Feb. 29, 1944. W. A. ENDTER 2,342,848

ROTARY LATCH WITH MULTIPLE ENGAGING MEANS

Original Filed Oct. 17, 1936

Fig. 1.

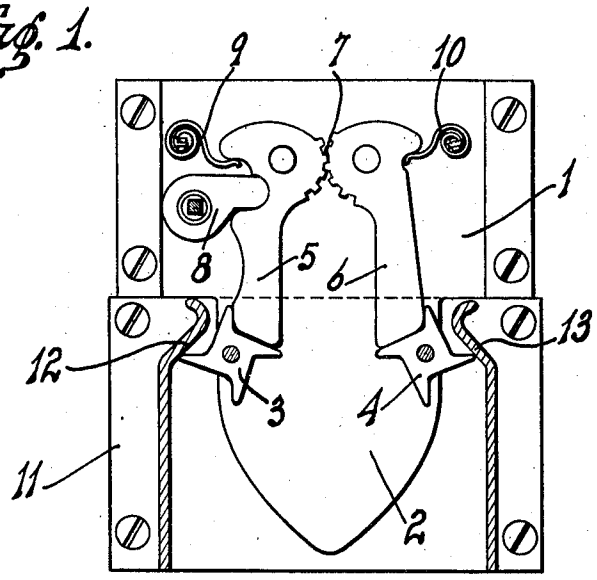


Fig. 2.

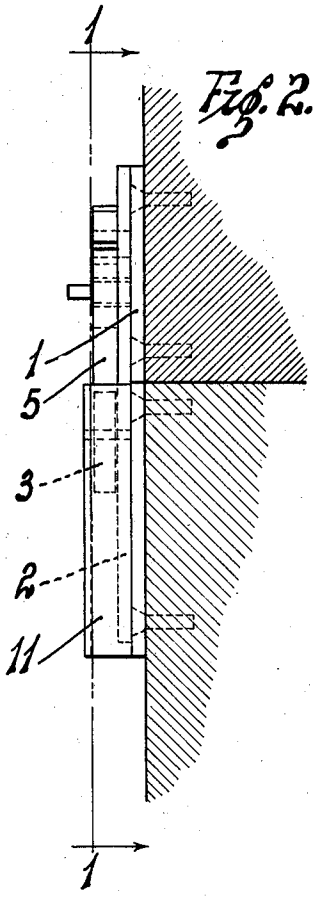
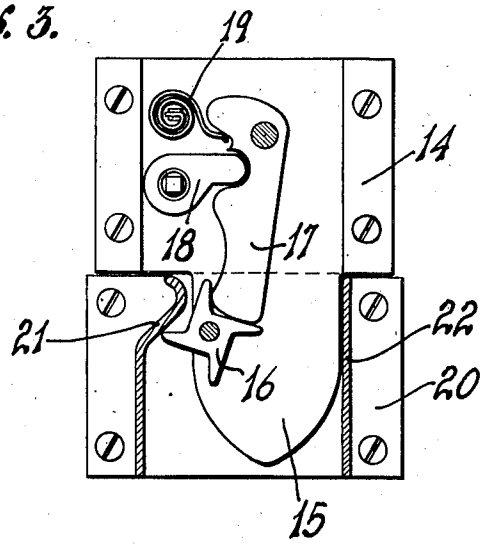


Fig. 3.



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ROTARY LATCH WITH MULTIPLE ENGAGING MEANS

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Original application October 17, 1936, Serial No. 106,243. Divided and this application September 11, 1940, Serial No. 356,274

9 Claims. (Cl. 292—44)

This application is a division of my co-pending application, Serial No. 106,243, filed October 17, 1936, which has become Patent No. 2,224,512, dated December 10, 1940.

This invention relates to a rotary latch with multiple engaging means with the keeper.

An object of my invention is to provide a novel rotary latch of the character stated, in which a number of engaging means engage different surfaces of a keeper, thereby effectively holding a closure in a plurality of directions.

