Dec. 3, 1940. A. J. KOMENAK 2,223,765

LATCH FOR OVERLAPPING CLOSURE

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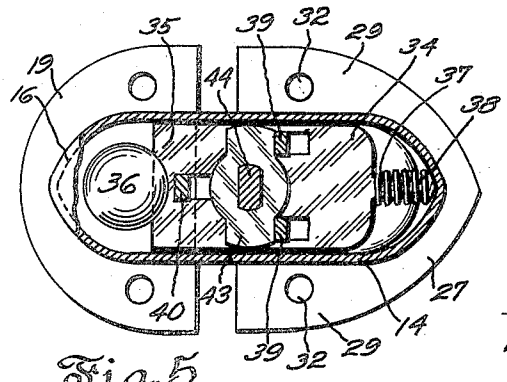


Fig. 5

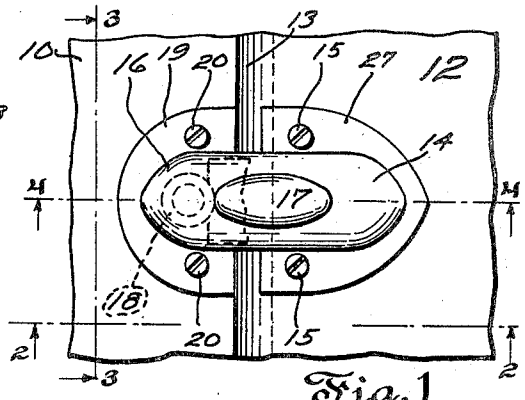


Fig. 1

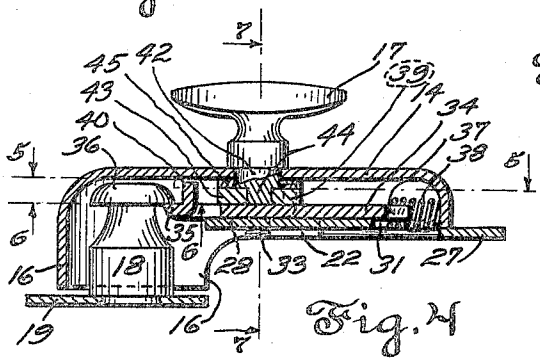


Fig. 4

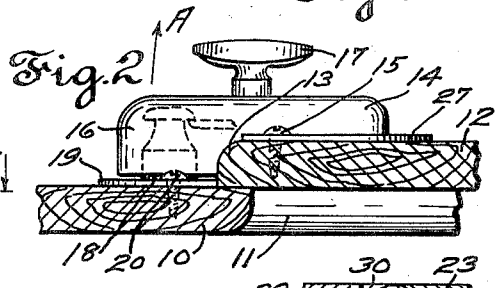


Fig. 2

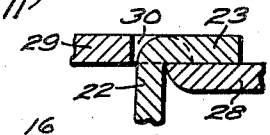


Fig. 10

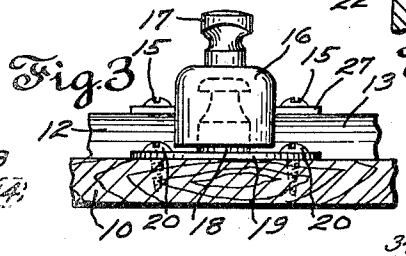


Fig. 3

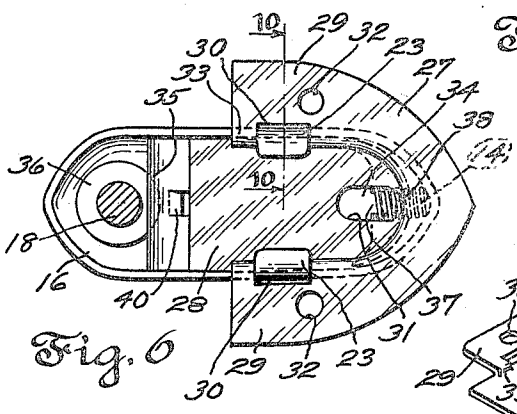


Fig. 6

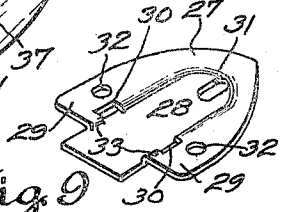


Fig. 9

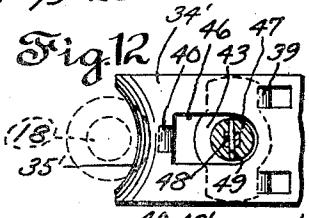


Fig. 12

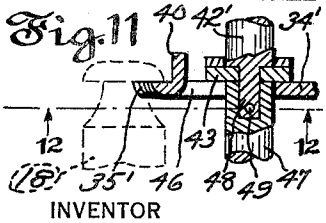


Fig. 11

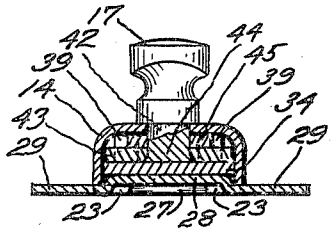


Fig. 7

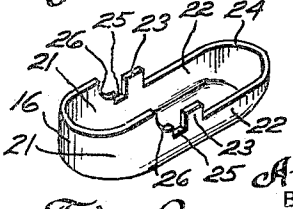


Fig. 8

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LATCH FOR OVERLAPPING CLOSURE

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Application January 18, 1937, Serial No. 121,084

5 Claims. (Cl. 292—337)

This invention relates to latches, particularly of the type adapted to fasten closed a hinged closure which swings into overlapping relationship to a jamb.

An important object of the invention is to simplify the construction and compact the parts of a latch for this purpose to an extreme degree without sacrificing the size and ruggedness of the fastening bolt and its striker.

Another object is to do away with cast metal parts of complicated shape and to employ relatively inexpensive sheet metal parts, and parts which may be automatically produced by a "screw machine."

A further object is to eliminate the use of leaf springs which require accurate tempering and are subject to early fatigue and breaking.

A further object is to provide a drawn metal housing for the latch mechanism adapted to project beyond the edge of the closure or door and to receive and conceal a striker.

A further object is to provide a mounting plate for the striker whose correct position on the jamb may be determined by its relationship to the edge of the door which overlaps the casing thereby to facilitate the proper positioning of the separable parts of the latch when they are screwed or otherwise secured to the door and jamb.

A still further object is to retain the latch mechanism within the drawn metal housing by means of a cover plate shaped and perforated to be held against the edges of the housing in rigid and definitely positioned relationship thereto by turned-over tongues, thus avoiding the use of screws or other loose parts for assembling the latch.

A still further object is to utilize extended flange portions of the cover plate for mounting the latch housing upon the closure or door.

