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(54) **Railway system, and method for building a railway system and method for adjusting a railway system**

(57) A railway system, provided with rails to guide train wheels, wherein the system comprises at least one transition part, for instance a switch part or crossing part, which is provided with:

- a transition element (2), in particular a switch blade or frog, displaceable between a first and second position;
- a first rail section (1); and
- a number of supports (3), in particular slide plates, extending below the rail section (1) and transition element (2);

wherein a top side of at least a first support supports said

rail section;
wherein, in said first position, the transition element (2) is located at a distance from the rail section (1),
wherein, in its second position, the transition element (2) touches a head part (1a) of the rail section (1) by an upper part (2a), and rests on the top side of the first support (3) by a lower part (2b),
wherein the said top side of the support (3) is provided with a recess (5), such that a lower edge (2r) of the lower part (2b) of the transition element (2) is located above a bottom of this recess (5), at a distance from this bottom, in said second position of the transition element (2).

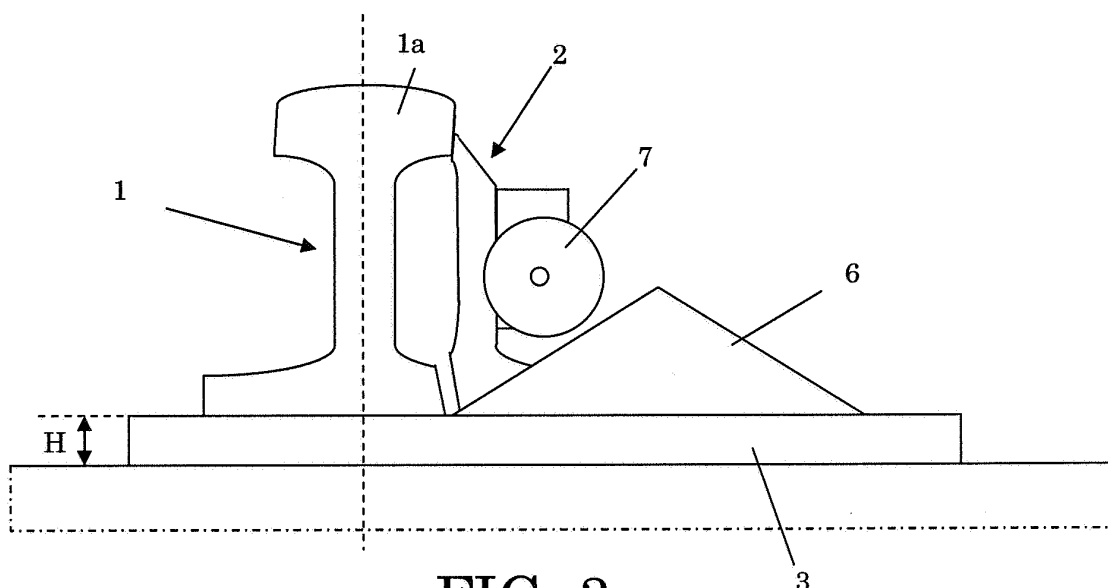


FIG. 3

Description

[0001] The invention relates to a railway system, provided with rails to guide train wheels, wherein the system comprises at least one transition part, for instance a switch part or crossing part, which is provided with:

- a transition element displaceable between a first and second position, in particular a switch blade or frog;
- a first rail section; and
- a number of supports, in particular slide plates, extending under the rail section and transition element;

wherein a top side of at least a first support supports said rail section;

wherein, in said first position, the transition element is located at a distance from the rail section;

wherein, in its second position, the transition element touches a head part of the rail section by an upper part, and rests on the top side of the first support by a lower part.

[0002] Such a system is known from practice and comprises, for instance, a switch part or railway crossing part, branch, or the like. As is generally known, a railway switch is typically provided with a switch blade displaceable with respect to a stock rail or a movable point of a frog. The blade, or frog, is supported by a slide plate. Previously, lubricant was used, to be able to obtain a good sliding of the blade (or frog) over the slide plate. However, applying lubricant was labor-intensive and therefore expensive. Nowadays, lubrication of the movable element is therefore used less and less.

[0003] The known railway system is found to be relatively susceptible to failures. A large number of the failures come from rail transition parts such as switches. In practice, it is particularly found that, with the passage of time, the transition element (e.g. switch blade) is no longer well able to reach a desired second position. In particular, it is found that a crack remains between the switch blade and the head of the stock rail when it has been attempted (e.g. by a drive) to bring the switch blade into the second position. In many cases, such a 'failing' of the switch is noticed in time, by a failure report system known per se, and the switch can be repaired. However, the repair of the switch can require a lot of time, which can lead to a long delay for transport over the respective rail part. In addition, it is possible that it is not noticed in time that the transition element can no longer reach its second position, which can cause train derailment.

[0004] It has been found that the switch blade and the slide plate are subject to wear. An important part of the above-mentioned failures can be attributed to this wear. Upon inspection of the rail transition part, it is found that, with the passage of time, a top side of the slide plate has been notched by the wear where the switch blade slides over the plate to its second position (see also Figs. 4B, 5 and 6). The notching of the slide plate by the switch blade is found to involve the formation of a burr (e.g. an

upstanding edge, rib or the like). In addition, dirt can accumulate in the notch and at the formed burr. Both the notching of the slide plate as such, the formed burr and the accumulating dirt cause the switch blade to be less and less able to reach its second position. Up to now, the worn supports (if discovered in time) are replaced, during repair work, which causes above-mentioned consequences, and means loss of material.

