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(54) **Swivel platform for a rail vehicle**

Drehbare Ladebühne für ein Schienenfahrzeug

Plateforme tournante pour un véhicule ferroviaire

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Description

[0001] The invention is related to a locking element for use on a swivel platform for a rail vehicle, which locking element comprises a supporting base structure installed on the bottom frame, a locking pin with a bevelled front face which can move between a first position and a second position, a rotatable sleeve in which the locking pin can move in longitudinal direction between said two positions whereby the pin is pretensioned by spring means towards said first position and the pin is secured against turning about its longitudinal axis, the sleeve and the pin being provided with mutually co-operating means comprising a slanting key way in the locking pin or in the sleeve and a therein extending actuation pin connected to the sleeve or the pin respectively such that rotation of the sleeve between a first and a second position results in movement of the locking pin between its respective two positions, an operating handle being attached to the sleeve.

[0002] Such locking element is known from EP-A-325814.

[0003] According to the invention, the slanting key way in the locking pin or in the sleeve stretches over about half of the circumference of said locking pin or sleeve, so that the sleeve can rotate to a third position opposite to its first position, the first and third positions of the sleeve corresponding to the same position of the locking pin.

[0004] The invention is furthermore related to a swivel platform for a rail vehicle, intended for loading a container from a road vehicle onto the rail vehicle and vice versa, comprising: a bottom frame which must be fixed to the rail vehicle and a top frames which can swing relative to the bottom frame, via a swing mechanism coupled to both frames, between a neutral position in which the longitudinal axis of the top frame runs approximately parallel to the longitudinal axis of the rail vehicle and a swung-out position in which the longitudinal axis of the top frame forms an angle of about 45 degrees with the longitudinal axis of the rail vehicle, said top frame being provided with two parallel container guide elements which are connected to each other by means of transverse elements at least one of which is connected to a swing mechanism, whereby provision is made for at least one locking element by means of which the top frame can be locked in the neutral position relative to the bottom frame, which locking element is provided with a locking pin which can move between a first position in which the pin prevents a swing movement of the top frame and a second position in which the top frame is able to swing in or out, whereby,

- the locking element comprises a supporting base structure installed on the bottom frame,
- the locking element is furthermore provided with a rotatable sleeve in which the locking pin can move in longitudinal direction between said two positions whereby the pin in pretensioned by spring means towards said first position and the pin is secured against turning about its longitudinal axis,
- the sleeve and the pin are provided with mutually co-operating means comprising a slanting key way in the locking pin or in the sleeve and a therein extending actuation pin, connected to the sleeve or the pin respectively such that rotation of the sleeve between a first and a second position results in movement of the locking pin between its respective two positions,
- the locking element is furthermore provided with an operating handle attached to the sleeve which extends horizontally and out of the way of movement of the top frame in the first position of the sleeve corresponding to the first position of the locking pin and extends vertically upwards in the way of movement of the top frame in the second position of the sleeve corresponding to the second position of the locking pin,
- and the locking pin has a bevelled front face because of which the part of the top frame mating with the pin is capable of pushing the pin out of the path of the top frame during the inward swing movement of the top frame,
- all this such that during loading or unloading of a container starting in the neutral position of the top frame with the locking pin in the first position the handle is moved from the first horizontal position to the second vertical position to draw the locking pin out of the swing path of the top frame whereafter the handle is forced back by the top frame from the vertical position into the horizontal position during the outward swing of the top frame after at least the mating part of the top frame has already passed the pin

[0005] Such a swivel platform is also disclosed in EP-A-325814. During operation of said swivel platform it is only necessary to unlock the locking element by pushing the operating handle upwards so that the locking pin is retracted into the second position because of the co-operation between the slanting key way and the actuating pin. Thereafter the top frame starts swinging outwards and pushes thereby the operating lever back to the horizontal position. Simultaneously the locking pin is released and, is drawn back to the first position by the pretensioning springs. However, this does not have any influence on the movement of the top frame because the part of the top frame mating with the end of the locking pin has already passed. During the inwards swing movement the top frame is able to pass the end of the locking pin because the end thereof is bevelled.

[0006] The only action required by operating personal is the unlocking of the locking pin. As result of the following swing movement the locking element is automatically reset with the result that, as the top frame is moved back, the top frame is locked automatically as soon as

the neutral position is reached.

[0007] Although said prior art swivel platform behaves quite satisfactorily, in some cases inadvertent damage may occur to the locking element. This may in particular occur in case the operating handle is rotated into the vertical position when the top frame is in the swung out position. Upon subsequently swinging inwards the top frame to its position above the bottom frame, the upwardly extending operating handle is hit. As a result, damage occurs to the locking pin.

[0008] The object of the invention is to provide a swivel platform as described before, which does not have this problem. This object is achieved in that the slanting key way in the locking pin or in the sleeve stretches over about half of the circumference said locking pin or sleeve.

[0009] In case the operating handle is now in the vertical position when the top frame is swung back, said handle is rotated further together with the sleeve or pin after being hit by said top frame. The operating handle arrives thus in a third position, in which it is opposite the first position.

[0010] Preferably, the slanting key way has a shape which is essentially symmetrical with respect to a vertical plane through the axis of the locking pin and/or of the sleeve. In that case, the locking pin prevents a swing movement of the top frame also when it is in said third position.

[0011] Furthermore, the key way, at about the middle part thereof, has a rest or indentation for holding the actuation pin, and thereby the sleeve, in stable mean position with upwardly extending operating lever. The operating lever may be driven from this stable position in both rotational directions, as a result of which inadvertent damage is prevented.

[0012] The invention will be explained in greater detail below with reference to the attached figures.

Figure 1 shows a top view of the swivel platform, comprising a combination of a bottom frame a top frame, intended for placing on a rail vehicle, the top frame being in the neutral position relative to the bottom frame.

Figure 2 also shows a top view of the swivel platform, but with the top frame turned to the swung-out position, in which the longitudinal axis of the top frame forms an angle of about 45 degrees with the longitudinal axis of the bottom frame (and thus with the longitudinal axis of the rail vehicle).

