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(71) Applicant:
Pastore & Lombardi S.r.l.
40057 Cadriano di Granarolo Emilia (Bologna) (IT)

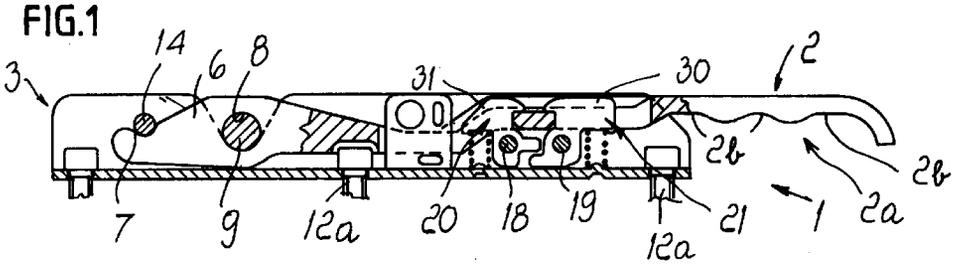
(72) Inventor: **Hilbe, Riccardo**
40125 Bologna (IT)

(74) Representative:
Modiano, Guido, Dr.-Ing. et al
Modiano & Associati SpA
Via Meravigli, 16
20123 Milano (IT)

(54) Lever retainer for flat levers for doors of trucks, trailers or the like

(57) A lever retainer for flat levers for doors of trucks, trailers or the like comprises an elongated flat lever (2) having, at one end, a manual grip region (2a); in an intermediate region, a longitudinally elongated slot which is interrupted by a median bridge; and at the other end, a hook (7) which is open at the front and a transverse pin (9). The hook (7) and the pin (9) are coupleable by interlocking, respectively, with a transverse shaft (14) and with a pair of end notches of an elongated frame (3) on which two L-shaped elements (20,21) are mounted so that they are articulated and rotate in opposite directions about transverse axes. The L-shaped elements (20,21) have two first respective complementarily shaped pawl-like arms and two other respective arms provided with a front coupling tooth, each arm being configured so that the rotation of one arm produces the opposite rotation of the other so as to move the pawl-like arms so that they act from opposite directions for engagement or disengagement on the sides of the median bridge of the flat lever.

FIG.1



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Description

The present invention relates to a lever retainer for flat levers for doors of trucks, trailers or the like.

Rotating vertical rods for opening and closing the rear doors of trucks, trailers or the like can sometimes be actuated by means of flat levers which, when the door is closed, rest against the door wall. In this closure position, the flat lever must be locked in a lever retainer which prevents it from rotating and it must also be possible to lock it with a padlock or the like.

Conventional lever retainers for flat levers have some shortcomings due to the fact that they must sometimes be closed with two hands, so that one hand actuates the lever and the other one actuates the retainer, moreover they cause some problems during opening as it is difficult for the operator to insert the fingers between the flat lever and the door to actuate the lever.

The aim of the present invention is to obviate the cited drawbacks of conventional devices, i.e., to provide a lever retainer for flat levers for doors of trucks, trailers or the like which can be actuated by using just the hand that actuates the lever and which, during opening, allows the fingers to easily access the rear of the lever.

Within the scope of this aim, an object of the present invention is to provide a structure which is simple, relatively easy to be manufactured, safe in use, effective in operation and at relatively low costs.

This aim, these objects and others which will become apparent hereinafter are all achieved by the lever retainer for flat levers for doors of trucks, trailers or the like, according to the present invention, which comprises an elongated flat lever having, at one end, a manual grip region; in an intermediate region, a longitudinally elongated slot which is interrupted by a median bridge; and at the other end, a hook which is open at the front and a transverse pin, said hook and said pin being coupleable by interlocking, respectively, with a transverse shaft and with a pair of end notches of an elongated frame whereon two L-shaped elements are mounted so that they are articulated and rotate in opposite directions about transverse axes, said L-shaped elements having two respective complementarily shaped pawl-like arms and two other respective arms provided with a front coupling tooth, each arm being configured so that the rotation of one arm produces the opposite rotation of the other so as to move the pawl-like arms so that they act from opposite directions for engagement or disengagement on the sides of said median bridge of the flat lever.