[0005] The present invention contemplates solving the above-described problems. In particular, the invention contemplates preventing failures of the railway system in a durable and economically profitable manner.

[0006] According to the invention, to this end, the system is characterized in that the above-mentioned top side of the support is provided with a recess, such that a lower edge of the lower part of the transition element is located above a bottom of this recess, at a distance from this bottom, in above-mentioned second position of the transition element.

[0007] In this surprisingly simple manner, above-mentioned failures of the rail system can be prevented well. Here, it is avoided that an above-mentioned notch and burr can be formed, at least for a relatively long operational period, so that a complete replacement of the support as a result of wear can be avoided for a relatively long time. One idea of the invention is to anticipate formation of a notch and burr in an above-mentioned support (e.g. a slide plate), by already providing that support with a recess in a suitable location.

[0008] According to a further elaboration, the above-mentioned recess may be provided under the influence of a detection (at least: after detection) of a worn patch in the top side of the first support itself. However, detection of the worn patch is not essential.

[0009] In addition, it is for instance advantageous if a first support provided with above-mentioned recess is a replacement for a previous support. The previous support then, for instance, does not contain an above-mentioned recess yet, but does contain an (optionally specifically detected) worn patch. All this is then in particular such that the recess of the first support (i.e. the replacement support) is (after mounting) at least partly located in a position where the worn patch of the previous (removed) support was located.

[0010] The invention further provides a method for building and/or adjusting a rail system (or railway system), in particular a system according to the invention, comprising:

- providing a transition element (for instance a transition element displaceable between a first and second position, in particular a switch blade or frog);
- providing a first rail section; and
- providing a number of supports (for instance slide plates) to support the rail section and transition element;

wherein the top side of at least a first support supports

above-mentioned rail section;

wherein, after mounting, in a first position, the transition element is located at a distance from the rail section, wherein, in a second position, the transition element touches a head part of the rail section by an upper part, and rests on the top side of the first support by a lower part,

wherein the method is characterized in that the above-mentioned top side of the support is provided with a recess, such that a lower edge of the lower part of the transition element is located above a bottom of this recess, at a distance from this bottom, in above-mentioned second position of the transition element.

[0011] The top side of an above-mentioned support may have (or already have had) an above-mentioned worn patch. The location of the above-mentioned recess is then particularly related to an above-mentioned worn patch.

[0012] The method comprises, for instance, detection of a worn patch of the top side of a support.

[0013] According to a further elaboration, the method comprises providing above-mentioned recess at a worn patch, such that this recess at least partly removes the worn patch. In addition, it is advantageous when the method comprises a support replacement. A support replacement may, for instance, comprise replacing a rail system part, which rail system part is provided with the support (the rail system may in particular, for instance, be a switch).

[0014] In particular, the method can comprise: replacing the support, which has the worn patch, by a replacement support which is or has been provided with an above-mentioned recess, in particularly such that the recess of the replacement support is at least partly located in a position where above - mentioned worn patch of the previous support was located.

[0015] According to an elaboration, the method may, for instance, comprise:

- providing a recess in an (optionally detected) worn patch, to remove a burr part of the worn patch and/or to enlarge a recess part of the worn patch in the direction of the rail section, or
- replacing the support in which the worn patch is present by a support which is or has been provided with a recess, such that the recess of the replacement support is at least partly located in a position where above-mentioned worn patch of the previous support was located. With a switch slide plate, an above-mentioned replacement may, for instance, comprise replacement of the switch, which switch comprises the respective slide plate.

[0016] In the last-mentioned case, the previous support (containing the worn patch) is particularly removed from a respective support position, with the replacement support (preferably already provided with the recess) then being brought into this support position.

[0017] Above-mentioned worn patch may, for instance, comprise an above-mentioned burr, or a recess formed by wear, for instance a notch, or both; in the last-mentioned case, the recess to be provided by the method is preferably provided to remove the burr and to elongate the recess already formed by wear (during rail use) at least towards the rail section and to further deepen it in a suitable location. Above-mentioned worn patch is, for instance, the result of friction between the bottom side of the transition element and a top side of the support (possibly in combination with pollution present on the support, e.g. sand and the like), when the above-mentioned element slides over the support.

[0018] With these methods, above-mentioned failures can be prevented well, in particular already in the stage of the building of a rail system, or to adjust an already built system in a suitable manner.