Figure 3 shows a cross section through one of the longitudinal lines of the top frame at one of the additional supporting rollers.

Figure 4 shows another cross section through the relevant longitudinal lines of the same roller as that shown in figure 3.

Figure 5a, b, c show different views of a locking element used according to the invention to lock the swivel platform in the neutral position.

Figure 6 shows a view of the locking element to explain how it works.

[0013] Figure 1 shows a top view of a swivel platform, comprising a bottom frame and a top frame intended for mounting on the flat top side of a rail vehicle. The bottom frame is provided with two longitudinal runners 39 and 40 connected by means of three transverse runners 8, 9 and 10 which in this embodiment are considerably broader. These longitudinal and transverse runners can be solid plates or bars, hollow tubes, U sections and the like, which are attached to each other by welding or in another suitable manner, in such a way that a by and large flat bottom frame is obtained.

[0014] The top frame is provided with two parallel container guide elements 31 and 32 which are connected to each other by means of transverse elements 33, 34, 35 and 36. The transverse element 34 is coupled to a swing mechanism, indicated in its entirety by 11 and also connected to the transverse element 9 of the bottom frame. Such a swing mechanism in the form of a roller bearing, a ball bearing or the like, is known per se and will therefore not be discussed any further. This swing mechanism is for ensuring that the top frame can swing from the neutral position illustrated in figure 1 to the swung-out position illustrated in figure 2, in which swung-out position the longitudinal axis of the top frame forms an angle of about 45 degrees with the longitudinal axis of the bottom frame.

[0015] The transverse element 35 of the top frame has mounted on it a wheel 38 which runs over a curved plate, tube or the like, indicated by 12, said element 12 forming part of the bottom frame. Near the ends of this element 12 are stop blocks 44 and 45, which ensure that during the outward swing the top frame stops in the swung-out end position through the wheel 38 being retained by one of these stop blocks 44 or 45.

[0016] According to the invention, two further wheels 14 and 15 are fitted in or on the longitudinal guides 31 and 32 of the top frame, at such a point that in the swung-out position one wheel 14 has already passed the side edge of the rail vehicle, while the other wheel 15 has almost reached the side edge in question. Like the wheel 38, the wheels 14 and 15 run over a curved part of the bottom frame, indicated by 13. It will be clear that the curved parts 12 and 13 can also be replaced by differently shaped parts of the bottom frame or, if necessary, by parts of the rail vehicle on which the swivel platform is mounted, so long as there is just a curved supporting movement path for the wheels.

[0017] When the top frame swings out in the opposite direction, seen in figure 2, the wheel 15 will pass the side edge, determined by the longitudinal runner 39, and the wheel 14 will almost reach the said side edge.

[0018] In the swivel platform the whole load is supported at only two points during the outward or inward swinging movement, i.e. by the swing mechanism 11 and by the wheel 38. In practice, the swing mechanism

can be made fairly large, for example in the form of a ball bearing or roller bearing of relatively large diameter, in which relatively little friction occurs. However, the wheel 38 turns only in two bearing which will be relatively heavily loaded during the swing movement, so that considerable friction will occur. This certainly applies to the slide bearings commonly used because of their simplicity and sturdiness. The result of this is that considerable force is needed to swing the loaded top frame.

[0019] The provision of the two additional wheels 14 and 15 now means that the load is distributed over several support points, which leads to a considerable reduction in the friction forces occurring. The weight which has to be supported in the state of the art by one wheel is now taken by two wheels in the swung-out position and even by three wheels once the third wheel started to run on the curved supporting track 13 during the outward swing.

[0020] Not only is the load distributed over several support points, but these support points also cover a larger area and are not in line with each other, as is the case with the swivel platform according to the state of the art. Through this surface spread of the support points, the titling load on the swing mechanism 11, which occurs with the known device, is greatly reduced, and this contributes to a further reduction of friction and resistance forces. The total reduction of the friction and resistance forces is so great that is has been found possible for one or two people without excessive effort to push the loaded top frame by hand from one end position to the other. This is a considerable improvement on the known swivel platform, which must be swung by means of a mechanical conveyor or possible with other mechanical actions.

[0021] The top frame is locked in the neutral position by means of two locking elements 1 and 2, indicated only very schematically in figures 1 and 2. These locking elements will be discussed in detail below with reference to figures 5a-c.

[0022] Figure 3 shows a partial section in transverse view through one of the longitudinal runners (in this case 32) of the top frame at the point where the wheel is fitted (in this case 14). The wheel is mounted on a shaft 16 which is supported by two transverse plates 17 and 18, which are disposed by means of welded joints in the hollow (tubular) part of the longitudinal runner 31. These welded joints are indicated schematically without reference numbers in the figures. The plates 17 and 18 are placed at such an angle that the longitudinal axis of the shaft 16 intersects the centre point of the swing mechanism 11. It will be clear that the wheel 14 must run over a circular path whose centre point coincides with the centre points of the swing mechanism 11. The two plates 17 and 18 are provided with openings whose diameter corresponds to the diameter of the shaft 16. Near one of the ends said shaft 16 is provided with a groove 20, into which a locking plate 19 can be inserted, it being possible to fix said locking plate by means of two bolts 21 and 22 or like to the transverse plate 17. The shaft 16 is thus fixed in a relatively simple, yet sturdy manner. The wheel 16 is confined in the lateral direction between the plates 17 and 18 by means of two rings 22 and 23.