Further characteristics and advantages of the present invention will become apparent and evident from the following detailed description of a preferred but not exclusive embodiment of a lever retainer for flat levers for doors of trucks, trailers or the like according to the invention, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a side view of a lever retainer for flat levers for doors of trucks, trailers or the like according to the present invention, in the lever locking configuration;

Figure 2 is a side view of the central region of the lever retainer in the lever release configuration;

Figure 3 is a plan view of the lever retainer;

Figure 4 is a side view of the flat lever of the lever retainer;

Figure 5 is a plan view of the flat lever of the lever retainer;

Figure 6 is a side view of the elongated frame of the lever retainer according to the present invention;

Figure 7 is a plan view of the elongated frame of the lever retainer according to the present invention.

With reference to the above figures, the reference numeral 1 generally designates a lever retainer for flat levers for doors of trucks, trailers or the like according to the present invention.

The lever retainer 1 comprises a flat lever 2 and a frame 3 which are elongated horizontally in their normal working condition.

The lever 2 and the frame 3 are preferably formed by casting or from metal plate elements having a certain thickness, wherein blanking and bending lines form the various operating components.

The flat lever 2 has an elongated shape and has: at one end, a narrower manual grip region 2a, under which finger recesses 2b are provided; in an intermediate position, a longitudinally elongated slot 4 interrupted by a median bridge 5; and at the other end, a portion 6 which tapers and ends with a hook 7, which is open at the front, and a transverse hole 8 for a pin 9 whose ends 9a, 9b protrude slightly from the hole 8.

The elongated frame 3 has a rectangular backplate 10 (see Figure 7) which is elongated, during normal operating conditions, in a horizontal direction and two upper and lower wings 11a, 11b; the backplate 10 has three through holes 12 for fixing, by means of bolts 12a, to a door of a truck, trailer or the like. The two wings 11a, 11b have, at one end, respective opposite holes 13a, 13b for retaining a transverse shaft 14 which can be engaged by the hook 7 and two front notches 15a, 15b which are shaped, for example, like an isosceles triangle, are slightly flared, have rounded corners and are coupleable to the ends 9a, 9b of the pin 9.

The wings 11a, 11b are also crossed by two respective pairs of holes 16a, 16b, 17a, 17b, wherein respective cylindrical pins 18, 19 for the articulation of a first L-shaped element 20 and of a second L-shaped element 21 can be inserted. The L-shaped elements 20, 21 are mounted so that they are articulated and rotate in opposite directions about parallel axes and have two first respective arms 22, 23, which are shaped complementarily to latch-like pawls 24, 25 curved in either direction, with respective lower L-shaped notches 26, 27. Two second respective arms 28 and 29 are also pro-

vided, which have respective teeth 28a, 29a which can be arranged mutually adjacent one above the other so that the rotation of one arm produces the opposite rotation of the other arm in order to make the pawl-like arms act from opposite directions on the median bridge 5 of the flat lever, in order to engage it or disengage it.

The second L-shaped element 21 has an actuation lug 30 which is substantially co-planar to the respective pawl and is adapted to be pressed in the direction of the arrow A in order to release the median bridge 5 of the flat lever; the first L-shaped element in turn has a similar lug 31.

The bases of the arms 20, 21 have recesses 32, 33 for resting one of the ends of respective elastic means constituted by helical compression springs 34, 35 which are centered, by means of their other ends, in corresponding punch-outs 36, 37 of the backplate 10. The springs 34, 35 are adapted to keep the L-shaped elements in a configuration for locking the median bridge 5.