[0019] Further advantageous elaborations of the invention are described in the subclaims. The invention will now be explained with reference to an exemplary embodiment and the drawing, in which:

Fig. 1 schematically shows a top plan view of a part of an exemplary embodiment of a railway system; Fig. 2A shows a detail Q of Fig. 1, where the transition element has been brought into the first position; Fig. 2B shows a similar detail to Fig. 2A, where the transition element has been brought into a second position; Fig. 3 shows a side elevational view via the arrow P of Fig. 2B; Fig. 4A shows a cross-sectional view over line IV-IV of Fig. 2B, where only the stock rail, support and the transition element are partly shown; Fig. 4B shows a similar view to Fig. 4A, after wear of the support; Fig. 5 shows a similar view to Fig. 4B, with the stock rail and worn slide plate; Fig. 6 shows a top plan view of the part of the system shown in Fig. 5; Fig. 7 shows a similar view to Fig. 4A, of an embodiment according to the invention; Fig. 8 shows a top plan view of the part of the system shown in Fig. 7; and Fig. 9 shows a similar view to Fig. 7, of an alternative embodiment.

[0020] In this application, same or corresponding measures are designated by same or corresponding reference symbols.

[0021] Figs. 1-3 schematically show a part of a railway system. Such a system is known per se from practice. The system is provided with rails to guide train wheels. The system typically comprises a large number of transition parts, for instance switch parts, crossings, branches, or other transition parts, in particular to guide approaching trains further in desired directions.

[0022] The Figures show an example of an above-

mentioned transition part (branch) of the network. The exemplary embodiment shown is a switch part, provided with a transition element, namely a movable switch blade 2. To a skilled person, it will be readily apparent that a switch part may also comprise one or more movable frogs or the like known per se; in addition, a switch part may, for instance, comprise different movable switch blades, depending on the switch configuration.

[0023] It is advantageous when above-mentioned switch blade 2 as such is manufactured from a second rail section (not shown itself), preferably a rail section having the same cross-sectional profile as rails with which other parts of the railway network have been built. Such a manufacture of switch blades is generally known from practice, and particularly advantageous with a view to mechanical properties and manufacturing advantages. In such a manufacture, usually an above-mentioned second rail section (i.e. a rail) is provided, the second rail section being processed, in particular by means of a material removal process, for instance a planing process, grinding process, sawing process, boring process or the like, to form above-mentioned transition element 2 therefrom.

[0024] The switch blade 2 is displaceable between a first and second position; arrow X in Fig. 2A indicates a direction of displacement in the direction of above-mentioned second position. The switch part further comprises at least a first rail section 1 (the stock rail 1) and a number of supports 3, 103 extending below the rail section 1 and the switch blade 2, in particular slide plates comprising a first plate 3 and other plates 103.

[0025] Typically, the rails 1, switch blades 2 (and other transition parts) and slide plates 3, 103 are manufactured from iron or steel. A slide plate 3, 103 may, for instance, be manufactured by means of a casting process and/or suitable material-processing process. A thickness H of each slide plate 3, 103 (see Fig. 3), measured in vertical direction, may, for instance, be in the range of 1-5 cm, and is in particular approximately 2 cm (e.g. 18 mm).

[0026] In particular, each support 3, 103 can support a bottom side of the rail 1 and a bottom side of the transition part 2, such that these bottom sides are at substantially the same height when the transition part 2 is in the second position (as shown in Fig. 4A), in a starting situation of the system.

[0027] In a further elaboration, the system is provided with supports 10 known per se, provided on a suitable base (e.g. a railbed), such as sleepers, with the slide plates 3, 103 directly or indirectly being fastened to these supports 10 with suitable fastening means 11. Other parts, for instance intermediate plates, may be provided between slide plates 3, 103 on the one side and supports 10 on the other side, if desired.

[0028] In above-mentioned first position (see Fig. 2), the switch blade 2 is at a distance from the rail section 1 (at least does not touch the rail part 1). In a desired second position, only a switch blade upper part 2a touches the rail section 1 (namely the head part 1a of the rail

section 1), in particular in a position above the support 3, for instance above a sliding surface 3s facing upwards of a first above-mentioned slide plate 3 (optionally with a part of the base 1b of the rail therebetween). As follows from the Figures, the switch blade upper part 2a then touches in particular only a longitudinal side of the rail head 1a. In this desired second position, a blade lower part 2b rests (supports), by a respective bottom side (sliding surface), on the sliding surface 3s of the first slide plate 3; the last-mentioned lower part 2b is then, in addition, at a distance from the rail section 1, and a lower edge 2r (at least a front transverse edge 2r of the bottom side) of the switch blade 2 is then still removed from the rail section 1.

[0029] In above-mentioned desired second position, a lower edge 2r facing the rail 1 (at least an end edge extending near that rail 1) of the bottom side of the switch blade 2 is in a position indicated by a dash line G in the drawing; this position is at a particular distance T from the bottom side of the rail 1 (see Fig. 4A). The last-mentioned distance T is preferably larger than 1 mm, and may, for instance, be in the range of approximately 0.5-2 cm.

[0030] An actuator M, for instance electric, mechanical, pneumatic or hydraulic drive M, is provided to move the switch blade 2 between above-mentioned positions. To this end, the drive M may, for instance, be coupled to the switch blade 2 via a respective driven rod 15 or the like.

[0031] Optionally, the first slide plate 3 may, for instance, be provided with a hump part 6 (roll hump), and the switch blade 2 may be provided with a roll 7 for cooperation with that hump part 6, which roll 7 is preferably rollable from a top surface of the hump part 6 towards the first rail section 1 when the transition element 2 is moved to its second position. Due to this cooperation, the switch blade 2 can be lifted, at least be taken from the top surface 3s of the slide plate, and be put back on the slide plate again, under the influence of the actuator M.

