

Continuous travel track on a viaduct structure

The present invention relates to a continuous running track on a viaduct according to the preamble to claim 1 and an anti-lift device suitable for said running track.

Generally, the present invention relates to the field of rigid running tracks on bridge structures intended to support the movement of a vehicle, in particular a guided vehicle. By guided vehicle, reference is made in particular to a means of public transport such as buses, trolleybuses, trams, metros, trains or train units, etc., for which guidance is provided in particular by at least one guide rail positioned on the running track.

Typically, a bridge (or viaduct) intended to support a running track comprises a set of piers (or pillars) distributed between a first abutment situated at one end of said bridge and a second abutment situated at the other end of said bridge. Said piers and abutments are intended to support bridge segments which are for example metal beams or prefabricated concrete elements intended to form a supporting surface for the running track, commonly called the deck of said bridge. Each of said segments distributed between the first and the last pier rests at each of its ends on one of said piers of the bridge thus extending from one pier to the other, the end of a segment being separated from the end of an adjacent segment by a space commonly called a "road joint". Optionally, said segment may be supported by one or more other piers arranged between said end piers. The first and last segments themselves rest respectively on the first end abutment and the first pier, and on the last pier and the second end abutment. The different elements of said bridge (piers, abutments, segments, track) are selected depending on the bridge loading and usage characteristics.

Said segments thus typically form a discontinuous surface intended to support the running track. Generally, said segments rest on said piers of the bridge by means of fixed and/or sliding support devices, which tolerate movement of at least one end of said segment, said movement possibly being for example caused by differences in temperature and/or the passage of a vehicle over said bridge. The running tracks on a bridge or viaduct structure are also designed to withstand thermal and/or mechanical deformations (e.g. due to the passage of a vehicle) which might occur during normal usage of said track. Different solutions make it possible to compensate for such deformations. Traditionally, said track may comprise several sections of track, each of said sections of track being anchored to one of said segments and separated from a directly adjacent section by a transverse expansion joint. In this form, said track is discontinuous and comprises, distributed along its length, a certain number of expansion joints separating the different sections and intended to compensate for the longitudinal expansion of the track under the effect of changes in temperature and/or the passage of a vehicle. Unfortunately, such a solution is not for example suitable for an urban environment, since it gives rise to noise nuisance, reduces passenger comfort, requires frequent inspections and maintenance and may prematurely increase the wear on the tires or wheels of vehicles running on said running track. Furthermore, the need to distribute expansion joints along the running track increases the cost of the civil engineering works of which bridges or viaducts consist and tension may be produced in the segment or section of track when the materials of said segment and said track respond differently to changes in temperature.

In order to avoid these problems, continuous tracks have been proposed and developed in the prior art. These include for example:

- a continuous slab extending from one end to the other of said bridge and intended to rest on an upper surface of said segments;
- a crossing plate intended to cover the directly adjacent ends of two successive segments, thus extending from one end of a segment to the end of another immediately adjacent segment, said plate being of a width equivalent to the width of the track, characterized by a length and elasticity sufficient to absorb flexion of said segments and thus vertical movement of said ends without transmitting it to said slab, said crossing plate being arranged between said continuous slab and the upper surface of said segments of track;
- an antifriction layer situated at the interface between the upper surface of said segment and the lower surface of the continuous slab, thus forming a slip plane between said successive crossing plates, said antifriction layer allowing said continuous slab to have at least a degree of longitudinal freedom in relation to the upper surface of said segment;
- anchorage devices to fix and rigidly connect said continuous slab to said segments and lateral stops fixed to said segments and distributed laterally to each side of said track, along the latter, so as to withstand lateral forces which might occur during a movement of a guided vehicle on said track or caused by the slab itself.

Said continuous track previously described is a continuous track which is partially rigidly fixed. It in fact requires anchorage of the slab to the different segments, which creates localized (at the anchorage points) tensions and stresses which are harmful for the slab or said segment, in particular when a guided vehicle is running on said track.