A fin 36 protrudes forwards from the backplate 10 in a substantially central position, passes through the slot 4, and has two holes 37a, 37b for the optional insertion of a safety padlock for locking or of a sealing wire.

It is noted that during closure, the edges of the median bridge 5 of the lever 5 open the two arms 21, 22 in a substantially latch-like manner, without requiring manual intervention, while during opening the manual action on the lug 30, in the direction of the arrow A, produces the rotation of the L-shaped element 21 and, by means of the teeth 29a, 28a, the opposite rotation of the L-shaped element 20, releasing the lever 2: under the action of the manual pressure on the lug 30, the teeth 28a, 29a move the flat lever away from the wall of the door, facilitating the insertion of one's fingers behind it.

It has thus been shown that the invention achieves the intended aims and objects and in particular that a lever retainer for flat levers for doors of trucks, trailers or the like is provided which can be actuated by using just the hand that actuates the lever and which, during opening, allows the operator's fingers to easily access the rear of the lever; moreover, the invention provides a very slim unit which has no sharp edges.

The lever retainer according to the invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

All the details may also be replaced with other technically equivalent ones.

In practice, the materials employed, as well as the shapes and the dimensions, may be any according to requirements without thereby abandoning the scope of the protection of the appended claims.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A lever retainer for flat levers for doors of trucks, trailers or the like, characterized in that it comprises an elongated flat lever having, at one end, a manual grip region; in an intermediate region, a longitudinally elongated slot which is interrupted by a median bridge; and at the other end, a hook which is open at the front and a transverse pin, said hook and said pin being coupleable by interlocking, respectively, with a transverse shaft and with a pair of end notches of an elongated frame on which two L-shaped elements are mounted so that they are articulated and rotate in opposite directions about transverse axes, said L-shaped elements having two first respective complementarily shaped pawl-like arms and two second respective arms provided with a front coupling tooth, each arm being configured so that the rotation of one arm produces the opposite rotation of the other so as to move the pawl-like arms so that they act from opposite directions for engagement or disengagement on the sides of said median bridge of the flat lever.

2. A lever retainer according to claim 1, characterized in that the second of said L-shaped elements has an actuation lug which is substantially co-planar to the respective pawl and is adapted to be pressed in order to release said bridge of the lever.

3. A lever retainer according to claim 1, characterized in that said L-shaped elements are pressed, in the closure configuration, by elastic means interposed between respective lower recesses and the elongated frame, said means being also adapted to slightly space the flat lever from the door to allow manual grip thereof.

