Nov. 16, 1948. A. ERKKILA 2,454,145

LOCK CASING CONSTRUCTION

Filed April 29, 1947

FIG. 1.

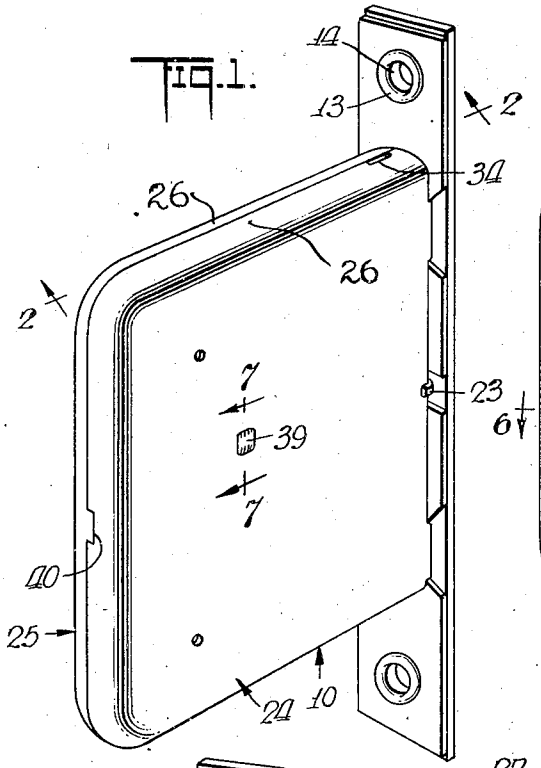


FIG. 2.

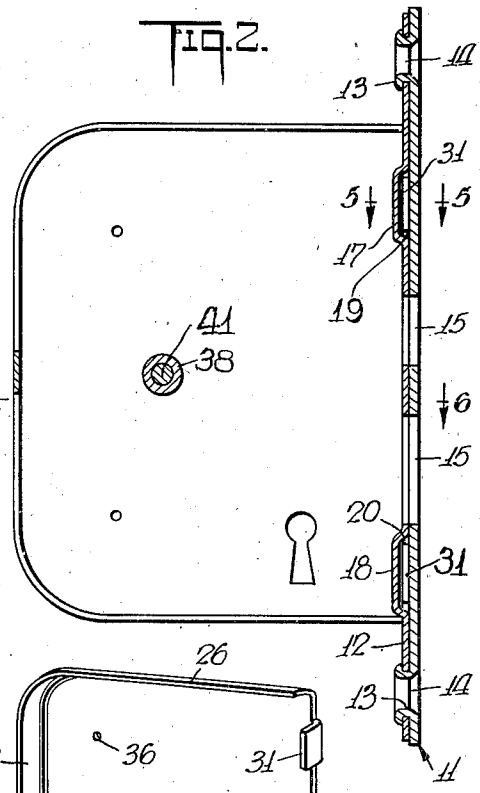


FIG. 3.

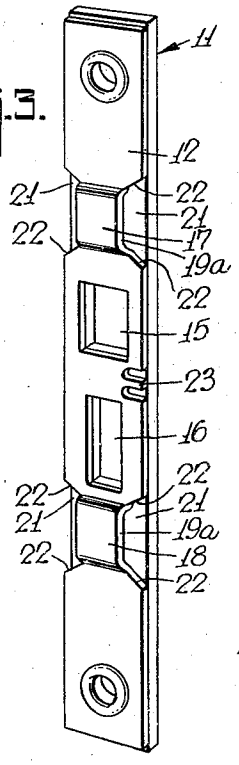


FIG. 4.