An object of the present invention is to propose a running track for vehicles configured to be supported by a bridge or viaduct structure, requiring little maintenance, causing a minimum of noise nuisance, minimizing the stresses and tensions which might occur in said running track, thus increasing the service life of the track and reducing the associated maintenance efforts and making it, in other words, economically advantageous. Another object is to propose a running track suitable for the use of a Long Welded Rail (LWR), i.e. a continuous rail which has the advantage of reducing the noise nuisances due to the passage of a vehicle on said rail, increasing passenger comfort and being characterized by reduced wear and maintenance. Additionally, another object of the present invention is to propose an anti-lift device providing for the use of such a running track.

In order to achieve these objects, a running track is proposed by the content of claim 1 and an anti-lift device is proposed by the content of claim 14.

A set of sub-claims also present advantages of the invention.

The present invention relates to a continuous running track on a bridge structure, said bridge structure comprising at least two bridge segments, a first abutment situated at one end of said bridge and a second abutment situated at the other end of said bridge and a load-bearing structure to support said segments, each segment being separated from the immediately adjacent segment by a road joint, said load-bearing structure being for example a set of piers distributed between the first abutment and the second abutment, each of said segments distributed between the first and last piers resting for example at each of its ends on one of said piers of the bridge thus extending from one pier to the other, the end of a segment thus being separated from the end of an adjacent segment by

said road joint, the first segment and the last segment resting in particular respectively on the first end abutment and the first pier, and on the last pier and the second end abutment, said running track according to the invention itself comprising:

- a continuous slab, for example made from reinforced concrete, extending from one end to the other of said bridge and resting on an upper surface of said segments;
- an antifriction layer situated beneath the continuous slab configured to act as an interface between the upper surface of said segment and the lower surface of the continuous slab, said antifriction layer thus defining a slip plane for said continuous slab and allowing the latter to have at least a degree of longitudinal freedom in relation to the upper surface of said segment, said antifriction layer extending preferentially continuously beneath all of the lower surface of said continuous slab;
- a crossing plate situated beneath the continuous slab, in particular beneath the antifriction layer, positioned so as to extend from one end of a segment to the end of another adjacent segment so as to cover the adjacent ends of said segments in order to compensate for flexion or rotation movements in the supports of said segments;

said running track being characterized in that it comprises at least one anti-lift device configured to be rigidly connected/fixed to a segment through the use for example of appropriate fixing means, said anti-lift device being capable of limiting a translation or movement of said slab in a direction perpendicular to the slip plane while providing for a freedom of movement of said slab on the slip plane defined by said antifriction layer.

In particular, said anti-lift device comprises a stop intended to limit said movement of said slab in the direction perpendicular to said slip plane. Said anti-lift device is thus

in particular configured to permit a non-zero movement of said slab in a direction perpendicular to said slip plane as far as said stop, while allowing a movement of said slab on said slip plane or generally in a plane parallel to said slip plane.

Advantageously, said anti-lift device according to the invention is in particular capable of absorbing a stress perpendicular to the slip plane and resulting from a movement of said slab in said direction perpendicular to said slip plane as far as said stop of said anti-lift device, and of retransmitting said stress to said segment, in particular to the place where said anti-lift device is rigidly connected to said segment. Said rigid connection may for example be implemented by means of anchorage bushes pre-implanted in said segment or in lateral stops of said continuous slab. For this purpose, said anti-lift device and said fixing means used to rigidly connect it to said segment are proportioned and made from material such as to be able to withstand the forces resulting from said vertical stress.

Preferentially, the continuous track according to the invention comprises several anti-lift devices distributed along the length of said track and providing for its movement along its longitudinal and/or transverse axis in relation to said segments, while limiting said movement of said slab in a direction perpendicular to said slip plane, in particular permitting this movement only over a distance defined by said stop of said anti-lift device. In particular, said track comprises anti-lift devices close to the ends of said segments.

