Sept. 2, 1947. B. R. THIELE 2,426,754

LATCH

Filed Feb. 21, 1944

Fig. 1.

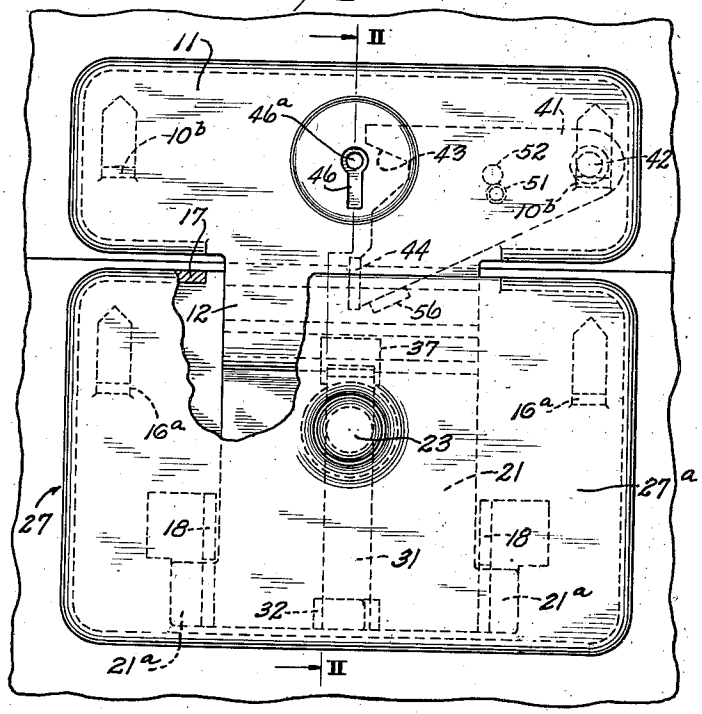
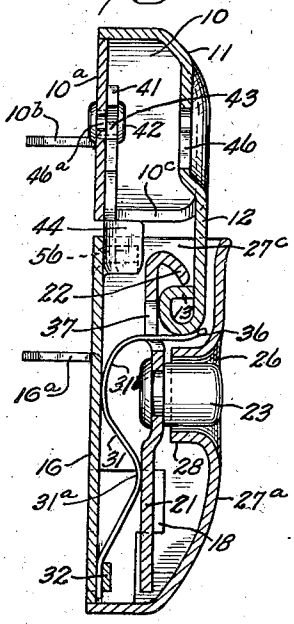


Fig. 2.



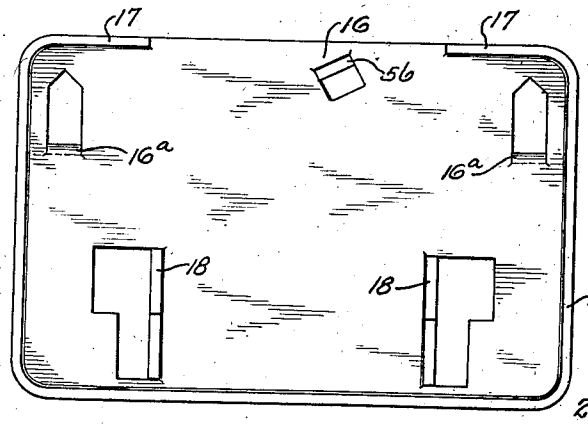


Fig. 3.

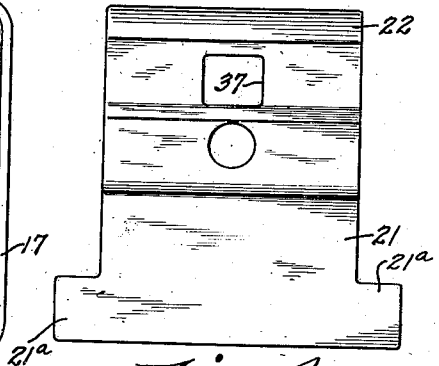


Fig. 4.

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LATCH

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10 Claims. (Cl. 70—70)

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This invention relates to improvements in latches and more particularly to a latch primarily adapted for use in connection with boxes, cases, and the like.

One of the objects of the invention is to provide a latch of this character which is extremely simple and compact in construction, reliable and effective in operation, attractive in appearance, susceptible of economical manufacture, and one which may be readily applied to a box, case or similar article.

Another object of the invention is to provide a latch of the character referred to wherein all of the movable or operative parts may be assembled and held in operative position by the several parts of the casing within which they are housed without the aid of screws, rivets or other fastening means.

A further object of the invention resides in the provision of a loosely pivoted latch member operable into and out of latching position against the action of a spring disposed between said latch member and the base portion of the latch housing.

Other objects and advantages reside in certain novel features of construction, arrangement and combination of parts, which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawings forming a part of the specification, and in which:

Fig. 1 is a front elevation of a latch constructed in accordance with the invention shown, operatively applied to the hinged sections of a box, case or the like, a portion of the latch housing being broken away to show the relation of some of the parts, other parts being shown in dotted lines;

Fig. 2 is a section taken on the line II—II of Fig. 1;

Fig. 3 is a plan view of the base plate of the latch housing; and

Fig. 4 is a plan view of the latch plate or member.