[0023] Figures 5a, 5b and 5c show three views of the locking structure used according to the invention to lock the top frame in the neutral position. The structure comprises a first block 50 and a second block 51, both provided with a bore whose central axes are in line with each other, and both fixed on the bottom frame of the swivel platform. Figure 5b shows the actual locking pin 52, provided with a left part 53 of relatively smaller cross section, and a right part 54 of relatively greater cross section. The right part 54 contains a key way 55 which runs in the lengthways direction, and into which the end of a locking pin 56 fits. As shown in figure 5a, this locking pin is screwed into the block 50 in such a way that the end of the locking pin 56 sticks into the key way 55. When fitted, the locking pin 52 is thus locked against rotation about its longitudinal axis, and the to and for movement of the locking pin 52 is also limited by the bores in the two blocks 50 and 51. During the fitting, a coil spring 57 is slid onto the thinner part 53 of the locking pin 52, said coil spring in the fitted state resting with one end against the breast between the thinner part 53 and the thicker part 54, and resting with the other end against the block 51. By means of the spring 57, a force is exerted constantly on the locking pin towards the right in the figure.

[0024] Around the locking pin is a tube 58, onto which a handle or lever 59 is welded. This tube fits between the blocks 50 and 51 and can be turned round the locking pin 52 by means of the lever 59.

[0025] The tube 58 has screwed into it an actuation pin 60, which projects in the tube to a tringular key way 61, not yet discussed , in the thicker part 54 of the locking pin 52. It will be clear that rotation of the tube 58 by means of the lever 59 through an angle of approximately 90 degrees from the plane of the drawing upwards leads to a shifting of the locking pin 52 to the left in the figure on account of the mating between the actuation pin 60 and the first triangular key way part 61a. The locking pin 52 is moved here against the force of the coil spring 57.

[0026] Figure 5a shows the end of the longitudinal runner 32 of the top frame. In the situation shown, this longitudinal runner 32 is locked by the locking pin 52. However, if the locking pin is moved to the left through turning of the tube 58, the right end of the locking pin 52 will end up outside the path of the longitudinal runner 32, so that the longitudinal runner 32 can be turned.

[0027] Figures 1 and 2 show the place at which the locking elements are mounted on the bottom frame. Concerning in particular element 2, it will be clear that the pin in the situation of figure 5 is in such a position that the bottom frame, in particular the longitudinal runner 32 thereof, is locked in the neutral position. The lever is swung down here. If the top frame now has to be turned, the lever is moved upwards, thereby causing the

locking pin 52 to be pulled out of the path of the end of the longitudinal runner 32. This situation is illustrated in side view in figure 6, in which the locking element can be seen together with a part of the bottom frame and a part of the longitudinal runner 32 of the top frame. As can be seen in figure 6, the longitudinal runner has a projecting part 32a which is not impeded by the locking pin, but can move over the block 50. As can also be seen in figure 6, the locking pin 52 is shifted so far to the left through moving the lever upwards that the bevelled right end of the pin has disappeared completely inside the block 50. If the top frame is now turned, this projecting part 32a will go against the end of the lever 59, and will press said lever down, thereby causing the pin 52 to move the right. The end of the longitudinal runner 32 has then, however, already passed the point of the locking pin 52, and is no longer blocked by it.

[0028] For inward swinging of the top frame, the lever can remain in the swung-down position and the locking pin can be held in its blocking position. The blocking end of the locking pin 52 is in fact bevelled in such a way that the slanting end face forms a run-on face for the end of the longitudinal runner 32. Through this bevel, the locking pin 52 is pushed to the left against the force of the spring 57 during the inward swing, so that the inward swing movement is not impeded. Once the end of the longitudinal runner 32 has completely passed the locking pin, the pin 52 jumps back under the influence of the spring 57, thus blocking the longitudinal runner 32.

[0029] The centre between the key ways 61a, 61b has a slight indentation, which defines a stable mean (or second) position for the operating lever 59. The operating lever 59 may leave this position when it is hit by the top frame, or by hand operation.

[0030] As shown in figure 5a and 5b, the locking pin has also a second tringular key way part 6b, which connects to the first triangular key way part 61a.

[0031] In case the operating handle 59 is in the vertical position when the top frame is swung back, said handle 59 can rotate to its third position, shown in dotted lines in figures 5c, opposite its first position shown in fully drawn lines in figure 5a.

[0032] As a result of the symmetric lay out of the key way parts 61a, 61b with respect to a vertical plane through the axis of the locking element 1, 2, also in the third position the pin 52 may jump back under the influence of the spring 57, thus blocking the longitudinal runner 32, after said runner 32 has completely passed the said pin 52.

Claims

1. Locking element (1, 2) for a swivel platform for a rail vehicle, which comprises a supporting base structure fixable on a bottom frame of the swivel platform, a locking pin (52) with a bevelled front face which can move between a first position and a second position, a rotatable sleeve (58) in which the locking pin (52) can move in longitudinal direction between said two positions whereby the pin is pretensioned by spring means (57) towards said first position and the locking pin (52) is secured against turning about its longitudinal axis, the sleeve (58) and the locking pin (52) being provided with mutually cooperating means comprising a slanting key way (61) in the locking pin or in the sleeve and a therein extending actuation pin (60) connected to the sleeve or the locking pin respectively such that rotation of the sleeve (58) between a first and a second position results in movement of the locking pin between (52) its respective two positions, an operating handle (59) attached to the sleeve (58), **characterised in that** the slanting key way (61) in the locking pin (52) or in the sleeve (58) stretches over about half of the circumference said locking pin (52) or sleeve (58), so that the sleeve can rotate to a third position opposite to its first position, the first and third positions of the sleeve corresponding to the same position of the locking pin.