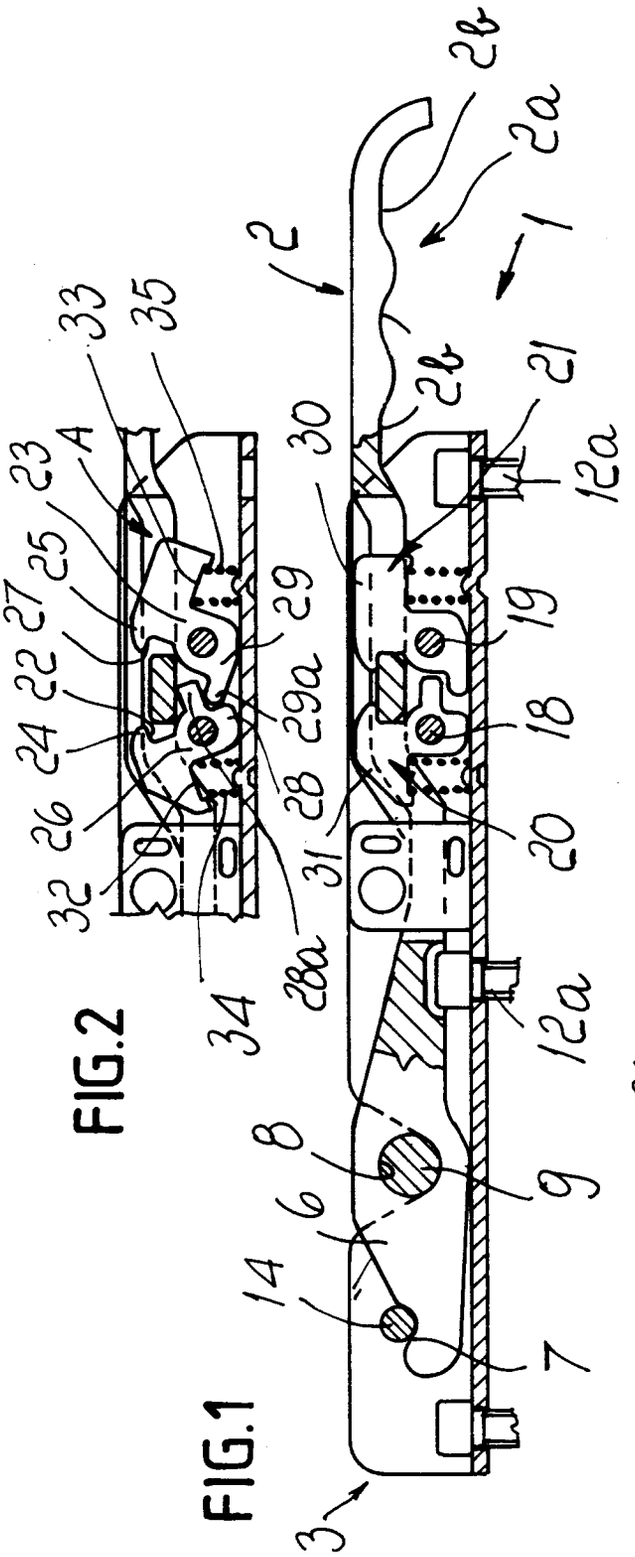

FIG.2

FIG.1

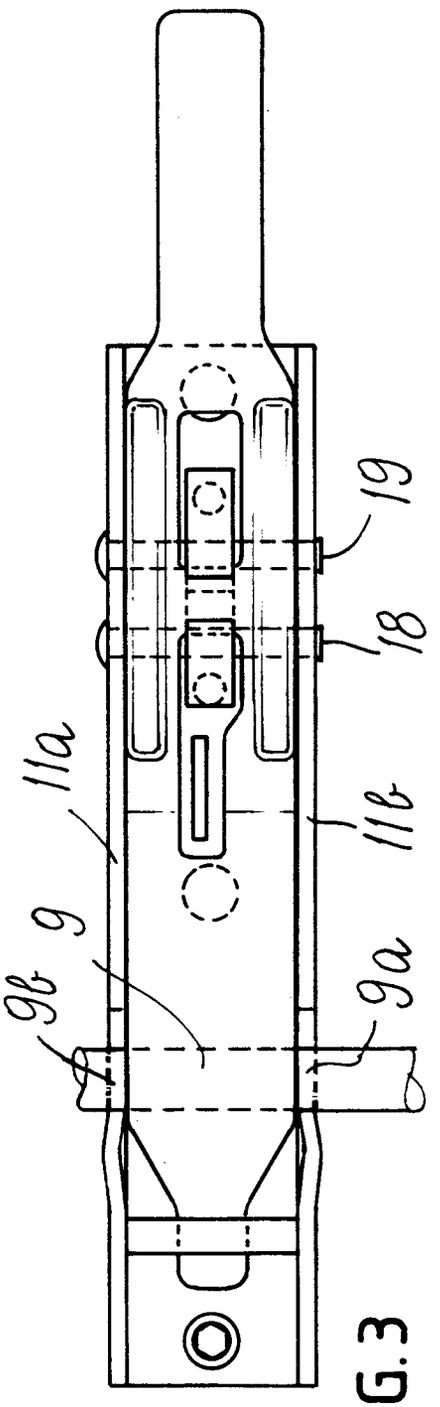

FIG.3

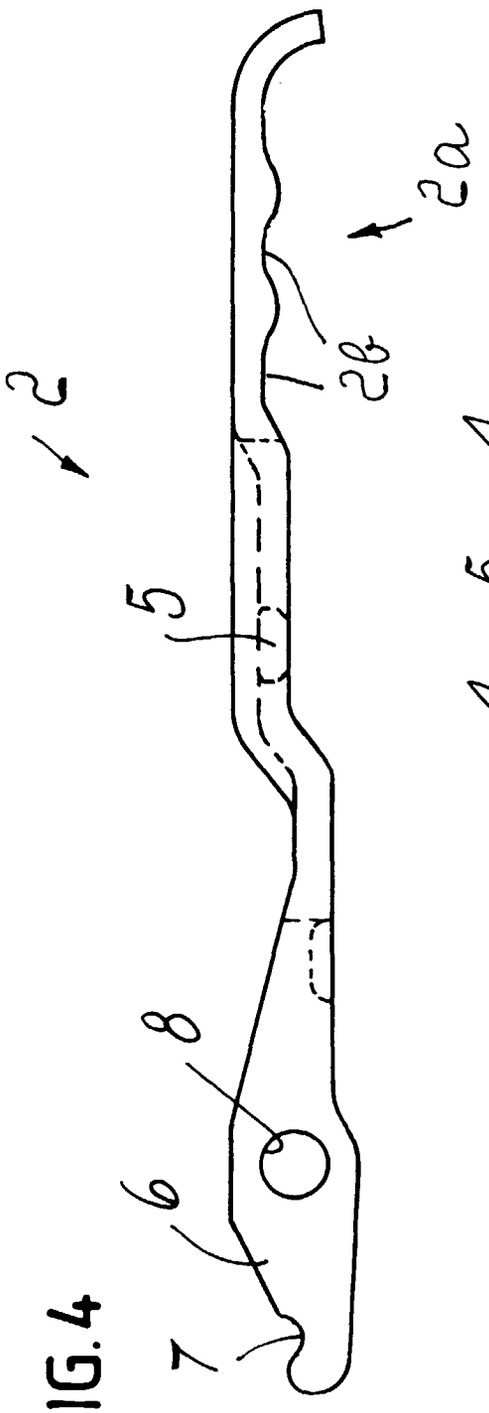