The foregoing and other objects will become clear from the following description of an illustrative embodiment of the invention in which reference is made to the appended drawing wherein:

Figure 1 is an outside view of the portion of a jamb which borders upon an opening and of a portion of a closure or door for the opening swung closed in overlapping relationship to the jamb with a preferred form of my improved latch applied thereto.

Figure 2 is an elevation of the latch parts and shows the jamb and door in section on the plane 2—2 in Fig. 1 looking in the direction of the arrows.

Figure 3 shows an endwise view of the latch parts and is taken in section through the casing on the plane 3—3 in Fig. 1 looking in the direction of the arrows.

Figure 4 is a cross sectional view on an enlarged scale taken through the latch parts on the plane 4—4 in Fig. 1 looking in the direction of the arrows.

Figure 5 is a plan view of the interior parts of the latch mechanism taken on the planes 5—5 in Fig. 4.

Figure 6 is a bottom plan view of the latch parts carried by the door and shows the striker in section on the plane 6—6 in Fig. 4, looking in the direction of the arrows.

Figure 7 is a view taken in section on the vertical plane 7—7 in Fig. 4 looking in the direction of the arrows.

Figure 8 is an inverted perspective view of the latch housing with the other parts removed therefrom and shown on a scale corresponding to Fig. 1.

Figure 9 is a corresponding perspective view of the cover plate removed from the latch housing of Fig. 8.

Figure 10 is a fragmentary view on a greatly enlarged scale taken in section on the plane 10—10 in Fig. 6 looking in the direction of the arrows.

Figure 11 is a fragmentary view of a modified form of certain parts shown in Fig. 4, the striker being indicated by broken lines.

Figure 12 is a sectional view taken on the plane 12—12 in Fig. 11 looking in the direction of the arrows.

In certain kinds of cabinet work, as for example the relatively small closets and compartments in automobile trailers, the saving of space and economy of production are prime factors which often give rise to the use of doors which overlap their jambs instead of closing with the outer door surface in flush relationship to the outer surface of the jamb. The hardware, such as latches, employed as handle equipped devices for fastening such doors must preferably be of correspondingly low cost and compact construction. The present improvements are in part directed to the provision of a latch for use in this connection but which may have a variety of applications as fastening means for closures other than of the type described.

