

Description

[0001] This invention concerns a striker for a motor vehicle door lock.

[0002] It is emphasized that the term "door" is used in this description and in the claims in its very widest sense, to indicate whatsoever moving component between an opening position and a closing position of an access aperture to an internal compartment of a vehicle. The above terms consequently comprise in addition to the side doors of the motor vehicle, which will be referred to in the following without the loss of any general sense, also the hoods or front and rear doors or hatches.

[0003] Closure systems for motor vehicle doors are known, which essentially comprise a lock and a striker respectively fitted to the door and to a fixed portion of the bodywork in the proximity of the aperture of the door itself (or more seldom, vice versa), in such a manner that on closing the door a closure mechanism forming a part of the lock cooperates with the striker in such a way as to achieve a relative locking between the lock and the striker itself.

[0004] The striker is generally made up of a metal plate serving as an anchor to the bodywork of the vehicle and of a locking section secured to the anchor plate and intended to cooperate in service with the lock. According to a widely distributed form of actuation, the locking section consists of a cylindrical pin extending in orthogonal manner up to the plate and secured at its ends to the plate itself and to an extension thereof folded back into a 'C'-shape.

[0005] The anchor plate is generally made of steel and is secured to the bodywork by means of screws.

[0006] So as to reduce the noise which is inevitably produced when the door is closed and consequently the impact caused between components of the lock itself and the locking section of the striker, the said components and/or the locking section are frequently fitted with a plastic material coating. This arrangement reduces the noise caused during the impact; the vibrations of the striker generated by the impact itself are however transmitted to the vehicle bodywork, in turn forming a source of noise.

[0007] The purpose of the present invention is to achieve a striker for a vehicle lock, which will allow the elimination of the above disadvantage connected with presently known strikers.

[0008] The purpose is achieved in the present invention, in that it relates to a striker for the door of a vehicle lock comprising an anchor section arranged to be fixed to a portion of the bodywork of the said vehicle and an engaging portion arranged to cooperate with a closure mechanism of the said lock, the said anchor section comprising a metal plate, characterised by the fact that the said anchor portion comprises a coating of elastically yielding material extending at least over an area of the plate intended to cooperate with the said portion of

the bodywork.

[0009] For a better comprehension of the present invention a number of preferred forms of actuation is described below, for the purpose of non-restrictive examples and with reference to the appended drawings, wherein:

Fig. 1 is a perspective view of a striker designed according to the statements of the present invention, duly broken down into its component parts; Fig. 2 is a front view of the striker in Fig. 1; Fig. 3 is a section along line III-III in Fig. 2; Fig. 4 is a view along line IV-IV in Fig. 2; Fig. 5 is a section of a second form of actuation of the present invention, corresponding with the section in Fig. 3; and Fig. 6 is a section of a third form of actuation according to the present invention, corresponding with the section in Fig. 4.

[0010] With reference to Fig. 1 a striker is indicated under reference 1 as an assembly for the lock on a motor vehicle door.

[0011] The striker 1 comprises in a known manner an anchor plate 2 designed to be fixed to a section of the bodywork (not illustrated) by means of a pair of screws not illustrated, and to a locking section 4 designed to cooperate with the locking section of the lock (not illustrated).

[0012] An extension 6 extends integrally from a side edge 5 of the plate 2, and is folded back essentially in a 'C'-shape in such a way that an end section 7 is arranged parallel and at a distance from said plate 2.

[0013] The plate 2 has a pair of countersunk holes 8 receiving the heads of the screws 3 in service.

[0014] The locking section 4 (Fig. 3) consists of a pin 10 essentially cylindrical and having an axis A orthogonal in relation to the plate 2 and interposed between the plate itself and section 7. In particular the pin 10 has a head 11 countersunk at the end which engages with a corresponding countersunk hole 12 in section 7, and engages with an opposing end 13 a countersunk hole 14 in the plate 2, into which the end 13 is rivetted.

