

Guardrail section with a movable running gear, guardrail system, road switch, and method for displacing a guardrail section

The present invention relates to a guardrail section with a movable running gear, a guardrail system comprising a plurality of adjustable guardrail segments, a road switch with at least one adjustable tongue, and a method for displacing a guardrail section.

Guardrails, also called safety barriers or guide rails, are passive restraint systems on roads, which are mostly made of steel. They essentially serve to prevent vehicles, in particular passenger cars or trucks, from leaving a roadway. In this way, on the one hand, areas outside the roadway are protected from a vehicle impact, and on the other hand, more serious effects on the vehicle due to falling from slopes or collision, for example with oncoming traffic or with tree growth, can be prevented. Furthermore, a reduction in potential accident consequences is achieved, which is obtained by absorbing the kinetic energy of the vehicle through deformation of the guardrail in the course of an impact.

Since the advent of motorized road traffic, permanently installed guardrail systems in particular have become established. However, nowadays, mobile systems are also widely used, especially for securing construction sites. Particular requirements are placed on such systems, in particular when used on high-capacity roads, where, due to the extremely high traffic volume, the installation of a mobile guardrail must be carried out in a particularly short time. However, particularly on said high-capacity roads, special requirements are also placed on the flexibility of guardrail systems.

For example, there are pivotable, semi-mobile systems with which traffic can be directed to one of two different lanes as desired. In addition, permanently installed closure systems are also known, in particular for median barriers, by means of which
5 a guardrail can be opened on request and the traffic can be diverted to the opposite carriageway. Due to the constantly growing traffic volume, semi-mobile guardrail systems have also been introduced in more recent times, which can be displaced between different lanes depending on the traffic situation. Thus, it is
10 conceivable, for example, to operate a five-lane expressway in the morning traffic with three lanes in one direction and two lanes in the other direction and, in the course of the day, to displace the median barrier in order to operate the road in the evening rush hour traffic with two lanes in one direction and
15 three lanes in the other direction.

To meet these requirements, a number of displaceable and movable guardrail systems are known in the prior art.

For example, EP 2 784 221 A1 describes a guardrail system with
20 an extendable running gear device. This system makes it possible to move a guardrail section in its transverse direction. However, the guardrail section is configured to be unstable during the moving process. The absorption of forces upon the impact of vehicles is thus only possible to a limited extent. EP 3 400 336
25 B1 also discloses a liftable and movable guardrail section, wherein the absorption and dissipation of forces by the construction of the running gear upon the impact of a vehicle is only possible to a limited extent. Further guardrail systems are known from the patent specifications US 5,007,763 and DE 42 19
30 572 A1.

It is the object of the invention to overcome the disadvantages of the prior art and, in particular, to create a guardrail section which can be lifted and moved quickly.

5 The object is achieved by a guardrail section with a movable running gear, a guardrail system comprising a plurality of adjustable guardrail segments, a road switch with at least one adjustable tongue, and by a method for displacing a guardrail section according to the independent claims.

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In particular, the object is achieved by a guardrail section comprising a deflector body extending in particular in a longitudinal direction. The guardrail section comprises a movable running gear. The running gear can be moved between a standby
15 position and a travel position. In the standby position, the running gear is retracted into a receptacle of the deflector body. In a travel position, the running gear is extended from the receptacle in such a way that the guardrail section is movable on a substrate. The substrate can be a road section. The
20 running gear is connected to the deflector body by a lifting device. The running gear can be brought from the standby position into the travel position by the lifting device. The running gear has at least one roller. The running gear can have at least two rollers. The running gear can comprise a travel motor. The at
25 least one roller or the at least two rollers can be driven by the travel motor. The at least one roller has an extension along its axis of rotation which is at least twice as large as the diameter of the roller. The at least one roller can also have an extension along its axis of rotation which is at least four
30 times as large as the diameter of the roller. The at least one roller can also have an extension along its axis of rotation which is at least six times as large as the diameter of the roller.

A drive unit can be formed in the guardrail section, by which the lifting device is operated. It is possible that a plurality of lifting devices are operated by one drive unit.