2. Swivel platform for a rail vehicle, intended for loading a container from a road vehicle onto the rail vehicle and vice versa, comprising at least one locking element (1, 2) according to claim 1, and further comprising: a bottom frame which must be fixed to the rail vehicle and a top frames which can swing relative to the bottom frame, via a swing mechanism (11) coupled to both frame, between a neutral position in which the longitudinal axis of the top frame runs approximately parallel to the longitudinal axis of the rail vehicle and a swung-out position in which the longitudinal axis of the top frame forms an angle of about 45 degrees with the longitudinal axis of the rail vehicle, said top frame being provided with two parallel container guide elements (31, 32) which are connected to each other by means of transverse elements (33, 34, 35, 36) at least one of which is connected to the swing mechanism (11), whereby the top frame can be locked in the neutral position relative to the bottom frame by the at least one locking element (1, 2), the locking pin (52) being moveable between the first or third position in which the pin prevents a swing movement of the top frame and the second position in which the top frame is able to swing in or out, whereby,

   - the supporting base structure is installed on the bottom frame,
   - the operating handle (59) attached to the sleeve (58) extends horizontally and out of the way of movement of the top frame in the first or third position of the sleeve corresponding to the first position of the locking pin (52) and extends vertically upwards in the way of movement of the top frame in the second position of the

sleeve corresponding to the second position of the locking pin,

- the part of the top frame mating with the locking pin is capable of pushing the locking pin out of the path of the top frame during the inward swing movement of the top frame due to the bevelled front face of the locking pin (52)
- all this such that during loading or unloading of a container starting in the neutral position of the top frame with the locking pin in the first position the handle is moved from the first horizontal position to the second vertical position to draw the locking pin out of the swing path of the top frame whereafter the handle is forced back by the top frame from the vertical position into the horizontal position during the outward swing of the top frame after at least the mating part of the top frame has already passed the pin.

3. Swivel platform according to claim 1, wherein the slanting key way (61) has a shape which is essentially symmetrical with respect to a vertical plane through the axis of the locking pin (62) and/or the sleeve (58).

4. Swivel platform according to claim 1 or 2, wherein the key way (61), at about the middle part thereof, has a rest or indentation for holding the actuation pin (60), and thereby the sleeve (58), in a stable mean position with upwardly extending operating lever (59).

Patentansprüche

1. Verriegelungselement (1, 2) für eine Drehplattform für ein Schienenfahrzeug, mit einer tragenden Grundstruktur, die an einem unteren Rahmen der Drehplattform befestigbar ist, einem Verriegelungsstift (52), der eine abgeschrägte Stirnfläche aufweist und zwischen einer ersten Position und einer zweiten Position bewegt werden kann, einer drehbaren Hülse (58), in der sich der Verriegelungsstift (52) in Längsrichtung zwischen den zwei Positionen bewegen kann, wobei der Stift durch Federmittel (57) in die erste Position vorbelastet ist und der Verriegelungsstift (52) gegen eine Drehung um seine Längsachse gesichert ist, wobei die Hülse (58) und der Verriegelungsstift (52) mit gegenseitig zusammenwirkenden Mitteln versehen sind, die eine schräge Keilnut (61) im Verriegelungsstift oder in der Hülse und einen darin verlaufenden Betätigungsstift (60), der mit der Hülse bzw. mit dem Verriegelungsstift verbunden ist, umfassen, so dass eine Drehung der Hülse (58) zwischen einer ersten und einer zweiten Position eine Bewegung des Verriegelungsstifts (52) zwischen seinen beiden Positionen zur Folge hat, und einem an der Hülse (58) befestigten Betätigungsstift (59), **dadurch gekennzeichnet, dass** sich die schräge Keilnut (61) in dem Verriegelungsstift (52) oder in der Hülse (58) etwa über die Hälfte des Umfangs des Verriegelungsstifts (52) oder der Hülse (58) erstreckt, so dass sich die Hülse in eine dritte Position gegenüber der ersten Position drehen kann, wobei die erste und die dritte Position der Hülse derselben Position des Verriegelungsstifts entsprechen.

2. Drehplattform für ein Schienenfahrzeug, die dazu vorgesehen ist, einen Container von einem Straßenfahrzeug auf das Schienenfahrzeug umzuladen oder umgekehrt, mit: wenigstens einem Verriegelungselement (1, 2) nach Anspruch 1 und ferner mit einem unteren Rahmen, der an dem Schienenfahrzeug befestigt werden muss, und einem oberen Rahmen, der in Bezug auf den unteren Rahmen über einen mit beiden Rahmen gekoppelten Schwenkmechanismus (11) zwischen einer Mittelposition, in der die Längsachse des oberen Rahmens angenähert parallel zu der Längsachse des Schienenfahrzeugs verläuft, und einer ausgeschwenkten Position, in der die Längsachse des oberen Rahmens mit der Längsachse des Schienenfahrzeugs einen Winkel von etwa 45 Grad bildet, schwenken kann, wobei der obere Rahmen mit zwei parallelen Container-Führungselementen (31, 32) versehen ist, die miteinander durch Querelemente (33, 34, 35, 36) verbunden sind, wovon wenigstens eines mit dem Schwenkmechanismus (11) verbunden ist, wobei der obere Rahmen in der Mittelposition mit dem unteren Rahmen durch wenigstens ein Verriegelungselement (1, 2) verriegelt werden kann, wobei der Verriegelungsstift (52) zwischen der ersten oder der dritten Position, in der der Stift eine Schwenkbewegung des oberen Rahmens verhindert, und der zweiten Position, in der der obere Rahmen einwärts oder auswärts schwenken kann, beweglich ist, wobei

- die tragende Grundstruktur an dem unteren Rahmen installiert ist,
- der Betätigungsgriff (59), der an der Hülse (58) befestigt ist, sich in der ersten oder in der dritten Position der Hülse, die der ersten Position des Verriegelungsstifts (52) entspricht, horizontal und aus der Bewegungsbahn des oberen Rahmens erstreckt und sich in der zweiten Position der Hülse, die der zweiten Position des Verriegelungsstifts entspricht, vertikal nach oben in die Bewegungsbahn des oberen Rahmens erstreckt,
- wobei der Teil des oberen Rahmens, der mit dem Verriegelungsstift in Eingriff gelangt, den Verriegelungsstift während der Schwenkbewegung des oberen Rahmens nach innen wegen der abgeschrägten Stirnfläche des Verriege-

lungsstifts (52) aus dem Weg des oberen Rahmens schieben kann,

- wobei all dies in der Weise erfolgt, dass während des Ladens oder Entladens einer Containers beginnend in der Mittelposition des oberen Rahmens bei in der ersten Position befindlichem Verriegelungsstift der Griff aus der ersten horizontalen Position in die zweite vertikale Position bewegt wird, um den Verriegelungsstift aus dem Schwenkweg des oberen Rahmens zu ziehen, woraufhin der Griff während des Schwenkens des oberen Rahmens durch den oberen Rahmen aus der vertikalen Position zurück in die horizontale Position nach außen gezwungen wird, nachdem sich wenigstens das Eingriffteil des oberen Rahmens bereits am Stift vorbei bewegt hat.