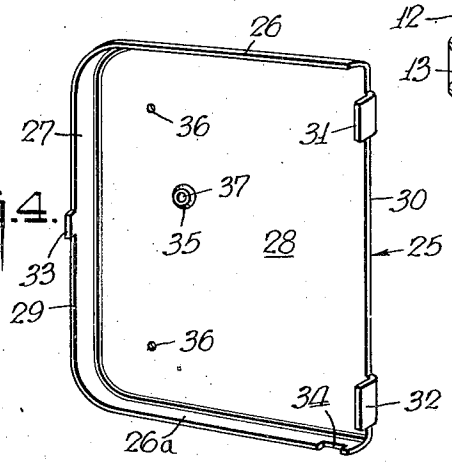


FIG. 5.

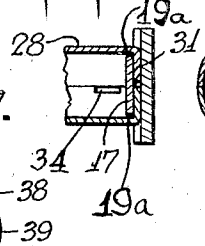


FIG. 6.

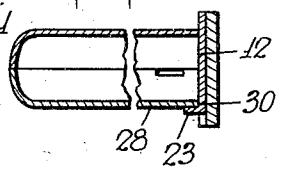
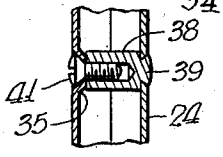


FIG. 7.



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LOCK CASING CONSTRUCTION

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9 Claims. (Cl. 70—448)

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This invention relates to lock casings; more particularly to mortice lock casings made of wrought iron.

Known to me is the production of mortice lock casings made of two separable segments, joined to an end plate. The sections of such plates, where made of wrought iron and stamped or drawn to matching outlines, are of low cost. Lock casings made from such stampings are frowned upon since inaccuracies by the carpenter in morticing the door may buckle or distort the lock casing, to cause binding of the lock mechanism, so that free pivotal and sliding movement is not secured.

Accordingly, it is an object of my invention to provide a mortice lock casing from wrought steel or sheet metal which readily responds to sheet metal stamping and forming operations and which casing is characterized by being free from the likelihood of either collapsing or becoming distorted, when forced into the morticed orifice of the door, so as not to bind the various lock bearings, bolt guides, which are fitted within the lock casing.

It is contemplated by my invention to provide a mortice lock casing in which a pair of casing sections may be stamped by simple metal stamping operations and are held in an edge-to-edge contact with relation to the end plate, providing simplicity of assembly, with rigidity of construction, resisting a variety of stresses in fitting the casing within the aperture morticed in the door, and having substantially complete peripheral support at the contiguous segments.

It is still further an object of my invention to provide a mortice lock casing and end plate assembly, in which the end plate is free from any evidence of being riveted and may accordingly be driven into the morticed opening of the door without weakening the joint uniting the end plate and casing segments to each other.

It is an object of my invention to provide a lock casing which is made from simple metal stampings, yet satisfies the requirements of resisting the normal abuse to the lock mechanism in fitting the lock casing in position.

To attain these objects and such further objects as may appear herein, or be hereinafter pointed out, I make reference to the accompanying drawing forming a part hereof, in which—

Figure 1 is a rear perspective view showing my invention;

Figure 2 is a section taken on the line 2—2 of Figure 1;

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Figure 3 is a perspective view of an end plate segregated from the lock casing;

Figure 4 is a perspective view showing the inside construction of a lock casing segment;

Figure 5 is a section taken on the line 5—5 of Figure 2;

Figure 6 is a section taken on the line 6—6 of Figure 2;

Figure 7 is a section taken on the line 7—7 of Figure 1.

Making reference to the drawing, I provide a combination lock case 10, in which an end plate 11 is provided with a rear lamination 12 affixed thereto by spinning the eyelet portions 13 around complementary borings in the lamination 12, thus to provide screw holes 14 for attaching the casing to the door frame in a manner which will be readily understood. The lamination 12 and the end plate segment 11 thereof are provided with a latch bolt guide hole 15, and a dead bolt guide hole 16. Loops 17 and 18 are offset to provide slots 19 and 20, respectively. To each side of the loops the lamination 12 is formed with cutouts 21, having tapered walls 22. Medially, the lamination 12 is formed with a locking tongue 23 adjacent the rear edge of the end plate, for purposes which will appear hereinafter.

