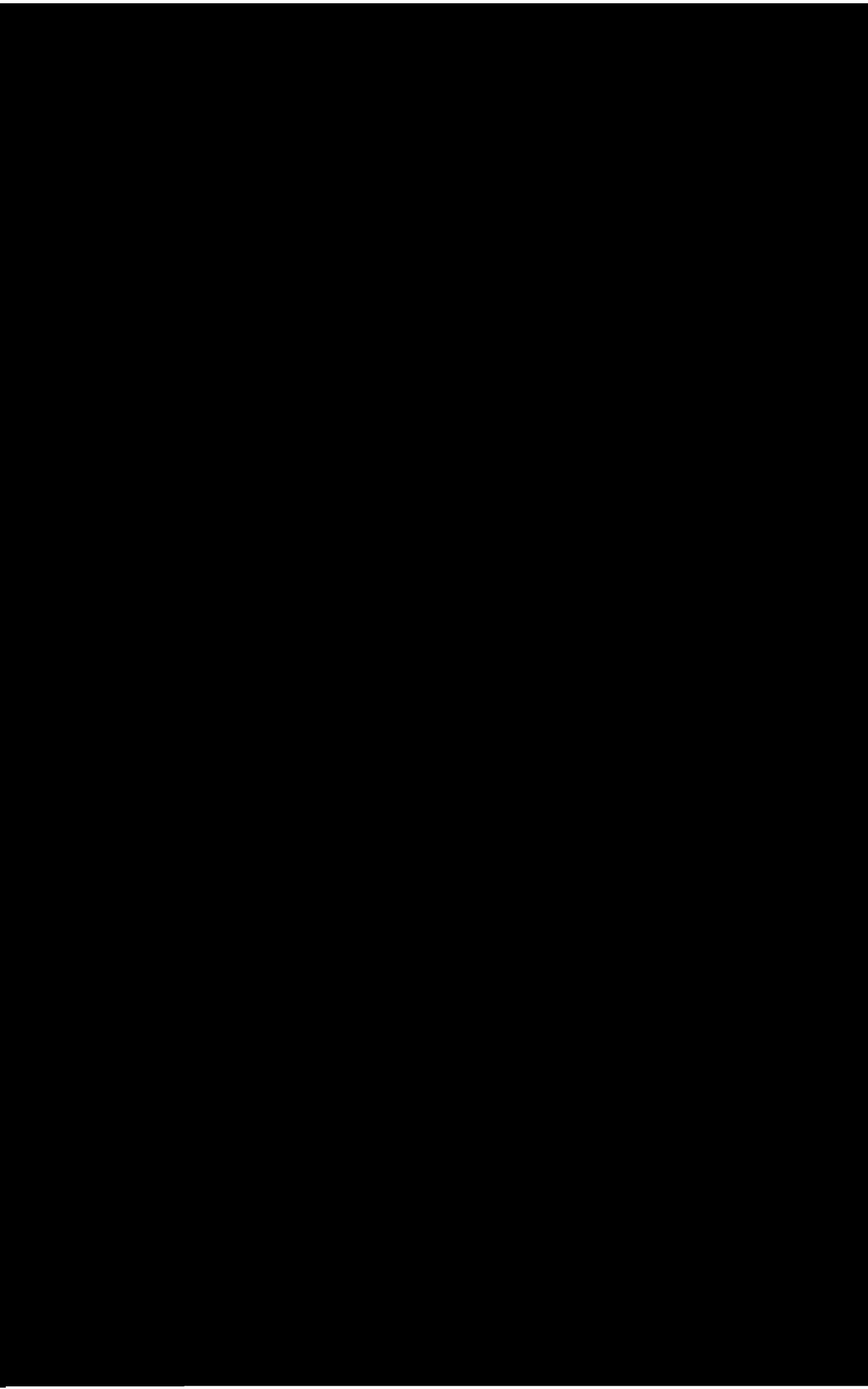
In the drawing, A is the body of the box and B the lid, and C one of the improved fasteners.

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The fastener C comprises in general a member D applied to the body A, a member E applied to the lid B, and a device F in the nature of a toggle carried by the member D and adapted to fasten member D detachably to member E.