Referring more particularly to the drawings, the keeper 12, in the form of a depending tongue having a rolled edge 13, is formed as an integral part of the cover section 11 of housing 10. 10a constitutes the base plate of the housing and is provided with a marginal flange over which the cover section 11 fits and is suitably secured. The housing is attached by any suitable means such as prongs 10b to one of the hinged sections of the box. The lower wall of the housing is cut away as at 10c to accommodate the movements

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of a locking bolt, if a locking feature is desired as hereinafter explained.

Secured to the other section of the box directly beneath the housing 10 is the latch housing 27 comprising a base plate 16 provided with marginal flanges 17 and a cover section 27a which fits down over said flanges and is suitably secured thereto. The latch housing is secured to the box by any suitable fastening means, such as prongs 16a. The upper wall of the latch housing is cut away as at 27c to receive the keeper when the box sections are closed, and the front wall of the latch housing is provided with an opening 26 surrounded by an inwardly extending flange 28. Struck up from the base plate 16 adjacent the lower edge thereof are a plurality of inverted L-shaped lugs 18. The latch plate is designated 21 and is shown in detail in Fig. 4. It is positioned vertically in the latch housing and is provided with laterally disposed pivot ears 21a at its lower edge, these being adapted to engage the forward projections of lugs 18, as shown in Fig. 2 and in dotted lines in Fig. 1. The latch member intermediate its upper and lower edges is provided with a button 23 which projects through the flanged opening 26 in the front wall of the cover 27a so as to be accessible exteriorly thereof. The upper end of the latch bolt is bent as at 22 to co-act with the rolled edge of the keeper as shown in Fig. 2. A vertically disposed leaf spring 31 mounted at its lower end between clip 32 and the base plate 16, is disposed intermediate the latch plate and the base plate engaging the former at 31a and the latter at 31b so as to always urge the latch plate forwardly into latching position from which the latch may be disengaged from the keeper by merely pressing inwardly on the button 23. In releasing the latch by pressing inwardly on the button 23, the latch plate pivots on its ears 21a against the lower edges of the forward projections of lugs 18, and immediately upon release of the button the latch plate is returned to operative or latching position by virtue of the spring 31, the forward movement of the latching plate into latching position upon withdrawal of the keeper being limited by engagement of the latch plate with the inner end of the flange 28 surrounding the opening 26. If desired, the spring 31 may be continued beyond its contact at 31b with the base plate through a suitable opening 37 provided in the latch plate and thence forwardly, as shown at 36, into the space normally occupied by the keeper when projected into the latch housing, so that when the latch plate is pressed rearward-

ly to release the keeper, the end 36 of the spring will serve to lift the lid of the box.

It will be observed that no screws, rivets or other fastening means are required to assemble and hold the various parts of the latch mechanism in operative relation. The assembly is accomplished by merely positioning the parts in operative relation on the base plate and then moving the cover of the latch housing into position down over the marginal flanges of the base plate and securing the same in such position. In assembling the parts on the base plate, the spring 31 is first positioned with its lower end engaged in the clip 32. Then the latch plate is moved into position against the spring with the pivot ears 21*a* engaged under the forward projections of lugs 18 and with the extended upper end of the spring 31, if such extension is employed, projecting through the opening 37 in the latch plate. With the parts held as thus positioned the latch housing cover 27*a* is moved into position over the base plate and suitably secured, thus holding the parts in operative relation.

It will also be observed that the latch plate and keeper tongue are of substantial width and that the latch hook extends throughout the width of the plate and that the lower rolled edge of the tongue extend throughout the width of the latter, thus providing for an engagement of the latch and keeper over a substantial extent parallel to the face of the box or case and forwardly thereof when the parts are in latched relation, providing an engagement of considerable strength and ruggedness and one which will insure and maintain alinement of the hinged parts of the box or case when closed. It is to be further observed that the rounded forward surface of the latch hook 22 and the rounded lower surface of the keeper tongue 12 provide, in effect, co-acting camming surfaces to insure ease and facility of operation as the keeper is moved downwardly into latching position.

If desired, a key-operated locking feature may be combined with the latch. In the drawings this is shown in the form of a locking bolt 41 pivoted to the base plate 10*a*, as at 42, within the upper housing 10. The free edge of the locking bolt may be provided with a notch 43 to receive the bit of a key, not shown, inserted through the keyhole 46 in the face of the cover 11 with the extreme end of the key pin engaged in and centered by the hole 46*a* provided in the base plate 10*a*. The lock bolt at its forward edge adjacent the lower edge thereof is provided with a lug 44 which, when the bolt 41 is in locking position, occupies the space between the upper end 22 of the latch plate 21 and the base plate 16 of the latch housing so as to effectively block disengaging movement of the latch hook. Upon insertion of the key and the turning thereof in a counterclockwise direction, the bit of the key engages the upper wall of the notch 43 and lifts the lock bar upwardly into the housing 10 out of locking position, the bar being maintained against accidental displacement from such position by the provision of an ordinary spring catch 51—52 interposed between the adjacent surfaces of the bolt 41 and base plate 10*a*. This spring catch may be of the ordinary type comprising a spring-pressed shoe mounted in a socket in the bolt and engageable with a cup-like depression in the base plate to hold the bolt in elevated position. To move the bolt into locking position the key is turned clockwise so that the bit engages the lower wall of the notch 43 to move the bolt to the position shown in the drawings. Lug 56 struck up from the base plate 16 of the latch housing serves as a stop to limit the bolt in this movement.