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The deflector body can be made of steel, for example. The lifting device can lift the guardrail section, for example, by more than 10 cm, in particular more than 12 cm.

10 It is possible that the receptacle is arranged on the underside of the guardrail section when the guardrail section is properly arranged on a substrate. Then, during the movement from the standby position to the travel position, the running gear extends out of the guardrail section from the receptacle, which is
15 located on the underside of the guardrail section. The lifting device then exerts a force on the substrate via the running gear and thus lifts the guardrail section.

Due to the arrangement of at least one roller in the running
20 gear, the guardrail section is movable on the running gear. Rollers have a large contact surface and can therefore absorb large forces. This ensures that the guardrail section, despite its movability with the rollers, is configured to be very robust and durable.

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The rollers can be made of steel, for example. It is possible that the rollers are configured to be solid. Due to this design, the rollers are particularly robust and extremely mechanically resistant. The rollers can have a length of 60 cm to 80 cm. The
30 large length ensures a low surface pressure by the rollers on the substrate, so that the substrate is not damaged by the surface pressure of the rollers. The axis of rotation of the roller or the rollers is in particular substantially parallel to the

longitudinal direction of the deflector body. In the case of a plurality of rollers, the axes of rotation are preferably configured to be coaxial.

5 It is possible that the rollers comprise a plurality of materials. For example, the rollers can have a core made of steel and a sheathing made of rubber and/or EPDM. The steel core of the rollers then ensures high stability of the rollers. The sheathing ensures that the guardrail section can be moved without
10 slippage occurring between the rollers and the substrate, because the sheathing made of rubber or EPDM ensures adhesion of the rollers on the substrate. In addition, the rubber ensures that the steel core of the rollers does not corrode. The rollers are then configured to be extremely durable. The sheathing can
15 comprise the material ethylene propylene diene monomer rubber (EPDM). It is possible that the sheathing consists entirely of EPDM. It is possible that the roller consists entirely of EPDM. The EPDM which the sheathing comprises or of which the sheathing or the roller consists can be an EPDM 50 or an EPDM 60. It is
20 possible that the EPDM has a hardness of the "Shore A" grade, wherein the hardness is measured at a temperature of 23°C.

It is possible that the surface of the rollers is configured to be profiled. This ensures that the rollers form a high friction
25 or adhesion on the ground and that the guardrail section can thus be moved well. The rollers can be mounted on an axle by means of ball bearings, for example. The rollers can also be arranged on an axle via needle bearings or tapered roller bearings. It is crucial that the rollers have a bearing that is in-
30 sensitive, resilient, and durable.

The travel motor can be an electric motor. It is possible that the rollers are configured to be heated. This then ensures that

the rollers remain movable even in frost. The rollers can have an axis of rotation which is substantially parallel to the longitudinal direction of the deflector body. The deflector body can then be moved in a transverse direction.

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The at least one roller can have an extension along its axis of rotation which is at least twice as large as the diameter of the roller. It is possible that the roller has an extension along its axis of rotation which is at least four times as large as the diameter of the roller. It is possible that the at least one roller has an extension along its axis of rotation which is at least six times as large as the diameter of the roller. It is possible that the rollers have a diameter between 6 cm and 12 cm.

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The said extension of the roller along its axis of rotation ensures that the roller has a large contact area with the substrate. Due to the large contact area, the roller has sufficient friction to move the guardrail section. In addition, the large contact area ensures that the surface pressure which the roller applies to the substrate is not too great. As a result, the roller can gently apply the load of the guardrail section to the substrate. A roller with such dimensions is thus extremely gentle on the substrate and ensures that the guardrail section can be moved safely without substantially damaging the substrate.

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It is possible that the rollers of the running gear are configured identically. A running gear then has only one type of roller. This makes it possible to exchange the rollers as desired in the event of a defect, without having to keep several types of rollers in stock.