In the particular form shown, member D comprises a plate 10 having upper and lower holes 11 through which pass screws 12 for attaching member D to the side face of the box at a point slightly below the upper edge of the box. The plate 10 has integral forwardly extending flanges 13 whereby it is given a channeled cross section, the lower ends of the flanges 13 being spaced upwardly somewhat from the lower end of the plate. At their upper ends the flanges 13 are provided with notches 14 whereby they are given a fork shape and enabled to receive a cross pin 15 forming a part of the lid-attached member E. In the particular form shown the member E has a plate-like body 16 attached by screws 17 to the edge portion of the lid, and from the plate portion 16 arms 18 project downwardly to hold the pin 15 in position. The lower ends of the arms are curved forwardly and upwardly to embrace the pin 15 loosely and the ends of the pin are provided with heads 19, the arrangement preferably being such that the pin can rotate freely but is restrained against any appreciable endwise movement. Between the arms 18 there is a space 20 in which the upper end portion of member D can be accommodated in the manner shown in Fig. 5. The pin 15 is spaced outwardly to a certain degree from the face of the box, and the legs 18 are bent outwardly, as shown for example in Fig. 4, in order to hold the pin in this position.

The toggle member F previously mentioned comprises a member 21 pivoted between the flanges 13, and a spring part or toggle lever 22 pivoted to part 21 and adapted to hook over the pin 15. Part 21 is constructed of sheet metal, and is of generally channel shape, being provided with a wall 23 having forwardly extending integral side flanges 24. The flanges 24 are continued upwardly to provide extensions 25 that are within and alongside the flanges 13, and a pin 26 passing through the flanges 13 and the extensions 25 pivots the part 21. The pin 26 is preferably in fixed relation to the flanges 13, and the part 21 swings on this pin. The flanges 24 extend downwardly along plate portion 23 but not to the extremity of the plate portion, which extremity is curved slightly, as shown at 27, to provide a manipulating tip projecting somewhat forwardly from the face of the container when the parts are in the position shown in Fig. 3 in order that the



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nection between said lever and the resilient lever is disposed inwardly of a plane intersecting said pivotal connection and said pin member.

6. In a lid fastener, the combination of a base plate having forwardly extending parallel walls formed at one end with pin-seating notches, an operating toggle lever pivoted between said walls toward the other side of the base plate and having a free operating end, and a leaf spring acting as a second member of a toggle pivoted to said first lever between the ends of said first lever and having a bowed portion adapted to clear the pivotal connection between said first lever and said walls, said second lever also having a pin-seating free end.

7. A lid fastener comprising a plate formed with outstanding lugs, a pin extending across and retained in a space between said lugs, a separate plate having outstanding parallel walls with notched seating portions adapted to seat said pin in locations between and adjacent the respective lugs, and means carried by said second plate for fastening said pin in its seat including a toggle lever of resilient material having a hooked end adapted to engage the middle portion of said pin between said seating portions and including an operating toggle lever pivoted at one end between said outstanding walls and pivoted between its ends to said first lever.

8. In a lid fastener, the combination of a lid-attached member, a box-attached member, a manually operable over-center toggle carried by the latter member and having a free fastening end, and pivotal engaging means carried by the lid-attached member and adapted for support upon the box-attached member to permit swinging movement of the lid when the fastening end of the toggle is attached to the pivotal engaging means of the lid-attached member.

9. In a lid fastener, the combination of a lid-attached member, a box-attached member, a toggle having an operating toggle lever pivoted to the box-attached member so as to be carried thereby and also having a second lever pivoted to the first lever, and pivotal engaging means carried by the lid-attached member and adapted to be supported upon the box-attached member for connection to the unpivoted end of the second lever and when so connected enabling the lid to swing through approximately 180° while the lid is attached to the box.

10. In a lid fastener, the combination of a member applied to the lid and carrying a projecting pin, a member applied to the box body and seating said pin, and a toggle carried by the latter member having as a part thereof an elongated element of resilient material provided with a hook

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end engageable over said pin when the pin is in said seating position, said toggle also having as a part thereof an operating toggle member pivoted to said elongated element, and said elongated element having between its ends a deflected portion whereby it is extensible in a longitudinal direction and by its resiliency when in extended fastened relation to the lid serving to hold said lid tightly closed.

11. A lid fastener comprising a plate formed with outstanding lugs, a pin carried by said lugs and retained in a space between said lugs, a separate plate having outstanding parallel walls with notched seating portions adapted to seat said pin in locations between and adjacent the respective lugs, and means carried by said second plate whereby said pin is removably held in said notched seating portions.

12. In a lid fastener, the combination of a lid-attached member, a box-attached member, a manually operable over-center toggle having an operating lever and a resilient fastening lever of which the first is pivoted to said box-attached member and of which the second is provided with a free fastening end, and pivotal engaging means carried by the lid-attached member and adapted to be supported by the box-attached member when serving as a pivotal connection between the free fastening end of the second lever and the lid-attached member, thus permitting pivotal movement of the lid-attached member while the toggle is connected thereto so that the lid while attached to the box can have a pivoting movement through a substantial angle.

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