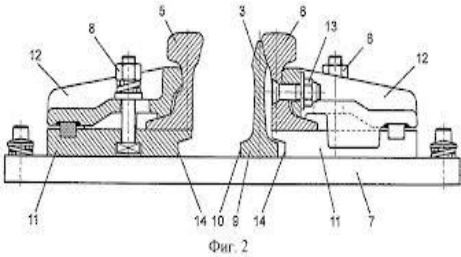


Hew concept of Railway Track Switch

Patent 203302



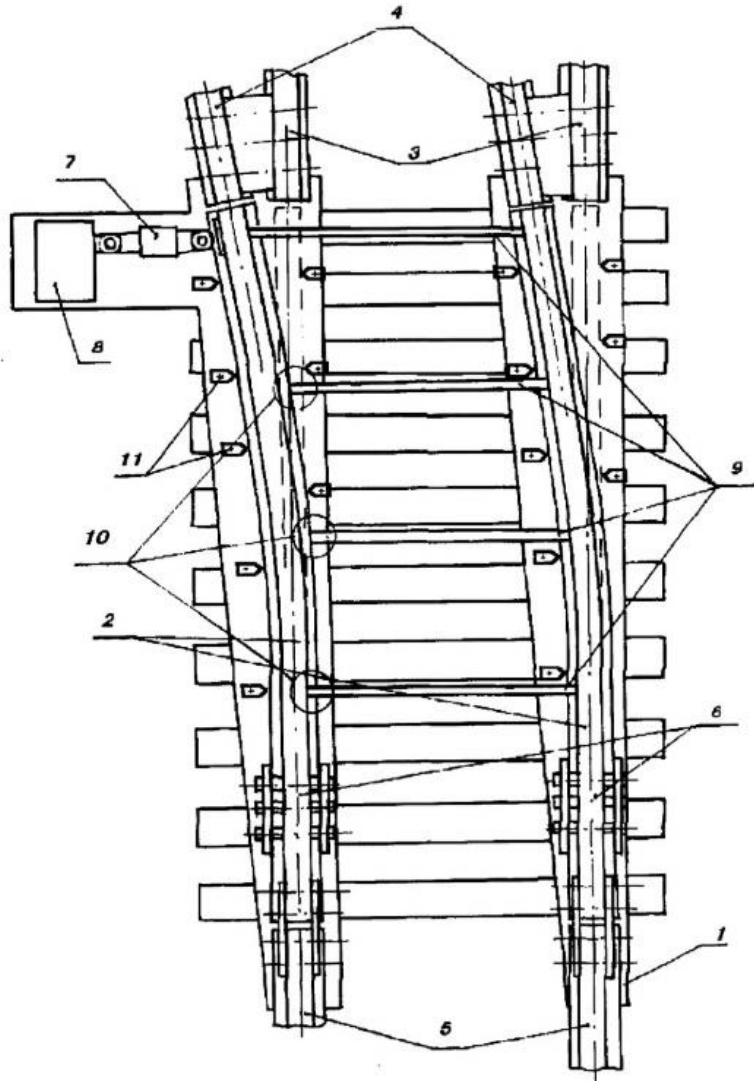
The main disadvantages of the existing structures