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The lifting device can have a longitudinal axis in a direction of force application. The deflector body can have a longitudinal axis in a longitudinal direction. The longitudinal axis of the lifting device can be arranged in relation to the longitudinal direction of the deflector body in an angular range between 45° and 85° . The longitudinal axis of the lifting device can be arranged in relation to the longitudinal direction of the deflector body in an angular range of 60° to 80° . It is also possible that the longitudinal axis of the lifting device is arranged in relation to the longitudinal direction of the deflector body in an angular range of 65° to 75° .

Such a guardrail section has the advantage that a lifting device with a large lifting height can be arranged in the guardrail section in a limited installation space.

The lifting device can be, for example, a pneumatic cylinder, a hydraulic cylinder, or an electric cylinder. The hydraulic cylinder can be operated with oil or water. The hydraulic cylinder can be made substantially of steel. The lifting device can have a length along its direction of force application of 25 cm to 120 cm in the retracted state. It is possible that the lifting device has a length along its direction of force application of 30 cm to 80 cm in the retracted state. It is also possible that the lifting device comprises a plurality of hydraulic cylinders, pneumatic cylinders, or electric cylinders.

The deflector body can have a height between 50 cm and 90 cm. It is possible that the deflector body has a height of 60 cm.

The axis of rotation of the roller can be configured substantially parallel to a longitudinal direction of the deflector body in the standby position and in the travel position.

By means of such an arrangement of the rollers, the deflector body can be moved in a transverse direction, while the rollers can absorb forces horizontally in the longitudinal direction of the deflector body.

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The lifting device can be rotatably mounted on the deflector body.

By means of a rotatable arrangement, the running gear can be used flexibly, and the running gear can be set down on a substrate by a rotation and subsequently push the guardrail section away from the substrate without the lifting device transmitting a torque to the guardrail section.

15 The direction of rotation of the lifting device can run in the direction of the longitudinal direction of the deflector body. The axis of rotation of the lifting device is then arranged perpendicular to the longitudinal direction of the deflector body.

20 The running gear can be connected to the deflector body by an articulated arm. The articulated arm can be rotatably connected to the running gear and to the deflector body.

By means of a rotatable, articulated connection of the running gear to the deflector body both by the articulated arm and by the lifting device, the individual rods (lifting device/articulated arm) are loaded substantially only by a normal force and thus only in compression or tension. As a result, both the lifting device and the articulated arm can be advantageously dimensioned. Thus, such a fastening of the running gear to the deflector body by the articulated arm and the lifting device results in a guardrail section which can be lifted and lowered and is configured to be stable and robust in every state.

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The articulated arm can be made of steel. Steel is an extremely robust and durable material. It is also possible that the articulated arm is made of other materials or comprises a plurality of materials. It is crucial that the articulated arm is configured to be stable and robust against external influences.

The running gear and the articulated arm can have an overall length between 160 cm and 220 cm.

The articulated arm has a length between a running gear joint and a deflector joint. The articulated arm is connected to the running gear by the running gear joint. The articulated arm is connected to the deflector body by the deflector joint. The length of the articulated arm from the running gear joint to the deflector joint can be between 110 cm and 170 cm, in particular between 120 cm and 160 cm. The length of the articulated arm is configured from the axis of rotation of the running gear joint to the axis of rotation of the deflector joint. The length of the articulated arm can correspond to at least 1.5 times the length of the lifting device. The length of the lifting device is configured between its connection to the running gear and its connection on the deflector body. The articulated arm can be at least twice as long as the lifting device. The articulated arm can also have a length that is at least 2.5 times as large as the length of the lifting device.

By means of such a configuration of the articulated arm and the lifting device, the articulated arm is arranged in such a way that it can absorb a high horizontal force component, while the lifting device is designed in such a way that it can lift the deflector body as directly and thus as effectively as possible. This results in a mechanical interplay between the articulated

arm and the lifting device. The lifting device lifts the guardrail section at least partially vertically, while the articulated arm supports the lifting device and can absorb high horizontal forces in the event of a vehicle impact. The interplay of the lifting device and the articulated arm thus results in a stable and effective lifting and lowering process.

