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(54) **LEVER-OPERATED DEVICE FOR FASTENING THE DOOR OF THE BODY OF TRUCKS, TRAILERS
AND THE LIKE**

Hebelartige Verschlussvorrichtung für Türe von Lastkraftwagen, Anhänger oder dergleichen

Dispositif de verrouillage à levier pour une porte de camions, remorques ou similaires

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(56) References cited:
EP-A- 0 893 558 EP-A- 1 460 210
US-A1- 2002 056 999

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Description

[0001] The present invention relates to a lever-operated device for fastening the door of the body of trucks, trailers and the like.

[0002] Devices for fastening the door of trucks are known which comprise one or more rods, which are supported so that they can rotate along the door and are each provided with at least one lever for the manual actuation of pawl means. The action of the operator on the lever allows to turn the rod about its own axis from an angular door locking position, in which the pawl means are engaged in respective abutments provided in the frame of the body, to a free door opening position, in which the pawl means are instead disengaged from the abutments.

[0003] A fastening device for doors of trucks of the known type is disclosed in EP-A-1 460 210, which is a document in the sense of Article 54(3) and (4) EPC.

[0004] EP-A-0 893 558 discloses a device for fastening the door of the body of trucks according to the preamble of claim 1.

[0005] The lever for the manual actuation of the device is generally associated with a containment base, which is rigidly coupled to the frame of the body by way of fixing elements of various kinds, in which there are also means for security closure (typically by using seals) required by customs regulations related to the transport of goods with trucks.

[0006] It is known that these regulations require door fastening devices to be provided so that their parts, such as for example said base, cannot be disassembled or tampered with from the outside and then reassembled without breaking in and without leaving visible and evident traces of such a break-in.

[0007] In accordance with these regulations, the base of the lever is currently fixed to the frame of the body by way of means such that disassembly of the base from the frame of the body (so as to be able to turn the lever without removing the seals, in order to open the door and access the vehicle body) leaves clearly visible traces: for example, the base is fixed to the frame by bolting and welding, so that it is not possible to disassemble the base without damaging significantly the welding beads.

[0008] However, this method of fixing the base is rather laborious and expensive, since it has to be completed over several work steps and by resorting to various kinds of equipment: moreover, all the common drawbacks of the provision of a coupling by welding, such as rusting, corrosion, deformation and localized embrittlement, occur over time.

[0009] The aim of the present invention is to obviate the drawbacks noted above, by providing a lever-operated fastening device in which the security closure means are substantially independent of the base, so that the disassembly of the base from the frame of the body is not in itself sufficient to allow to turn the lever and therefore open the door, unless evident tampering is per-

formed.

[0010] Within this aim, an object of the present invention is to provide a lever-operated fastening device that is simple, relatively easy to provide in practice, safe in use, effective in operation, and has a relatively low cost.

[0011] In accordance with the invention, there is provided a lever-operated device for fastening the door of the body of trucks, trailers and the like, as defined in the appended claims.

[0012] Further characteristics and advantages of the present invention will become better apparent from the following detailed description of a preferred but not exclusive embodiment of a lever-operated device for fastening the door of the body of trucks, trailers and the like, according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a bottom view of the device according to the invention, fitted to the frame of the truck body and with the lever in the angular position for closing the door;

Figure 2 is a front view of the device;

Figure 3 is a detail front view of the first member and of the connecting elements, taken from the inside of the body;

Figure 4 is a detail bottom view of the first member and of the connecting elements;

Figure 5 is a detail lateral elevation view of the first member and of the connecting elements.

[0013] In the embodiments that follow, individual characteristics, given in relation to specific examples, may actually be interchanged with other different characteristics that exist in other embodiments.

[0014] Moreover, it is noted that anything found to be already known during the patenting process is understood not to be claimed and to be the subject of a disclaimer.

[0015] With reference to the figures, the reference numeral 1 generally designates a lever-operated device for fastening the door of the body of trucks, trailers and the like according to the invention.

