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(54) **Device for locking the wheels of vehicles on a railroad car used for their transport.**

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(73) Proprietor: **KELLER S.p.A.**
Via Francesco Guardione, 3
I-90100 Palermo (IT)

(72) Inventor: **Salatiello, Giovanni, c/o KELLER S.P.A.**
3, Via Francesco Guardione
I-90100 Palermo (IT)

(74) Representative: **Bardini, Marco Luigi et al**
c/o Società Italiana Brevetti S.p.A.
Corso dei Tintori, 25
I-50122 Firenze (IT)

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Description

The present invention relates to the field of railroad equipment and more precisely to an improved device for locking the wheels of vehicles on a railroad car used for their transport.

Systems and devices for locking the wheels of vehicles transported on platforms of railroad cars of various types are well known. Some of said systems and devices were described in European Patent application EP-A-0 442 245 in the name of the same Applicant, published on 21.8.91 and thus constituting prior art under Article 54(3) EPC.

In particular, the above mentioned patent application relates to one of these devices, particularly suited for locking the wheels of vehicles on railroad cars having a double lane capacity platform in sheet metal, in particular fretted sheet, with grooves that are transversal with respect to the longitudinal axis of the car. A first embodiment of said prior device comprises a rod which can be fixed in one of said grooves and a substantially tubular sliding guide on said rod, on which a support plate for the stopping means of the wheel of the vehicle to be locked is provided. Said stopping means is inclined with respect to the track of the wheel, so that, to lock the latter on the platform of the railroad car, it is sufficient to introduce the rod into the groove closest to the track of the wheel and move the plate along the rod by means of the guide which slides in the groove until the stopping means meets the wheel. At this point, to fix the position of the stopping means with respect to the wheel it is sufficient to introduce a protruding pin of the guide into one of the several longitudinal holes formed in the rod. The device according to this first embodiment is very simple to construct and to utilize, in that it requires only one adjustment in a direction transversal to the wheel. However, since the contact with the latter does not occur on all of the track but only off the edge of the wheel between the track and the side, the device is suitable only for light vehicles, such as automobiles, and it is not proper for heavier vehicles, such as trucks, for which the forces derived from braking or curving of the train are significantly greater.

For this reason the second embodiment set forth in the above-mentioned patent application has been studied, in which the stopping means is both parallel and perpendicular to the track of the wheel. In this case, the device has two adjustments, one in a transversal direction similar to the previous one, and one in a longitudinal direction obtained by means of a mobile plate carrying the stopping means and a fixed plate integral with a tubular guide and in which the mobile plate slides. The position of the fixed plate with respect to the mobile one is adjustable by means of a pair of hooks

which are introduced into a pair of holes created in the fixed plate and in holes placed along two rows formed in the mobile plate. The device is then fixed in the groove closest to the track of the wheel, then its position is adjusted first in a transversal direction as previously described, and then in a longitudinal direction, until the stopping means meets the wheel. The two adjustments are independent and must be carried out separately, requiring increased positioning time of the device for each wheel and a greater difficulty in manoeuvrability. Furthermore, in case of locking of the wheels of very heavy vehicles, the stopping means of the device according to the above cited prior patent application has been proven inadequate, in that the mobile plate, pressed by loads which burden the stopping means itself, sometimes becomes deformed permanently and the device is damaged.

The object of the present invention is to provide an improved device for locking the wheels of vehicles on a railroad car used for their transport which is easy to construct, of simple, easy and safe manoeuvrability from the stand point of the workmen, and which is sturdy and load resistant without deformations in its structure.

The locking device according to the present invention is suited for locking the wheels of vehicles on a railroad car used for their transport and having a platform with parallel transversal grooves, and comprises, in common with the locking device according to prior filed EP-A-0 442 245, stopping means for one of the wheels of the vehicles, a rod, with a plurality of longitudinally spaced holes, which can be fitted in one of the grooves and a guide which slides on said rod and is integral with a base with which a support element for the stopping means of the wheel engages slidingly. The novel feature of the device according to the invention is that the support element for the stopping means comprises an elongate structure with box-type ends to one of which the stopping means is fixed and a plate, which guides the sliding of the base, said plate extending in fixed relation between said ends and provided, in the middle part comprised between said ends, with a plurality of holes. Retractable locking means engageable contemporaneously with the plate of the support element, the base and the rod are provided for in order to lock with a single manoeuvre the relative movements. Besides a stopping equipment for said mobile locking means is provided for.

Said locking with a single manoeuvre is possible by means of the operation of a substantially L-shaped handle which is pulled by the operator to release an arm having a forked pin at one end, the two points of which engage in holes formed in the base, in the plate of the support element and in the rod fixed in the groove of the platform. After rotat-

ing the handle, said double pin disengages from the holes allowing, still by means of the handle, the relative displacement between the various components of the device and the positioning against the wheel to be effected.

With respect to European Patent application EP-A-0 442 245, mentioned above, the device according to the invention has the advantage of easy adjustment of the position with respect to the wheel and of increased sturdiness under heavy loads. The advantage of easy manoeuvrability is very important, mainly taking into account the number of operations of this type which the railroad workmen assigned to the locking and releasing of wheels of vehicles on railroad car platforms carry out for a train load.