[0015] The pin 10 is advantageously coated by means of a sleeve 15 made of wear-resistant plastic material.

[0016] According to the present invention, the striker 1 comprises a coating 16 made of elastically deforming material, for instance rubber, which surrounds the anchor plate 2 preventing a direct contact between the latter and the vehicle bodywork section to which it is secured in use. The plate 2 and the relevant coating 16 define as an assembly, an anchor section 23 of the striker 1.

[0017] In the embodiment form illustrated in Figs. 1 to 4, the coating 16 consists of a separate sheath of a shape matching that of the plate 2, which is fitted on the plate itself from a side opposing the edge 5, and surrounds the plate 2 in an essentially complete manner.

[0018] The coating 16 presents a pair of flat walls 17, 18 parallel with each other and designed to cooperate with the respective faces 2a, 2b of the plate 2 facing towards section 7 and respectively, towards the bodywork section to which the plate 2 is secured in service. The said walls have respective holes 19, 20 matching the hole 14 in the plate 2 (Fig. 3), and a respective pair of holes 21, 22 matching the holes 8 in the plate 2 (Fig. 4).

[0019] From a peripheral edge of the holes 21 of the walls 17 flexible fins 25 extend towards the inside, these being formed in position coplanar with the walls 17 to allow the extraction of the coating 16 from the die though remaining flexible in such a way as to assume in service the working position illustrated in Figs. 1 and 4. More particularly, once the coating 16 has been swept over the plate 2, the fins 25 will flex and arrange themselves in contact with the conical surfaces 30 of the holes 8. Metal material conical bushes 26 are located on the said fins, and serve as bearing points for the heads of the securing screws.

[0020] In service, the striker 1 is mounted on the vehicle bodywork in the usual manner by means of the said above screws.

[0021] The wall 18 of the coating 16 interposes itself between the plate 2 and the bodywork, avoiding direct contact between these two. In addition, the fins 25 interposed between the bushes 26 and the plate 2 avoid the metal to metal contact both between the plate 2 and the screws 3 in an integral assembly with the bodywork; this path of potential propagation of vibrations of the plate 2 to the bodywork of the vehicle is consequently also interrupted.

[0022] Fig. 5 illustrates a variation in implementation of the present invention, as indicated in 1a, wherein from the wall 17 of the coating 16 a tubular sleeve 31 extends in integral manner to overhang, being interposed between the pin 10 and the plastic material sleeve 15. A noise resulting from impact between the locking section 4 and the components of the lock is consequently reduced.

[0023] Finally, Fig. 6 illustrates a third form of implementation of the present invention, indicated as 1b, wherein the coating 16 is not a separate component from the plate 2, but is achieved by over-moulding a layer of elastomer material on the plate itself. The said layer also extends advantageously over the conical surfaces 30 of the holes 8.

[0024] On examination of the characteristics of the striker 1 (1a, 1b) produced according to the facts stated in the present invention, the advantages to be obtained therefrom become evident.

[0025] In particular, the coating 16 of the plate 2 allows the insulation thereof from the bodywork, avoiding in service the propagation of vibrations which occur on closure of the door and greatly reducing in consequence the noise thus produced.

[0026] Finally, it is clear that modifications and varia-

tions may be made to the strikers as described while not going beyond the scope of the lesson of the present invention.