In order better to understand the present invention, exemplary embodiments and applications are provided with the aid of the following figures for which the same references are applied for identical or equivalent objects:

- Figure 1 exemplary embodiment of a running track
 according to the invention (frontal view)
- Figure 2 top view of the exemplary embodiment of a
 running track according to Fig. 1
- Figure 3 exemplary embodiment of a road joint crossing
 according to the invention
- Figure 4 right side view of an exemplary embodiment of a
 running track according to the invention
- Figure 5 top view of another exemplary embodiment of
 track according to Fig. 4
- Figure 6 top view of an exemplary embodiment of track
 according to Fig. 5

Figure 1 and Figure 2 schematically present an example of embodiment of a running track 5 according to the invention in a front and top view respectively. Said running track 5 is a continuous track on a bridge structure 1, said bridge structure 1 comprising at least two bridge segments 4, a first abutment 31 situated at one end of said bridge 1 and a second abutment 32 situated at the other end of said bridge, and a load-bearing structure formed from piers 2 distributed between the first abutment 31 and the second abutment 32 to support said segments 4. In particular, said segments can rest at their ends on fixed 22 and/or sliding 23 support devices as known to a person skilled in the art. Each segment is in particular separated from the immediately adjacent segment 4 by a road joint 23. The upper surface of said segments 4 thus forms a discontinuous support surface for the running track 5.

In a preferred embodiment of a running track 5 according to the invention illustrated by Figures 1 to 3, said track 5 comprises:

- a continuous slab 50 extending from one end to the other of said bridge 1 and resting on the upper surface of said segments 4;
- an antifriction layer 55 situated beneath the continuous slab 50 configured to act as an interface between the upper surface of said segment 4 and the lower surface of the continuous slab 50, said antifriction layer 55 thus defining a slip plane for said continuous slab 50 and allowing the latter to have at least a degree of longitudinal freedom in relation to the upper surface of said segment 4, said antifriction layer 55 extending preferentially continuously beneath all of the lower surface of said continuous slab 50;
- a crossing plate 53 situated beneath the continuous slab 50, in particular beneath the antifriction layer 55, positioned so as to extend from one end of a segment to the end of another directly adjacent segment so as to cover the adjacent ends of said segments 4 in order to compensate for flexion or rotation movements in the supports of said segments 4.

Preferentially, the antifriction layer 55 comprises a first geotextile layer 551 intended to be in contact with said continuous slab 50, for example by being glued/fixed to the lower surface of said continuous slab 50, and a second geotextile layer 552 intended to be in contact with said segments 4, for example by being glued to the upper surface of said segments, said first and second geotextile layers 551, 552 sandwiching one or more Polyane (or geomembrane) layers 553. Advantageously, the geotextile/Polyane/geotextile sandwich configuration of the antifriction layer improves the sliding of the continuous slab on said segments.

Preferentially, the crossing plates 53 are extruded polystyrene panels (Styrodur type). In particular, said segments 4 comprise at their ends pockets 41 whose dimensions correspond to the dimensions of the crossing plates 53 so that, when said crossing plates 53 are inserted into said pockets 41, the upper surface of said segment 4 and the upper surface of said crossing plate 53 coincide or, in other words, are at the same level so as to form a continuous surface. Advantageously, this makes it possible to maintain continuity of level beneath the continuous slab 50, hence promoting the sliding of the latter on the continuous surface formed by the upper surfaces of the segments 4 and the upper surfaces of the crossing plates 53.