Further details and advantages of the improved device for locking the wheels of vehicles on a railroad car used for their transport, will be made apparent in the description which follows of one of its embodiments, given as an example, but not limitative, with reference to the attached drawings in which:

- figure 1 is a perspective view of an improved wheel locker according to the present invention, mounted on a lane of a platform in fretted sheet;
- figure 2 shows a partially sectioned elevational side view of the device in figure 1 with a partial schematic view of one wheel R;
- figure 3 is a transversal sectional view of the device of figure 1, effected according to arrows III-III of figure 2;
- figure 4 is a top plan view of the device of figure 1 with essential parts that are not visible indicated by dashed line.

With reference to the above mentioned figures, 1 generally indicates a transversal portion of a lane of a platform of a railroad car of a known type, for the transport of various types of vehicles. The lane has longitudinal external 2 and internal 3 edges and is made in fretted sheet, comprising a plurality of transversal grooves 4 delimited by corresponding projections 5 on each of which there is formed a row of holes 6 drawn towards outside with a sharp edge in order to increase the adherence of the tires to the platform itself.

The above mentioned figures also illustrate the improved device for the locking of the wheel R of a vehicle, indicated generically by 7, comprising stopping means 8 and 9 for said wheel fixed to an elongate support element 10 with box-type ends 10a and 10b to which there are fixed the ends 11a and 11b of a substantially rectangular plate 11 with a central part raised in a longitudinal direction and provided with holes 12, in the central middle portion, which are positioned in two rows illustrated with dashed lines in figure 4. The lower central

portion of the element 10 has a wide opening 13 in which an internally hollow base 14 is slidingly engaged with the middle portion of the plate 11 which is suspended between its two ends 11a and 11b. Mobile locking means with the element 10 and the platform 1 as well as a stopping equipment of the mobile locking means are fixed to the base 14.

More precisely, two flat supports 15, having an elongated circular hole 15a in which a tubular sleeve 16 is slidingly and rotationally engaged, are fastened in a protruding way to the base 14 on the side facing the end 11b of the plate 11. A flat arm 17 is fastened with one end to the tubular sleeve 16 and has at the other end a forked pin 18. In the middle part of the arm 17 a laterally bent projection 17a extending orthogonally to the latter is provided for. To the lower face of the base 14 a tubular guide 19 in which a channel section rod 20 is slidingly engaged is fastened. The channel section rod 20 has a plurality of equally spaced holes 21 made in its horizontal wall and is provided with a projecting plate 22 positioned orthogonally to the rod 20 itself and comprising a pin 23 engageable with one of the holes 6 of the platform 1. The forked pin 18 in figure 1 is shown with its ends introduced in two holes 24 formed on the upper face and, correspondingly, on the lower face of the base 14, as well as in a pair of holes 12 formed on the plate 11 and in a pair of holes 21 of the rod 20.

In the above mentioned figures a tubular manoeuvring handle is also illustrated which is bent substantially in a L-shape, one end 25a of which is suited to be grasped by a user, while the other end 25b is slidingly engaged in the tubular sleeve 16 and has at its end a shoulder 27 against which one end of a spring 28 operates while the other end of the spring urges against the sleeve 17. The handle 25 also has a pivot 29, bent at right angle which can engage with an open seat 30 formed in one of the flat supports 15 and with a saddle seat 26 formed in the projection 17a which extends from the arm 17. Finally, an auxiliary gripping handle 31 fastened on a side face of the support element 10 is provided for.

The locking device 7 is prevented from being separated from the rod 20 by means of a hook 20a, fixed to one end of the rod, and the projecting plate 22, fixed to its other end, preventing complete extraction of the rod from the guide 19 which is integral with the device 7 and in which the rod 20 itself slides.

In the use of the locking device 7 of a wheel R on a platform 1, the pin 23 is introduced into one of the holes 6 of the platform 1 and contemporaneously the rod 20 and the tubular guide 19, in which the rod 20 slides, are placed in the groove 4 of the platform itself. The chosen groove 4, and therefore the row of holes 6, is that which is closest

to the track of the wheel R which must be locked. The positioning of the stopping means 8 and 9 against the track and a side face of the wheel R is carried out by pulling the spring loaded handle 25 until the shoulder 27 compresses the spring 28 against one of the enlarged edges of the sleeve 16 and, therefore, until the right-angled pivot 29 disengages the seat 30 and allows for the rotation of the handle 25. The latter trails with it, by means of the pivot 29 which is still engaged in the saddle seat 26, the projection 17a and therefore the arm 17 and the fork 18 in rotary motion around the axis of the sleeve 16. Consequently the holes 12 of the plate 11 and the holes 21 of the rod 20 are released from the forked pin 18 allowing for the longitudinal translation of the base 14 with respect to the rod 20 in a direction transversal to the platform and allowing for the translation of the support element 10 by means of the plate 11 which is slidably engaged in the cavity of the base element 14.