[0032] Fig. 4A shows, with an arrow X1, a possible first direction of sliding/displacement of the switch blade 2 with respect to the stock rail 1, which direction is somewhat obliquely downwards over a particular distance. Further, the switch blade may, for instance, be movable in a direction substantially parallel to the top side of the slide plate, which is shown with an arrow X2 in Figs. 3 and 4A.

[0033] In the exemplary embodiment, the last-mentioned movement may, for instance, comprise a last part of the switch blade movement if the blade 2 is brought to its second position (then the roll 7 is taken from the hump 6), while the bottom side of the switch blade 2 slides over the sliding surface 3s of the support.

[0034] With the system known from practice, such a configuration can cause the wear problems shown in Figs. 4B, 5, 6. In particular, it is found that the first slide plate wears out, which causes an indentation U in the

top side of the slide plate 3 and a burr K on an end face of that indentation (notch) U. Such a wear may also occur with one or more of the other plates 103.

[0035] As a result of this wear, the position of the switch blade 2, in the position moved towards the stock rail 1, is lower than the position before the wear (compare Figs. 4A and 4B). Further, the burr K may cause an increase of the horizontal distance between the switch blade 2 and rail 1. Therefore, the switch blade 2 can no longer reach above-mentioned desired second position (see Fig. 4A), with all this resulting in a crack S remaining between switch blade 2 and stock rail 1 when the blade 2 has been moved to the second position by the drive M (at least, after an attempt of the drive to bring the switch blade 2 into the second position).

[0036] Figs. 7-8 show a relatively simple, effective solution for this problem (a desired second position of a lower part of the switch blade 2 is indicated by dash lines in Fig. 7). In an advantageous manner, the top side of the slide plate 3 is provided with a recess 5 (for instance groove or slot, in the present case with a rectangular cross section), such that the lower edge 2r of the lower part 2b of the transition element 2 is above (or in) this recess 5 in above-mentioned desired second position of the transition element 2. Here, the above-mentioned lower edge 2r is at a distance from an upward facing bottom 5b of the recess 5, at least: opposite this bottom 5b. A virtual vertical transverse plane V comprising the transverse position G of the lower edge 2r of the switch blade 2 in the second position intersects the recess 5.

[0037] As is shown, the recess 5 may, for instance, extend at a relatively short distance from the base 1b of the rail 1; alternatively, the recess may, for instance, connect directly to the base 1b of the rail 1 (as in the example according to Fig. 9). The recess 5 may, for instance, extend parallel with respect to the neighboring/nearby rail 1.

[0038] Above-mentioned recess 5 may, for instance, be provided during the manufacture of the support 3, for instance during a casting process and/or by means of a material removal process.

[0039] Another option is that the already mounted support, shown in Figs. 5-6, is still provided with such a recess 5. In that case, above-mentioned recess 5 may be provided along an edge of the worn patch, to remove the burr K, and to further deepen a part of the notch already formed by wear ('wear recess') U and to elongate it in the direction of the rail section 1.

[0040] According to a further elaboration, above-mentioned recess 5 may have a depth D in the range of approximately 1-10 mm, in particular a depth in the range of approximately 1-5 mm (measured from the top side 3s of the support 3). During use, the switch blade 2 is slidable over the top side 3s of the first slide plate 3 over a particular distance towards this recess 5 (e.g. in the direction X2), and then, by the front part (comprising the lower edge 2r) somewhat over the recess 5, to bring the blade 2 into its second position. The bottom side of above-mentioned transition element (i.e. switch blade 2)

may, for instance, reach over above-mentioned recess 5 over a distance L1 of at least approximately 1 mm, e.g. viewed in a top plan view, when that element is in its second position.

[0041] Fig. 9 schematically shows an alternative embodiment (in this case with a triangularly formed recess 5'), where the first slide plate 3 is provided with a reinforcing part 3b extending below the recess 5'. The reinforcing part 3b can reinforce the support in that location. The reinforcing part 3b may, for instance, be manufactured in one piece with a remaining part of the plate 3. On the other hand, the reinforcing part may, for instance, be fastened fixedly on a bottom side of the plate 3, for instance by means of a suitable weld connection and/or in a different manner. A part of the railway system typically located under the slide plate after mounting, for instance an above-mentioned sleeper 10 and/or intermediate plate, may, for instance, stand alone or be provided with a suitable recess to receive a reinforcing part or thickening 3b projecting under the slide plate 3, which will be readily apparent to a skilled person.

[0042] By use of the recess 5 in the top side of the slide plate 3, failures can be avoided well. In particular, formation of an above-mentioned burr K can be prevented, to which end any scrapings, coming from an above-mentioned wear between blade 2 and plate 3, are simply collected in the recess 5. Further, accumulation of dirt between stock rail 1 and switch blade 2 can be reduced. In this manner, the switch blade 2 can reach a desired second position to make contact with the head 1a of the stock rail 1 for a relatively long operational period.