[0016] The device 1 comprises, for each door of the truck body, at least one rod 2, which is supported so that it can rotate along the door, is parallel to the axis for pivoting to a frame 3 of the body, and rigidly coupled to at least one lever 4 for manual actuation of pawl means 5. The lever 4 can rotate manually, rigidly with the rod 2 and about the axis of the rod, from an angular position for closing the door, in which the lever 4 is accommodated in a base 6, which is rigidly coupled to the frame 3 and in which the pawl means 5 are engaged in respective abutments 7 provided in the frame 3 and in the base 6, to an angular position for opening the door, in which the lever 4 is substantially spaced from the base 6, and the pawl means 5 are disengaged from the abutments 7, thus allowing the rotation of the door about the axis for pivoting to the frame 3 and therefore allowing access to the body.

[0017] The base 6 conveniently forms a receptacle 8 for the lever 4: in the receptacle 8 there are security closure means 9, which are suitable to retain the lever 4 in the angular position for locking the door. According to the invention, the closure means 9 comprise a first member 10, which is advantageously rigidly coupled to the frame 3 of the body by way of quick-assembly connecting elements 10a, and a second member 11, which is rigidly coupled to the lever 4; the first member 10 and the second member 11 are affected respectively by at least one first eye 12 and by one second eye 13 for fastening by means of at least one customs seal. When the first member 10 is rigidly coupled to the frame 3, it is not possible to turn the lever 4 in order to open the door without leaving evident signs of a break-in, both for breaking the first member 10 or the second member 11, and most of all for breaking the customs seal.

[0018] Further, the first member 10 and the second member 11 are respectively affected by a first slot-like opening 14 and by a second slot-like opening 15 for fastening by means of additional seals or other equivalent elements.

[0019] The lever 4 is substantially flat and elongated, forms an end portion 16 for manual actuation, and is affected by a central opening 17, which is interrupted by a bridge 17a; the pawl means 5 provided on the lever 4 are constituted by a substantially beak-shaped extension located proximate to the region of rigid keying of said lever along the rod 2.

[0020] The base 6 is constituted by a flat wall 18 for coupling to the frame 3, which extends at its sides with flat and parallel sides 19: the abutment 7 is conveniently constituted by a cylindrical bar, which is fixed, at its opposite ends, to the sides 19. The flat wall 18 of the base 6 is affected centrally by a first substantially rectangular cutout 20; a second cutout 21 is formed in the frame 3 of the body at the first cutout 20.

[0021] The first member 10 has a first end 22, at which the first eye 12 and the first slot-like opening 14 are provided, and a second end 23, which is engaged so as to pass within the first and second cutouts 20 and 21. It should be noted, in this regard, that the second cutout 21 can advantageously have a shape and dimensions that prevent the extraction of the first member 10 from the inside of the vehicle body once it has been assembled. For this purpose, it is possible to provide conveniently, at the second end portion 23, two sorts of recesses 23a, which are suitable to constitute a restraint against the extraction of the first member 10.

[0022] The elements 10a for the quick coupling of the first member 10 to the frame 3 comprise (see in particular Figures 3, 4 and 5) a plate 24, which is rigidly coupled to the second end 23 and forms a first surface 25 and a second surface 26, which are flat and parallel. The plate 24 has such an area that it constitutes an abutment, with the first surface 25, on the inner face of the frame 3 of the body, thus preventing removal of the first member 10 from the outside.

[0023] The plate 24 is affected by a rectangular through window 27, in which the second end 23 of the first member 10 is engaged; the two parts are mutually locked by means of a welding bead 28.

[0024] The plate 24 is fixed to the frame 3 and to the base 6 by way of screw means 29, which are advantageously constituted by a circular through hole formed in the plate 24, at which the base surface 31 of a nut 32 is fixed on the second surface 26, said nut forming a female thread for the engagement of a respective fixing screw 33, in which the head abuts against the flat wall 18 of the base 6. The nut 32 is fixed to the plate 24 by way of lateral welding beads 34. Other screws 33 are used to fix the base 6 to the frame 3.