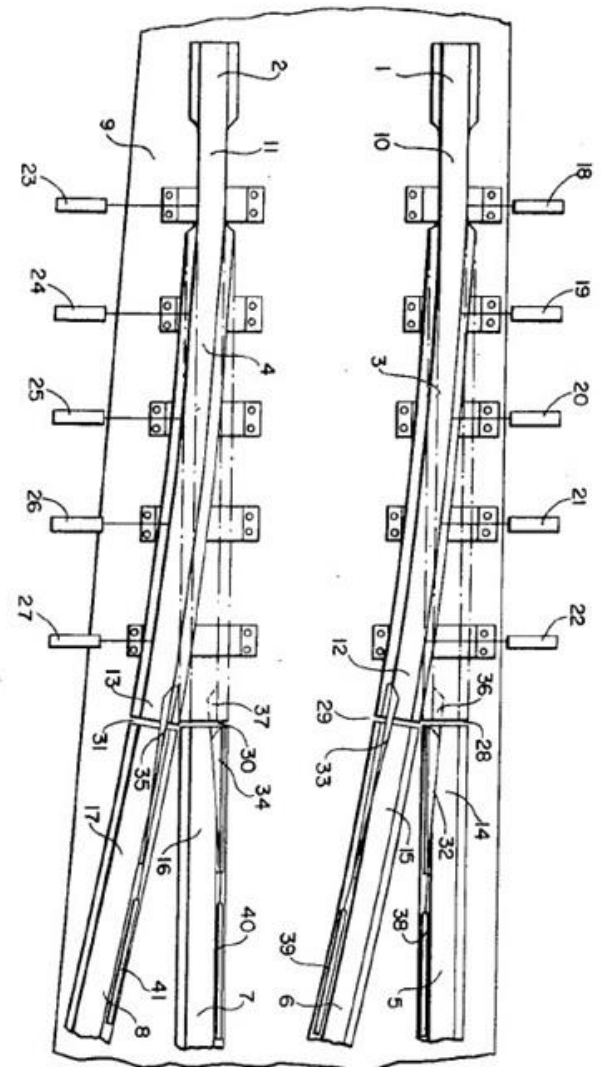
- 1. Has a complex geometric profile, and requires a pair of adjustment of the left and right wagons to the frame rails;**
- 2. Has uneven wear on the surface of the point and the frame rail (after the expiration of the resource it is necessary to change both the switch and the frame rail);**