3. Drehplattform nach Anspruch 1, bei der die schräge Keilnut (61) eine Form besitzt, die in Bezug auf eine vertikale Ebene durch die Achse des Verriegelungsstifts (62) und/oder der Hülse (58) im Wesentlichen symmetrisch ist.

4. Drehplattform nach Anspruch 1 oder 2, bei der die Keilnut (61) etwa in ihrem mittleren Abschnitt eine Auflage oder eine Vertiefung zum Halten des Betätigungsstifts (60) besitzt, wodurch sich die Hülse (58) in einer stabilen Mittelposition mit nach oben sich erstreckenden Betätigungshebel (59) befindet.

Revendications

1. Elément de verrouillage (1, 2) pour une plateforme pivotante pour véhicule de chemin de fer, comprenant une structure de support de base pouvant être fixée à une armature inférieure de la plateforme pivotante, une goupille de verrouillage (52) avec une face avant biseautée qui peut se déplacer entre une première position et une deuxième position, un manchon rotatif (58) dans lequel la goupille de verrouillage (52) peut se déplacer dans le sens longitudinal entre lesdites deux positions, la goupille étant prétendue par des moyens ressorts (57) vers ladite première position et la goupille de verrouillage (52) étant bloquée en rotation autour de son axe longitudinal, le manchon (58) et la goupille de verrouillage (52) étant pourvus de moyens coopérant entre eux et comprenant une rainure de clavette inclinée (61) dans la goupille de verrouillage ou dans le manchon et une goupille d'actionnement (60) s'étendant dans ce dernier et connectée, respectivement, au manchon ou à la goupille de verrouillage, de sorte que la rotation du manchon (58) entre une première et une deuxième position entraîne le déplacement de la goupille de verrouillage entre (52) ses deux positions respectives, une poignée de commande (59) étant fixée au manchon (58), **caractérisé en ce que** la rainure de clavette inclinée (61) dans la goupille de verrouillage (52) ou dans le manchon (58) s'étende sur environ la moitié de la circonférence de ladite goupille de verrouillage (52) ou du manchon (58), de sorte que le manchon puisse tourner dans une troisième position, opposée à sa première position, les première et troisième positions du manchon correspondant à la même position de la goupille de verrouillage.

2. Plateforme pivotante pour véhicule de chemin de fer, destinée au chargement d'un conteneur d'un véhicule routier sur le véhicule de chemin de fer et inversement, comprenant : au moins un élément de verrouillage (1, 2) selon la revendication 1 et comprenant, par ailleurs, une armature inférieure qui doit être fixée au véhicule de chemin de fer et une armature supérieure qui peut pivoter par rapport à l'armature inférieure, par l'intermédiaire d'un mécanisme de pivotement (11) couplé aux deux armatures, entre une position neutre dans laquelle l'axe longitudinal de l'armature supérieure s'étend environ parallèlement à l'axe longitudinal du véhicule de chemin de fer et une position pivotée dans laquelle l'axe longitudinal de l'armature supérieure forme un angle d'environ 45 degrés avec l'axe longitudinal du véhicule de chemin de fer, ladite armature supérieure étant équipée de deux éléments de guidage de conteneur (31, 32) parallèles qui sont reliés entre eux au moyen d'éléments transversaux (33, 34, 35, 36) dont au moins l'un est connecté au mécanisme de pivotement (11), l'armature supérieure pouvant être verrouillée en position neutre par rapport à l'armature inférieure, par l'au moins un élément de verrouillage (1, 2), la goupille de verrouillage (52) pouvant être déplacée entre la première ou la troisième position dans laquelle la goupille empêche un mouvement de pivotement de l'armature supérieure et la deuxième position dans laquelle l'armature supérieure peut pivoter vers l'intérieur ou vers l'extérieur,

- la structure de support de base étant installée sur l'armature inférieure,
- la poignée de commande (59) fixée au manchon (58) s'étendant horizontalement et hors du chemin du déplacement de l'armature supérieure dans la première ou la troisième position du manchon correspondant à la première position la goupille de verrouillage (52) et s'étend verticalement vers le haut dans le chemin du déplacement de l'armature supérieure dans la deuxième position du manchon correspondant à la deuxième position de la goupille de verrouillage,
- la partie de l'armature supérieure coïncidant avec la goupille de verrouillage pouvant pousser la goupille de verrouillage hors du chemin

de l'armature supérieure pendant le mouvement de pivotement vers l'intérieur de l'armature supérieure, du fait de la face avant biseautée de la goupille de verrouillage (52),

- tout cela de sorte que pendant le chargement ou le déchargement d'un conteneur, partant de la position neutre de l'armature supérieure avec la goupille de verrouillage dans la première position, la poignée soit déplacée de la première position horizontale à la deuxième position verticale, pour tirer la goupille de verrouillage hors du chemin de pivotement de l'armature supérieure, après quoi la poignée est à nouveau forcée par l'armature supérieure de la position verticale à la position horizontale pendant le pivotement vers l'extérieur de l'armature supérieure après qu'au moins la partie coïncidante de l'armature supérieure soit déja passée au-delà de la goupille.

3. Plateforme pivotante selon la revendication 1, dans laquelle la rainure de clavette inclinée (61) présente une forme qui est essentiellement symétrique par rapport à un plan vertical passant par l'axe la goupille de verrouillage (62) et/ou du manchon (58).