5 Claims

1. Striker (1; 1a; 1b) for the lock on a vehicle door comprising an anchor section (23) designed to be secured to a section of the bodywork of the said vehicle and a locking section (4) designed to cooperate with a closure mechanism of the said lock, the said anchor section (23) comprising a metal plate (2), characterized in that the said anchor section (23) comprises a coating (16) of elastically yielding material extending at least over an area (18) of the said plate (2) intended to cooperate with the said bodywork section.
2. Striker according to claim 1, characterized in that the said coating (16) surrounds the said plate (2) in an essentially complete manner.
3. Striker according to claim 1 or 2, characterized in that the said plate (2) presents at least one securing hole (8) for connection to the said section of bodywork by way of a respective screw, the said coating comprising a section (25) extending at least partly over a surface (30) of the said securing hole (8) designed to cooperate with the said screw.
4. Striker according to claim 3, characterized in that the said surface (30) of the said securing hole (8) designed to cooperate with the said screw is conical, the said striker (1, 1a, 1b) comprising at least one metal bush (26) located on the said section (25) of the said coating (16) extending over the said conical surface (30).
5. Striker according to one of the preceding claims, characterized in that the said coating (16) is a separate component from the said plate (2) and is applicable to the said plate (2) itself.
6. Striker according to claim 5 when dependent upon claim 4, characterized in that the said section of the said coating (16) extending over the said conical surface (30) of the said securing hole (8) comprises a plurality of flexible fins (25) integral with a single essentially flat wall (17) of the coating (16) itself cooperating with a face (2a) of the said plate (2), the said fins (25) allowing distortion from a pressing position in which they are co-planar with the said wall (17) of the said coating (16) and an operational position in which they are arranged in contact with the said conical surface (30) of the said securing hole (8).
7. Striker according to any one of the preceding

claims, characterized in that the said locking section (4) comprises a cylindrical pin (10) having an axis orthogonal in relation to the said plate (2) and rigidly connected to the plate itself (2) and a sleeve (15) made of plastic material covering the said pin (10). 5

8. Striker according to claim 7, characterized by the fact that the said coating (16) integrally defines a tubular sleeve (31) interposed between the said pin (10) and the said coating sleeve (15). 10

9. Striker according to any one of claims 1 to 4, characterized in that the said coating (16) consists of a layer of elastically yielding material moulded onto the said plate (2). 15