A special feature of the running track 5 according to the invention is that it comprises at least one anti-lift device 54 configured to be able to be rigidly connected to a segment 4, for example using a system of bolts and anchorage bushes pre-implanted in said segment 4, or by concrete reinforcement and pouring in order to fix a part of said anti-lift device to said segment 4. The anti-lift device 54 according to the invention is also capable of limiting a translation or movement of said slab 50 in a direction N perpendicular to the slip plane while providing for a freedom of movement of said slab on the slip plane defined by said antifriction layer 55. Owing to its construction as a monobloc free from movement on the sliding surface defined by the friction layer, the running track 5 according to the invention is particularly well adapted to supporting a rail 6 of the LWR type (long welded rail) since its surface providing for fixing of said rail has no discontinuities.

Figures 4-6 present more detail of the constructional aspects of preferred embodiments of the invention, in particular of said anti-lift devices 54. Preferentially, an anti-lift device

54 according to the invention comprises a body 542 designed to be rigidly fixed/anchored directly or indirectly to said segment 4 and a head 543, preferentially comprising a stop or itself acting as a stop. Said head is in particular designed to limit a movement of said slab 50 in the direction N substantially perpendicular to said slip plane, said movement being in particular non-zero and limited by said head 543 or said stop.

Preferentially, said continuous slab 50 is a self-draining slab. For this purpose, it comprises in particular at least one drainage device 58 (represented in dotted lines) intended to prevent the accumulation of water on said continuous track, said drainage device being integrated into said slab 50 and free from discharge beneath the slab 50 in order to guarantee free movement on said slip plane. Said slab 50 is in particular a slab with three distinct parts: two supporting parts A having an upper surface forming a running surface for the wheels of a vehicle intended to run on the bridge and one part B accepting a means of guidance of said vehicle. Said parts A are thus in particular intended to support the forces generated by the movement of a vehicle on said bridge structure and have upper faces, on which the wheels of said vehicle move, situated in the same plane. The part B is in particular intended to accept a guide rail 6, for example an LWR, the upper face of part B being in particular in a plane situated beneath the level of the plane defined by the upper faces of parts A. Said drainage device 58 is in particular capable of evacuating on said lateral sides of said slab 50 water accumulated on the upper surface of parts A and/or B. Said drainage device comprises for example a network of channels, for example hollowed out or implanted prior to pouring in said parts A of the slab 50, and describing a gentle slope between the level of the upper face of part B upstream and a lateral end of the slab 50 downstream so that the water can run from upstream to downstream by means

of gravity. Preferentially, the upper surface of said part B comprises at least one run-off gutter or channel, passing in particular to each side of said part B and preferentially located in the extension of one of said hollowed out or implanted channels in said parts A in order to improve the flow of water from said part B towards the lateral sides of the slab 50.

Preferentially, said continuous track comprises electrical cable ducts 57 implanted in said continuous slab 50 and/or a heating device 56 implanted beneath the upper surface of said parts A so as to heat said upper surface of said parts A. Said electrical cable ducts 57 provide for example for the passage of electrical cables intended to heat a running surface of said continuous track (e.g. Joule effect) or to act as a ground or to supply electricity to guided vehicles intended to move on said continuous track.

According to a preferred embodiment, said body 542 is a plate, for example a metal plate, configured to be fixed either directly to said segment 4, or to a lateral stop 541 of said continuous slab, in particular for example by means of a device for adjusting the height of said plate, said lateral stop 541 being itself fixed to said segment 4. According to this preferred embodiment, said head 543 is for example fixed to an end of said plate so as to be positioned opposite and overhanging at least one part of one of the lateral sides of the upper face of said continuous slab 50 as illustrated in Fig. 4. Said anti-lift devices 54 are preferentially distributed to each side of the continuous slab 50. The space separating two immediately adjacent anti-lift devices 54 on the same side of continuous slab 50 is preferentially determined by calculation by means of finite element methods so as to make the take-up of the stresses generated along said direction N all along said continuous slab 50 uniform. In order to take up

said stresses, different plate lengths can be used. Each of said plates is preferentially positioned with respect to said slab 50 so as, on the one hand, to have its end supporting said head 543 overhanging the upper face of a lateral side of the continuous slab and, on the other hand, to have its other end fixed to a lateral stop 541 or directly to a bridge segment by means or otherwise of a height adjustment device.