Another object is to provide a novel rotary latch of the character stated, in which a number of rotary bolts each engage different surfaces in a keeper, each of the rotary bolts being cammed in a latching direction when engaging the keeper.

A feature of my invention resides in the arrangement of a plurality of spaced engaging means on the latch which engage spaced surfaces in the keeper for the purpose of effectively holding the closure in a closed position.

This invention also relates to a novel rotary latch in which the latch is provided with a stationary guiding surface, the keeper cooperating with the guiding surface and with the rotary latch bolt whereby the keeper clamps the guiding surface and the bolt.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description, and the appended claims.

In the drawing:

Figure 1 is a sectional view taken on line 1—1 of Figure 2, and illustrating my novel rotary latch.

Figure 2 is a side elevation of the same.

Figure 3 is a transverse, sectional view of a slightly modified form of rotary latch and showing this latch in keeper engaging position.

My rotary latch is particularly applicable for vehicle hoods or deck latches, trunks or similar arrangements. This latch consists of a case 1, which is secured to the door or closure. A guide plate 2 depends from the case 1, and is preferably integrally formed with this case. A pair of multi-headed rotary bolts 3 and 4 are journaled on the guide plate 2 adjacent the upper end thereof, and are preferably substantially in horizontal alignment. The rotary bolts 3 and 4 are engaged by a cam dog 5 and 6, respectively, each of these dogs being pivotally mounted on the case 1, the lower cam surfaces of these dogs engaging the bolts 3 and 4 for the purpose of camming the bolts against the keeper, as will be further described.

The dogs 5 and 6 are linked together so that they will simultaneously operate by suitable means such as the inter-engaging teeth 7. One of the dogs is swung on its pivot by the manually operated finger 8, which engages the dog substantially as shown, and in operating one dog the other is simultaneously releasing the bolts 3 and 4 and also simultaneously camming these bolts into engagement with the keeper. Suitable spring means 9 and 10 engage the dogs 5 and 6, respectively, urging said dogs into engagement with the bolts 3 and 4 respectively.

The keeper 11 is provided with two inclined latching surfaces 12 and 13 adjacent the upper end thereof. These latching surfaces are inclined inwardly, and are engaged by the rotary bolts 3 and 4, substantially as shown. It will be evident that the spaced bolts 3 and 4 engaging different latching surfaces simultaneously will effectively hold the closure in latched position.

In Figure 3, I have shown a latch consisting of a case 14, which is attached to the door or closure. A guide plate 15 depends from the case 14, and is preferably integrally formed with the case. A rotary bolt 16 is journaled on the guide plate adjacent the top thereof, and is engaged by a cam dog 17, which is pivotally mounted on the case 14 above the bolt 16. The dog 17 is swung on its pivot and thus disengaged from the multi-headed bolt 16 by a manually actuated finger 18. The usual spring 19 engages the dog and urges the same into engagement with the bolt. The keeper 20 is provided with an inclined latching surface 21, which is engaged by the bolt 16. The latching surface 21 is preferably inclined inwardly, and is engaged by a head of the rotary bolt when the latch is in closed position, substantially as shown. A plain bearing surface 22 is provided on the keeper and spaced from the inclined surface 21. This bearing surface 22 is engaged by an edge of the guide plate 15 when the parts are in latched position. I thus provide a wedging action between the rotary bolt 16 and the keeper 20, which will effectively hold the closure against movement when in latched position.

Having described my invention, I claim:

1. A latching mechanism for closures adapted to cooperate with a keeper having inclined surfaces, comprising a plurality of multi-headed rotary bolts mounted on the closure, dogging means engaging the heads of each of the rotary bolts, said bolts being capable of further rotation in latching direction when in partly latched position by said dogging means, each of said surfaces being engageable by a multi-headed rotary

bolt, said dogging means being inter-connected whereby they operate in unison, said inclined surfaces on the keeper being oppositely inclined and spaced apart, said rotary bolts being arranged between said inclined surfaces, when in latched position.