[0025] Manually-actuated means 35 for retaining the lever 4 in the angular closed position are further provided in the receptacle 8 of the base 6; the retention means 35 are constituted by two rockers 36 and 37, which are supported so that they can rotate on respective parallel pivots 38 and 39, which are rigidly coupled, at their ends, to the respective sides 19 of the base 6. The rockers 36 and 37 are associated elastically with the base 6 by way of respective coiled springs 40 and 41, which are keyed on the pivots 38 and 39, and have respective profiles 41, 42 for mutual coupling; in an upper region, further, they form teeth 43 and 44, which are suitable to engage above the bridge 17a. The position for retention of the lever 4 by the rockers 36 and 37 is maintained stably by the action of the springs 40 and 41; by applying a manual pressure to one of the two rockers 36 and 37, the mutual coupling of the profiles 41 and 42 causes the rotation, in opposite directions, of each one of the two rockers, with consequent disengagement of the teeth 43 and 44 from the bridge 17a.

[0026] The operation of the device according to the invention is entirely intuitive.

[0027] It has thus been shown that the invention has achieved the intended aim and object.

[0028] The connection of the first member 10 to the frame 3 of the body constitutes an effective assurance of compliance with customs regulations as regards possible break-in attempts; to open the door of the body it is in fact necessary to break the first member 10, the second member 11 and the customs seals, and these breakages leave evident traces that are clearly visible to customs authorities.

[0029] 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-operated device for fastening a door of a

body of trucks, trailers and the like, of the type that comprises at least one rod (2), which is supported so that it can rotate along the door, and is provided with at least one lever (4) for the manual actuation of pawl means (5), which can rotate, about the axis of said rod (2), from an angular position for closing the door, in which it is accommodated in a base (6) that is rigidly coupled to the frame (3) of the body and in which said pawl means (5) are coupled to respective abutments (7) provided in said frame (3) and in said base (6), to an angular position for opening the door, in which said lever (4) is substantially spaced from said base (6) and in which said pawl means (5) are disengaged from said abutments (7), allowing the door to turn about its own axis for pivoting to said frame (3), said device further comprising security closure means (9), which are suitable to retain said lever (4) in said angular closure position, **characterised in that** said closure means (9) comprises a first member (10), which is located in the receptacle (8) of said lever (4) formed by said base (6) and is rigidly coupled to said frame (3) by way of quick-assembly connecting means (10a), and a second member (11), which is rigidly coupled to said lever (4), said members being affected respectively by at least one first eye (12) and at least one second eye (13), which substantially face each other, for fastening by means of at least one seal, said first member (10) having a first end (22), at which said first eye (12) is provided, and a second end (23), which is engaged in a first through cutout (20) and in a second through cutout (21), which substantially face each other and are provided respectively in said base (6) and in said frame (3) of the body, said quick-assembly connecting elements (10a) comprising a plate (24), which forms a first surface (25) and a second surface (26) which are flat and parallel, said plate being rigidly coupled to said second end (23) of said first member (10) and having an area that constitutes an abutment, with said first surface (25), on the internal surface of the frame (3), preventing removal of said first member (10) from outside, said plate being fixed to said base (6) and to said frame (3) by way of screw means (29).

2. The device according to claim 1, **characterized in that** said screw means (29) comprise a circular through hole (30), which is formed in said plate (24) and at which a nut (32) is fixed coaxially, forming a female thread for the engagement of a respective fixing screw (33), which passes through said frame (3) and said base (6).
3. The device according to one or more of the preceding claims, **characterized in that** said second end (23) of said first member (10) is engaged in a through opening (27), which is provided in said plate (24), where it is fixed by means of a welding bead (28).

4. The device according to one or more of the preceding claims, **characterized in that** said nut (32) is fixed to said plate (24) by way of lateral welding beads (34).

