

(19)



(11)

EP 2 176 479 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
30.10.2013 Bulletin 2013/44

(51) Int Cl.:
E05B 53/00 ^(2006.01) **E05B 65/12** ^(2006.01)

(21) Application number: **08776450.2**

(86) International application number:
PCT/IB2008/052486

(22) Date of filing: **23.06.2008**

(87) International publication number:
WO 2009/013652 (29.01.2009 Gazette 2009/05)

(54) **A LOCK SYSTEM FOR A VEHICLE DOOR**

VERRIEGELUNGSSYSTEM FÜR EINE FAHRZEUGTÜR

SYSTÈME DE VERROUILLAGE POUR PORTIÈRE DE VÉHICULE

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

(30) Priority: **23.07.2007 TR 200705100**

(43) Date of publication of application:
21.04.2010 Bulletin 2010/16

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(56) References cited:
DE-A1- 10 255 562 DE-A1-102004 061 481
DE-C1- 19 952 798

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Description

Field of the Invention

[0001] The present invention relates to a door lock system which is used in vehicle doors.

Background of the Invention

[0002] Today various systems for opening the doors of the vehicles, especially load carrying commercial vehicles, are developed to be able to save time and energy that the human use.

[0003] In Japan patent document No. JP2006009559, the elastic rotation of the jam release lever mounted between the outside lever and the lock lever by the operation of the door handle to detach the outside lever from the release lever, the release lever's releasing the outside lever from the lock resiliently when the outside lever and the release lever are put in the jammed state and the use of torsion springs preferably on the release lever in this system, are mentioned.

[0004] In United States patent document No. US2006006670, with the jam resistant door latch assembly which is provided between the central portion of the outside lever and the lock lever, resiliently pulling the outside lever to the normal unlocked position to allow the jammed outside lever to be easily released, so that when a driver or passenger only pulls a door handle toward himself or herself from its original position, the outside lever's activating the release lever to open the door by pulling of the outside lever in door latch system to the normal unlocked position, are mentioned.

[0005] The German Patent document no DE102004061481A1 discloses a closing device having electromechanical control device. Each latch lock has an electromechanical closing auxiliary means and at least one micro switch for the determination of the operating condition of the latch lock. The invention disclosed in the German Patent document no DE102004061481A1 performs closing process by making use of the electromagnetic impact force.

Summary of the Invention

[0006] The objective of the present invention is to realize a door lock system whose cost and weight is reduced by omitting an additional mechanism which is involved in vehicle lock system.

[0007] Another object of the present invention is to realize a lock system which reduces the force used to open the door thanks to the omitted additional mechanism. This is achieved with the lock system defined in claim 1.

Detailed Description of the Invention

[0008] A door lock system realized to fulfill the objectives of the present invention is illustrated in the accom-

ppanying figures, in which:

Figure 1 is the perspective view of a lock system.

Figure 2 is front view of a lock mechanism.

[0009] The parts shown in the figures are individually numbered, where the numbers refer to the following:

1. Lock mechanism
2. Claw
3. Sliding lever
4. Planetary lock
5. Coupling lever

[0010] The lock system (1) essentially comprises at least one claw (2) which keeps the lock system (1) in closed position;

at least one sliding lever (3) which transmits the drive to the planetary lock (4) that will activate the lock system (1); a planetary lock (4) which activates with the drive that it has received from the sliding lever (3);

at least one coupling lever (5) which activates with the drive that it has received from the outside or inside release levers to open the main lock by making the rotary motion around an axis and drives the planetary lock with a sliding lever (3) connected to itself.

[0011] In an inventive lock system (1), the planetary lock (4) is driven by the lock main mechanism directly and there is not used any intermediate mechanism.

[0012] In an inventive lock system (1), because of not using any additional mechanism activating the planetary lock, the weight of the lock system (1) and therefore the vehicle's weight are reduced.

[0013] Within the framework of this basic concept, it is possible to develop a wide variety of embodiments of the inventive lock system (1) while remaining within the scope of the following claim.

Claims

1. A lock system comprising a main lock (1) and a planetary lock (4),
whereby the main lock (1) comprises at least one claw (2) which keeps the lock system in a closed position; **characterised by** the main lock (1) further comprising a sliding lever (3) slidably mounted in the main lock (1) and a coupling lever (5) rotatably mounted in the main lock (1) around an axis of the coupling lever (5),
the sliding lever (3) being connected to the planetary lock (4) so that the planetary lock (4) can be activated with a drive that it has received from sliding lever (3),
the coupling lever (5) can be activated with a drive that it has received from outside or inside release levers to open the main lock (1), whereby the coupling lever (5) makes a rotary motion,

the sliding lever (3) being connected to the coupling lever (5), so that rotation of the coupling lever (5) causes the sliding lever (3) to move and thereby driving the planetary lock (4) with the drive that will activate the main lock (1) .

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fait un mouvement rotative, le levier coulissant (3) étant lié au levier d'accouplement pour que la rotation du levier d'accouplement (5) provoque le levier coulissant (3) à se déplacer et donc actionner la serrure satellite (4) par la propulsion qui activera la serrure principale (1).

