



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
13.01.2016 Bulletin 2016/02

(51) Int Cl.:
E05B 77/36 (2014.01) **E05B 77/40** (2014.01)
E05B 85/26 (2014.01)

(21) Application number: **14306128.1**

(22) Date of filing: **10.07.2014**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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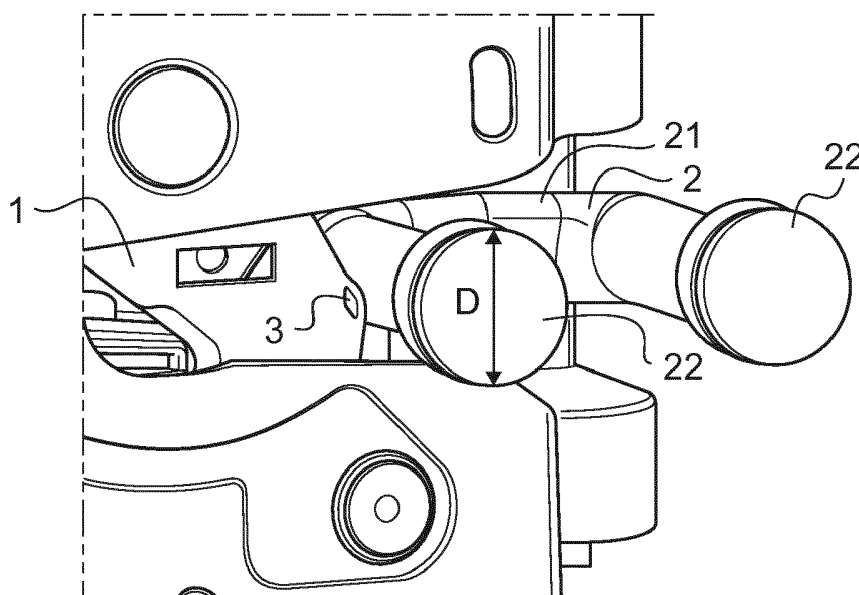
(54) **Latch and automotive vehicle latch assembly**

(57) Abstract: Latch assembly for an automotive vehicle with at least one first element and a second element, one element being mobile to the other one, comprising :
-a latch (1) intended to be fixed in the first element,
- a striker (2) with at least one wire and intended to be fixed in the second element, the latch being able to maintain the striker (2),

the wire by rotating around the wire (22) according to a first axis (XI) and having at least one recess (3) in a straight or convex shape disposed in the body of the latch (1) facing the said wire (22), the said recess (3) having a first end (31) and a second end (32), a length (L) of a segment (S) between the first end and the second end being superior to the diameter (d) of the wire facing the recess.

the latch (1) further comprising a claw adapted to receive

Fig.1



Description

FIELD OF THE INVENTION

[0001] The invention relates to the field of automotive vehicle latch assembly.

TECHNICAL BACKGROUND

[0002] Figure 1 illustrates an example of an automotive vehicle latch assembly comprising a latch 1, itself, and a striker 2. The latch is mounted in mobile element, here a door and the striker is mounted in a part of the automotive vehicle fixed compared to the door.

[0003] The latch 1 usually comprises a metal body which may be molded by a plastic coating. The striker 2 is usually made of a metal body 21 and of two metal wires 22. When the automotive vehicle door is closed, the striker 2 enters in contact with the latch 1. The striker 2 enters in contact with an U-shape claw 1 according to the direction of a first axis (non represented on figure 1). One wire of the striker enters in contact with claw when the opening is closed, rotates around a rotation axis. When entering in contact with the claw, the wire of the striker's position varies according to a relative displacement D perpendicular to the first axis X1 between one and two millimeters. Despite the presence of an amortizing element 3, because of this variation of position, the wire of the striker would enter in contact with the claw next to the amortizing element 3. Thus, a noisy sound is produced due to the impact between the striker and the claw of the latch when the door is closed. Indeed, the contact between the striker and the claw is rigid and does not accept variation of position of the striker relative to the claw.

SUMMARY

[0004] It is an object of the invention to reduce the noise at the closing of a mobile element of an automotive vehicle.

[0005] To this end, the invention provides a latch assembly for an automotive vehicle with at least one first element and a second element, one element being mobile to the other one, comprising :

- a latch intended to be fixed in the first element,
- a striker with at least one wire and intended to be fixed in the second element, the latch being able to maintain the striker,

the latch further comprising a claw adapted to receive the wire by rotating around the wire according to a first axis and having at least one recess in a straight or convex shape disposed in the body of the latch facing the said wire, the said recess having a first end and a second end, a length of a segment between the first end and the second end being superior to the diameter of the wire facing the recess.

[0006] When closing the mobile element of the first and second elements, the noise produced because of the contact between the claw and the wire of the striker is absorbed by the recess having a length which enables to absorb the dispersion of the wire position.

[0007] The latch assembly of the present invention enables in a cheap and efficient way an important reduction of the noise without amending the design of the other part of the latch and the striker.