Once the stopping means 8 and 9 has been positioned against the wheel resting on the platform, keeping the handle 25 pulled and utilizing the auxiliary gripping handle 31, a rotation opposite to the preceeding is imparted to the handle 25 until the forked pin 18 enters first the upper holes 24 of the base 14, then the holes 12 of the plate 11, then the lower holes 24 of the base 14 and finally the holes 21 of the rod 20. In this operation it may be necessary to effect small corrections of position in order to make said holes coincide. Once the handle 25 is completely rotated and the forked pin 18 has completely entered the above mentioned holes, the next step is to release the handle 25 itself which, under the force of the spring 28, returns to a resting position pulling the right-angled pivot 29 back to the seat 30 of the supports 15 and thus preventing accidental rotation of the handle 25. The hole 15a of the flat supports 15 is elongated in order to allow the pin 18 to be entered or extracted from the holes 12, 24 and 21 because the axes of these holes do not lie on the circular trajectory that the pin 18 should follow.

The locking device 7 therefore requires, as described above, a single manoeuvre to carry out the operations of positioning the stopping means 8 and 9 against the wheel resting on the platform. Furthermore the box-type form of the support element 10 and the presence of the plate 11 allow for a better and more strong distribution of the load which is derived from the sharp movements of the railroad car on which the platform 1 is mounted. Infact, the load burdening the stopping means 8 and 9 is distributed on the lower faces of the ends 10a and 10b of the support element 10, which rests on the numerous drawn holes 6 of the projections 5 of the platform 1.

Finally, the device described above, has been proven efficient also in the case of ice formation and dirt deposits and incrustations, in particular in correspondence with the pin 18. This is due to the length of the arm 25a which allows, with a not very strong force, the extraction of the fork 18 from the holes with which it is engaged even in these cases of greater resistance.

Variations and/or modifications can be brought to the improved device for locking the wheels of vehicles on a railroad car used for their transport according to the invention, without departing from the scope of the invention itself as specified in the claims.

Claims

1. A device for locking the wheels of vehicles on a railroad car used for their transport having a platform (1) with transversal parallel grooves (4), with rows of upwardly drawn holes (6) formed between said grooves (4), comprising stopping means (8,9) for one of said wheels (R), a rod (20) with a plurality of longitudinally spaced holes (21) which can be fitted in one of said grooves (4), a guide (19) slidable on said rod (20) and integral with a base (14) with which a support element (10) for the stopping means (8,9) of the wheel (R) is slidably engaged, wherein said support element (10) comprises an elongate structure with box-type ends (10a,10b) to one of which (10a) said stopping means (8,9) is fixed and a plate (11) on which said base (14) is slidably guided, said plate (11) extending in fixed relation between said ends (10a, 10b) and having a plurality of through holes (12) in the middle part between said ends, there being provided retractable locking means (18) engageable contemporaneously with the plate (11) of said support element (10), said base (14) and said rod (20) in order to lock with a single manoeuvre their relative movements, as well as a stopping equipment for said mobile locking means (18) .
2. The locking device according to claim 1 wherein on said base there are formed: a cavity (13) in which said plate (11) slides; at least a pair of through-holes (24) orthogonal to the sliding plane; and a pair of supports (15) to which a tubular sleeve (16) with axes parallel to said rod (20) is pivotally connected, said mobile locking means comprising a forked pin (18) which is fixed to an arm (17) integral with said sleeve (16), and which can be engaged with said through-holes (24) and in the through-holes (12,21) of said plate (11) and said rod (20), as well as means for command-

ing the rotation of said arm (17).

3. The locking device according to claim 2
wherein said means for commanding the rota-
tion of said arm (17) comprise a substantially
L-shaped handle (25) one end of which (25a) is
suited for being grasped by a user, while the
other end (25b) slidingly engages with said
sleeve (16), at least one pivot (29) being pro-
vided extending from said handle (25) for en-
gaging with a seat (26) formed in a bent pro-
jection (17a) fixed to said arm (17) integral with
said sleeve (16), whereby the rotation of said
handle (25) by means of said pivot (29) causes
said arm (17) to rotate and said forked pin (18)
to engage or disengage with said through
holes (12,21,24). 5 10 15
4. The locking device according to claims 1 to 3,
wherein said stopping equipment of said mo-
bile locking means comprise said pivot (29)
and a housing (15a) formed in one of said
supports (15) within which the end of said pivot
(29) is engageable or disengageable by the
movement of said handle (25) parallelly to said
sleeve (16). 20 25
5. The locking device according to claim 4,
wherein resilient means acting against the slid-
ing of said handle (25) and the resultant dis-
engagement of said pivot (29) from said sup-
ports (15, 15a) are provided. 30
6. The locking device according to claim 5,
wherein said resilient means comprise a spring
(28) placed on the head (25b) of said handle
(25) which engages with said sleeve (16) and
operates between a shoulder (27) formed on
said end and a corresponding enlarged edge
formed on said sleeve (16). 35 40
7. The locking device according to the previous
claims, wherein said rod (20) is channelled and
turned with its concavity facing the bottom of
said grooves (4), said holes (21) formed on it
being made on the flat arch equidistant from
one another. 45
8. The locking device according to claim 7,
wherein at least one end of said rod is pro-
vided with a projecting plate (22) comprising at
least one stopping pin (23) for engaging with
one of said holes (6) formed between said
grooves (4). 50
9. The locking device according to the previous
claims, wherein an auxiliary gripping handle
(31) fixed to a side face of said support ele- 55

ment (10) is provided on the same side as said
manoeuvring handle (25,25a).