I thereupon provide casing segments comprising the rear segment 24 and the front segment 25. The segments are each formed with a top wall 26, a bottom wall 26a and a rear wall 27, extended from the side wall 28 by an arc, the radius of which is somewhat less than the thickness of the segment of the casing, to provide meeting edges 29. The forward edge 30 is formed with inwardly directed fingers 31 and 32, which extend substantially at right angles to the wall 28 and for a depth substantially extending to the meeting edge 29. The fingers 31 and 32 fit snugly within the slots 19 and 20, defined by the loops 17 and 18, as will be more clearly apparent hereinafter.

The segment 25, adjacent the edge 29 and extending from the wall 27 is formed with a tongue 33 and a prying cutout 34. Borings 35 and 36 are formed in the side wall 28, in number in accordance with the pivotal supports for the various parts of the lock mechanism to be mounted thereon. I illustrate the boring 35 with an inwardly spun, countersunk flange 37 to receive a post 38 riveted at 39 on the rear segment 24. The segment 24 is likewise provided with a cutout 40, to receive the tongue 33, previously described. In all other respects, however, the segments 24 and 25 are identical.

I have not illustrated the internal lock mechanism which may be mounted in the casing segments 24 and 25 with relation thereto since this does not form any part of my present invention.

With an assembly as thus provided, the lock mechanism is mounted upon the rear segment 24, employing suitable posts and guides for key operation of a latch bolt and dead bolt. With such an assembly, the rear segment is assembled with the end plate 11 by directing the fingers 31 and 32 into the slots 19 and 20 of the loops 17 and 18 until the fingers are brought to the limiting position and the side wall 28 abuts the side edges 19a of the loops 17 and 18. In this position, the tongue 23 is then set up to lock the section 24 against displacement, as will appear more clearly from Figures 1 and 6, the edge 30 abutting the lamination 12. The cover segment 25 may thereupon be united by a similar operation to direct the fingers 31 and 32, carried thereby, in engagement with the loops 17 and 18, to fall within the front half of the slots 18 and 19. The limiting position to bring the edges 29 into engagement with each other is effected by the tapered walls 22, which guide the fingers 31 and 32 into a position to align the edges 29 of each casing segment, so that they abut the other. A screw 41 may be directed through the boring 35, to engage the post 38 and hold the casing cover segment 25 in assembled position.

It will be observed from the construction which I have described and illustrated that I present an end plate which evidences no riveting for uniting the casing carried thereby with said end plate.

The casing side walls 28 are supported with relation to each other on the edges 29 for the walls 26 and 27, and by the fingers 31, 32 abutting the loops 17 and 18 adjacent the edge 30. It will be observed that any hammer blow to position the casing segments in the mortice formed in the door will not disalign the contacting edges 29 of the segments. Any binding caused by insufficient morticing of the door aperture is resisted by the contacting engagement of the fingers 31 and 32 with each other, and by the support for these fingers supplied by the loops 17 and 18 within the slots 19 and 20.

My casing and end plate assembly affords resistance to warping and bending in that adequate bearing surfaces are provided for the front of the casing as well as for the top and end edges of the top and rear walls of the casing. Inclusion of the fingers 31 and 32 to engage the loops 17 and 18 permits the casing to resist the driving force of a hammer, without weakening the connection otherwise occurring where riveting assembly is effected between the casing segments and the end plate.

In general, I have provided a lock casing which is readily made by simple metal stamping operations, permitting the employment of sheet wrought steel of light weight, without sacrificing the rigidity necessary in a construction of this character, and eliminating the possibility of having the lock mechanism bound or tightened, should the mortice in the door be too closely formed.

It will further be observed that driving or prying the casing into or out of the mortice formed in the door will not injuriously affect the connection between the end plate and the casing parts in that no rivets are employed to connect the end plate and casing segments.