Patentansprüche

1. Hebelbetätigte Vorrichtung zum Verschließen einer Tür eines Körpers eines Lastkraftwagens, Anhängers oder dergleichen, bei der mindestens eine Stange (2) vorgesehen ist, die derart gelagert ist, dass sie entlang der Tür verdreht werden kann, und die mindestens einen Hebel (4) zur manuellen Betätigung einer Klinkenanordnung (5) trägt, der um die Achse der Stange (2) aus einer Winkelposition zum Schließen der Tür in eine Winkelposition zum Öffnen der Tür verdreht werden kann, wobei in der Winkelposition zum Schließen der Tür der Hebel in einer Basis (6) aufgenommen wird, die fest mit dem Rahmen (3) des Körpers verbunden ist, und die Klinkenanordnung (5) mit entsprechenden Anschlägen (7) in dem Rahmen (3) und in der Basis (6) gekoppelt ist, und wobei in der Winkelposition zum Öffnen der Tür der Hebel (4) sich in einem wesentlichen Abstand von der Basis (6) befindet und die Klinkenanordnung (5) außer Eingriff von den Anschlägen (7) ist, um der Tür ein Verschwenken um ihre eigene Achse gegenüber dem Rahmen (3) zu ermöglichen, bei der die Vorrichtung darüber hinaus Sicherheits-schließmittel (9) aufweist, die geeignet sind, den Hebel (4) in der geschlossenen Winkelposition zu halten, **dadurch gekennzeichnet, dass** das Schließmittel (9) ein erstes Glied (10) aufweist, das in der durch die Basis (6) gebildeten Aufnahme (8) des Hebels (4) angeordnet und fest mit dem Rahmen (3) durch schnell montierbare Verbindungsmittel (10a) verbunden ist, und ein zweites Glied (11) aufweist, das fest mit dem Hebel (4) verbunden ist, **dass** die Glieder durch mindestens ein erstes Auge (12) und mindestens ein zweites Auge (13), die einander im Wesentlichen gegenüberliegend angeordnet sind, zum Befestigen mittels mindestens eines Siegels beeinflusst werden, **dass** das erste Glied (10) ein erstes Ende (22), an dem das erste Auge (12) vorgesehen ist, und ein zweites Ende (23) aufweist, das im Angriff mit einem ersten Durchgangsausschnitt (20) und einem zweiten Durchgangsausschnitt (21) steht, die einander im Wesentlichen gegenüberliegend angeordnet und in der Basis (6) bzw. in dem Rahmen (3) des Körpers vorgesehen sind, **dass** die schnell montierbaren Verbindungsmittel (10a) eine Platte (24) aufweisen, die eine erste Fläche (25) und eine zweite Fläche (26) bilden, die flach

und parallel ausgebildet sind, wobei die Platte fest mit dem zweiten Ende (23) des ersten Gliedes (10) verbunden ist und eine einen Anschlag bildende Fläche hat, wobei die erste Fläche (25) auf der inneren Fläche des Rahmens (3) ein Entfernen des ersten Gliedes (10) von außen verhindert, und **dass** die Platte durch Schraubmittel (29) an der Basis (6) und dem Rahmen (3) befestigt ist.