[0008] According to not limited embodiments, the latch assembly can comprise one or more of the following additional characteristics:

- wherein the recess is an elongated through-hole which enables to simplify the production,
- the recess has a first face facing the wire of the striker, said first face being in a convex or straight shape which enables an improvement of the absorption of the noise and a better strength,
- the recess has a thickness defined in the direction of the first axis, said thickness being the same along the recess which enables to have a compromise between a good absorption of the impact and the minimum material needed,
- the claw is embedded in a deformable material which improves the absorption of the impact of the wire on the claw and the noise.

[0009] The invention also provides an automotive vehicle comprising at least one mobile element and a fixed element, one element being mobile to the other one, and at least one latch assembly according to any one of the previous claims, the latch being mounted in the first element and the striker being mounted in the second element of the automotive vehicle such that the claw retains the striker by rotating around one wire of the striker.

[0010] According to an advantageous embodiment, the mobile element is an opening such as a door and the fixed element is the chassis.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Some embodiments of apparatus and/or methods in accordance with embodiments of the present invention are now described, by way of example only, and with reference to the accompanying drawings, in which:

- figure 1 shows a schematic view of an automotive vehicle latch assembly of the prior art;
- figure 2 shows a schematic view of an automotive vehicle latch assembly according to an embodiment of the invention.

[0012] It is noted that like reference numerals represent similar parts throughout the several views of the drawings.

DESCRIPTION OF EMBODIMENTS

[0013] Figure 2 shows an automotive vehicle latch assembly comprising a latch 1, itself, and a striker 2. The said latch assembly is intended to be used for opening and closing a mobile element of an automotive element. The mobile element may be a door or a trunk and rotates according to a rotation axis.

[0014] The latch comprises a claw 1 intended to be mounted in a first element, which may be the mobile element.

[0015] The striker 2 comprises a body 21 and at least one wire 22, here two. The wires are intended to be mounted in a second element, which may be the fixed element which does not move, such as the chassis, relative to mobile element.

[0016] The claw 11 is able to maintain the striker 2 by rotating around the wire 22 according to a first axis X1. The first axis X1 is thus defined as the axis of insertion of the striker into the latch when closing the automotive vehicle mobile element.

[0017] The said claw 11 further comprises a recess. According to the present embodiment, the recess is an elongated through-hole 3 disposed in the body of the claw 11 facing the said wire 22. The use of a through-hole makes it possible to simplify the production of the latch 1.

[0018] The recess may also be a blind hole made in a soft material.

[0019] According to the invention, the recess, or here the through-hole 3, has a first end 31 and a second end 32, a length L of a segment S between the first end and the second end being superior to a diameter d of the wire of the striker.

[0020] Therefore the recess is configured in order to face the contact area between the wire and the claw whatever the assembly dispersion of the striker is. The present invention enables then a high reduction of the noise since the recess behaves like a dumper at the contact between the wire and the claw.

[0021] As mentioned above, the recess 3 is made in the body of the claw in order to have one of the walls delimiting the recess facing one of the wires 22 of the striker when closing the mobile element. The recess has a first end 31 and a second end 32. According to an advantageous embodiment, the length L is sensibly superior to the addition of the diameter d of the wire 21 of the striker and the relative displacement D of the striker according to a second axis X2 perpendicular to the first axis X1. According to the manufacturers' specifications, this relative displacement may vary between around two and around four millimeters in a whole.

[0022] According to another advantageous embodiment, the recess has a first face 33 facing the wire 22 of the striker, the said first face 33 being straight or convex. A such shape allows a higher and very effective reduction of the noise due to the impact between the claw and the wire at the closing of the mobile element. The said shape

also enables a better solidity of the latch.

[0023] The thickness e of the recess is less important than the length L of the recess. Thanks to the thickness and the length, the recess has a flexibility sufficient for absorbing noise and also a high resistance for enduring all of the contacts of striker and the claw. According to an advantageous embodiment, the thickness e of the recess may be constant along the length of the said recess, the thickness e being defined in the direction of the first axis X1, which facilitates the production of the recess.

[0024] The claw may comprise advantageously a deformable material. Such deformable material may be disposed in a exterior casing of the claw. The claw may be embedded with the deformable material. As example, an injectable elastomer chosen in the list comprising thermoplastic elastomer, such as HYTREL® G5544, HYTREL®5556, HYTREL®5557, HYTREL®6356, KEY-FLEX®BT155D, BEXLOY®GPV55B5NL010, and polyamid, such as PA6.6, may be cited.

[0025] When the latch 1 comprises a metal body molded by a plastic coating, then in terms of process of fabrication, in case de the recess is a through-hole, the latter is made thanks to a metal insert inserted into a mould into which the plastic coating is molded.

Claims

1. Latch assembly for an automotive vehicle with at least one first element and a second element, one element being mobile to the other one, comprising :

- a latch (1) intended to be fixed in the first element,
- a striker (2) with at least one wire and intended to be fixed in the second element, the latch being able to maintain the striker (2),

the latch (1) further comprising a claw adapted to receive the wire by rotating around the wire (22) according to a first axis (X1) and having at least one recess in a straight or convex shape (3) disposed in the body of the latch (1) facing the said wire (22), the said recess (3) having a first end (31) and a second end (32), a length (L) of a segment (S) between the first end and the second end being superior to the diameter (d) of the wire facing the recess.