The object of the invention is further achieved by a guardrail system which comprises a plurality of adjustable guardrail segments. The plurality of guardrail systems are connected to one another at the end faces in a tension-proof manner. At least one guardrail section as previously described is inserted between two adjustable guardrail segments. By means of the inserted guardrail section, at least one adjustable guardrail segment is configured to be liftable and movable by the guardrail section.

By arranging a liftable guardrail section between guardrail segments, a guardrail system is created which is advantageously liftable and movable. By means of the running gear and the lifting device of the guardrail section, a guardrail system, which consists of the guardrail section and at least one guardrail segment, is thus liftable and displaceable. The advantages of the guardrail system correspond substantially to the advantages of the guardrail section as previously described.

It is possible that a guardrail segment is connected to a guardrail section. It is also possible that two guardrail segments are connected to a guardrail section. For example, a guardrail segment can be connected to a guardrail section, which comprises a tongue with a closure. The guardrail segment with the tongue and the closure can then be connected to and released from another guardrail section by being lifted or lowered by the lifting device of the guardrail section. From the interplay between

the guardrail section and the guardrail segment, it is thus possible to mechanically connect or release the guardrail system with other guardrails.

5 The object of the invention is further achieved by a road switch with at least one adjustable tongue. The road switch can have two adjustable tongues. The adjustable tongue comprises at least one guardrail section as previously described.

10 By equipping the adjustable tongue with a guardrail section as previously described, a well-movable and robust road switch is created. With such a road switch, traffic can be diverted quickly and easily without requiring major manual conversion work.

15 The at least one tongue can be pivotably mounted about a substantially vertically oriented axis in a horizontal direction.

Such an arrangement ensures that the tongue of the road switch can be pivoted horizontally and moved into another guardrail
20 system and connected to it. In this way, there are no protruding parts in the closed state of the road switch and motor vehicles can be advantageously guided along the road switch.

The one tongue can be configured to be flexible in the horizon-
25 tal direction. The individual guardrail sections can be flexibly connected. The individual guardrail sections can be connected at the end faces in a tension-proof manner. The individual guardrail sections can also be configured to be connectable in a form-fitting and/or force-fitting manner.

30 It is possible that a guardrail section, a guardrail system, or a road switch has a plurality of running gears. The plurality of running gears can be controllable sequentially or simultaneous-

ly. It is also possible that each running gear can be controlled individually.

By means of such a configuration, even long guardrail sections,
5 guardrail systems, or road switches with many elements can be lifted, moved, and lowered.

The object of the invention is also achieved by a method for displacing a guardrail section as previously described. The
10 method comprises the following steps:

moving, in particular extending, at least one running gear from a standby position to a travel position;

15 moving the guardrail section on a substrate, in particular on a road section, with the at least one running gear;

moving, in particular retracting, the at least one running gear from a travel position to a standby position.

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The running gear is lifted or lowered into the standby position or into the travel position in each case by the lifting device.

The method has substantially the same advantages as a guardrail
25 section as previously described.

The invention is explained in more detail in the following figures. Here, it shows:

30 Figure 1: A side view of a guardrail section with a lifting device in a standby position,

Figure 2: A section of a guardrail section with a motor in a standby position,

Figure 3: A side view of a guardrail section with a lifting device in a travel position,

Figure 4: A section of a guardrail section with a motor in a travel position,

Figure 5: A view of a running gear with a lifting device and an articulated arm,

Figure 6: A front view of a running gear with a lifting device,

Figure 7: A side view of a running gear with a lifting device and an articulated arm,

Figure 8: A top view of a running gear and an articulated arm,

Figure 9: A view of a running gear with two rollers, an articulated arm, and a lifting device.