Patentansprüche

1. Vorrichtung zum Arretieren der Räder von
Fahrzeugen auf einem zu ihrem Transport be-
nutzten Eisenbahnwaggon mit einer Plattform
(1) mit querverlaufenden parallelen Rinnen (4),
mit Reihen von nach oben gezogenen Löchern
(6), die zwischen den Rinnen (4) ausgebildet
sind, die Halteeinrichtungen (8, 9) für eines der
Räder (R) umfaßt, eine Stange (20) mit einer
Vielzahl von in Längsrichtung beabstandeten
Löchern (21), die in eine der Rinnen (4) einge-
paßt werden kann, eine Führung (19), die auf
der Stange (20) verschoben werden kann und
eine Einheit mit einem Unterteil (14) bildet, mit
dem ein Trägerelement (10) für die Halteein-
richtungen (8, 9) des Rades (R) gleitend in
Eingriff ist, wobei das Trägerelement (10) eine
längliche Struktur mit kastenartigen Enden
(10a, 10b) umfaßt, wobei an einem von ihnen
(10a) die Halteeinrichtungen (8, 9) befestigt
sind, sowie eine Platte (11) an der das Unter-
teil (14) gleitend geführt wird, wobei sich die
Platte (11) fest zwischen den Enden (10a, 10b)
erstreckt und eine Vielzahl von Durchgangslö-
chern (12) im mittleren Teil zwischen den En-
den aufweist, wobei eine ausziehbare Arretier-
einrichtung (18) vorhanden ist, die gleichzeitig
mit der Platte (11) des Trägerelementes (10),
dem Unterteil (14) und der Stange (20) in
Eingriff gebracht werden kann, um in einem
einzigen Vorgang ihre Bewegungen zueinander
zu arretieren, sowie eine Halteeinrichtung für
die bewegliche Arretiereinrichtung (18).
2. Arretiervorrichtung nach Anspruch 1, wobei an
dem Unterteil ausgeformt sind: ein Hohlraum
(13), in dem die Platte (11) gleitet; wenigstens
ein Paar Durchgangslöcher (24) im rechten
Winkel zu der Gleitebene; sowie ein Paar La-
gerungen (15), an denen eine röhrenförmige
Hülse (16) mit Achsen parallel zu der Stange
(20) drehbar angebracht ist, wobei die bewegli-
che Arretiereinrichtung einen gegabelten Bol-
zen (18) umfaßt, der an einem Arm (17) befe-
stigt ist, der eine Einheit mit der Hülse (16)
bildet, und der mit den Durchgangslöchern
(24) und den Durchgangslöchern (12, 21) der
Platte und der Stange (20) in Eingriff gebracht
werden kann, sowie eine Einrichtung zur
Steuerung der Drehung des Armes (17).
3. Arretiervorrichtung nach Anspruch 2, wobei die
Einrichtung zur Steuerung der Drehung des
Armes (17) einen im wesentlichen L-förmigen

Griff (25) umfaßt, dessen eines Ende (25a) von einem Benutzer ergriffen werden kann, während das andere Ende (25b) gleitend mit der Hülse (16) in Eingriff ist, wobei wenigstens ein Drehzapfen (29) vorhanden ist, der sich von dem Griff (25) aus erstreckt und mit einer Aufnahme (26) in Eingriff kommt, die in einem gebogenen Vorsprung (17a) ausgebildet ist, der an dem Arm (17) befestigt ist, der eine Einheit mit der Hülse (16) bildet, so daß die Drehung des Griffs (25) mittels des Drehzapfens (29) bewirkt, daß sich der Arm (17) dreht, und der gegabelte Bolzen (18) mit den Durchgangslöchern (12, 21, 24) in Eingriff kommt bzw. aus ihnen gelöst wird.

4. Arretiervorrichtung nach Anspruch 1 bis 3, wobei die Halteeinrichtung der beweglichen Arretiereinrichtung den Drehzapfen (29) und ein Gehäuse (15a) umfaßt, das in einer der Lagerungen (15) ausgebildet ist, in dem das Ende des Drehzapfens (29) durch die Bewegung des Griffs (25) parallel zu der Hülse (16) in Eingriff gebracht werden bzw. aus ihm gelöst werden kann.

5. Arretiervorrichtung nach Anspruch 4, wobei federnde Einrichtungen vorhanden sind, die gegen die Verschiebung des Griffs (25) und die daraus resultierende Lösung des Drehzapfens (29) aus den Lagerungen (15, 15a) wirken.

6. Arretiervorrichtung nach Anspruch 5, wobei die federnden Einrichtungen eine Feder (28) umfassen, die am Kopf (25a) des Griffs (25) angebracht sind, der mit der Hülse (16) in Eingriff ist, und zwischen einem Absatz (27), der an dem Ende ausgebildet ist, und einem entsprechenden vergrößerten Rand, der an der Hülse (16) ausgebildet ist, wirkt.

7. Arretiervorrichtung nach den vorangehenden Ansprüchen, wobei die Stange (20) rinnenförmig ist und so gedreht ist, daß ihre Höhlung dem Boden der Rinnen (4) zugewandt ist, wobei die Löcher (21), die an ihr ausgeformt sind, an dem flachen Bogen in gleichem Abstand zueinander ausgebildet sind.