[0043] The present invention can be put into practice with relatively few or virtually no extra costs. A large number of switch failures caused by slide plate wear, and/or failures relating to wear problems with other moving transition parts than switch blades can be avoided particularly well, such that the track remains adequately available for transport of goods and persons.

[0044] As mentioned, the invention provides an advantageous method for building a rail system, for instance a system shown in the Figures. It is then advantageous when the method is characterized in that an above-mentioned top side of the support 3 (e.g. slide plate) is provided with a recess 5, such that the lower edge of the lower part 2b of the transition element 2 is located above this recess 5 in above-mentioned second position of the transition element 2.

[0045] According to a further elaboration, the method may comprise detection of formation of an above-mentioned worn patch in the top side of the first support 3, and providing above-mentioned recess at a detected worn patch, such that this recess at least partly removes the worn patch.

[0046] In addition, a method for adjusting a railway system can be provided, with the method being characterized in that a worn patch of the top side of the support 3, which patch is the result of movement of the transition element 2, is detected, with a recess being provided

along and/or through a detected worn patch, such that this recess at least partly removes a part of the worn patch located near the rail section. In particular, the recess is provided in the detected worn patch, to remove a burr part of the worn patch and/or to enlarge a wear recess (e.g. notch) of the worn patch in the direction of the rail section 1, and to deepen it at least near the rail section 1 (at least along the desired end position G of the transition element 2).

[0047] Adjusting the railway system in this manner may take place at a moment when the wear has not advanced so far that the transition element 2 can no longer reach its desired second position.

[0048] Alternatively, such an adjustment method may be used with a far advanced worn patch, to, for instance, remove at least an above-mentioned burr K and to further deepen an already formed notch, such that the transition element 2 can then reach a desired second position again (and formation of an above-mentioned crack S as a result of the burr K can be undone).

[0049] Thus, the recess 5, 5' may, for instance, be provided such that this recess 5, 5' removes at least an above-mentioned burr formed on the support 3, and, in addition, provides a further deepening of the support at the location of the detected burr. In addition, the recess 5, 5' may, for instance, overlap with at least a front part of an already formed notch, in particular the front part located closest to the rail 1. Preferably, a recess 5, 5' still to be provided overlaps with both an above-mentioned burr, to remove the burr, and at least a part of an already formed notch U.

[0050] By detecting worn patches when providing the recesses 5, 5' in the supports 3 afterwards, each recess can be provided in the support 3 in the correct position in a very simple manner, since this position can automatically be indicated by the respective worn patch.

[0051] In addition, an above-mentioned method may be carried out without specifically detecting a worn patch, for instance during railway maintenance work, railway replacement work, or the like.

[0052] Further, a support (which has an above-mentioned worn patch) may, for instance, be replaced by a replacement support, which replacement support has an above-mentioned recess, all this such that the recess of the replacement support is at least partly located in a position where the worn patch of the previous support (which is replaced by the replacement support) was located. Replacement may, for instance, relate to replacement of the support as such, or replacement of a rail system component (e.g. a switch)-containing the support - by a replacement rail component (with the support provided with a recess).

[0053] It will be readily apparent to a skilled person that the invention is not limited to the exemplary embodiments described. Various modifications are possible within the framework of the invention as set forth in the following claims.

[0054] Thus, for instance, various supports of one rail-

way system transition part may be provided with an above-mentioned recess. Each transition part may comprise only one above-mentioned displaceable transition element (e.g. switch blade or frog), or a number of (one or more) above-mentioned displaceable transition elements (e.g. switch blades and/or frogs). An above-mentioned switch may comprise various switch types, for instance a so-called double slip switch known per se (such as a double or single slip), symmetrical turnout, three-way switch, high-speed switch, and/or other switch.

[0055] An above-mentioned recess 5 (e.g. slot or groove, or concave support part) may comprise various shapes viewed in a (particularly vertical) cross section, for instance square or rectangular (see Fig. 7), substantially triangular (as in Fig. 9), curved (e.g. a substantially semi-cylindrical recess), trapezium-shaped, swallowtail-shaped, and/or otherwise. Preferably, the recess 5 is not provided with sharp edges. The recess 5 may, for instance, be provided with side walls/upper edges gradually merging into an above-mentioned surface, or rounded upper edges.

[0056] Above-mentioned lower edge 2r of the transition part (which, for instance, faces the rail section 1 in the second position of the transition part) may, for instance, comprise a relatively sharp edge, or be provided with a rounding. This lower edge 2r is particularly formed by a front transverse line 2r (i.e. facing the rail 1) of the bottom side of the transition part 2. Further, above-mentioned transition element 2 is particularly operatively slidable, by a bottom side facing downwards, over a particular distance over the top side 3s of the support 3, towards the first rail section 1 (and for instance towards the recess 5), with the top side 3s of the support only providing a suitable sliding surface, and not moving.