Figure 1 shows a side view of a guardrail section 1 with a lifting device 4 in the standby position. In the standby position, the guardrail section 1 is lowered onto a substrate (not shown). In the standby position, the weight of the guardrail section 1 rests on the two supports 26. The guardrail section 1 has a deflector body 2. The deflector body 2 has a longitudinal direction 17. The two supports 26 are formed below the deflector body 2. The deflector body 2 has a running gear 3. A lifting device 4 is formed on the running gear 3. The lifting device 4 is configured as a hydraulic cylinder. The lifting device 4 has a longitudinal axis 7. The longitudinal axis 7 of the lifting device 4

runs in the direction of force application of the lifting device 4. The longitudinal axis 17 of the deflector body 2 and the longitudinal axis 7 of the lifting device 4 enclose an angle 42 of 66° . The perpendicular 6 and the longitudinal axis 7 of the lifting device 4 enclose an angle 5 of 24° . The perpendicular 6 is thus arranged perpendicular to the longitudinal direction 17 of the deflector body 2. The lifting device 4 is connected to the deflector body 2 by a lifting joint 18. The lifting device 4 is rotatably connected to the deflector body 2 by the lifting joint 18. The lifting device 4 has a length 24 of 30 cm. The deflector body 2 also has an articulated arm 19. The articulated arm 19 is connected to the deflector body 2 by a deflector joint 21. The articulated arm 19 is connected to the running gear 3 via a running gear joint 20. The articulated arm 19 has a length 25 of 120 cm from the axis of rotation 40 of the running gear joint to the axis of rotation 39 of the deflector joint. The articulated arm 19 has a longitudinal axis 22. The longitudinal axis 22 and the longitudinal axis 17 of the deflector body 2 enclose an angle 23 of 3° in the standby position. The supports 26 have a height 27 of 4 cm. The deflector body has a height 30 of 60 cm. The deflector body has a length 38 of 600 cm.

Figure 2 shows a section AA of a guardrail section 1 with a motor 9 in the standby position. Figure 2 shows the section AA from Figure 1. In the section AA, the guardrail section 1 has a width extension 31 of 30 cm. The section AA has a height extension 30 of 60 cm. The guardrail section 1 has a deflector body 2. A travel motor 9 is formed on the deflector body 2. The travel motor 9 has a motor gear wheel 11. In addition, the deflector body 2 has two rollers 8. The two rollers 8 are each equipped with a roller gear wheel 12. The two roller gear wheels 12 and the motor gear wheel 11 are operatively connected by a belt 13. The motor gear wheel 11 and the two roller gear wheels 12 and

the belt 13 form a gear mechanism 10 which operatively connects the motor to the two rollers.

Figure 3 shows a side view of a guardrail section 1 with a lifting device 4 analogously to Figure 1. Unlike in Figure 1, the guardrail section 1 is in the travel position. In the travel position, the running gear 3 is lowered onto a substrate (not shown). In the travel position, the two supports 26 bear substantially no load from other components. In the travel position, the lifting device 4 presses the running gear 3 onto the substrate (not shown). As a result, the lifting device 4 lifts the deflector body 2 of the guardrail section 1 against gravity. In the travel position, the deflector body 2 of the guardrail section 1 can be moved in a transverse direction. The lower edge of the running gear 3 and the lower edge of the supports 26 have a vertical distance 28 of 12 cm. Thus, the deflector body 2 is lifted by the running gear 3 from the standby position to the travel position by a lifting height of 12 cm. In the travel position, the lifting device 4 has a greater length 24 than in the standby position. The length 24 of the lifting device 4 is 45 cm in the travel position. The articulated arm 19 has a longitudinal axis 22. The longitudinal axis 22 and the longitudinal axis 17 of the deflector body 2 enclose an angle 23 of 3° in the travel position. When the articulated arm 19 pivots from the standby position to the travel position, it thus sweeps through an angle of 6° . In the travel position, the longitudinal axis 17 of the deflector body 2 and the longitudinal axis 7 of the lifting device 4 enclose an angle 42 of 72° . The perpendicular 6 and the longitudinal axis 7 of the lifting device 4 enclose an angle 5 of 18° . During the movement from the standby position to the travel position, the lifting device thus sweeps through an angle of 6° .

Figure 4 shows a section of a guardrail section 1 with a motor 9 in the travel position. The section is the section BB of the deflector body 2 from Figure 3. The section BB from Figure 4 is configured analogously to the section AA from Figure 2. Unlike
 5 in section AA in Figure 2, in section BB in Figure 4, the rollers 8 are lowered onto the substrate (not shown) and the guardrail section 1 is lifted into the travel position. In the travel position, the guardrail section 1 has a height 32 of 72 cm. Thus, the guardrail section 1 is lifted by 12 cm in the travel
 10 position compared to the standby position in Figure 2.