2. Latch assembly according to claim 1 wherein the recess is an elongated through-hole.

3. Latch assembly according to claim 1 or 2 wherein the recess has a first face (33) facing the wire of the striker, said first face being in a convex or straight shape.

4. Latch assembly according to any one of the previous claims wherein the recess has a thickness (e) de-

fined in the direction of the first axis, said thickness being the same along the recess.

5. Latch assembly according to any one of the previous claims wherein the claw is embedded in a deformable material. 5
6. Automotive vehicle comprising at least one first element and a second element, one element being mobile to the other one, and at least one latch assembly (1) according to any one of the previous claims, the latch (1) being mounted in the first element and the striker (2) being mounted in the second element of the automotive vehicle such that the claw retains the striker by rotating around one wire of the striker. 10 15
7. Automotive vehicle according to the preceding claim wherein the first element is a mobile element, such as an opening, and the second element is a fixed element, such as the chassis. 20

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Fig.1

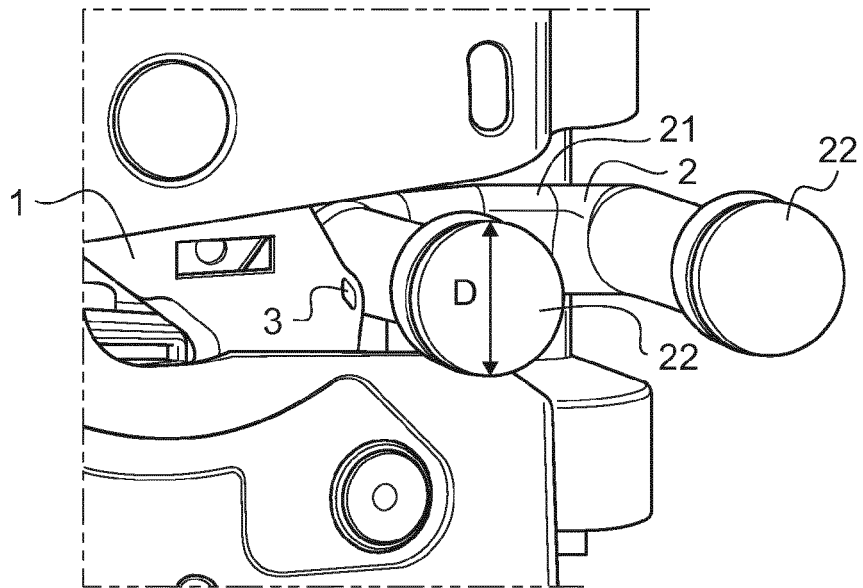
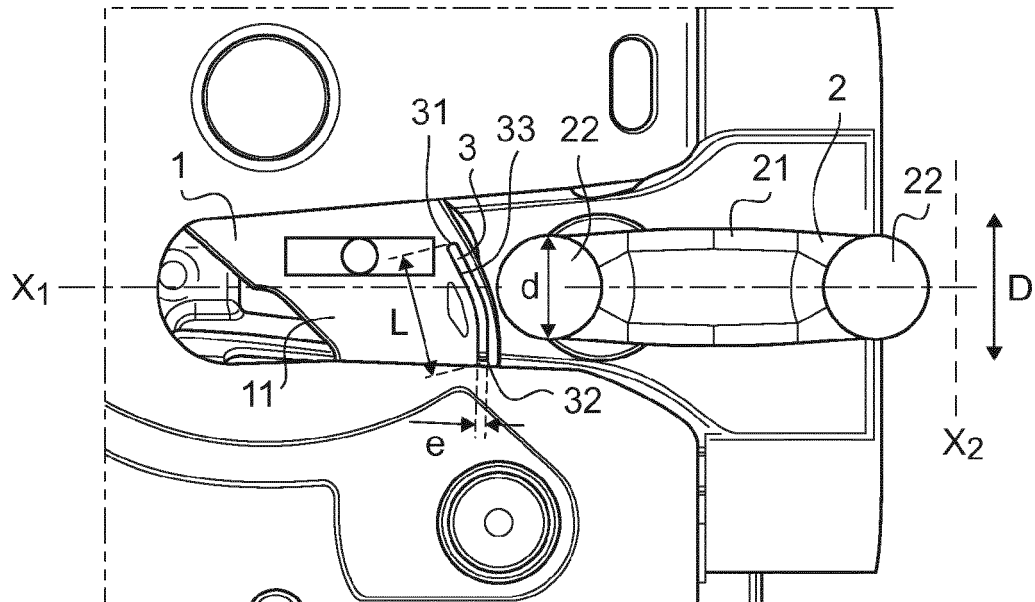


Fig.2





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Application Number
EP 14 30 6128

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Place of search The Hague		Date of completion of the search 19 January 2015	Examiner Geerts, Arnold
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EPO FORM 1503 03.82 (P04C01)

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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