8. Arretiervorrichtung nach Anspruch 7, wobei wenigstens ein Ende der Stange mit einer vorstehenden Platte (22) versehen ist, die wenigstens einen Arretierbolzen (23) umfaßt, der mit einem der Löcher (6) in Eingriff kommt, das zwischen den Rinnen (4) ausgebildet ist.

9. Arretiervorrichtung nach den vorangehenden Ansprüchen, wobei ein Zusatzgriff (31), der an

einer Seitenfläche des Trägerelementes (10) befestigt ist, auf der gleichen Seite wie der Handhabungsgriff (25, 25a) vorhanden ist.

5 Revendications

1. Dispositif de blocage destiné à bloquer les roues de véhicules sur un wagon de chemin de fer utilisé pour le transport de ces véhicules et possédant une plate-forme (1) munie de rainures transversales parallèles (4), et munie de rangées de trous (6) emboutis vers le haut, formés entre lesdites rainures (4), et qui comprend des moyens d'arrêt (8, 9) pour l'une desdites roues (R), une barre (20) munie d'une pluralité de trous (21) espacés dans la direction longitudinale et qui peut être emboîtée dans l'une desdites rainures (4), un guide (19) qui peut coulisser sur ladite barre (20) et est d'un seul tenant avec une embase (14) avec laquelle un élément support (10) supportant les moyens d'arrêt (8, 9) de la roue (R) est en prise à coulissement, dispositif dans lequel l'élément support (10) comprend une structure allongée ayant des extrémités (10a, 10b) en forme de caisson, à l'une (10a) desquelles lesdits moyens d'arrêt (8, 9) sont fixés, et une plaque (11) sur laquelle ladite embase (14) est guidée à coulissement, ladite plaque (11) s'étendant dans une position relative fixe entre lesdites extrémités (10a, 10b) et étant munie d'une pluralité de trous traversants (12) dans sa partie centrale comprise entre lesdites extrémités, cependant qu'il est prévu des moyens de blocage rétractables (18) qui peuvent être mis simultanément en prise avec la plaque (11) de l'élément support (10), ladite embase (14) et ladite barre (20) pour bloquer leurs mouvements relatifs par une manoeuvre unique, ainsi qu'un équipement d'arrêt pour lesdits moyens de blocage mobiles (18).

2. Dispositif de blocage selon la revendication 1, dans lequel, sont formés sur ladite embase : une cavité (13) dans laquelle ladite plaque (11) coulisse ; au moins une paire de trous traversants (24) perpendiculaires au plan de coulissement ; et deux supports (15) auxquels est articulé un manchon tubulaire (16) dont l'axe est parallèle à ladite barre (1), lesdits moyens de blocage mobiles comprenant une goupille en fourche (18) qui est fixée à un bras (17) d'une seule pièce avec ledit manchon (16) et qui peut être mise en prise avec lesdits trous traversants (24) et avec les trous traversants (12, 21) de ladite plaque (11) et de ladite barre (20), ainsi que des moyens servant à commander la rotation dudit bras (17).

3. Dispositif de blocage selon la revendication 2, dans lequel lesdits moyens servant à commander la rotation dudit bras (17) comprennent une poignée (25) sensiblement en forme de L dont une extrémité (25a) est appropriée pour être saisie par un utilisateur, tandis que l'autre extrémité (25b) est en prise à coulissement avec ledit manchon (16), au moins un doigt (29) étant prévu en saillie sur ladite poignée (25) pour entrer en prise avec un logement (26) formé dans une patte rabattue (17a) fixée audit bras (17) qui est d'une seule pièce avec ledit manchon (16), de sorte qu'au moyen dudit doigt (29), la rotation de ladite poignée (25) fait tourner ledit bras (17) et met ladite goupille en fourche (18) en prise ou hors de prise avec lesdits trous traversants (12, 21, 24).

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4. Dispositif de blocage selon les revendications 1 à 3, dans lequel ledit équipement d'arrêt dudit moyen de blocage mobile comprend ledit doigt (29) et un logement (15a) formé dans l'un desdits supports (15), et dans lequel l'extrémité dudit doigt (29) peut être engagée et d'où elle peut être dégagée par un mouvement de ladite poignée (25) parallèlement audit manchon (16).

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5. Dispositif de blocage selon la revendication 4, dans lequel sont prévus des moyens élastiques antagonistes au coulissement de ladite poignée (25) et au dégagement résultant dudit doigt (29) par rapport auxdits supports (15, 15a).

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6. Dispositif de blocage selon la revendication 5, dans lequel lesdits moyens élastiques comprennent un ressort (28) placé sur la tête (25b) de ladite poignée (25), qui est en prise avec ledit manchon (16) et agit entre un épaulement (27) formé sur ladite extrémité et un rebord élargi correspondant formé sur ledit manchon (16).