Attempt to solve the problem

P. Voronin 1998 (RU 5994U1)



R. Doshe, I. Eiselman US3737658A

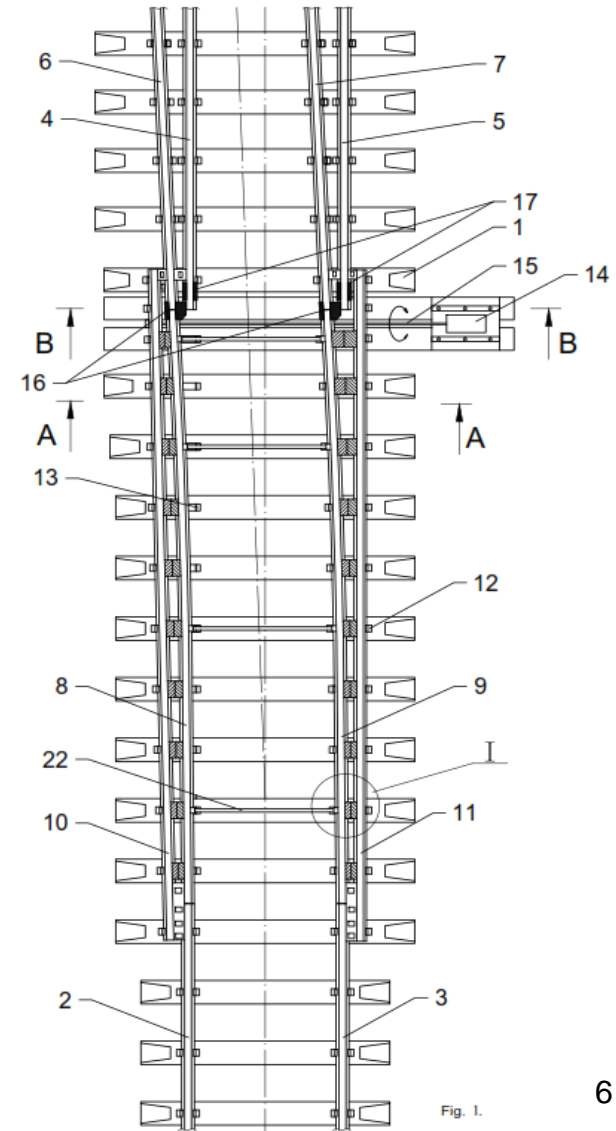
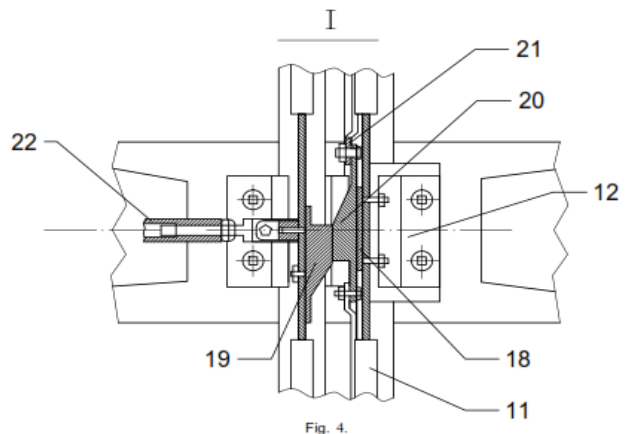
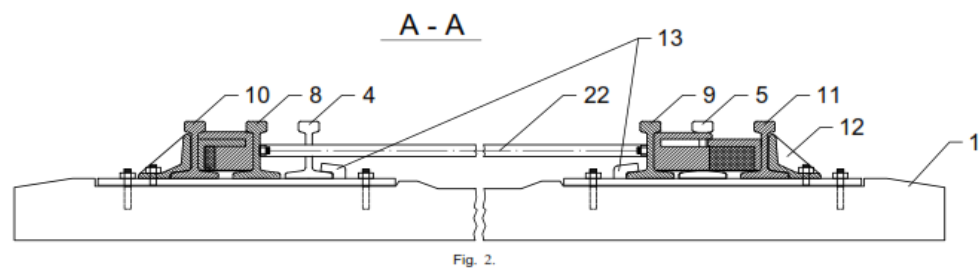
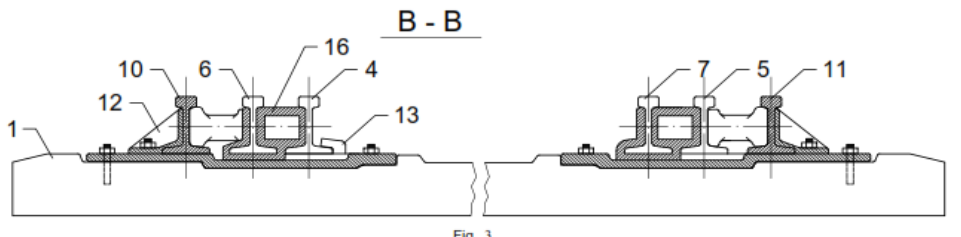