Patentansprüche

1. Ein Verriegelungssystem umfassend eine Hauptverriegelung (1) und eine planetarische Sperre (4), wobei die Hauptverriegelung (1) mindestens eine Klaue (2) aufweist, die das Verriegelungssystem in der geschlossenen Position hält, **gekennzeichnet durch** die Hauptverriegelung (1), die ferner einen Gleithebel (3), der gleitend in der Haupt-Verriegelung (1) montiert ist und einen Kupplungshebel (5) aufweist, der drehbar um eine Achse des Kupplungshebels (5) in der Hauptverriegelung (1) gelagert ist, indem der Gleithebel (3) an die planetarische Sperre (4) angeschlossen ist, so dass die planetarische Sperre (4) **durch** einen aus dem Gleithebel (3) geleiteten Antrieb betätigt wird, der Kupplungshebel (5) **durch** einen Antrieb aktiviert ist, den er von der Außenseite bzw. der Innenseite des Auslösehebels aufnimmt, um die Hauptverriegelung (1) zu öffnen, wobei der Kupplungshebel (5) eine Rotationsbewegung ausführt, indem Gleithebel (3) mit dem Kupplungshebel (5) verbunden ist, so dass die Drehung des Kupplungshebels (5) die Bewegung des Gleithebels (3) bewirkt und somit die planetarische Sperre (4) **durch** den Antrieb bewegt, der die Hauptverriegelung (1) betätigen soll.

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Revendications

1. Un system de verrouillage comportant une serrure principale (1) et une serrure satellite (4), la serrure principale (1) comportant au moins une serre (2) maintenant le system de verrouillage dans la position fermée ; **caractérisé par le fait que** la serrure principale (1) comporte en outre un levier coulissant (3) montée dans une manière coulissante à l'intérieure de la serrure principale (1) et un levier d'accouplement (5) monté dans une manière rotative à l'intérieure de la serrure principale (1) autour d'un axe du levier d'accouplement (5), le levier coulissant (3) étant connecté à la serrure satellite (4) pour que la serrure satellite (4) puisse être activée au moyen d'une propulsion qu'elle a reçu du levier coulissant (3), le levier d'accouplement (5) pouvant être activé par la propulsion qu'elle a reçu des leviers de dégagement extérieurs ou intérieurs pour ouvrir la serrure principale (1) par laquelle le levier d'accouplement

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Figure 1

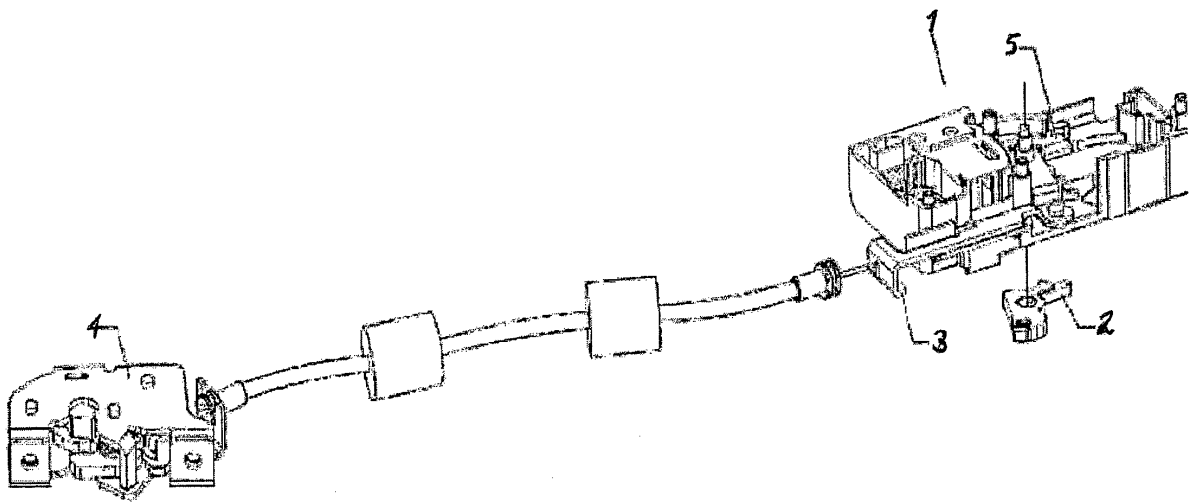
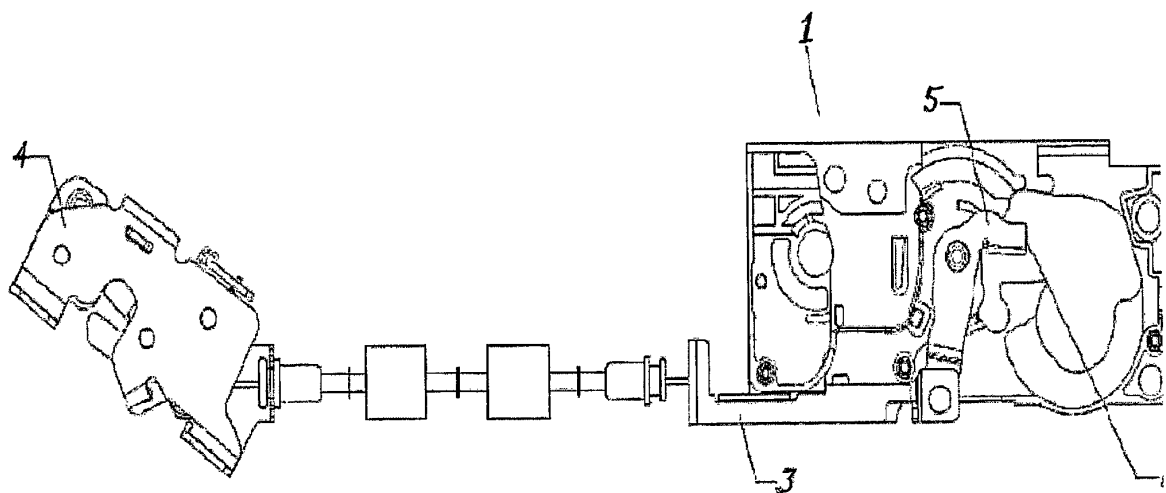


Figure 2



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2006009559 B [0003]
- US 2006006670 A [0004]
- DE 102004061481 A1 [0005]