In Figs. 1, 2 and 3, the simple wooden wall 10 of a closet or compartment is indicated as bordering the opening 11 adapted to be covered by the swinging door 12 which may be hinged by

means not shown to open in the direction of arrow A in Fig. 2. For better appearance the exposed corner 13 of the edge of door 12 may be rounded or chamfered as shown in Fig. 2.

A housing 14 containing the latch mechanism is secured by wood screws 15 or other suitable means, to the outer surface of door 12 and includes a hood-like portion 16 overhanging the door edge and preferably conforming to the rounded corner 13 thereof. Handle 17 serves to be grasped for opening the door and to be turned for unfastening the latch. The striker 18 comprises a screw machine part relieved to form a button headed post rigidly carried by its mounting plate 19 which is secured to the jamb 10 by wood screws 20 or other suitable means. The correct relationship of the striker 18 to the latch housing 14 and its contained mechanism is easily determined by placing the right edge of plate 19 against the edge of door 12 when the latter is closed.

Fig. 8 shows a perspective view of the housing as it may be produced by drawing sheet metal to form an elongated cup whose side walls may then be trimmed to the shape as shown. Thus the side walls 21 may be left at their original full depth in the front or hood portion 16 of housing 14 while in the rear portion of the housing the side walls 22 are trimmed down to approximately half their original depth while leaving the tongues 23 projecting from the otherwise co-planar edges of the walls 22, which edges 24 extend around the mechanism end of the housing and lie in the same plane preferably with the bottom of notches 25 on the opposite side of tongues 23. The concave cutaway 26 in the side walls is an example of any suitable contour which may be given to the wall edges at this point to enable them to conform to and abut against the edge of door 12.

Fig. 9 shows the perforated cover plate 27 whose following features provide for accurately positioned rigid assembly with the housing 14. Cover plate 27 includes a central depressed panel portion 28 bordered by the mounting flanges 29. The apertures 30 in flanges 29, directly adjacent the lateral edges of the panel portion 28, receive the tongues 23 which may then be bent over at right angles against the outer surface of the depressed panel 28 as shown in Figs. 6 and 10, in a manner not to protrude beyond the outer face of flanges 29. An additional central aperture 31 in the depressed panel 28 provides clearance for a spring hereinafter described. Two screw holes 32 in flanges 29 serve for mounting the housing 14 upon a door or closure. It will be noted that the offset bends 33 where flanges 29 join the depressed panel 28 at the side of apertures 30 fit snugly in the notches 25. Also the lateral edges of the depressed panel 28 snugly fit the side walls 22 of housing 14 and seat slightly therewithin.

Between cover plate 27 and the walls of housing 14 the extremely simple latch mechanism is constrained for operation and may be comprised of the parts best shown in Figs. 4, 5 and 7. Slidable lengthwise of the housing 14 is the plate-like bolt 34 having its striker engaging end 35 chamfered or otherwise formed to cam over the buttonhead 36 of striker 18. While this end of the bolt 34 is shown as straight in Figs. 5 and 6, it may if desired, be curved as in Figs. 11 and 12 (see edge 35'), which tends to increase the area of surface contact between the striker head 36 and bolt end with possibility of increasing the wearing qualities. At its opposite end, the bolt 34 is shaped to present a projecting lug 37 which enters and serves to guide the short compression spring 38 whose opposite end bears against the interior of housing 14 urging the bolt constantly toward the striker. Three upstanding lugs may be sheared from the metal of bolt 34 to serve the double purpose of preventing tipping of bolt 34 away from alignment with cover plate 27 and of limiting the sliding movement of bolt 34 in both directions. Two of these lugs 39 are engaged for manually retracting the bolt from the striker against the tension of spring 38 while the other lug 40 serves to limit the retractile movement of the bolt.

Bolt 34 is manually operated by the handle 17 whose spindle 42 is journaled in the wall of housing 14 and interior of the housing is flatted to carry fixed thereto the double ended cam 43 over which the flatted end 44 of spindle 42 may be peened and preferably made to lie flush with the under surface of the cam. A spacer collar 45, surrounding spindle 42 between the housing wall and the cam, is of proper thickness to steady the handle 17 while permitting free turning thereof. Either end of cam 43 may bear against one of the lugs 39 while lug 40 is adapted to contact with the reduced periphery of the dog to limit the movement of bolt 34 toward the right in Figs. 4 and 5.

