Jan. 3, 1950 F. GERSON 2,493,624

LATCH MECHANISM

Filed March 27, 1948

Fig. 1

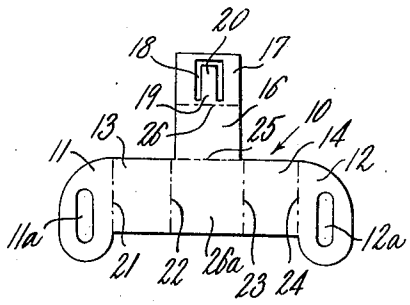


Fig. 2

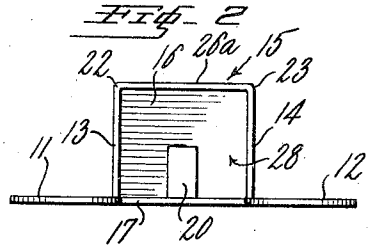


Fig. 3

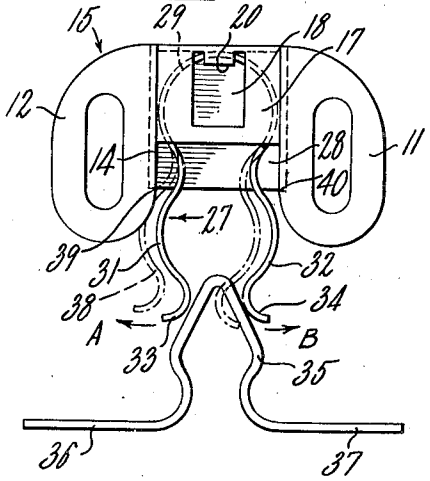


Fig. 6

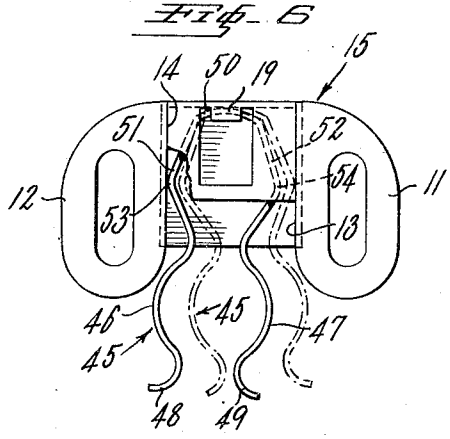


Fig. 4

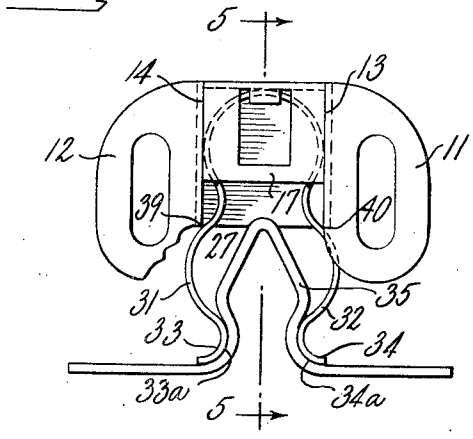
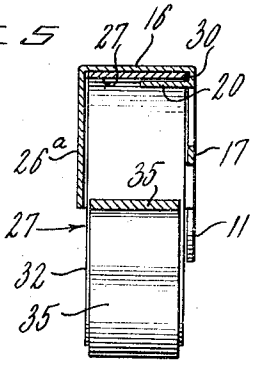


Fig. 5



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LATCH MECHANISM

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2 Claims. (Cl. 292—17)

1

This invention relates to latch structures consisting mainly of a keeper and a catch cooperating therewith, which structures are used in connection with cabinets, cupboards, etc.

It is one of the primary objects of this invention to provide means ensuring the manufacture of the latch housing or device from a single blank of material by mass production methods which device includes as an integral part thereof a retainer element for the latching spring member whose jaws are adapted to engage the keeper.

It is another object of the invention to provide a latch device of the aforesaid character which is of simple, compact and durable construction and which withstands considerable wear, is self-adjusting and necessitates only a minimum of parts which are easily replaceable.

It is a further object of the invention to provide means rendering possible the adjustment of the parts of the latch structure with respect to each other during closing and openings operations of the keeper while the latter remains in substantially rigid condition when it assumes final or engagement position.

Still a further object of the invention is to provide means for swingably mounting the spring member within the latch device whereby the pivotal or swinging movements of the spring may be limited either by the particular shape of the spring and/or by the walls of the latch housing.

Yet a further object of the invention is to provide means permitting ready replacement of the spring for repairs as well as for insertion of a new spring which may have various dimensions and shapes according to the strike or keeper selected and for other practical purposes.

These and other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawing which discloses, by way of example, the principle of the invention and preferred modes which have been contemplated for applying said principle.

In the drawings:

Fig. 1 is a top plan view of a blank from which the latch housing of Fig. 2 may be produced;

Fig. 2 is a front-elevational view of the latch housing employed in connection with this invention;

Fig. 3 shows a bottom plan view of the latch device with the spring thereof shown in two different positions and with the strike or keeper in the process of being applied to the latter;

2

Fig. 4 shows the latch device of Fig. 3 in applied or engagement position;

Fig. 5 is a cross-sectional view taken along line 5—5 of Fig. 4;

Fig. 6 shows a latch device, similar to that of Fig. 3, with the spring in modified form and inserted therein.

