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(54) **Pin for locks for auto vehicles**

(57) A particular type of pin placed inside a lock body for auto vehicles is described, manufactured of plastic

material with the aim of avoiding possible breakages of the production equipment used and of the part itself during moulding operations.

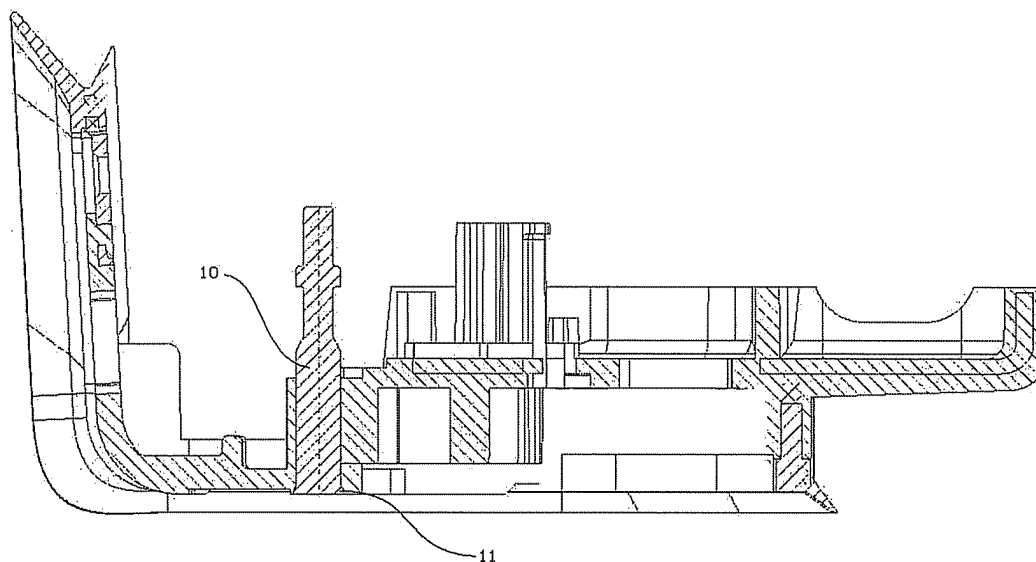


Fig. 3

**EP 1 593 801 A2**

## Description

### Field of the invention

[0001] The invention relates to the field of locks for auto vehicles.

### State of the Art

[0002] Typically, the body of the locks that are mounted on the doors of auto vehicles is constituted by a metal plate, furnished with metallic pins, in-stamped with PBT polymer and elastomer, that receives, in the assembly phase, various other parts that, all together, form the opening and locking mechanism of the auto vehicle doors.

[0003] Said metal pins, in particular those embedded directly in the polymer, can cause serious damage to the mould during the closing of the press in the stamping phase, if the pin itself is not perfectly housed in its seat in the mould. In addition to the direct damage to the mould, there are also interruptions in production for the repairing of the equipment.

[0004] Therefore, it is clear the importance of avoiding the above said problem for the safeguard of the integrity of the produced part and, above all, of the equipment used for the production of the same.

### Description of the drawings

[0005]

Figure 1 shows a view of a part of the lock body with the seat for the pin highlighted.

Figure 2 shows the embodiment of the pin according to the invention.

Figure 3 shows a cross-section of the part of figure 1 with the pin in-stamped into the lock body.

### Detailed description of the invention

[0006] The present invention relates therefore to a pin that enables the above-mentioned problem to be overcome, avoiding any possible damage to the production mould and to the stamping machines used for its production.

[0007] The pin according to the invention is essentially identical to the metal pin originally used, but is constituted of plastic material deformable under pressure.

[0008] In this way, in the event of displacement of the pin from its seat during the closing phase of the stamping process, the deformation will only affect said pin, without causing any damage to the mould, typically constructed of tempered steel, therefore ensuring that the interruptions in the production process are almost none.

[0009] Specifically, the pin may be realised in P.B.T. or P.A. 66, both reinforced with glass fiber.

[0010] Further advantages of the pin in plastic mate-

rial according to the present invention compared to the metallic version lie in its lower production costs, its lighter weight and in the fact that it does not require galvanic preventive treatments, as occurs when the pin is made of metal.