4. Plateforme pivotante selon la revendication 1 ou 2, dans laquelle la rainure de clavette (61), environ au milieu de celle-ci, présente un appui ou une entaille pour maintenir la goupille d'actionnement (60) et, de ce fait, le manchon (58) en une position moyenne stable avec le levier de commande (59) s'étendant vers le haut (59).

Fig -1

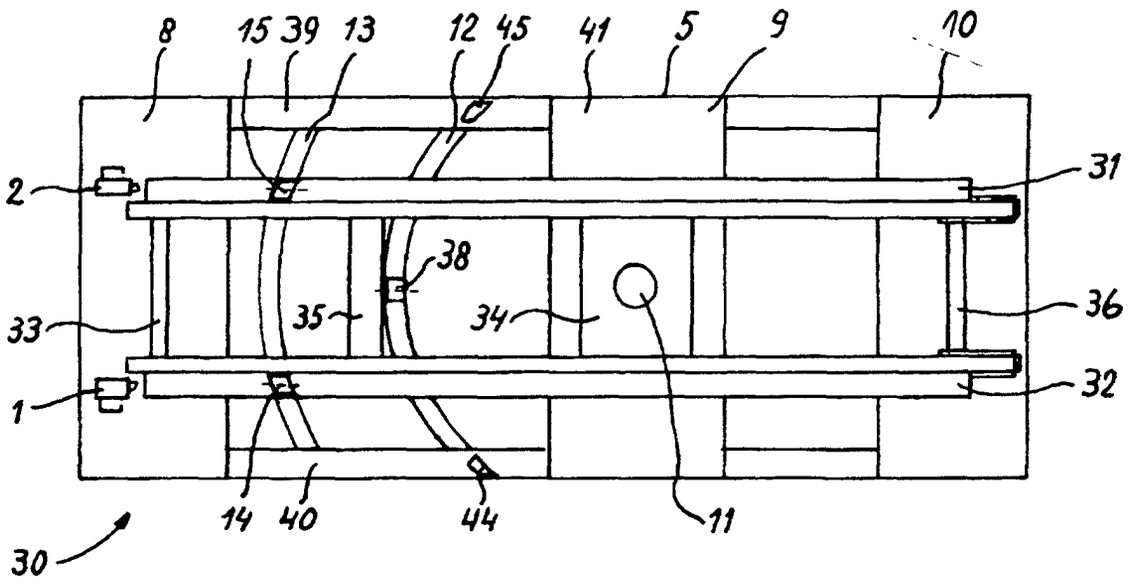
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Fig -2

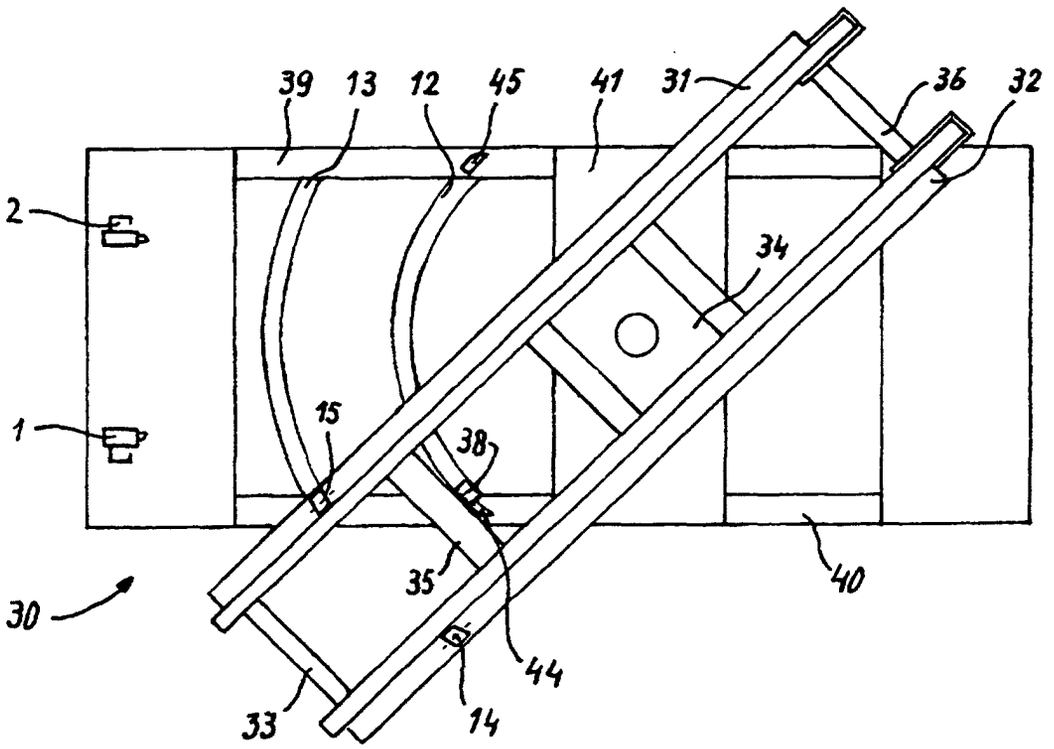
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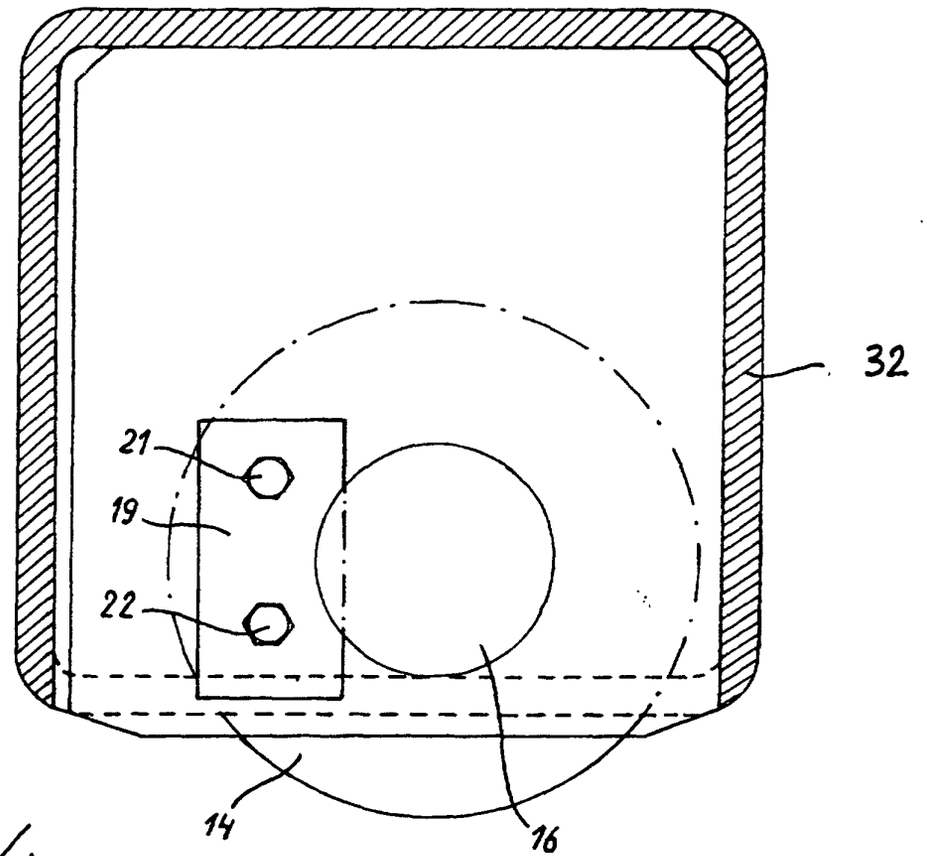
Fig-3