20

25

30

35

40

45

50

55

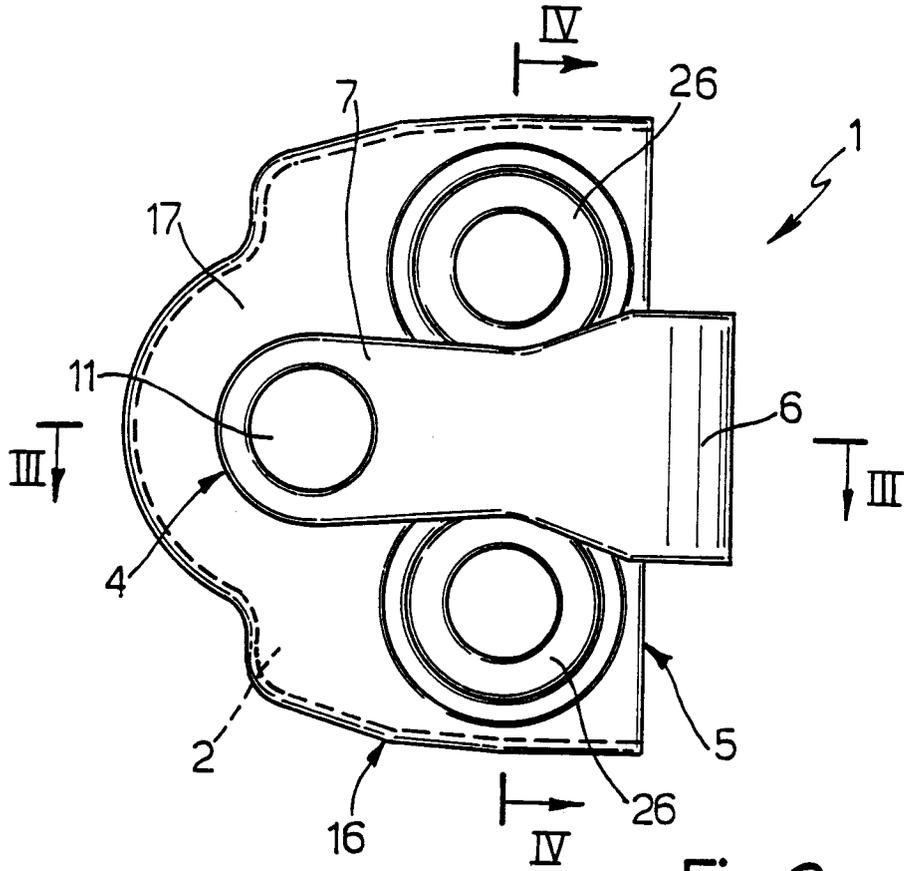


Fig. 2

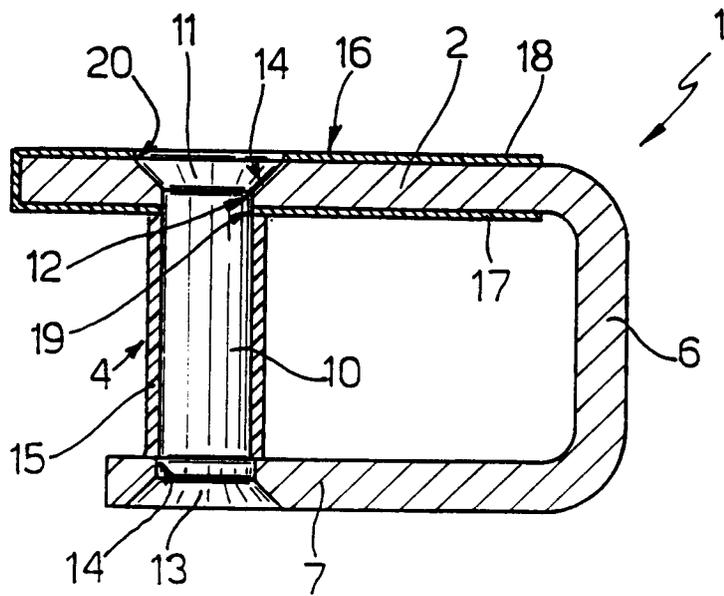


Fig. 3

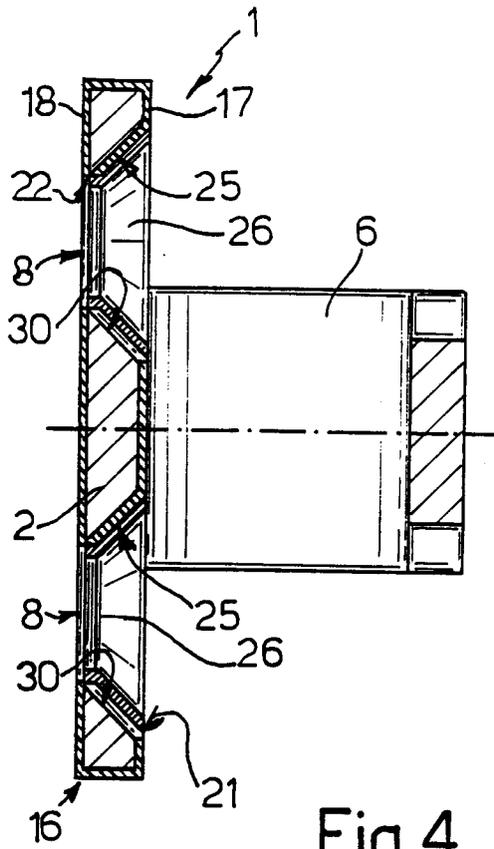


Fig.4

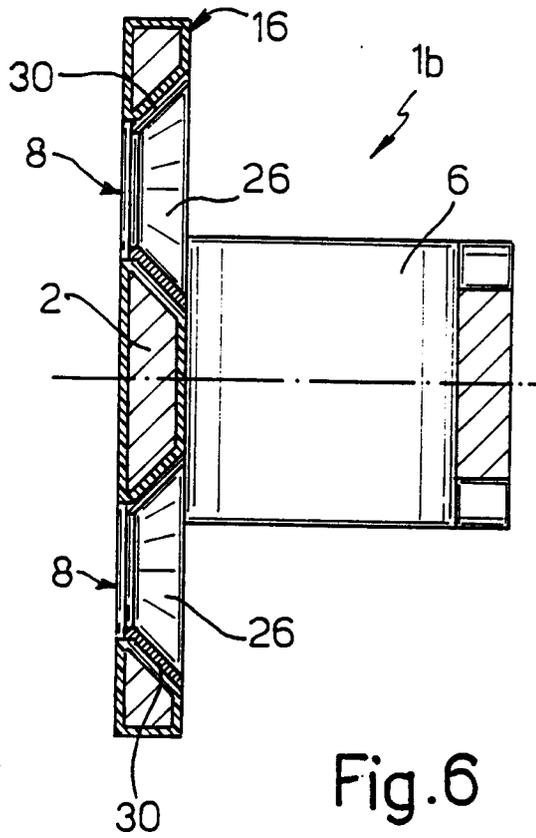


Fig.6

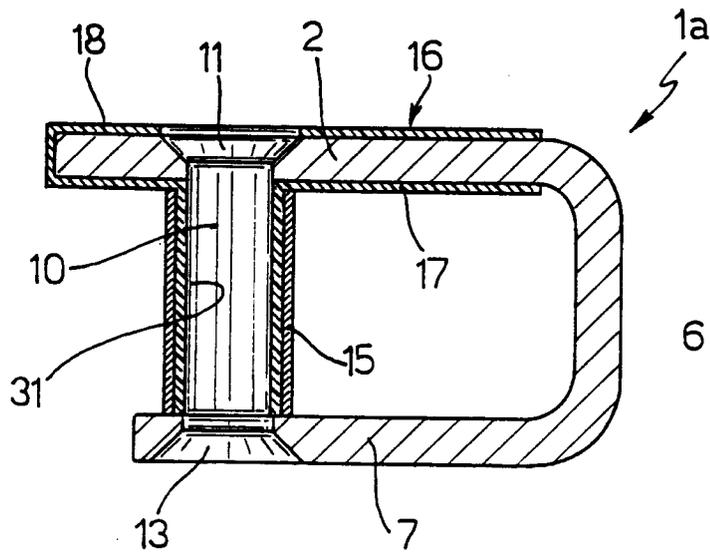


Fig.5



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 11 4292

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|--|--|---|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.6) |
| X | WO 95 32347 A (ATOMA INTERNATIONAL, INC) 30 November 1995 * page 12, line 21 - page 13, line 30; figures 1-4 * | 1-4,9 | E05B15/02 E05B65/20 |
| X | GB 2 275 498 A (KIEKERT GMBH & CO KG) 31 August 1994 * the whole document * | 1-3,9 | |
| X | PATENT ABSTRACTS OF JAPAN vol. 017, no. 330 (M-1434), 23 June 1993 & JP 05 039681 A (MITSUI MINING & SMELTING CO LTD), 19 February 1993 * abstract * | 1-3,5 | |
| A | DE 87 15 925 U (KIEKERT GMBH & CO KG) 11 February 1988 * the whole document * | 1,3,7-9 | |
| A | US 4 470 626 A (GERGOE BELA ET AL) 11 September 1984 * the whole document * | 1 | TECHNICAL FIELDS SEARCHED (Int.Cl.6) |
| A | US 5 215 342 A (YUGE ET AL.) 1 June 1993 * the whole document * | 1,3,5,7, 8 | E05B |
| A | US 4 981 313 A (MAKAMURA SHUJI) 1 January 1991 * the whole document * | 1,3,7-9 | |
| A | DE 196 45 506 A (VOLKSWAGEN AG) 28 May 1997 * column 3, line 59 - column 4, line 5 * | 1 | |
| The present search report has been drawn up for all claims | | | |
| Place of search | | Date of completion of the search | Examiner |
| THE HAGUE | | 11 November 1998 | Westin, K |
| CATEGORY OF CITED DOCUMENTS | | | |
| X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document | | T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | |

EPO FORM 1503 03 82 (P04C01)