[0011] According to a preferred embodiment of the invention, represented in Fig. 2, the pin 10 according to the invention has at one end a ring collar 11, preferably having a flared shape, that constitutes a geometric discriminant that ensures that the resultant of the pushing forces of the injection process is directed in a preferential way in order to avoid an opposing effect that would destroy the pin itself.

[0012] Indeed, while the pressures that exert themselves during the moulding phase along the lateral surface of the pin, essentially cylindrical, are counterbalanced against each other, the pressure along the axis of the cylinder could lead, given the nature of the plastic material, to the crashing of the part, with negative consequences for the success of the stamping process itself and the functionality of the stamped part.

## Claims

1. Pin for locks for doors of auto vehicles **characterised in that** it is made of plastic material.
2. Pin according to claim 1 **characterised in that** the said plastic material is deformable by pressing.
3. Pin according to claim 2 **characterised in that** it has at one end a ring collar (11).
4. Pin according to claim 3 **characterised in that** the said collar (11) has a flared shape.
5. Pin according to claims 1 - 4 **characterised in that** the said plastic material is P.B.T. reinforced with glass fiber.
6. Pin according to claims 1 - 4 **characterised in that** the said plastic material is P.A. 66 reinforced with glass fibre.
7. Lock for auto vehicle doors **characterised in that** it comprises at least one pin according to claims 1 - 6.
8. Method for stamping of locks for auto vehicle doors **characterised in that** the said locks for auto vehicle doors are of the type set forth in claim 7.

