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(54) **A reversible mount lock of unitary construction**

Ein reversibler Einbau eines universal ausgeführten Schlosses

Un montage reversible d'une serrure de construction unitaire

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Description

This invention relates to a reversible mount lock of unitary construction.

Known are unitary construction locks having a body which accommodates a cylinder, adapted to be rotated by means of a key, and having a latch attached to the cylinder. The latch may be a tab-like retaining member.

Such locks are mounted in a reversible fashion inside a seat provided in a member of a structure to be locked. The locks may be assembled, for instance, to mail boxes by fitting and securing them in a window purposely cut in the box door.

For example, to permit of reverse mounting, a known approach provides one end of the lock body with a threadway on which a nut can be received. The body with the threaded end is inserted into the seat in the structure member from the outward side of the member, and the nut is then engaged on the threaded end from the inward side of the member, thereby binding the lock to the member. Of course, the reverse procedure would enable the lock to be released and removed.

Another known approach provides for opposite walls of the body to be formed with a number of grooves each, and a forked clevis engaged with its prongs in two opposite ones of the grooves. For mounting, the lock body is inserted into the seat in the structure member from the outward side of the member similar to the previous case, whereafter the forked clevis is applied to the body from the inward side of the member such that its prongs will engage in opposite ones of the grooves, thereby binding the lock to the member. Of course, also in this case the reverse procedure would enable the lock to be released and removed.

In either cases, the mounting procedure requires significant time, for tightening the nut or fitting the clevis, which is obviously disadvantageous, especially to mass production methods for which assembly time is a factor.

In addition, the lock assembly and disassembly involves application of some skill, which is also disadvantageous in that such operations cannot be carried out literally by anybody.

Lastly, a separate element is required, in the one case the nut and in the other the clevis, to complete the lock mounting. The separate element involves additional cost, as well as some possible difficulties in the lock manufacturing process.

It is the object of this invention to obviate such drawbacks.

From the prior patent documents DE-U-9110347, GB-A-2077344, and BE-A-883121 a lock is known, adapted to be inserted and secured in a removable manner in a seat provided on a structure to be locked, which comprises a body accommodating a lock operating mechanism and a latch connected to said mechanism, and wherein wings are arranged on opposite sides of the body and connected thereto in an elastically yielding fashion for engagement in the seat.

According to the invention, a lock is provided of the type described above for the mentioned prior patent documents, characterized in that the body includes a front plate and the wings extend rearwardly from the front plate along the body in the lock's longitudinal direction, and in that each wing comprises an initial section divergent from the body and serrated outwardly, and an end section convergent toward the body, wherein the initial section of the wing is adapted to engage elastically an edge of the seat in said structure.

The invention can be more clearly understood from the following decription of an exemplary embodiment thereof, as illustrated by the accompanying drawings in which:

Figure 1 is an exploded perspective view of a lock according to the invention and a structure element to which the lock is to be mounted, with a seat for receiving the lock;

Figure 2 is a top plan view of the lock in Figure 1 in the mounted state thereof; and

Figure 3 is a side view of the lock in Figure 1 with the latch removed.

The lock shown, generally indicated by 10, has a body 11 substantially parallelepipedic in shape and provided with a front plate or face piece 12.

Accommodated inside the body 11 is a cylinder 13 having a keyhole 14 through which a key 15 would be inserted to rotate said cylinder 13.

Provided on the remote side from the face piece 12 is a latch comprising a tab-like retaining member 16 attached to the cylinder 13 by means of a screw 17. The tab-like retaining member 16 is not shown in Figure 3.

From the face piece 12 there extend, along the body 11, four elastically yielding wings 18, two lying along one side of the body 11 and two along the opposite side. Each wing 18 includes a short initial section 19 arranged to diverge away from the body 11 and being serrated on its outward side, and a long terminating section 20 arranged to converge toward the body 11. Thus, the maximum lateral expansion of each pair of opposed wings 18 will occur at the apices of the angles formed by the two sections 19 and 20 comprising the wings.

On each side of the body 11 where the wings 18 are located, the body has an enlargement 21 between the two wings which is substantially aligned to the point of attachment of the wings to the face piece 12.

The lock 10 is intended for mounting to a flat member 30 of the structure to be locked, and is specifically adapted to be inserted and secured in a substantially quadrilateral window 31 in said member 30.