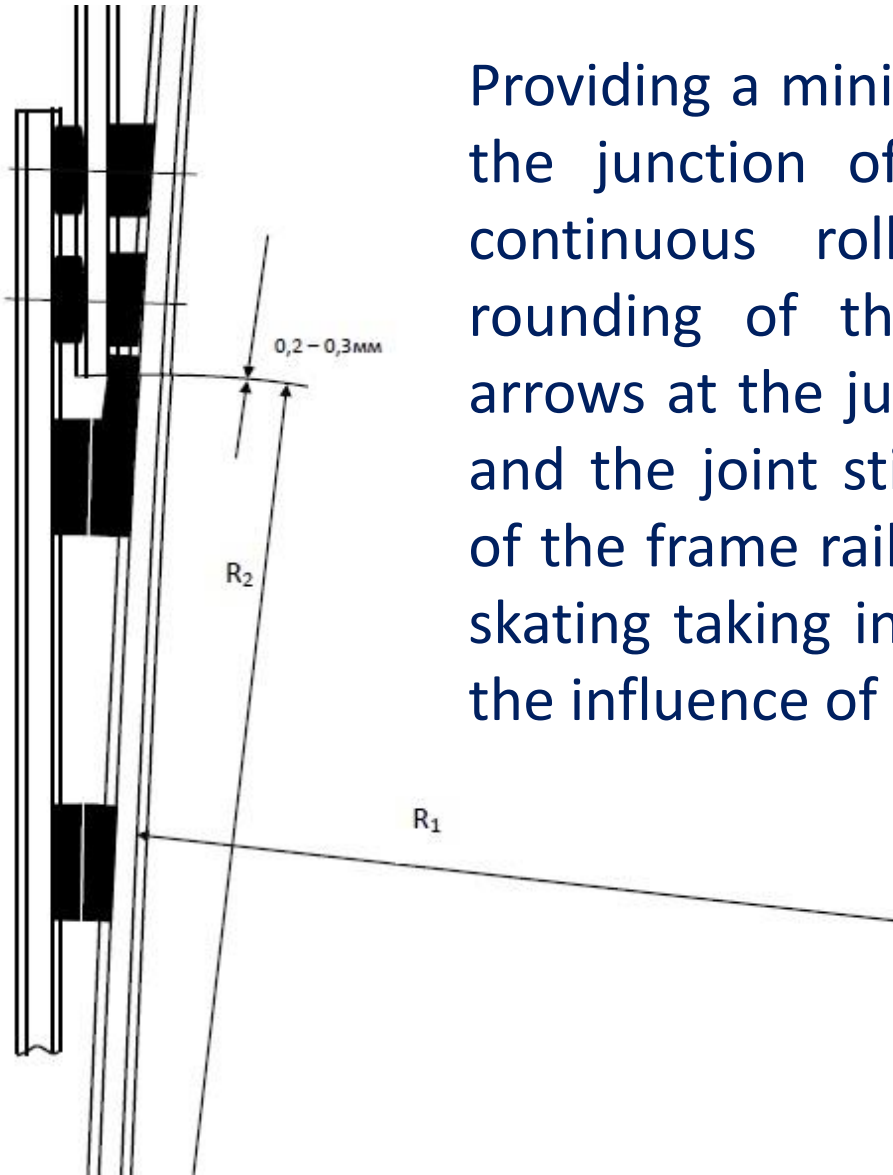
Consistency of attempts

None of these designs may not be acceptable on public and high-speed railways because:

- The proposed options are unstable and unreliable;
- At temperatures, the expansion and contraction of the gaps change And they can jam the system or make a very large gap;
- Does not have the constancy and evenness of the rolling surface at the joints of the rail in the joint;

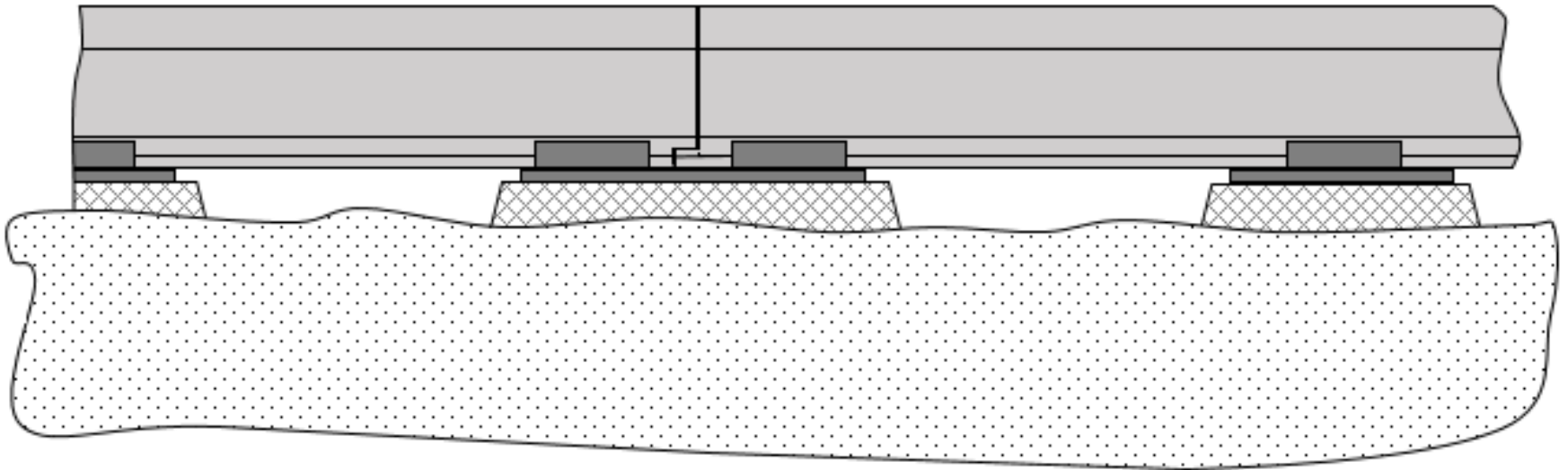
New design of the railway transfer with a continuous rolling surface Patent WO2017203302





Providing a minimum gap of 0.2-0.3 mm at the junction of the switch to obtain a continuous rolling surface, allows the rounding of the ends of the rails and arrows at the junction at a given radius R_2 and the joint stiffness due to the removal of the frame rail beyond the surface of the skating taking into account the absence of the influence of temperature expansion!