In general, therefore, I have provided a mortice casing construction which effects substantial

economies in its production, and gives superior results and is free from binding defects involved in poor carpentry in fitting the casing in position.

Having thus described my invention and illustrated its use, what I claim is new and desire to secure by Letters Patent is:

1. In a lock having casing sections attached to an end plate, the combination wherein the end plate comprises an outer and an inner segment laminated together, the inner segment being formed with at least one offset portion forming a loop and said casing sections having inturned walls with their edges in contact and inwardly directed fingers engaging said loop portion, holding said plate and sections anchored together, providing a rivet-free outer surface to said end plate.

2. In a mortice lock or the like having an end plate and complementary sections forming a casing united to said end plate, said end plate comprising an outer facing segment and an inner segment laminated together, offset portions formed in said inner segment section providing at least one slot in parallelism with said outer segment of said end plate, said casing sections comprising complementary portions having end and side walls edgewise in contact and including inwardly directed fingers entering said slot formed by said inner segment, to anchor said sections to the end plate and to provide substantially complete peripheral support for said casing segments adjacent said end plate.

3. In a mortice lock or the like having an end plate and complemental casing sections united thereto, said sections each comprising a pressed sheet metal stamping including a side wall, extended into a top, a lower and a rear wall, the edges of which sections may abut each other, the forward edge of said side wall having inwardly directed fingers, loops formed on the rear face of said end plate into which said fingers enter, peripherally supporting the forward edge of said side wall adjacent said end plate.

4. In a mortice lock or the like having an end plate and complementary casing sections united thereto, said end plate including an outer facing and an inner segment laminated to each other substantially throughout the lengths of said segments, and including a latch bolt guide aperture therethrough, said inner segment having offset portions providing slots between said segments, cutouts formed in said offset portions providing side edges, said casing sections including fingers entering said slots and abutting the side edges of said offset portions, peripherally to support the side walls of said casing sections adjacent the end plate.

5. In a mortice lock or the like having complementary casing sections pressed from sheet metal to direct the same arcuately and form top and rear walls, the edges of which abut each other to peripherally support the casing side walls against buckling, the forward wall including inwardly directed fingers turned toward each other and an end plate including offset portions providing slots into which the fingers of said casing are directed, to anchor the casing sections to the end plate and peripherally support the edge wall anchoring the casing sections to said end plate.

6. In a mortice lock or the like having an end plate and complementary casing sections, said casing sections each comprising a pressed sheet metal side wall having integral top and rear walls formed to provide meeting edges, the

forward edge of said casing including inwardly directed fingers, said end plate including inner and outer segments laminated to each other, having offset portions providing an abutment for the forward end of said side wall and slots into which the said fingers are directed.

7. In a mortice lock or the like having an end plate and complementary casing sections, said casing sections each comprising a pressed sheet metal side wall having integral top and rear walls formed to provide meeting edges, the forward edge of said casing including inwardly directed fingers, said end plate including inner and outer segments laminated to each other, having offset portions providing an abutment for the forward end of said side wall and slots into which the said fingers are directed and cutouts in said offset sections to guide said fingers and said sections in said abutting position.

8. In a mortice lock or the like having an end plate and complementary casing sections, said casing sections each comprising a pressed sheet metal side wall having integral top and rear walls formed to provide meeting edges, the forward edge of said casing including inwardly directed fingers, said end plate including inner and outer segments laminated to each other, having offset portions providing an abutment for the forward

end of said side wall and slots into which the said fingers are directed, the inner segment of said end plate including a locking tongue engaging one of said casing sections against displacement.

9. In a mortice lock or the like having complementary casing sections pressed from sheet metal to provide a top wall, a bottom wall and a rear wall extended from the side wall into meeting edges to abut each other, the forward edge of each of said side plates being supported on side edges of an end plate to which said casing is anchored by fingers extending from said forward edge, said fingers entering offset loops formed in said end plate and comprising a segment laminated to said end plate.

ANDREW ERKKILA.

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