The width of the window 31 is only slightly smaller than said maximum lateral expansion of each pair of opposed wings 18.

To insert the lock 10 into the window 31, the body 11 of the lock is first tilted relatively to the window such that the tab-like latch 16 can be passed through the win-

dow. After passing the tab-like latch 16 through the window 31, the body 11 is re-aligned to the window and further pushed in until the face piece 12 of the lock abuts against the member 30. During the last-mentioned step, the wings 18 will first flex toward the body 11 due to their sections 20 interfering with the edge 32 of the window 31, and then expand outwards again on account of their elastic nature, once past with their point of maximum lateral expansion. In this way, and as shown in Figure 2, with the face piece 12 of the lock abutting the member 30, the wings 18 will be engaging elastically the edge 32 of the window 31 through their serrated initial sections 19, to thereby binding the lock firmly within the window.

To operate the lock 10, the cylinder 13 is turned by means of the key 15 introduced into the keyhole 14 of the cylinder, wherewith the tab-like latch 16 will be correspondingly turned to a position in which the latch engages a detent member provided for the purpose on the structure in order to have it locked up. To unlock and open the structure, the reverse procedure is followed.

The lock 10 may be mounted, for example, to a mail box, in particular by fitting it into a window cut through the box door. Of course, the detent member to be engaged by the tab-like latch 16 would be made rigid with the stationary part of the box.

When the lock 10 is to be removed from the member 30, e.g. for replacement, the wings 18 are pushed in toward the body 11 to disengage them from the edge 32 of the window 31 and reduce the maximum lateral expansion of the pairs of opposed wings 18 to a smaller size than the width of the window 31, and the lock is then pulled out of the window 31 with reverse movements from those described above for inserting it.

It will be appreciated from the foregoing that the procedure for assembling/disassembling the lock 10 to/from the member 30 can be completed quite rapidly, which is definitely advantageous especially on the assembly line as a cost-saving feature.

In addition, no skill is required to assemble and disassemble the lock 10, because all the operations involved are evidently quite basic.

Finally, no separate element is necessary for securing the lock 10 to the receiving structure, which is advantageous both from the productive and the packaging standpoint.

The diverging serrated initial sections 19 of the wings 18 afford firm engagement with the edge 32 of the window 31. These sections 19, moreover, can engage edges of varying thickness by virtue of their divergent and serrated design.

With the lock 10 inserted and anchored within the window 32, the enlargements 21 will form surfaces of contact with the edge 32 of the window 31 additionally to those provided by the initial sections 19 of the wings 18, thereby enhancing the stability of the lock mount.

The body 11 and the wings 18 may be a single piece of plastic material thermoformed in a die, so as to lower the manufacturing cost of the lock.

The number of the wings may, of course, vary. For example, only two such wings could be provided in appropriate size on opposite sides of the lock body. The wing design could also be altered.

The lock of this invention may be fitted to any seat, having any configuration, in the structure to be locked; of course, modifications would then be involved to adapt the lock for the seat and allow it to become engaged elastically which are well within the capability of a skilled one in the art.

Claims

1. A lock (10) of unitary construction, adapted to be inserted and secured in a removable manner in a seat (31) provided on a structure (30) to be locked, comprising a body (11) accommodating a lock operating mechanism (13) and a latch (16) connected to said mechanism (13), wings (18) being arranged on opposite sides of the body (11) and connected thereto in an elastically yielding fashion for engagement in the seat (31), characterized in that the body (11) includes a front plate (12) and the wings (18) extend rearwardly from the front plate (12) along the body in the lock's longitudinal direction, and in that each wing (18) comprises an initial section (19) divergent from the body (11) and serrated outwardly, and an end section (20) convergent toward the body (11), said initial section (19) of the wing (18) being adapted to engage elastically an edge (32) of the seat (31) in said structure (30).

2. A lock according to Claim 1, wherein two wings (18) are provided on each of the opposite sides of the body (11), and an enlargement (21) of the body (11) is provided substantially aligned to the point of attachment of the wings (18) to the front plate (12) between the two wings (18).

3. A lock according to either Claim 1 or 2, wherein the wings (18) are integral with the body (11).

4. A lock according to Claim 3, wherein the body (11) and wings (18) are made of plastic material.

5. A lock according to Claim 1, wherein the lock operating mechanism is a cylinder (13) rotatable by means of a key (15), and wherein the latch comprises a retaining tab (16) bonded to said cylinder (13).