Preferentially, said head 543 has a substantially parallelepiped shape and comprises in particular at least one side opposite the upper face of said slab 50, which is parallel to the latter, and able to contact said upper face of the slab 50 when the latter moves in said direction N, said side possibly being in particular covered by a layer of antifriction and compression-resistant material 544, for example Teflon. In particular, said head 543 may comprise at least a first part comprising at least an incompressible material intended to form a vertical stop capable of taking up forces directed along said direction N and exerted by the slab 50, and optionally a second part comprising at least a compressible or elastic material intended to damp the movement of said slab 50 along direction N. Preferentially, said anti-lift device allows a free or damped movement of said slab 50 in said direction N as far as said stop or first part.

Preferentially, said continuous track 5 comprises continuous or discontinuous lateral stops 541 distributed to each side of said slab 50 in order to hold the latter laterally, each lateral stop being in particular rigidly fixed to one or more segments 4. In order to avoid the use of lateral stops, the present invention also proposes another preferred embodiment illustrated in Figures 5-6 and based on a different constructional arrangement of the anti-lift device according to the invention. According to this different constructional arrangement, said head 543 of said anti-lift device 54 envelops at least a part of said body 542 so as to create a coupling

providing for a relative movement of said head 543 with respect to said body 542 in a direction parallel to said slip plane, while limiting the relative movement of the head with respect to the body in a direction N perpendicular with respect to said slip plane. For example, the body 542 of the anti-lift device comprises:

- a base 71 intended to be fixed/anchored to said segment 4 for example by screwing or pouring concrete or by means for example of anchorage bushes pre-implanted in said segment 4 in order to rigidly connect said base 71 to said segment 4;
- a cylindrical rod 72, rigidly fixed at one of its ends to said base 71 and comprising at its other end a disk 73 with a radius greater than the radius of said cylindrical rod 72 and with thickness E (E being the thickness of said disk along said direction N);

said disk 73 and at least a part of said rod 72 being enclosed in said head 543 of the anti-lift device 54. For this purpose, said head 543 comprises a hollow cylindrical part 82 intended to accept said cylindrical rod 72 and guide it, the end of said hollow cylindrical part 82 directed towards said base 71 of the body 542 of the anti-lift device 54 being open and its other end being closed by a hollow cylindrical cap 83 with a radius greater than the radius of said disk 73 of the body 542 of the anti-lift device 54 and with an internal height approximately equal to or greater than thickness E in order to be able to accept said disk 73 so that the latter is held vertically while permitting slight play along direction N and allowing the latter to move along a plane parallel to said slip plane. According to this other preferred embodiment, the interior of said cylindrical cap 83 traps the disk 73 and acts as a stop. Advantageously, the interior of said cylindrical cap 83 and/or the hollow cylindrical part 82 can be covered with an antifriction material facilitating the relative sliding of the body and the head when they are in contact. Preferentially,

this anti-lift device is intended to be positioned beneath said continuous slab, said body 542 being fixed to said segment 4, and said head 543 being fixed to said slab. Of course, a person skilled in the art would have been able to produce an inverse device, with a body fixed to the slab and a head fixed to the segment, or also applied the concept to a lateral stop, the body then being fixed to the lateral stop and the head to said slab, or vice versa. Figure 6 finally presents a top view of an installation of one or more anti-lift devices 54 in said slab 50 according to this other preferred embodiment.