Figure 5 shows a view of a running gear 3 with a lifting device 4 and an articulated arm 19. The running gear 3 has two rollers (not shown). The two rollers (not shown) each have a roller gear
 15 wheel 12. The two rollers (not shown) also each have an axis of rotation 14. The two roller gear wheels 12 are operatively connected to the motor gear wheel 11 by a belt 13. The motor gear wheel 11 is connected to a travel motor 9. The two roller gear wheels 12 and the motor gear wheel 11 and the belt 13 form a
 20 gear mechanism 10. The lifting device 4 is connected to the running gear 3 via the running gear joint 20. The lifting device 4 has a longitudinal axis 7. The longitudinal axis 7 is arranged in the direction of force application of the lifting device 4. The lifting device 4 has a lifting joint 18. The lifting device
 25 4 is rotatably connected to the deflector body (not shown) via the lifting joint 18. From the axis of rotation 40 of the running gear joint 20 to the axis of rotation 41 of the lifting joint 18, the lifting device 4 has a length 24 of 45 cm. The articulated arm 19 is connected to the running gear joint 20. The
 30 articulated arm 19 has a longitudinal axis 22. The articulated arm 19 has a deflector joint 21, with which the articulated arm 19 is connected to the deflector body (not shown). The articulated arm 19 is connected to the running gear 3 via the running

gear joint 20. From the axis of rotation 39 of the deflector joint 21 to the axis of rotation 40 of the running gear joint 20, the articulated arm 19 has a length 25 of 120 cm.

5 Figure 6 shows a front view of a running gear 3 with a lifting device 4 in the travel position. The running gear 3 is configured analogously to the section BB from Figure 4. Unlike in Figure 4, a lifting device 4 is formed on the running gear 3. The lifting device 4 is connected to the deflector body (not shown)
 10 via the lifting joint 18. The two rollers 8 have a horizontal distance 34 of 14 cm. In the travel position, the guardrail section 1 has a vertical height 32 of 72.4 cm. The running gear 3 has a height 33 of 49.1 cm. The lifting joint 18 has an axis of rotation 41.

15 Figure 7 shows a side view of a running gear 3 with a lifting device 4 and an articulated arm 19 analogously to Figure 5. The articulated arm 19 has a longitudinal axis 22. The two rollers 8 have an axis of rotation 14. Along the axis of rotation 14, the
 20 rollers 8 have an extension 15 of 60 cm. The lifting device 4 has a longitudinal axis 7. The longitudinal axis 7 of the lifting device 4 runs in the direction of force application of the lifting device 4. The longitudinal axis 7 of the lifting device 4 encloses an angle 5 of 18° with the perpendicular 6. The horizontal 36 and the longitudinal axis 22 of the articulated arm 19
 25 enclose an angle 23 of 3° . The running gear 3 and the articulated arm 19 have an overall length 35 of 170 cm. The longitudinal axis 17 of the deflector body 2 and the longitudinal axis 7 of the lifting device 4 enclose an angle 42 of 72° . During the
 30 movement from the standby position to the travel position, the lifting device sweeps through an angle of 6° .

Figure 8 shows a top view of a running gear 3 with an articulated arm 19 analogously to Figures 5 and 7. The running gear 3 has a width extension 31 of 27.6 cm. The deflector joint 21 has a width extension 37 of 30.8 cm.

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Figure 9 shows a view of a running gear 3 with two rollers 8, an articulated arm 19, and a lifting device 4 analogously to Figures 5, 7, and 8. The two rollers 8 each have an axis of rotation 14. The axes of rotation 14 have a distance 34 of 14 cm.

10 The rollers 8 have a diameter 8 of 8 cm. The axes of rotation 14 of the rollers 8 run parallel to the longitudinal axis 22 of the articulated arm 19. The longitudinal axis 7 of the lifting device 4 and the perpendicular 6 enclose an angle 5 of 18° .