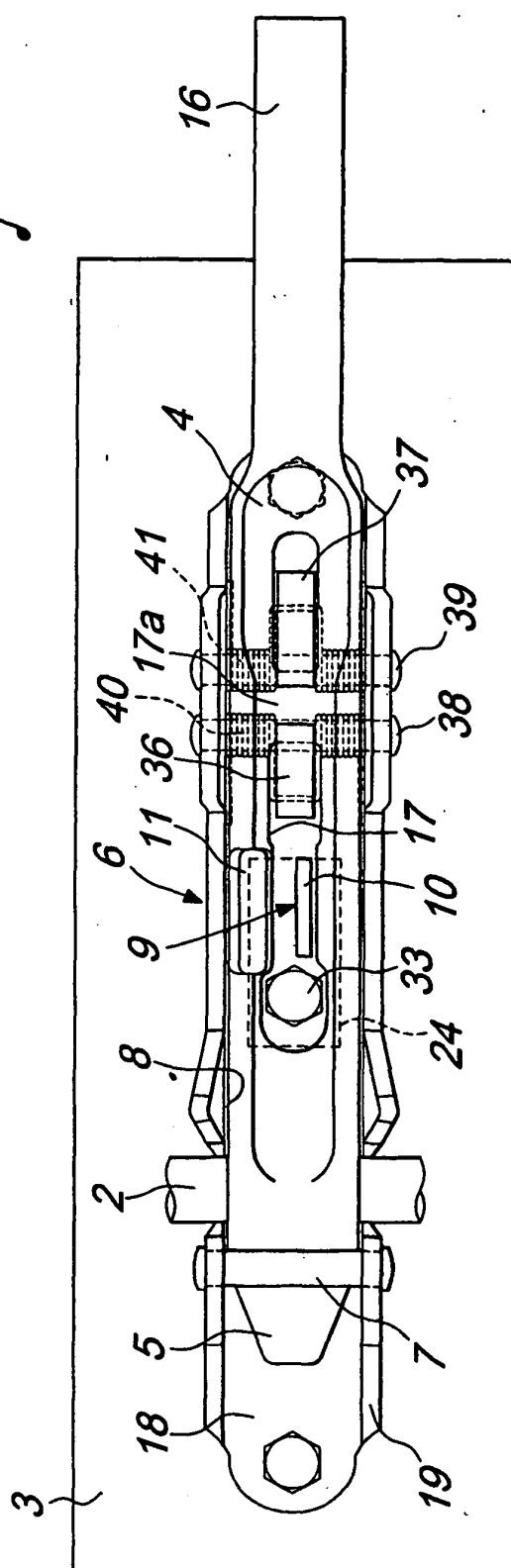
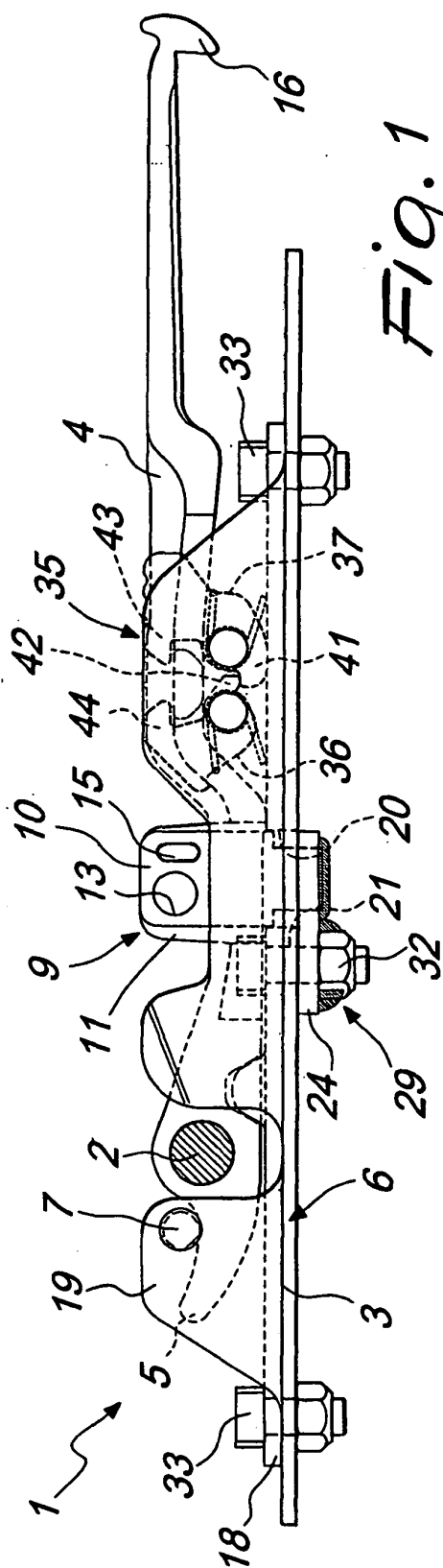
2. Verschlussvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Schraubmittel (29) ein kreisförmiges Durchgangsloch (30) aufweisen, das in der Platte (24) ausgebildet ist und auf dem eine Mutter (32) koaxial befestigt ist, die ein Innengewinde zum Eingriff einer entsprechenden Befestigungsschraube (33) bildet, die durch den Rahmen (3) und die Basis (6) hindurch reicht.
3. Verschlussvorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das zweite Ende (23) des ersten Gliedes (10) in eine Durchgangsöffnung (27) eingreift, die in der Platte (24) vorgesehen ist, und dort mittels einer Schweißperle (28) befestigt ist.
4. Verschlussvorrichtung nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Mutter (32) an der Platte (24) mittels lateraler Schweißperlen (34) befestigt ist.