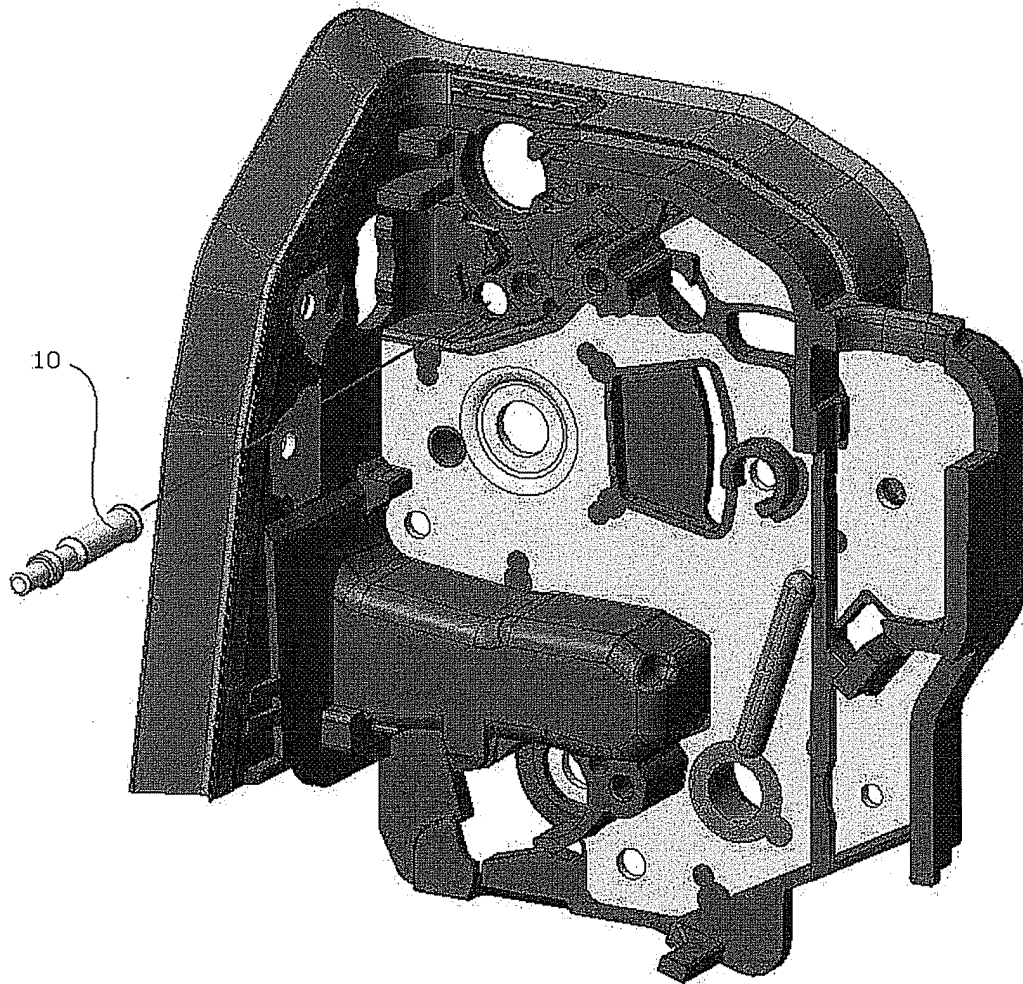


Fig. 1

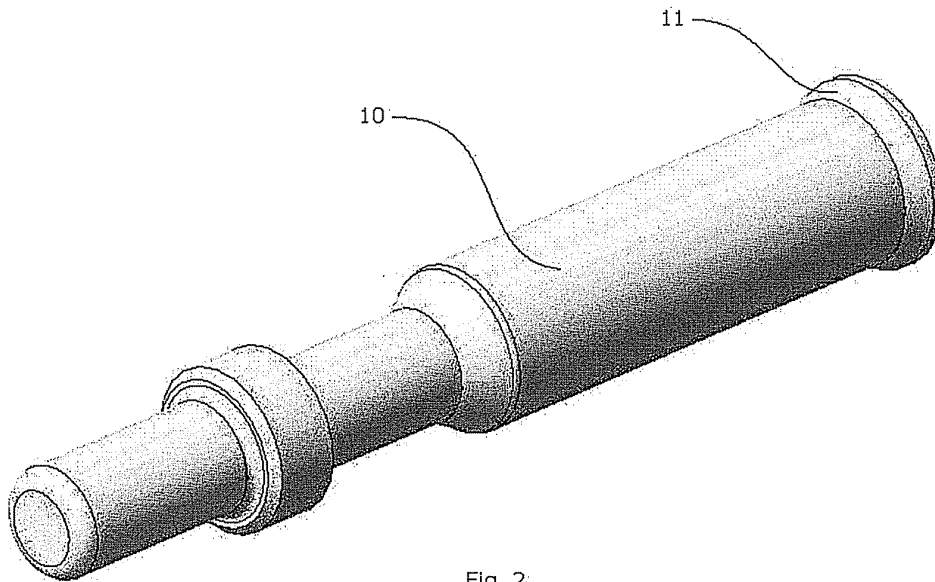


Fig. 2.

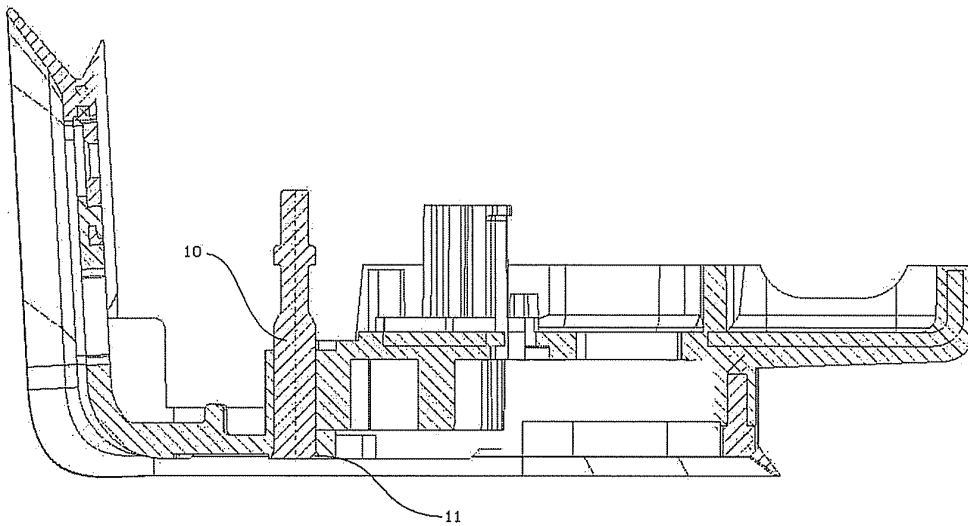


Fig. 3