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Claims

1. A guardrail section (1) comprising a deflector body (2) extending in particular in a longitudinal direction, with at least one running gear (3) movable between a standby position and a travel position, wherein the at least one running gear (3) is retracted into a receptacle of the deflector body (2) in the standby position and is extended from the receptacle in the travel position in such a way that the guardrail section (1) is movable on a substrate, in particular a road section, wherein the running gear (3) is connected to the deflector body (2) by a lifting device (4), by which the running gear (3) can be brought from the standby position into the travel position, wherein the running gear (3) comprises at least one roller (8) and in particular at least two rollers (8), and preferably a travel motor (9), wherein the at least one roller (8) and preferably at least two rollers (8) are driven in particular by the travel motor (9), characterized in that the at least one roller (8) has an extension (15) along its axis of rotation (14) which is at least twice, preferably at least four times, in particular at least six times as large as the diameter (16) of the roller (8).
2. The guardrail section (1) according to claim 1, wherein the lifting device (4) has a longitudinal axis (7) in a direction of force application and the longitudinal axis (7) is arranged at an angular range of 45° to 85° , in particular in an angular range of 60° to 80° , more preferably in an angular range of 65° to 75° to the longitudinal direction (17) of the deflector body (2).

3. The guardrail section (1) according to any one of the preceding claims, wherein the axis of rotation (14) of the roller (8) is configured substantially parallel to the longitudinal direction (17) of the deflector body (2) in the standby position and in the travel position.

4. The guardrail section (1) according to any one of the preceding claims, wherein the lifting device (4) is rotatably mounted on the deflector body (2).

5. The guardrail section (1) according to any one of the preceding claims, wherein the running gear (3) is connected to the deflector body (2) by an articulated arm (19), wherein the articulated arm (19) is preferably rotatably mounted on the running gear (3) and on the deflector body (2).

6. The guardrail section (1) according to claim 5, wherein the articulated arm (19) has a length (25) between a running gear joint (20), with which the articulated arm (19) is connected to the running gear (3), and a deflector joint (21), with which the articulated arm (19) is connected to the deflector body (2), of at least 1.5 times, in particular at least 2 times, preferably at least 2.5 times the length (24) of the lifting device (4) between its connection (20) to the running gear (3) and its connection (18) on the deflector body (2).

7. A guardrail system comprising a plurality of adjustable guardrail segments, which are connectable to one another at the end faces in a tension-proof manner, in particular in a form-fitting manner, optionally additionally also in a force-fitting manner, characterized in that at least one guardrail section (1) according to any one of claims 1 to 6

is inserted between two adjustable guardrail segments, whereby at least one adjustable guardrail segment is liftable and movable by the guardrail section (1).

- 5 8. A road switch with at least one adjustable tongue, in particular two adjustable tongues, each comprising at least one guardrail section (1) according to any one of claims 1 to 6.
- 10 9. The road switch according to claim 8, characterized in that the at least one tongue is pivotably mounted about a substantially vertically oriented axis in a horizontal direction.
- 15 10. The road switch according to any one of claims 8 or 9, characterized in that the at least one tongue is configured to be flexible in a horizontal direction, in particular by the flexible connection of individual guardrail sections (1), which are connectable to one another at the end faces
- 20 in a tension-proof manner, in particular in a form-fitting manner, optionally additionally also in a force-fitting manner.
- 25 11. The guardrail system according to claim 7 or the road switch according to any one of claims 8 to 10, characterized in that a plurality of running gears (3) are controllable sequentially or simultaneously, but in any case individually.
- 30 12. A method for displacing a guardrail section (1) according to any one of claims 1 to 6, comprising the steps:

i. moving, in particular extending, at least one running gear (3) from a standby position to a travel position;

5 ii. moving the guardrail section (1) on a substrate, in particular on a road section, with the at least one running gear (3);

10 iii. moving, in particular retracting, the at least one running gear (3) from a travel position to a standby position,

wherein the running gear (3) is lifted or lowered into the standby position or into the travel position in each case
15 by the lifting device (4).