2. A latching mechanism for closures comprising cooperative interengaging members, inclined keeper portions on one of said members, multi-headed rotary bolts carried by the other of said members adapted to engage said keeper portions as said interengaging members are brought into cooperative relation, and dogging means for each rotary bolt and engaging one head on each of said bolts and including means causing said bolts to be constantly urged in latching direction when in partly latched position.

3. A latching mechanism for closures comprising cooperative interengaging members, opposed inclined keeper portions on one of said members, multi-headed rotary bolts carried by the other of said members adapted to engage said keeper portions as said interengaging members are brought into cooperative relation, and dogging means for each rotary bolt and engaging one head on each of said bolts and including means causing said bolts to be constantly urged in latching direction when in partly latched position.

4. A latching mechanism for closures comprising cooperative interengaging members, opposed inclined keeper portions on one of said members, opposed multi-headed rotary bolts carried by the other of said members adapted to engage said keeper portions as said interengaging members are brought into cooperative relation, and dogging means for each rotary bolt and engaging one head on each of said bolts and including means causing said bolts to be constantly urged in latching direction when in partly latched position, said opposed bolts by their cooperation causing said interengaging members to be maintained in centered relation to each other due to the urging action of said dogging means.

5. A latching mechanism for association with a closure adapted to cooperate with a keeper member having a pair of spaced abutments, the combination of a pair of rotatable bolts adapted to be disposed between said abutments when the closure is closed, said bolts having a plurality of heads any one of which are engageable with corresponding abutments whereby the closure is held in closed position, and dogging means acting on the bolts with a camming action so as to cause the bolts to rotate against the abutments.

6. A latching mechanism for association with a closure adapted to cooperate with a keeper member having a pair of spaced abutments, comprising a plurality of rotary bolts adapted to be disposed between said abutments when the closure is moved to closed position and to cooperate with said abutments, dogging means for each of said rotary bolts and including means exerting a camming action on the rotatable bolts for the purpose of urging the bolts tightly against the abutments, said bolts being disposed in opposed relation when in engaged position, and means to concurrently retract said dogging means.

7. A latching mechanism for association with a closure adapted to cooperate with a keeper member having a pair of spaced inclined abutments, comprising a plurality of rotary bolts adapted to be disposed between said abutments when the closure is moved to closed position and to cooperate with said inclined abutments, dogging means for each of said rotary bolts and including means exerting a camming action on the rotatable bolts for the purpose of urging the bolts tightly against the abutments, said bolts being disposed in opposed relation when in engaged position, means interconnecting said dogging means, and means operative to cause retraction of said dogging means to release said bolts for retrograde free movement to release the closure.

8. Latching mechanism for a pair of members comprising a plate projecting from one of said members adapted to extend into a keeper having a pair of opposed inclined abutment surfaces directed toward said plate, a pair of multi-headed rotary bolts mounted for free rotation at opposite edges of said plate and each adapted to have any of its heads engage one of said abutment surfaces, and dogging means for each of said rotary bolts including means adapted to engage said bolts with a camming action so as to cause the bolts to rotate in latching direction when the closure is partly closed.

9. Latching mechanism for a pair of members comprising a plate projecting from one of said members adapted to extend into a keeper having a pair of opposed inclined abutment surfaces directed toward said plate, a pair of multi-headed rotary bolts mounted for free rotation at opposite edges of said plate and each adapted to have any of its heads engage one of said abutment surfaces, dogging means for each of said rotary bolts including means adapted to engage said bolts with a camming action so as to cause the bolts to rotate in latching direction when the closure is partly closed, means interconnecting said dogging means, and means adapted to move one of said dogging means to retracted position thereby releasing said bolts for free rotation as the plate is removed from said keeper thereby releasing said closure.

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