Preferentially, other constructional arrangements 54R, 54E for the head 543 and the body 542 according to the invention can be produced by a person skilled in the art, said other constructional arrangements 54R, 54E all being characterized in that they retain the feature of holding the head vertical with respect to the body while permitting on the one hand slight play along direction N, and on the other hand said relative movement of the head with respect to the body in a plane parallel to said slip plane when said anti-lift device is mounted on/in the continuous running track according to the invention. These other constructional arrangements 54R, 54E are also illustrated in Fig. 6. For example, said body may include a base intended to be fixed/anchored to said segment 4, said base being attached to a rod or approximately vertical structure surmounted by an approximately horizontal structure with respect to said rod or vertical structure, said approximately horizontal structure having regular thickness E, oblong in shape, for example elliptical or rectangular, as illustrated by references 54E and 54R respectively, the section of said approximately horizontal structure along a horizontal plane (i.e. parallel to the slip plane when said anti-lift device is fitted to said running track) having dimensions greater than the section of said rod or vertical structure along a plane parallel to said horizontal plane. Said head

itself has a shape suitable for enclosing at least a part of said rod or approximately vertical structure and for enclosing/trapping said approximately horizontal structure so as to permit a relative movement of the head with respect to said body, said movement permitted along the length of said oblong shape being in particular greater than the movement permitted along the width of said oblong shape. For this purpose, said head 543 comprises a hollow part intended to accept said rod or vertical structure and guide it, the end of said hollow part directed towards said base of the body 542 of the anti-lift device 54 being open and its other end being closed by a hollow cap with dimensions greater than the external dimensions of said approximately horizontal structure and with an internal height approximately equal to or greater than thickness E so as to be able to accept within it said approximately horizontal structure. The hollow cap is thus preferentially proportioned so that the movement allowed for said approximately horizontal structure inside said cap is greater in the direction of the longitudinal axis (length) of said horizontal structure than its movement in the direction of its transverse axis (width). According to these other constructional arrangements 54E, 54R, the anti-lift device is configured to be mounted in/on said continuous track so that the longitudinal axis of the oblong structure is aligned with the longitudinal axis of said track or slab. Advantageously, these other constructional arrangements of the anti-lift device according to the invention promote the longitudinal movement of said slab compared to its transverse movement.

Advantageously, the anti-lift device 54 according to said other constructional arrangements facilitates the construction of said track 5. In fact, during the construction of the latter, it is for example possible to position and then fix the body 542 of each anti-lift device 54 to a segment 4 of said bridge 1 or to a lateral stop 541, the head 543 of said anti-lift device

remaining free at first. Then, subsequently, it is possible to construct the continuous slab 50 so that it is rigidly connected only to said head 543 of said anti-lift device. In this way, the continuous slab 50 and said segment 4 are coupled vertically so as to permit a vertical movement for the slab 50, while allowing it simultaneously to move in a plane parallel to said slip plane. In fact, since for example the rod 72 and the disk 73 of the body 542 have radii smaller than the radii respectively of the hollow cylindrical part 82 and the cap 83 of the head 543 of the anti-lift device, this difference in radius permits a freedom of movement of the head 543 of the anti-lift device with respect to said body 542 when the latter is fixed to said segment 4. Preferentially, an elastic or compressible material fills the space between the hollow part, for example the hollow cylindrical part 82, and said rod 72 and/or between said cap 83 and said approximately horizontal structure, for example said disk 73, so as to oppose a movement of said rod 72 in said hollow part. For example and for this purpose, the external circular surfaces of said rod 72 and/or of said disk 73 are covered by a layer of said elastic/compressible material. Said body 542 and said head 543 are themselves preferentially made from metal.

Preferentially, said continuous track 5 comprises, at each of the ends of said continuous slab 50 along its length, one or more abutment piers 51, 52 intended to take up longitudinal forces appearing in said continuous slab 50. Said abutment pier 51, 52 may for example be anchored to an end abutment 31 of said bridge or to a raft 32.