FIG.4

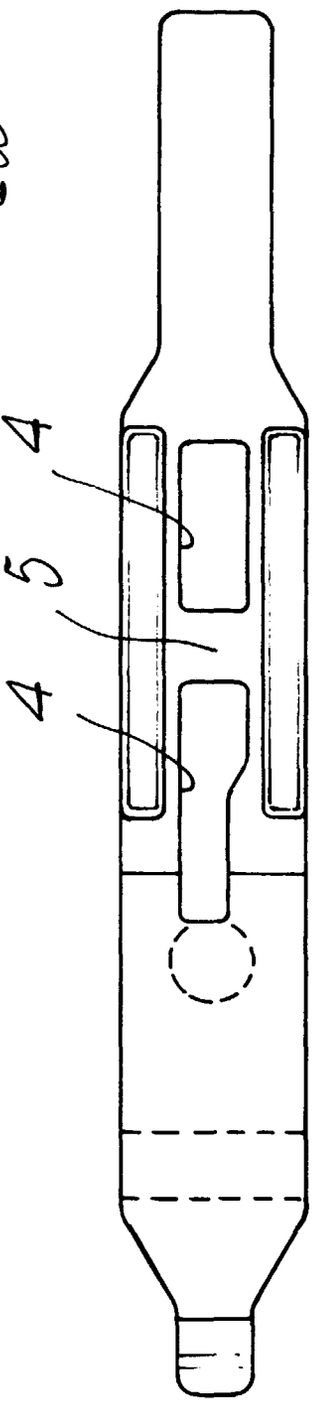

FIG.5

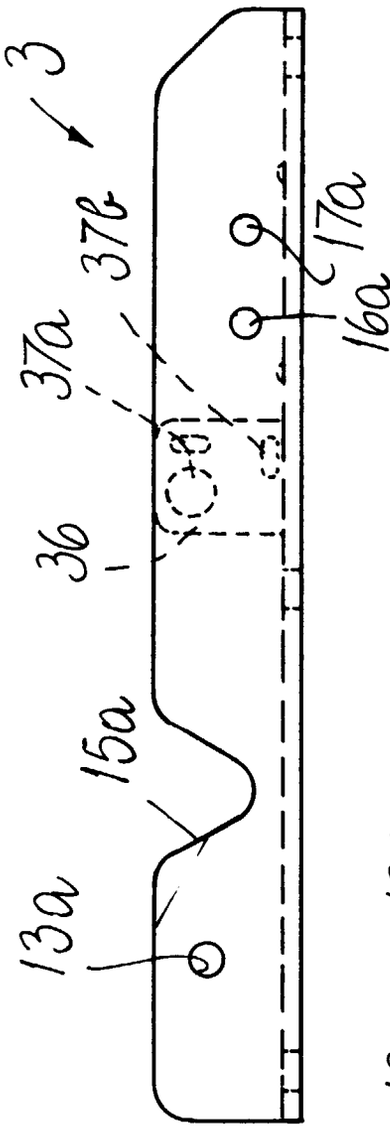
3
37a
37b