Claims

1. A railway system, provided with rails to guide train wheels, wherein the system comprises at least one transition part, for instance a switch part or crossing part, which is provided with:

- a transition element (2), in particular a switch blade or frog, displaceable between a first and second position;
- a first rail section (1); and
- a number of supports (3), in particular slide plates, extending below the rail section (1) and transition element (2);

wherein a top side of at least a first support supports said rail section;

wherein, in said first position, the transition element (2) is located at a distance from the rail section (1), wherein, in its second position, the transition element (2) touches a head part (1a) of the rail section (1) by an upper part (2a), and rests on the top side of the

first support (3) by a lower part (2b),

characterized in that

the said top side of the support (3) is provided with a recess (5), such that a lower edge (2r) of the lower part (2b) of the transition element (2) is located above a bottom (5b) of this recess (5), at a distance from this bottom, in said second position of the transition element (2).

2. A system according to claim 1, wherein a top side of the support (3) is subject to burr formation during use, wherein said recess (5) is arranged to at least partly prevent the burr formation. 10
3. A system according to claim 1 or 2, wherein said recess (5) has a depth (D) in the range of approximately 1-10 mm, in particular a depth in the range of approximately 1-5 mm. 15
4. A system according to any one of the preceding claims, wherein the first support (3) is provided with a reinforcing part (3b) extending below said recess. 20
5. A system according to any one of the preceding claims, wherein the transition element (2) is slidable, by a bottom side facing downwards, over a particular distance over the top side of the support (3), towards the second position, wherein at least the first support (3) is preferably provided with a hump part (6), and the transition element (2) is provided with a roll (7) for cooperation with the hump part (6), which roll (7) is rollable from a top surface of the hump part (6) towards the first rail section (1) when the transition element (2) is moved to its second position. 25 30 35
6. A system according to any one of the preceding claims, wherein the bottom side of said transition element reaches over said recess over a distance (L1) of at least approximately 1 mm, when this element is in its second position. 40
7. A system according to any one of the preceding claims, wherein a thickness of said first support element, in particular measured in vertical direction, is in the range of 1-5 cm, and is in particular approximately 2 cm. 45
8. A system according to any one of the preceding claims, wherein said transition element as such is manufactured from a second rail section, preferably a rail section having a same cross-sectional profile as said first rail section (1). 50
9. A system according to any one of the preceding claims, wherein said first support (3) comprises a worn patch on the top side, and said recess (5) at least extends along an edge of this worn patch. 55

10. A system according to any one of the preceding claims, wherein said recess (5) has been provided under the influence of a detection of a worn patch in the top side of the first support (3) itself.

11. A system according to any of claims 1-9, wherein a first support (3) provided with said recess (5) is a replacement for a previous support, which previous support does not comprise a said recess but does comprise a worn patch, all this such that the recess (5) of the first support (3) is at least partly located in a position where the worn patch of the previous support was located.

12. A method for building and/or adjusting a rail system, in particular a system according to any one of the preceding claims, comprising:

- providing a transition element (2);
- providing a first rail section (1); and
- providing a number of supports (3) to support the rail section and the transition element;

wherein the top side of a first support supports said rail section, at least after mounting, wherein, after mounting, in a first position, the transition element (2) is located at a distance from the rail section (1), wherein, in a second position, the transition element (2) touches a head part (1a) of the rail section (1) by an upper part (2a), and rests on the top side of the first support (3) by a lower part (2b),

characterized in that the said top side of the support (3) is provided with a recess (5), such that a lower edge of the lower part (2b) of the transition element (2) is located above a bottom of this recess (5), at a distance from this bottom, in said second position of the transition element (2).

13. A method according to claim 12, wherein the top side of a said support (3) has a worn patch, wherein the location of the said recess is in particular related to a said worn patch.

14. A method according to claim 13, comprising detection of the worn patch.

15. A method according to claim 13 or 14, comprising providing said recess at the worn patch, such that this recess at least partly removes the worn patch.

16. A method according to claim 13 or 14, comprising replacing the support, which has the worn patch, by a replacement support (3) which is or has been provided with the said recess (5), in particular such that the recess (5) of the replacement support (3) is at least partly located in a position where said worn patch of the previous support was located, wherein the replacement of the support comprises, for in-

stance, a replacement of a rail system component, which rail system component comprises the support.

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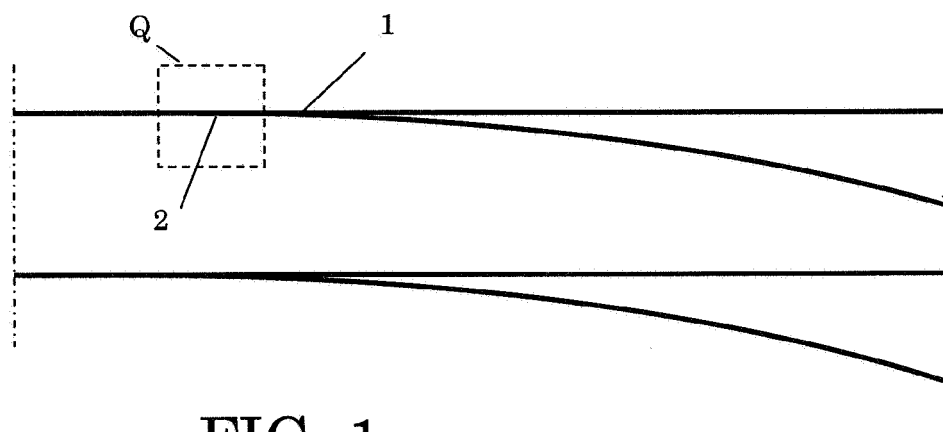