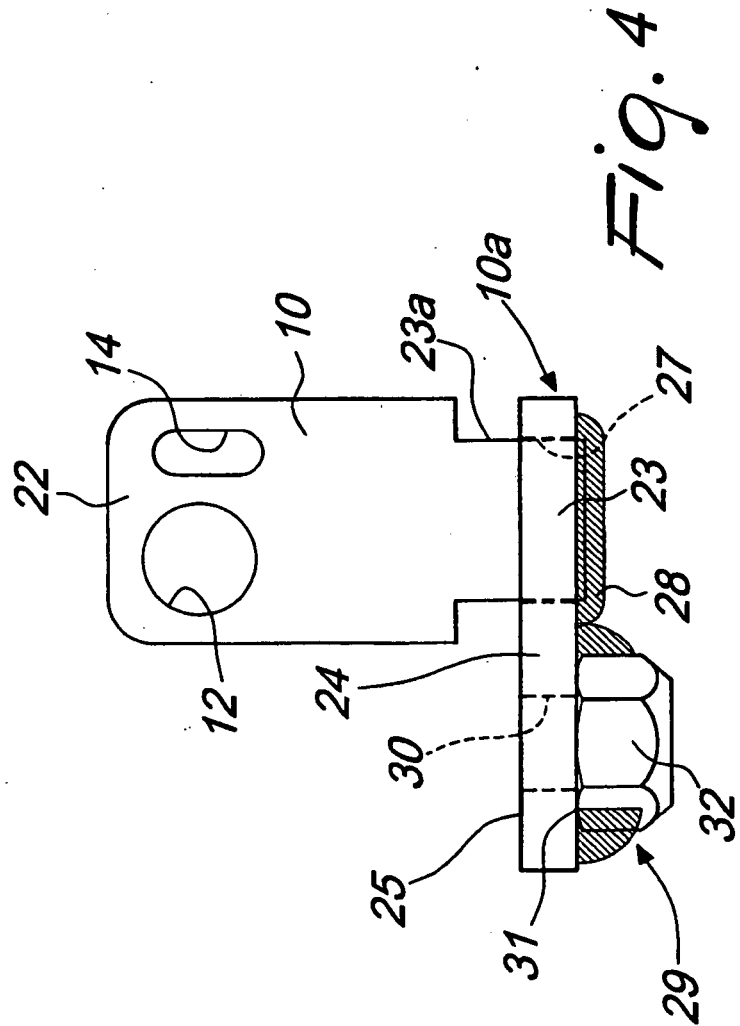
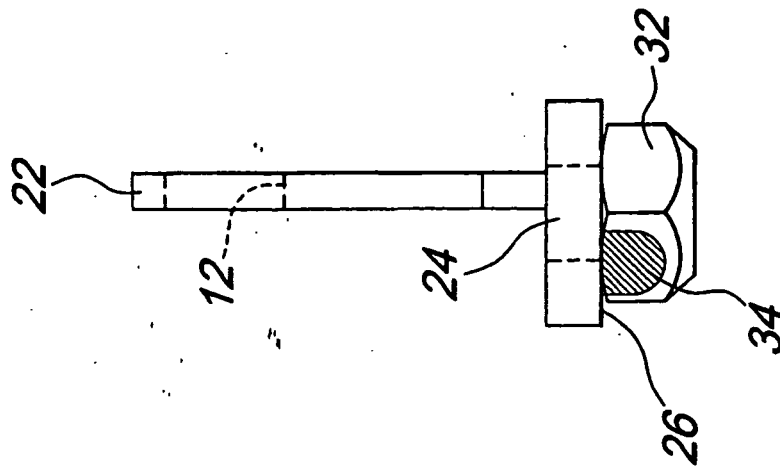
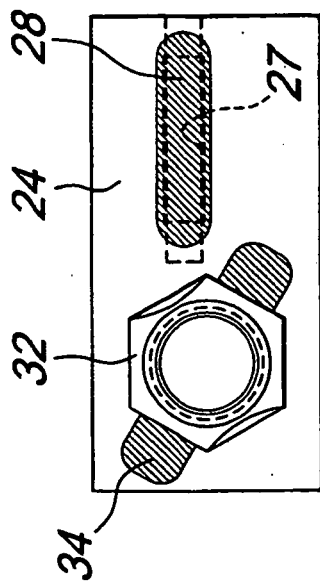
Revendications