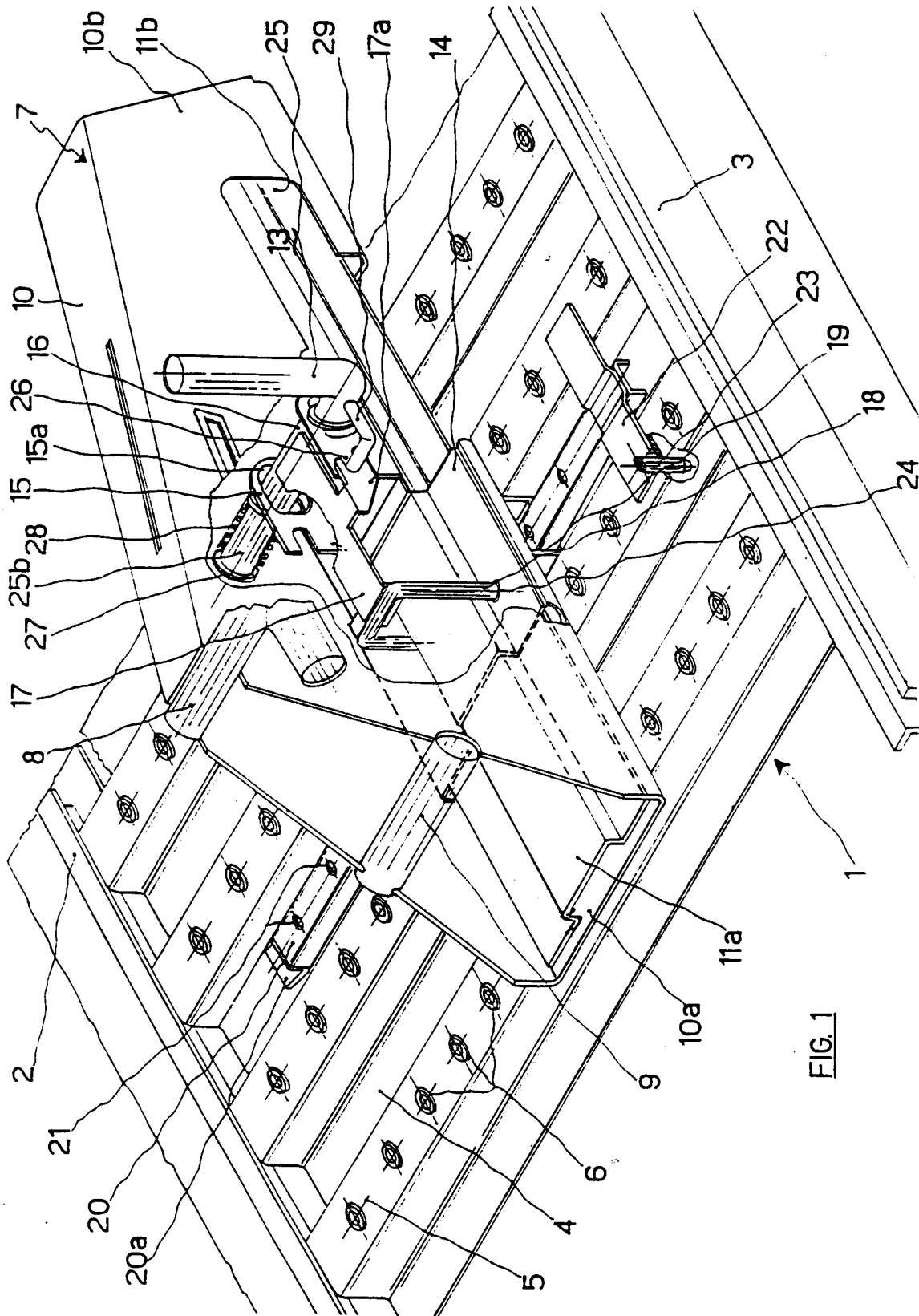
40
7. Dispositif de blocage selon les revendications précédentes, dans lequel ladite barre (20) est en forme de U et retournée avec sa concavité face au fond desdites rainures (4), lesdits trous (21) formés sur cette barre étant pratiqués sur le dos plat, à égale distance les uns des autres.