Joint node



Patent WO2017203302



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1. (WO2017203302) TRACK SWITCH

PCT Biblio. Data | Description | Claims | Drawings | National Phase | Notices | Documents

Latest bibliographic data on file with the International Bureau [Submit observation](#)

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IPC: E01B 7/00 (2006.01), B61L 5/10 (2006.01)

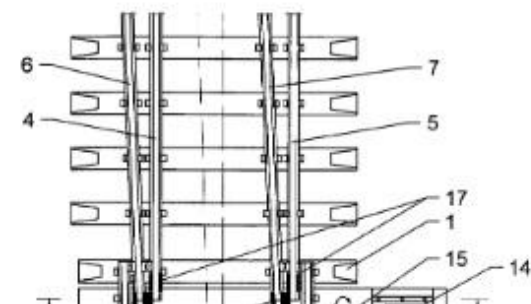
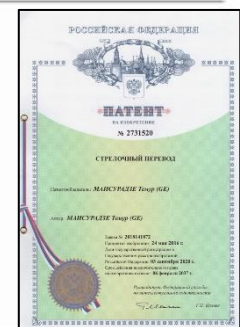
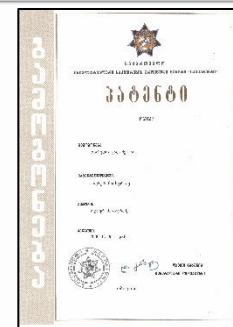
Applicants: MAISURADZE, Temur[GE/GE]; GE

Inventors: MAISURADZE, Temur; GE

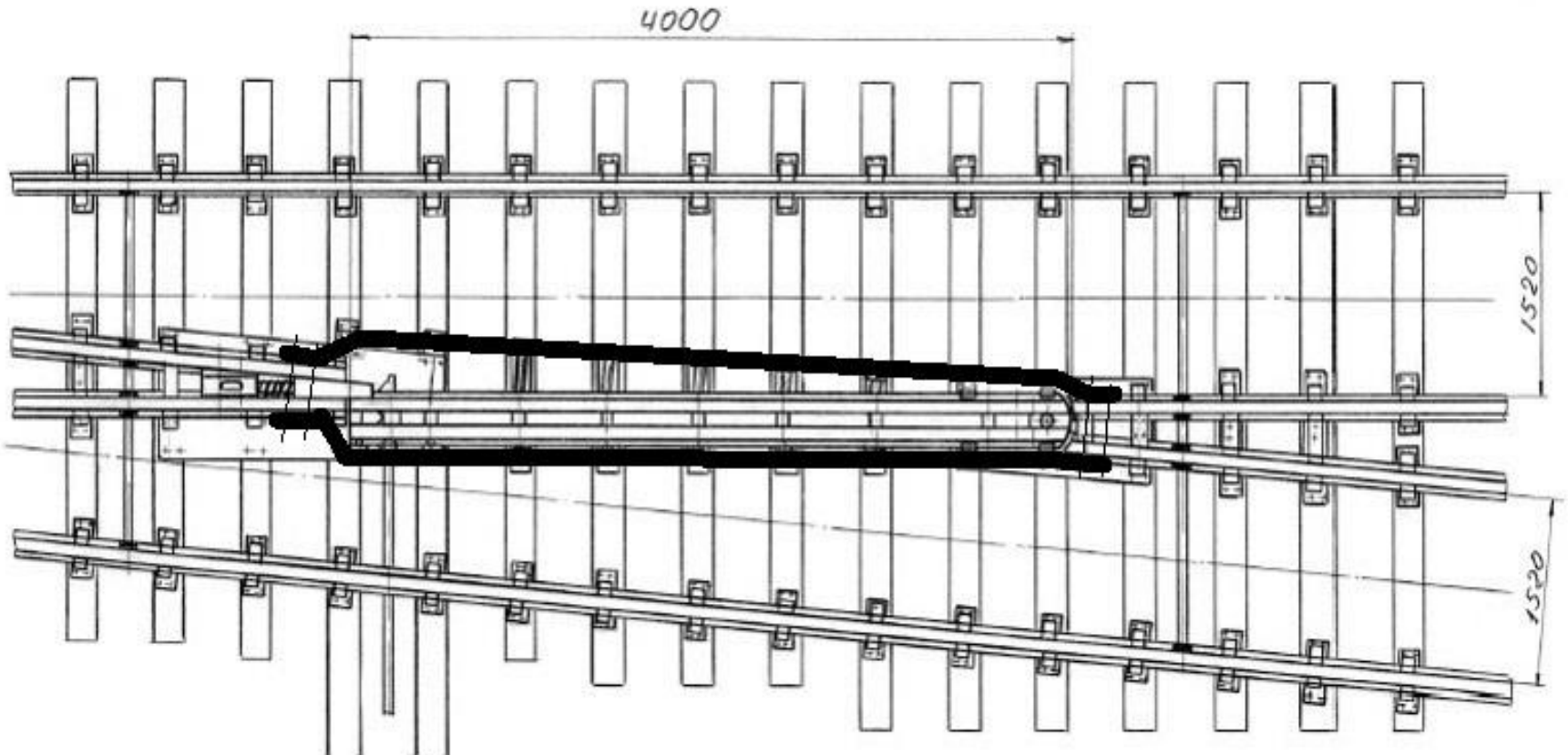
Priority Data: AP 2016 14154 24.05.2016 GE