1. Dispositif actionné par un levier pour fixer une porte d'une caisse de camions, de remorques, et analogues, du type qui comprend au moins une tige (2), qui est supportée de telle sorte qu'elle puisse tourner le long de la porte, et qui est munie d'au moins un levier (4) pour l'actionnement manuel de moyens formant cliquet (5), qui peuvent tourner, autour de l'axe de ladite tige (2), d'une position angulaire pour fermer la porte, dans laquelle ils sont reçus dans une base (6) qui est rigidement accouplée au châssis (3) de la caisse, et dans laquelle lesdits moyens formant cliquet (5) sont accouplés à des butées respectives (7) disposées dans ledit châssis (3) et ladite base (6), à une position angulaire pour ouvrir la porte, dans laquelle ledit levier est sensiblement espacé de ladite base (6) et dans laquelle lesdits moyens formant cliquet (5) sont dégagés desdites butées (7), permettant à la porte de tourner autour de son propre axe pour pivoter par rapport audit châssis (3), ledit dispositif comprenant de plus des moyens de fermeture de sécurité (9), qui sont appropriés pour maintenir ledit levier (4) dans ladite position de fermeture angulaire, **caractérisé en ce que** lesdits moyens de fermeture (9) comprennent un premier élément (10), qui est disposé dans le réceptacle (8) dudit levier (4)

formé par ladite base (6) et rigidement accouplé audit bâti (3) à l'aide de moyens de raccord à assemblage rapide (10a), et un deuxième élément (11), qui est rigidement accouplé audit levier (4), lesdits éléments étant respectivement affectés par au moins un premier oeillet (12) et au moins un deuxième oeillet (13), qui se font sensiblement face mutuellement, pour une fixation à l'aide d'au moins un joint, ledit premier élément (10) comportant une première extrémité (22), à laquelle est situé ledit premier oeillet (12), et une deuxième extrémité (23), qui vient en prise dans une première entaille traversante (20) et dans une deuxième entaille traversante (21), qui se font sensiblement face mutuellement et qui sont respectivement disposées dans ladite base (6) et ledit châssis (3) de la caisse, lesdits éléments de raccord à assemblage rapide (10a) comprenant une plaque (24), qui forme une première surface (25) et une deuxième surface (26) qui sont planes et parallèles, ladite plaque étant rigidement accouplée à ladite deuxième extrémité (23) dudit premier élément (10) et comportant une zone qui constitue une butée, ladite première surface (25), sur la surface intérieure du châssis (3), empêchant le retrait dudit premier élément (10) à partir de l'extérieur, ladite plaque étant fixée à ladite base (6) et audit châssis (3) à l'aide de moyens à vis (29).

2. Dispositif selon la revendication 1, **caractérisé en ce que** lesdits moyens à vis (29) comprennent un trou traversant circulaire (30), qui est formé dans ladite plaque (24), et auquel un écrou (32) est fixé de façon coaxiale, formant un filetage femelle pour l'engagement d'une vis de fixation respective (33), qui traverse ledit châssis (3) et ladite base (6).
3. Dispositif selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ladite deuxième extrémité (23) dudit premier élément (10) vient en prise dans une ouverture traversante (27), qui est située dans ladite plaque (24), où elle est fixée à l'aide d'un cordon de soudure (28).
4. Dispositif selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit écrou (32) est fixé à ladite plaque (24) à l'aide de cordons de soudure latéraux (34).





REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1460210 A [0003]
- EP 0893558 A [0004]