Referring now more particularly to the drawing, there is shown in Fig. 1 a blank 10 of sheet metal and similar material having the wing flanges 11 and 12 and the side walls 13 and 14 of the latch housing 15, rear wall 16 and bottom wall 17. Bottom wall 17 is provided with a U-shaped cut-out 18 which provides a finger or retainer element 20 adapted to be bent about its inner end 19 so as to extend approximately half the height of the rear wall and perpendicular to bottom wall 17. In Fig. 2 there is shown an enlarged view of the latch housing 15 made from blank 10, whose fold lines 21, 22, 23, 24, 25, and 26 about which the walls are folded are indicated in Fig. 1, whereby it will become apparent that top wall 26a forms an extension of rear and bottom walls 16 and 17. Thus, the latch housing 15 can be readily obtained by means of a single stamping and bending operation, if desired and may be affixed by means of screw bolts (not shown) which pass through flange openings 11a, 12a for retaining it on the frame or door of a cabinet.

Before finger 20, forming a pivot, is bent over substantially parallel to but spaced from rear wall 16, a hardened steel and U-shaped spring member 27 may be inserted and thus retained in the hollow 28 of the housing 15. The rear end 29 of the spring, in this particular instance, is curved or round and is adapted to be retained by means of pivot or member 20 within the space 30 formed between the rear wall 16 and the finger-shaped or tongue member 20 (Fig. 5). Spring member 27 extends substantially the full height of the housing determined by the distance between the bottom wall 17 and top wall 26a and projects in a forward direction from the curved rear end 29 to terminate in two respective forward jaws 31, 32 whose extremities 33, 34 are outwardly bent so as to cooperate with a suitably conically shaped strike or keeper 35 having flanges 36, 37 for the attachment thereof to a door or part of a cupboard (not shown), as it is well known in the art.

Spring member 27, as may be easily visualized from Fig. 3 is enabled by the construction of tongue member or pivot 20 to swing thereabout and is further guided by the inner faces of top

wall 26a and bottom wall 17 during such swinging movement, either in the direction of arrow A or B for a purpose later to be described. One extreme left position, indicated in dot-dash lines and designated by numeral 38 is shown in Fig. 3, whereby jaw 31 engages the forward end of side wall 14 at 39 and whereby the swinging movement of spring 27 becomes thus limited This position may be predetermined so as to permit spring 27 to move either in its central position (shown in full lines) or to its extreme outer positions, either in the direction of arrow A or B to compensate for any misaligned position which the strike or keeper 35 may take with respect to the jaws 31, 32 of spring member 27.

Fig. 4 shows keeper 35 in its final or engagement position in which the jaws 31 and 32 of the latching spring 27 abut laterally at 39 and 40 against the inner faces of side walls 14 and 13, respectively, whereby the spring 27 is tensioned and substantially undisplaceably held in sideward direction, while the forward ends 33 and 34 of the spring jaws 31 and 32 engage with the outer curved ends 33a, 34a of the keeper 35 in which position the spring 27 is pressed in outward direction.

Fig. 6 shows the latch housing seen in Figs. 2 and 3 together with a differently shaped spring 45. This spring 45 has the jaws 46 and 47 similar in shape to jaws 31, 32 of spring member 27, and the forward, outwardly bent ends 48 and 49.

While the rearward end 50 of spring 45 is somewhat curved or rounded, the legs 51 and 52 interconnecting the end 50 with the jaws 46 and 47, respectively, are of such formations that they form a knee or bend 53, 54, respectively, which knee 53 in one position of spring 45 is adapted to abut against the inner face of side wall 14 of the latch housing 15 (shown in full lines), whereas in another position of spring 45, knee 54 is adapted to abut against the inner face of side wall 13 of the latch housing 15, to thereby restrict the movement of the spring 45 in outward directions. However, it can be readily gathered from Fig. 6, and since the jaws 46 and 47 form a unitary section of the spring 45, that these spring jaws may move relatively to the point of support 53 at 14 and 54 at 13 and are thus biased at said locations of support.

Although jaws 31, 32 of Fig. 3 will also be somewhat biased with respect to the remainder of spring 27 (when swung to the extreme positions of which one is indicated in Fig. 3 in dotted lines), it will be quite obvious that due to the fact that the location of contact between the respective knees and the side walls within the latch housing 15 (Fig. 6) is more remote from the outer ends 48 and 49 of spring member 45, the movability and tension of the spring jaws 46 and 47 will be quite different as compared with the spring jaws 31, 32 of spring 27. Thus, it will be seen that the same latch housing may be used in connection with differently shaped spring members to readily bring about various results for the intended purposes.

It can thus be seen that there has been provided in accordance with this invention a latch device comprised of a catch and of an open latch housing having inner walls defining the open end of said latch housing and in which a single spring member of U-shaped formation is positioned, said spring member being provided with a rear end and two spaced apart jaws integral with said rear end and projecting beyond said open housing end, and a retainer element forming an integral part of said latch housing and positioned spaced from said inner walls of said latch housing, said rear end of said spring member extending within the space between said housing walls and said retainer element, said retainer element forming a pivot for said spring rear end, whereby said projecting jaws may swing within the confines of said walls of said housing.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. In a latch mechanism having a keeper and a latch housing with an open end, which housing is defined by a bottom wall, a top wall, a rear wall and opposite side walls; a single U-shaped spring member provided with an arcuate rear portion and two jaw-forming legs projecting from said rear portion through said open end of said housing for cooperation with said keeper, the height of said spring member substantially corresponding to the distance between said top wall and said bottom wall, and an upright pivot element struck out of the bottom wall and bent to extend substantially parallel to said rear wall, said rear portion of said spring member being positioned for movement about said pivot element within the space defined by said upright pivot element and said rear wall, the extent of movement of said spring member being limited by said side walls within said housing against which said legs of said spring member are spread and braced in engaged position of said keeper with said jaws of said spring member.

2. In a mechanism according to claim 1, wherein said bottom wall is shorter in length than that of said top wall, the height of said pivot element being approximately half the height of said rear wall.

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