In Figs. 11 and 12 the bolt plate 34' is provided with an elongated central aperture 46 through which the handle spindle 42' may be continued to project out from the side of housing 14 which is covered by plate 27 and if desired, through the door 12, and equipped with an additional handle on the opposite side of the door for use with closures such as household doors required to be unlatched from both sides. In such case, the latch will be mounted upon the door in such position that this additional operating handle will clear the edge of the door casing. Specifically, Figs. 11 and 12 indicate such extension of the handle spindle 42 by securing a separate shaft 47 to a squared end 48 of spindle 42' adapted to be received within a square socket in the end of extension shaft 47 and locked therein by a pin 49.

The mounting plate 27 for housing 14 may have its flanges 29 extended down over the rounded corner 13 of the edge of door 12 and is properly located on the door when the housing edges 26, or such extended flanges, register with this edge of the door. The striker mounting plate 19 is properly mounted when its edge registers with the edge of the door. Turning handle 17 in either direction causes cam 43 to work one or the other of lugs 39 and retracts the bolt 34 from striker head 36. When the door closes, edge 35 of bolt 34 automatically cams over the striker head and spring 38 causes the interlocking of these parts.

While the foregoing description explains a satisfactory embodiment of the present improvements, parts of cast metal may be substituted for parts herein proposed to be made from sheet metal or from screw machine stock. Many departures from the disclosed embodiment will occur to those skilled in the art. The appended claims are to be interpreted as inclusive of all substitutes and constructions which come within the scope of their terms.

I claim:

1. A housing for latch mechanism comprising in combination, a shell-like case having walls of pliant material terminating at edges defining

an open side of said case and contoured to form projecting bendable tongues, and a base plate member thinner than the length of said tongues having a depressed panel portion and a flange portion bordering thereon separated from said panel portion by an off-setting shoulder, said shoulder and flange being perforated in a manner to permit said tongues to penetrate said flange at the edge of said panel and to provide room for said tongues to be bent over against the depressed surface of said panel in a direction away from said flange.

2. In a latch for fastening a door whose edge portion closes against a jamb and overlaps a surface of said jamb carrying a striker, a housing for latch mechanism co-operative with said striker, said housing including a relatively shallow rear portion having means to mount the same on the outer surface of said door and a relatively deep front portion projecting lengthwise beyond the door edge thereby to overhang said surface of the jamb, the said housing portions embodying a roof wall extending substantially straight throughout the combined lengths of said housing portions, rear side-walls extending to a shallow depth from said roof wall in said rear portion of the housing, front side-walls continuous with said rear side-walls respectively and extending to a substantially greater depth from said straight roof wall in said front portion of the housing in a manner reaching crosswise the thickness of said door, a rear end-wall of said shallow depth connecting said rear side-walls to complete an enclosure for the rear end of the housing, and a front end-wall coextensive with the greater depth of said front side-walls and connecting the same at the front end of said housing in a manner to complete a hood-like enclosure partly in line with the thickness of said door of shape and size to receive and substantially conceal said striker.

3. In a latch as defined in claim 2 a housing as defined in said claim including a plate-like member secured to and spanning the said side-walls in the said rear portion of said housing and terminating short of the said side-walls in the said front portion of said housing and disposed in a plane close to the said outer door surface and thereby separated from the plane of the said jamb surface by a distance substantially equal to the said thickness of the door.

4. A housing for latch mechanism as defined in claim 1 in which the said offsetting shoulder of the said base plate member reaches beyond the immediate neighborhood of the said tongues and at points substantially distant therefrom registers with inner corners of the said wall edges of the case in a manner to aid said tongues in maintaining a positively determined assembled relationship of said plate member and said case.

5. In a housing for latch mechanism or the like including a shell-like case having walls of pliant sheet-like material and a base plate member having a depressed face forming a panel and having a flange bordering thereon separated from said panel by an offsetting shoulder extending at least as high as the thickness of said case material, fastening devices including a bendable tongue formed by a projecting portion of said material of the shell-like case, said flange containing an aperture flanking the outer boundary of said depressed face of the panel of shape and size to admit said tongue therethrough, and said offsetting shoulder being cut away immediately adjacent said aperture, whereby said tongue may penetrate both said flange and said offsetting shoulder and be bent over against said depressed face of said panel, the bend in said tongue occupying and being confined to said aperture.

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