FIG. 1

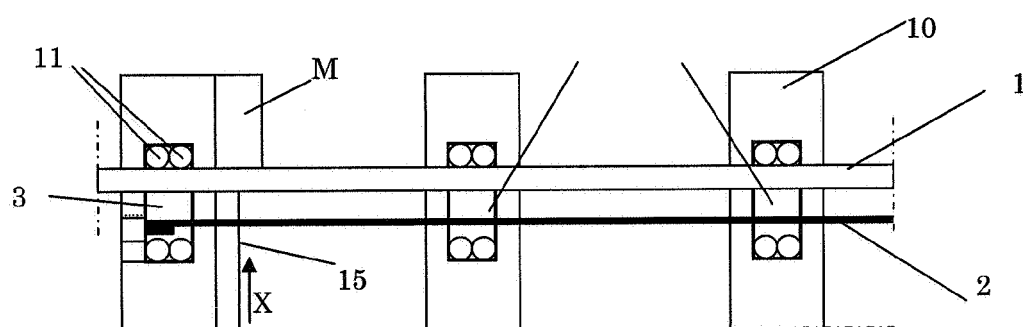


FIG. 2A

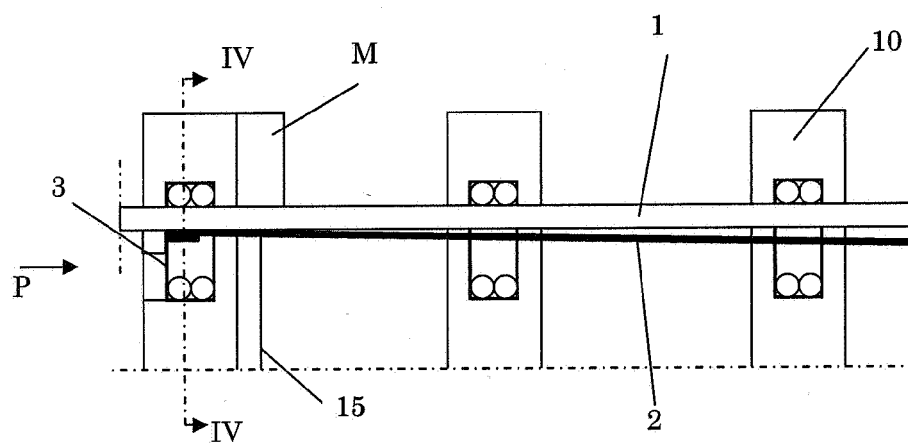


FIG. 2B

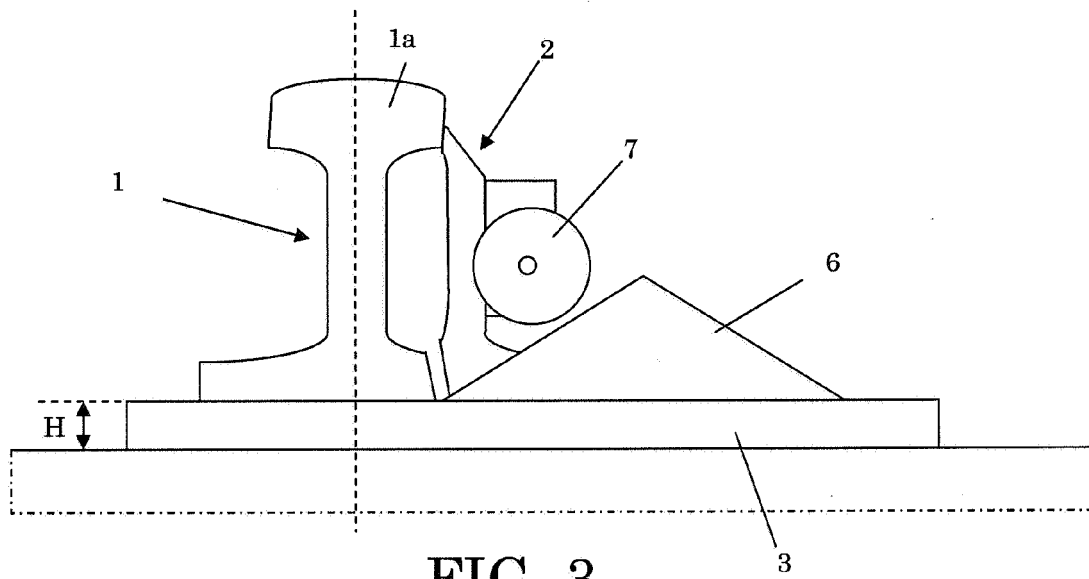


FIG. 3

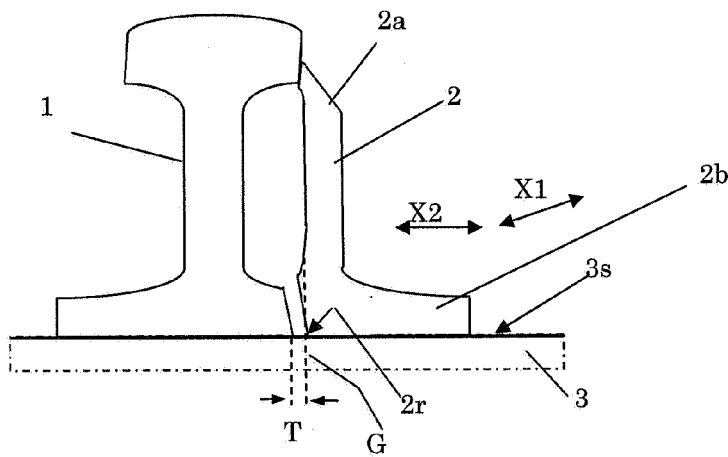


FIG. 4A

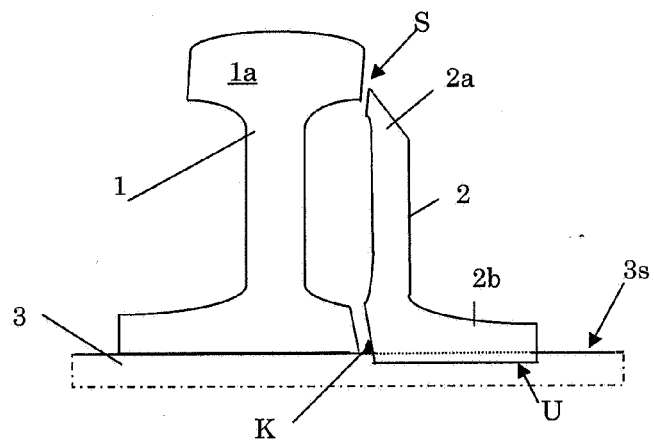