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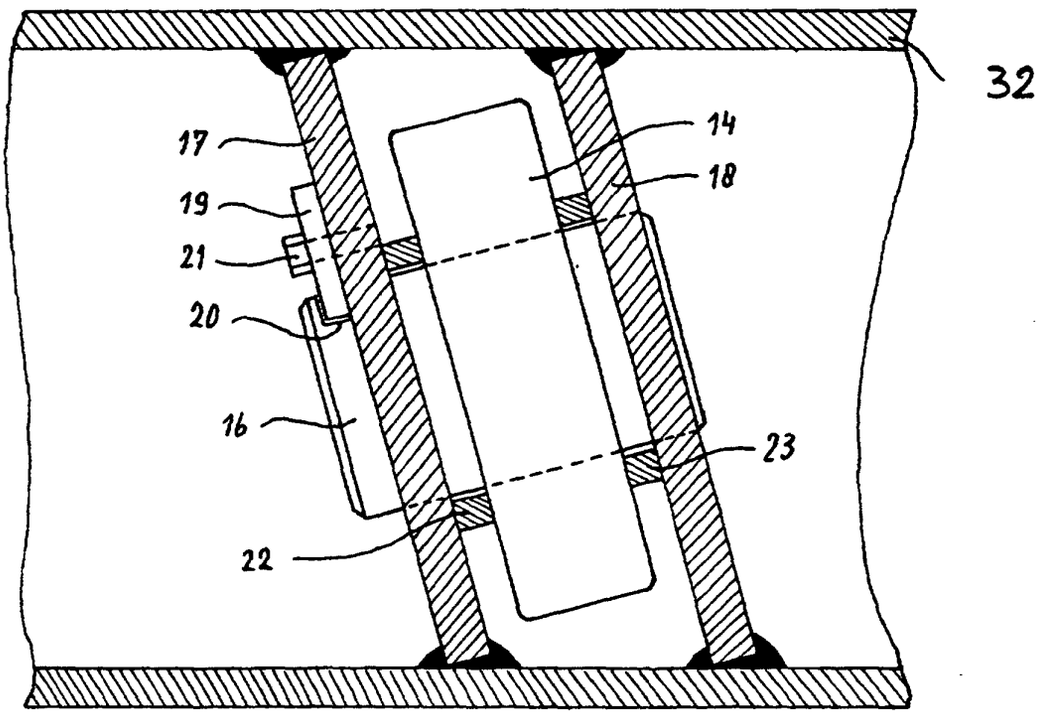
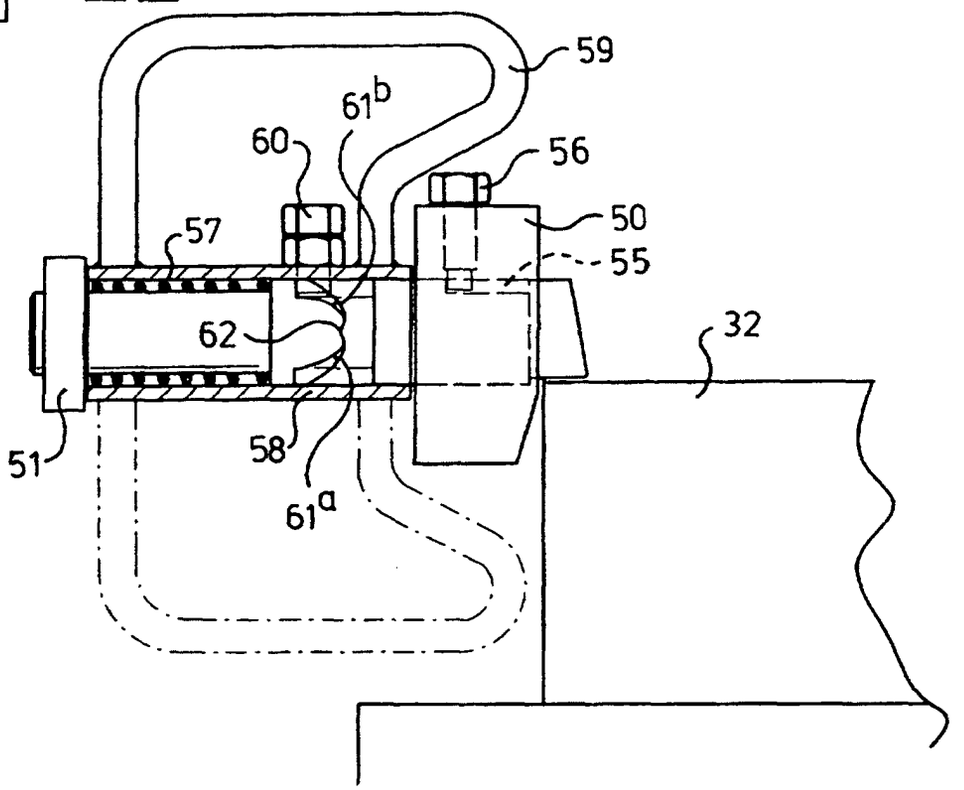