36
15a
13a
9
17a
16a

FIG.6

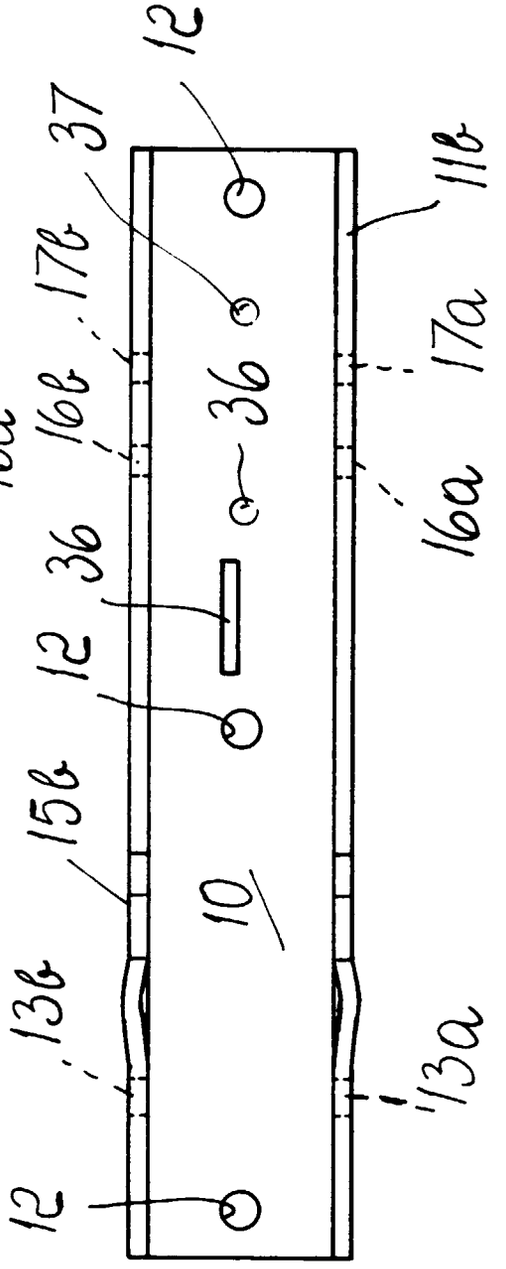
12
37
11b
17b
16b
36
36
12
15b
10
13b
12
17a
16a
13a

FIG.7