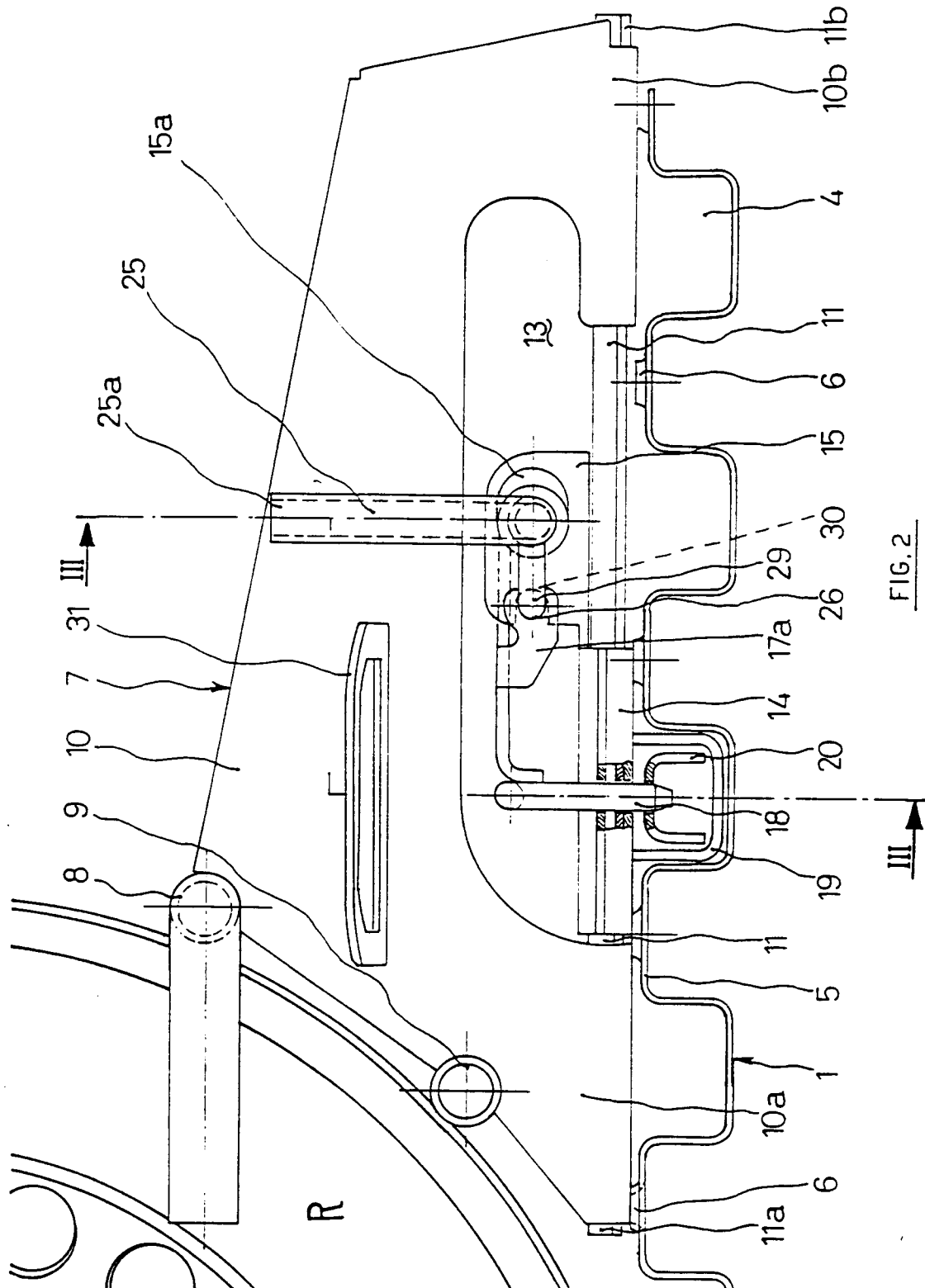
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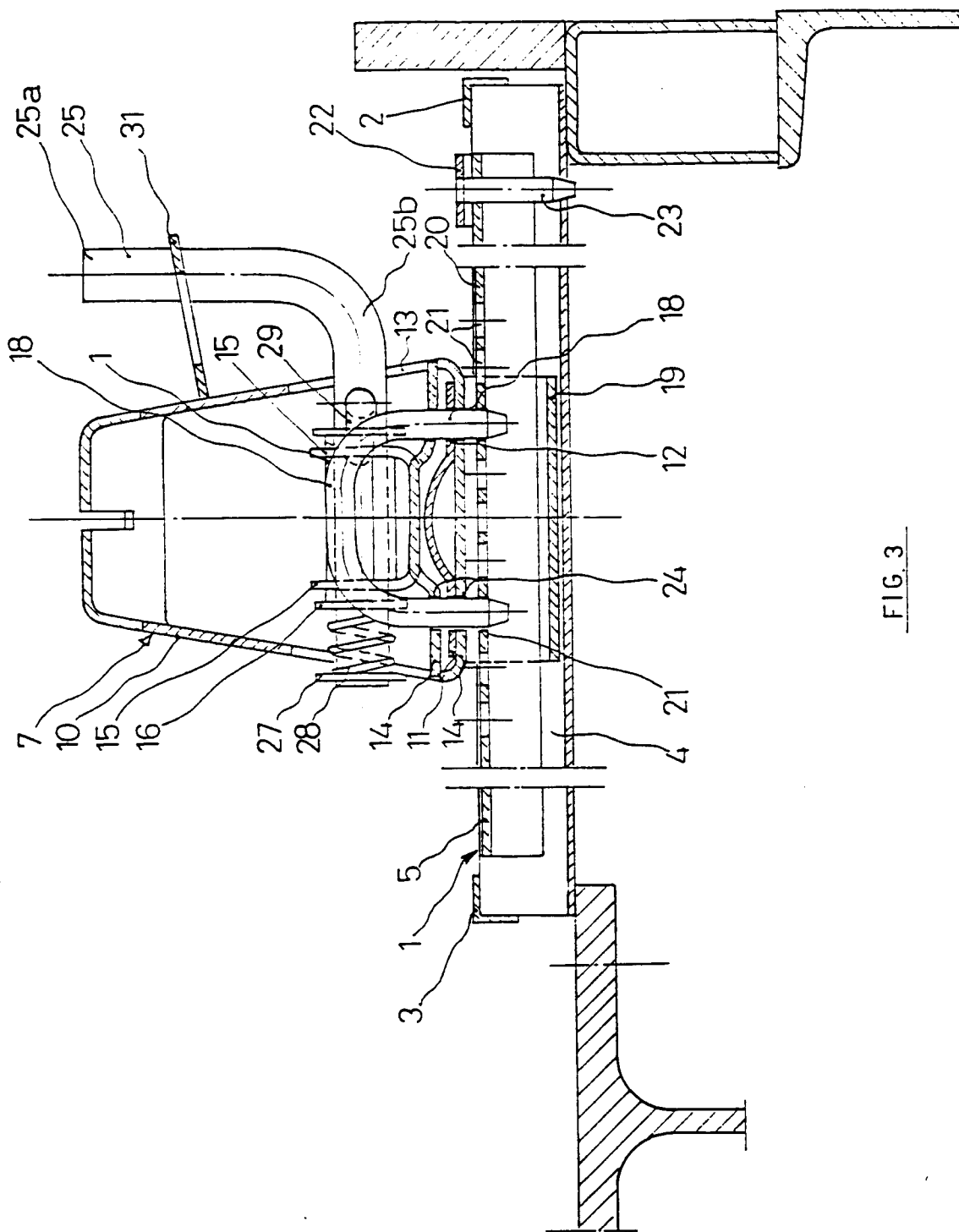
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8. Dispositif de blocage selon la revendication 7, dans lequel au moins une extrémité de ladite barre est munie d'une plaque débordante (22) comprenant au moins une goupille d'arrêt (23) destinée à entrer en prise avec l'un desdits trous (6) formé entre lesdites rainures (4).