fig-5a



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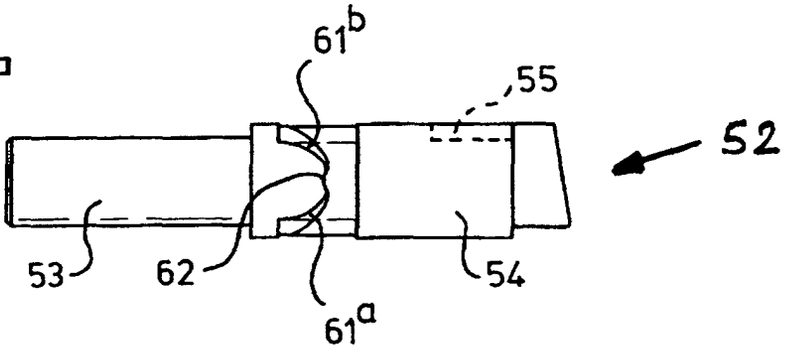

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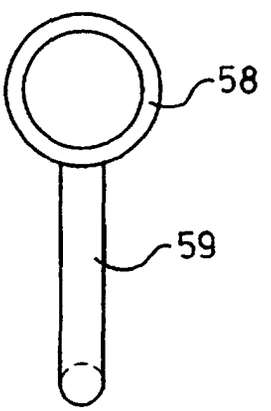

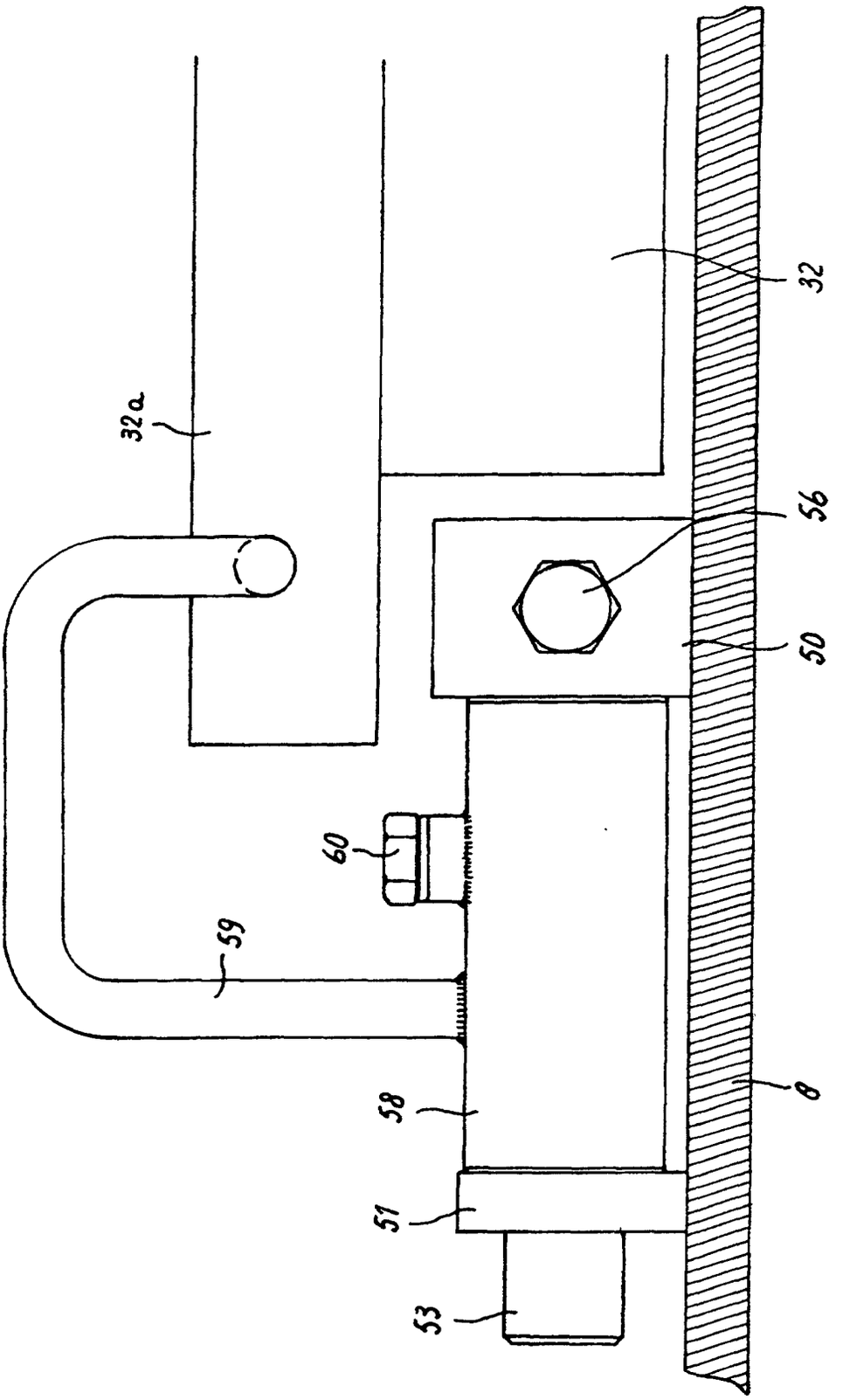

Fig-6