6. A lock according to Claim 1 or 5, and adapted to be inserted and secured in a window (31) forming said seat in the structure (30) to be locked, wherein the wings (18) engage an edge (32) of the window (31).

Patentansprüche

1. Schloß (10) einheitlicher Bauart, das sich in einem Sitz (31), der an einem zu verschließenden Gegenstand (30) vorgesehen ist, wiederentfernbar einsetzen und befestigen läßt und einen Körper (11), der einen Schließmechanismus (13) umgibt, sowie einen mit diesem Mechanismus (13) verbundenen Riegel (16) umfaßt, wobei beiderseits des Körpers (11) Klammern (18) angeordnet und mit diesem für einen Eingriff in den Sitz (31) elastisch nachgiebig verbunden sind,

   dadurch gekennzeichnet,

   daß der Körper (11) eine Frontplatte (12) umfaßt und die Klammern (18) von der Frontplatte (12) entlang dem Körper (11) in Längsrichtung des Schlosses nach hinten ragen und jede der Klammern (18) einen Anfangsabschnitt (19), der sich vom Körper (11) entfernt und außen verzahnt ist, und einen Endabschnitt (20), der sich dem Körper (11) nähert, umfaßt, wobei der Anfangsabschnitt (19) der Klammern (18) so ausgebildet ist, daß er sich mit dem Rand (32) des Sitzes (31) des Gegenstands (30) elastisch in Eingriff bringen läßt.

2. Schloß nach Anspruch 1, bei dem beiderseits des Körpers (11) jeweils zwei Klammern (18) vorgesehen sind und am Körper (11) zwischen den beiden Klammern (18) eine Verdikkung (21) gebildet ist, die im wesentlichen auf die Stelle, an der die Klammern (18) an der Frontplatte (12) befestigt sind, ausgerichtet ist.

3. Schloß nach Anspruch 1 oder 2, bei dem die Klammern (18) in einem Stück mit dem Körper (11) gebildet sind.

4. Schloß nach Anspruch 3, bei dem der Körper (11) und die Klammern (18) aus einem Kunststoffgebildet sind.

5. Schloß nach Anspruch 1, bei dem der Schließmechanismus einen Zylinder (13), der sich mit einem Schlüssel (15) drehen läßt, und der Riegel eine mit diesem Zylinder (13) fest verbundene Haltezunge (16) umfaßt.

6. Schloß nach Anspruch 1 oder 5, das sich in einem Fenster (31), das in dem zu verschließenden Gegenstand (30) den genannten Sitz bildet, einsetzen und befestigen läßt, wobei die Klammern (18) mit dem Rand (32) des Fensters (31) in Eingriff gelangen.

Revendications

1. Serrure (10) dotée d'une structure unitaire, conçue pour être insérée et fixée de façon amovible dans un siège (31) sur une structure (30) devant être verrouillée, qui comprend un corps (11) recevant un mécanisme d'actionnement de serrure (13) et un verrou (16) connecté au dit mécanisme, des ailettes (18) étant disposées sur les côtés opposés du corps (11) et connectées à celui-ci en s'écartant élastiquement pour mettre en prise le siège (31), caractérisée en ce que le corps (11) inclut une plaque frontale (12) et les ailettes s'étendent vers l'arrière à partir de la plaque frontale, le long du corps et dans la direction longitudinale de la serrure, et en ce que chaque ailette (18) comprend une section initiale (19) divergente à partir du corps (11) et striée sur l'extérieur, et une section d'extrémité (20) convergente vers le corps (11), dans laquelle la section initiale (19) de l'ailette (18) est conçue pour mettre en prise, élastiquement, un bord (32) du siège (31) de la dite structure (30).

2. Serrure selon la revendication 1, dans laquelle deux ailettes (18) sont prévues sur chacun des côtés opposés du corps (11), et un élargissement (21) du corps (11) est établi en étant sensiblement aligné avec le point de rattachement des ailettes (18) sur la pièce avant (12), entre les deux ailettes (18).

3. Serrure selon la revendication 1 ou 2, dans laquelle les ailettes (18) sont d'un seul tenant avec le corps (11).

4. Serrure selon la revendication 3, dans laquelle le corps (11) et les ailettes (18) sont fabriqués en matériau plastique.