While only one form of the invention has been described, it is to be understood that various changes and modifications may be made therein without departing from the spirit of the invention as defined in the appended claims.

I claim:

1. In a latch, a housing having an opening therethrough, lugs carried by said housing, a latch plate provided with ears engaging under said lugs and cooperating therewith to provide a pivotal mounting for said plate, spring means for urging said plate into latching position, a push button associated with said plate and protruding through said opening for moving said plate to unlatched position, and a flange surrounding said opening, said latch plate being held in operative position by said spring, push button and flange.

2. In a latch, a housing comprising a base plate and a cover therefor, the base plate being provided with a clip and forwardly projecting lugs, the cover being provided with a flanged opening, a spring mounted in said clip against said base plate, a latch plate mounted against said spring and provided with pivot ears engaging under said lugs, and a push button carried by said plate and protruding through said opening for moving said plate to unlatched position against the tension of said spring, the inner end of said flange serving to limit movement of the latch plate in the reverse direction.

3. In a latch for a box or the like, a keeper, a housing, a latch bolt mounted in said housing and movable for disengagement from and engagement with said keeper, and a spring having a portion urging said bolt into position for engaging said keeper and having a portion bearing directly on said keeper when in engaged position to move said keeper out of engaging position with said bolt.

4. In a latch for a box or case, a keeper, a housing, a latch bolt mounted in said housing and movable for disengagement from and engagement with said keeper, and a leaf spring having a bowed portion urging said bolt into position for engaging said keeper and having a free portion bearing continuously on said keeper when in engaged position to move said keeper out of engaging position with said bolt.

5. In a latch for a box or case, a keeper, a housing including a cover having a flanged aperture therethrough, a latch bolt mounted in said housing for engagement with and disengagement from said keeper, a button on said bolt and extending through the aperture in said housing cover, and a spring acting on said button and urging said bolt against the flange of said housing cover as a stop, said spring bearing on said keeper to urge said keeper out of engaging position with said bolt.

6. In a combined latch and lock for a box or the like, a keeper mounted on one box section, a housing mounted on the other box section and having an opening to receive the keeper, a latch mounted in the housing for latching engagement with the keeper, a spring urging the latch into position for engagement with the keeper, and a key operated locking bolt mounted in the keeper for movement into the housing to lock the keeper and the latch in engagement.

7. In a latch and lock for a box or the like, a keeper mounted on one box section, a housing

mounted on the other box section and having an opening to receive the keeper, a latch mounted in the housing for latching engagement with the keeper, a spring urging one end of the latch into engaging position relative to the keeper, and a key operated locking bolt pivotally mounted in the keeper for movement into the housing under that end of the latch engaging the keeper to lock the keeper and the latch in engagement.

8. In a combined latch and lock for a box or the like, a keeper mounted on one box section, a housing mounted on the other box section and receiving the keeper, a latch mounted in the housing for latching engagement with the keeper, a spring having an intermediate portion urging the latch into position for engagement with the keeper and having an end portion urging the keeper out of engaging position with the latch, a button mounted on the latch and extending from the housing for disengaging the latch from the keeper against the action of the spring, and a key operated locking bolt mounted in the keeper for movement into the housing to lock the keeper and the latch in engaged position.

9. In a combined latch and lock for a box or the like, a keeper mounted on one box section, a housing mounted on the other box section and receiving the keeper, a latch mounted in the housing for latching engagement with the keeper, a leaf spring mounted at one end in the housing, the spring having an intermediate portion bowed between the housing and the latch and bearing on the latch and having a free end portion extending through the latch and bearing on the keeper, a button mounted on the latch and extending from the housing for disengaging the latch from the

keeper against the action of the spring, and key operated locking bolt mounted in the keeper for movement into the housing to lock the latch in engaged position with the keeper.

10. In a combined latch and lock for a box or the like, a keeper mounted on one box section, a housing mounted on the other box section and having a flanged opening therethrough, a latch pivotally mounted in the housing for latching engagement at one end thereof with the keeper, a button mounted on the latch and extending through the flanged opening in the housing for disengaging the latch from the keeper, a leaf spring fixed at one end in the housing, the spring having an intermediate portion bowed between the housing and the latch and bearing on the latch and having its free end portion extending through the latch and bearing on the keeper, and a key operated locking bolt pivotally mounted in the keeper for rotational movement under that end of the latch engaging the keeper to lock the keeper and the latch in engaged position.

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