Title (EN) TRACK SWITCH
(FR) AIGUILLAGE DE VOIE

Abstract: (EN) A track switch that comprises track rails of basic (2), (3), straight, (4), (5) and lateral (6), (7) directions fastened on a slab track (1); sliding switch rails (8), (9) and point rails (10), (11) that are rigidly fastened to the slab track (1) by means of mounting means (12). The point rails and switch rails form points. The track switch comprises also a shift mechanism with a drive (14) and an axis (15), where to sliding locks (16), (17) are connected. The point rails (10), (11) and the switch rails (8), (9) are connected with each other by means of units. Each of the units is a guide (18) that is rigidly fastened to the point rail, a wedge (19) that is rigidly fastened to the switch rail (8), (9), a cleat wedge (20) placed in the guides that is capable of moving longitudinally and fastened with its both ends to point rods (21) of the wedge (see figures 1 and 4).



Cross of T. Maisuradze (WO 03076721 A1)



Positive aspects of the proposed construction

1. As the arrows and frame rails used conventional standard rails with a uniform profile along the entire length (the rails do not wear out and do not fit the arrow);
2. It has continuous rolling surfaces;
3. There is no concept of the left and right arrows (they can be interchanged, they can be reversed with their butts);
4. The safe resource exceeds of the arrows minimum 3 times and of crosses 6 times;
5. The space between the frame rail and the switch is no longer harmful and in the case of snowdrifts does not require cleaning;

Positive aspects of the proposed construction

6. Unlike Patents RU 5994U1 and US3737658A, the temperature expansion / constriction will not affect the coupling gap (0.2-0.3 mm), since the system has a rigid, closed frame rail outside the surface of the rolling surfaces;
7. The design does not have a harmful angle. The angle $\alpha^0 = 0$;
8. In the design, it is possible to use composite materials and, in connection with this, there is no need for lubrication on slip surfaces;
9. The relative simplicity of service;
10. The patent for the invention will give the exclusive right to manufacture all over the world for 20 years;

Positive aspects of the proposed construction

11. Essentially, the speed of the trains can be increased (theoretically along a straight path without restriction, commensurate to the speed of a straight path at a particular section a along a lateral commensurable velocity along the radius of a particular path commensurate with the radius of the arrow);
12. It can more easily be laid on concrete sleepers and together with the under-rail foundation creates a single closed stable frame with the expectation of an additional increase in safety and can be used on transport railways, on long-distance and passenger high-speed communication routes;
13. Has the potential to accurately and easily adjust the track;

Positive aspects of the proposed construction

14. After wear of the guides 8 and 9 (see Fig. 1, patent WO2017203302), a direct replacement occurs, and the frame guides 10 and 11 never need to be replaced, which subsequently at least halves the cost of all subsequent replacements and increases the life of each 4 times of them compared to those existing.

Necessary steps to mastering new S&C (Switch & Cross)

- 1. Design development turnout documentation of a new S&C;**
- 2. Production of multiplication (video clip) features of the principle of action and the manufacture of a prototype;**
- 3. Publication of a video clip to attract international interest and attract investor attention;**
- 4. Installation of a prototype of the arrow and crosspiece before feeding, finalization of units and documentation;**

Necessary steps to mastering new S&C (Switch & Cross)

- 5. Installation of a prototype of the arrow and crosspiece before feeding, finalization of units and documentation;**
- 6. Testing a new product;**
- 7. Product certification;**
- 8. International exhibition and sulfur production.**