5. Serrure selon la revendication 1, dans laquelle le mécanisme d'actionnement de serrure est un cylindre (13) pouvant tourner au moyen d'une clé (15), et dans laquelle le verrou comprend une patte de retenue (16) fixée au dit cylindre (13).

6. Serrure selon la revendication 1 ou 5, et conçue pour être insérée et fixée dans uen fenêtre (31) formant le dit siège de la structure (30) devant être verrouillée, dans laquelle les ailettes (18) mettent en prise un bord (32) de la fenêtre (31).

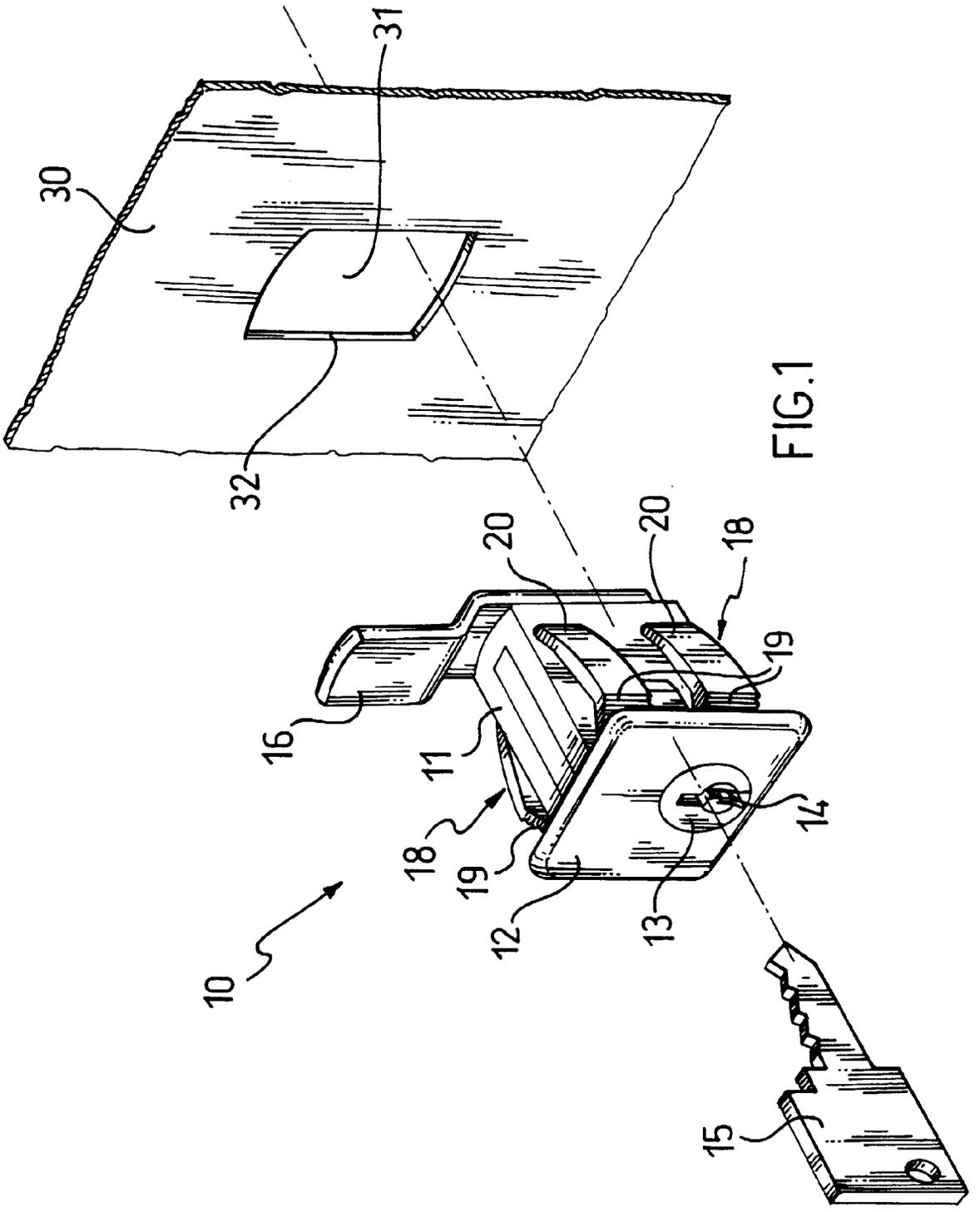


FIG.1

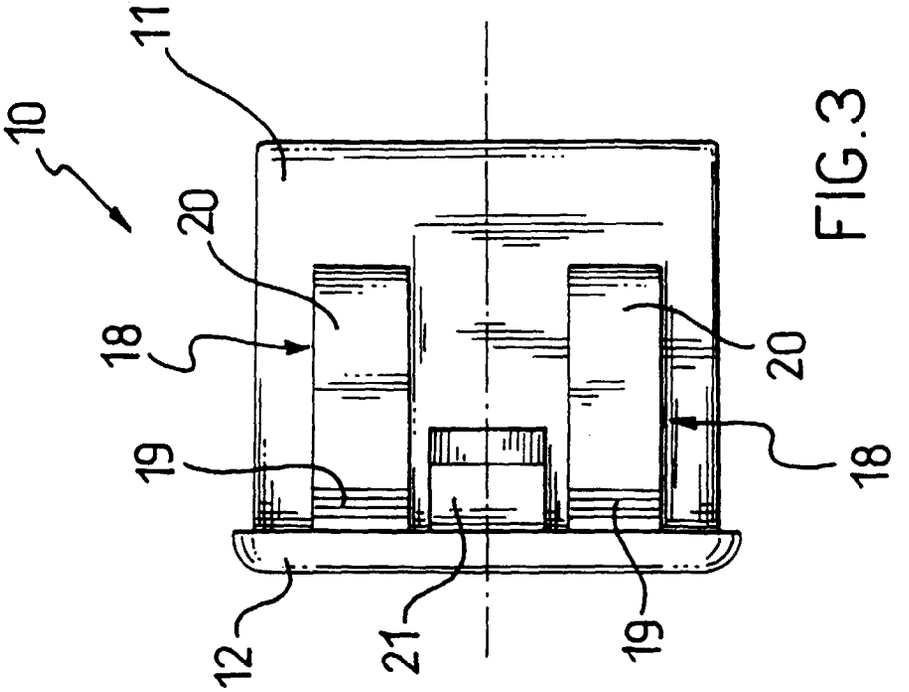


FIG.3

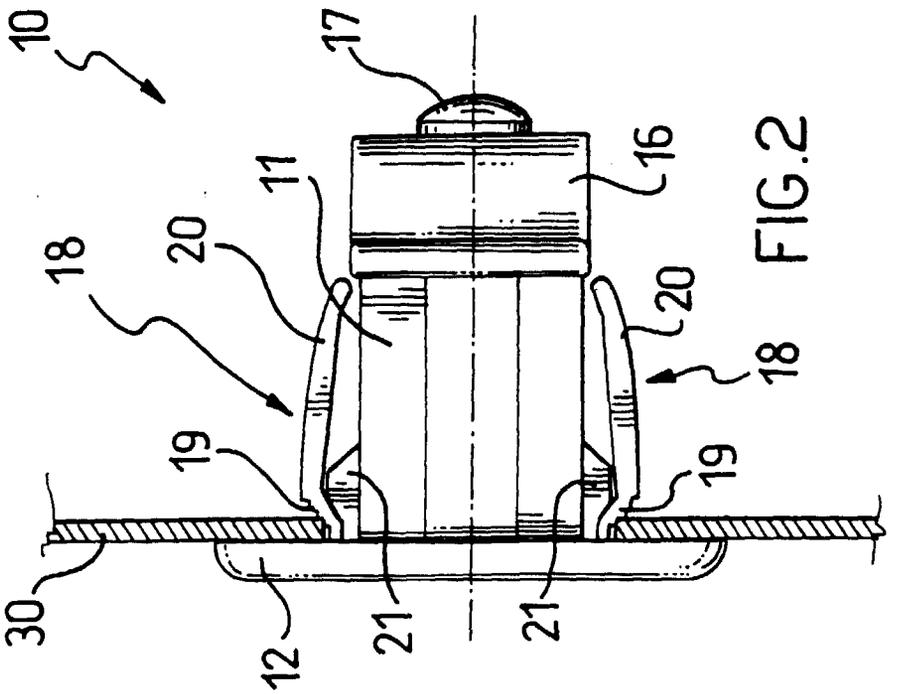


FIG.2