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9. Dispositif de blocage selon les revendications précédentes, dans lequel une poignée de prise auxiliaire (31) fixée à une face latérale dudit élément support (10) est prévue sur le même côté que ladite poignée de manoeuvre (25, 25a).

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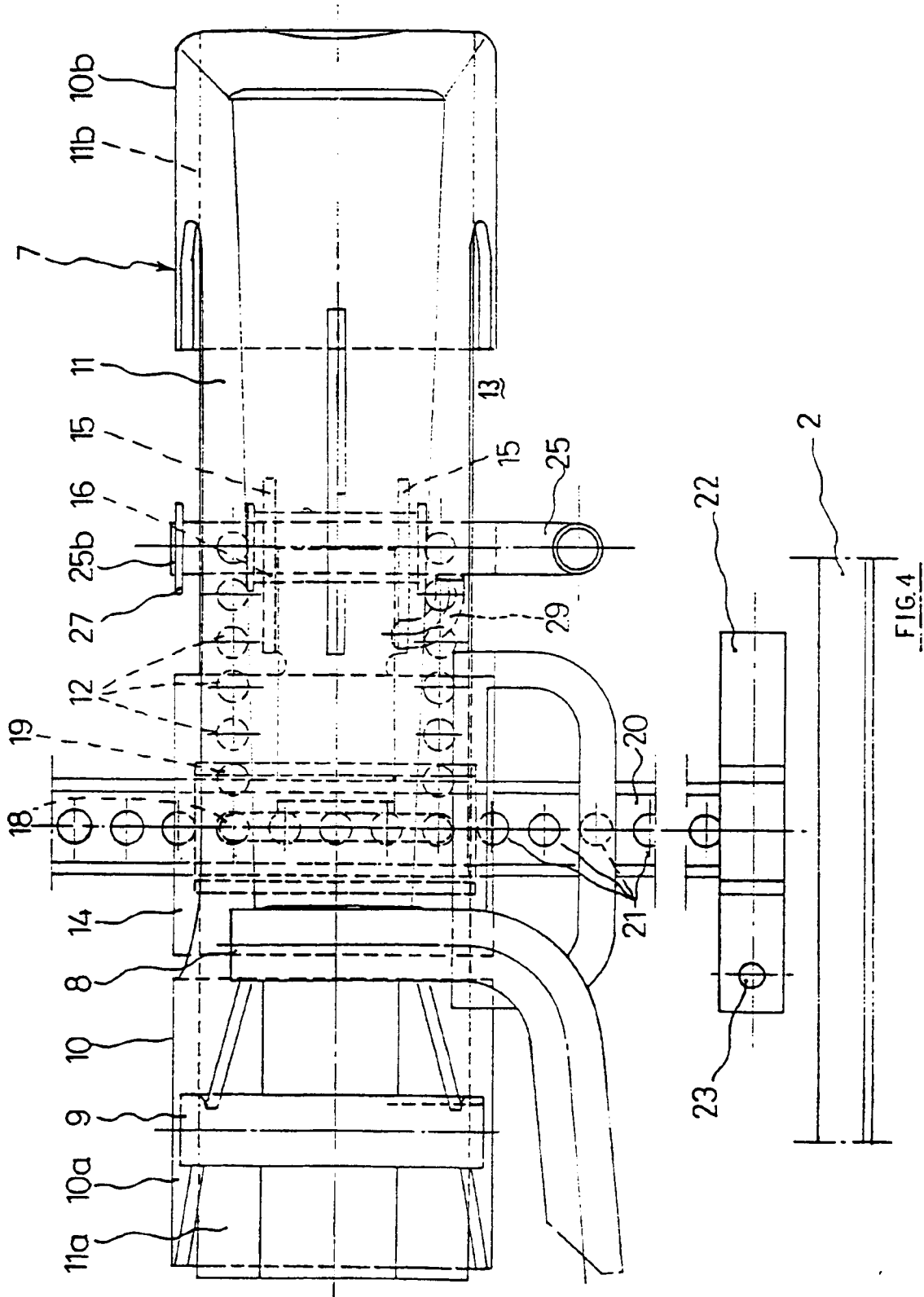


FIG. 4