FIG. 4B

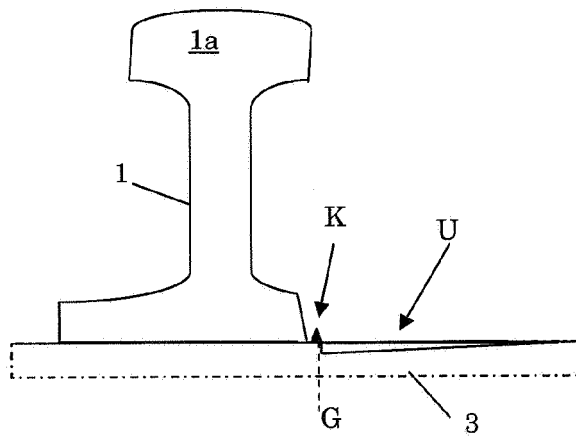


FIG. 5

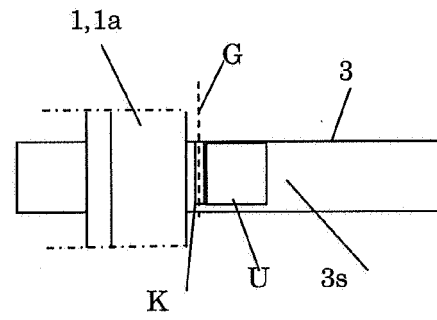


FIG. 6

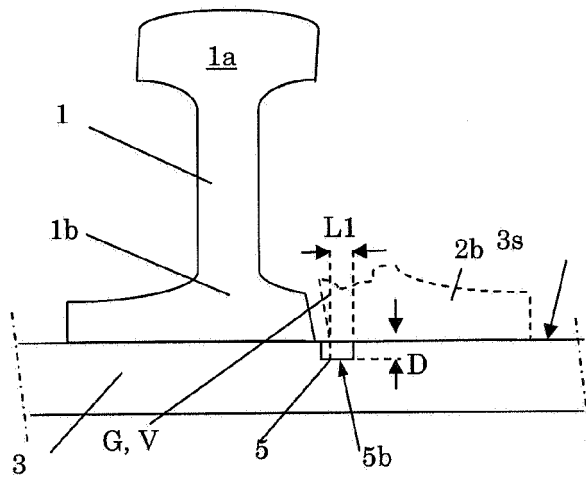


FIG. 7

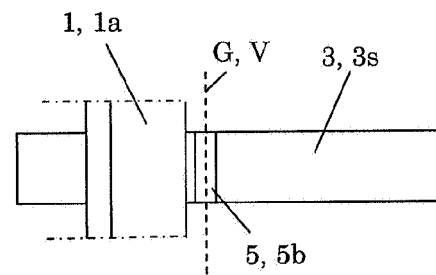


FIG. 8

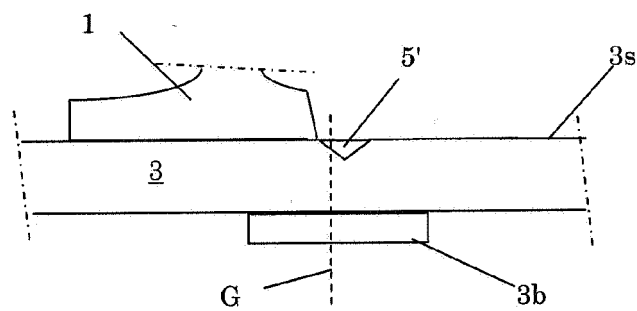


FIG. 9