To sum up, the present invention proposes a continuous track on a bridge structure comprising a slab completely detached from the surface formed by an upper face of the deck, i.e. segments of bridges, thus ensuring a free movement of said slab on said deck while limiting a vertical and/or transverse movement of

said slab, by means of anti-lift devices capable of taking up normal forces on the deck exerted for example during lifting of said slab 50 and additionally transverse forces, said anti-lift devices being able in particular to cooperate with lateral stops for said take-up of transverse forces. Said running track according to the invention is thus characterized in that it may comprise a plurality of anti-lift devices distributed along its length, arranged for example laterally to each side of said slab (50), as represented in Figures 1-4 and/or anchored in said slab, for example as represented in Figures 5 and 6.

Claims

1. A continuous running track intended to be supported by a bridge structure comprising at least two bridge segments and a load-bearing structure to support said segments, the running track comprising:
 - a continuous slab extending from one end to the other of said bridge and intended to rest on an upper surface of said segments;
 - an antifriction layer situated beneath the continuous slab, intended to act as an interface between the upper surface of said segment and the lower surface of the continuous slab, said antifriction layer defining a slip plane for said continuous slab;
 - a crossing plate situated beneath the continuous slab, positioned so as to extend from one end of a segment to the end of another directly adjacent segment;wherein said running track comprises at least one anti-lift device intended to be fixed to a segment, capable of limiting a movement of said slab in a direction N perpendicular to the slip plane while providing for freedom of movement of said slab on the slip plane, wherein the anti-lift device is configured to permit a non-zero movement of the slab in the direction N perpendicular to the slip plane as far as a stop.
2. The running track as claimed in claim 1, characterized in that the anti-lift device comprises the stop intended to limit said movement of said slab in the direction N perpendicular to said slip plane.

3. The running track as claimed in one of claims 1 or 2, characterized in that it comprises a plurality of anti-lift devices distributed along its length, laterally to each side of said slab and/or anchored in said slab.
4. The running track as claimed in one of claims 1 to 3, characterized in that the antifriction layer comprises a first geotextile layer and a second geotextile layer sandwiching one or more Polyane layers.
5. The running track as claimed in one of claims 1 to 4, characterized in that said slab is self-draining.
6. The running track as claimed in one of claims 1 to 5, characterized in that it comprises electrical cable ducts implanted in said slab.
7. The running track as claimed in one of claims 1 to 6, characterized in that it comprises one or more abutment piers at each of the ends of said continuous slab along its length.
8. The running track as claimed in one of claims 1 to 7, characterized in that the anti-lift device comprises a body designed to be fixed to said segment and a head designed to limit a movement of said slab in the direction N substantially perpendicular to said slip plane.
9. The running track as claimed in claim 8, characterized in that said body is a plate configured to be fixed to said segment and said head is fixed to an end

of said plate so as to be positioned opposite and overhanging at least one part of one of the lateral sides of the upper face of said continuous slab.

10. The running track as claimed in claim 9, characterized in that said head is substantially parallelepiped in shape and comprises a layer of antifriction and compression-resistant material intended to contact the slab when the latter moves in the direction N.
11. The running track as claimed in claim 8, characterized in that said head of said anti-lift device envelopes at least a part of said body so as to create a coupling providing for a relative movement of said head in relation to said body in a direction parallel to said slip plane, while limiting the relative movement of the head in relation to the body in a direction N perpendicular with respect to said slip plane.
12. The running track as claimed in claim 11, characterized in that the body of the anti-lift device comprises a base intended to be fixed/anchored to said segment and a rod, rigidly fixed at one of its ends to said base and comprising at its other end an approximately horizontal structure, said approximately horizontal structure and at least a part of said rod being enclosed in said head of the anti-lift device.
13. An anti-lift device for the continuous running track on a bridge structure comprising at least two segments intended to support a continuous slab of

20a

said track, said anti-lift device comprising

a body designed to be fixed to
a segment and a head designed to limit a
movement of said slab in a direction N substantially
perpendicular to the upper surface of said slab, while
permitting a movement of said slab in a plane
substantially parallel to said upper surface of said slab ,
wherein said head comprises a stop to limit a non-zero
movement of said slab in the direction N.