ADAPTABLE SAND SYSTEM OF LOCOMOTIVE OF BLOCK-MODULAR TYPE

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Basic characteristics, essence of the development. There was developed an adaptable, following almost all the movements of wheels, sand supply system of locomotive of block-modular type, by means of joining a rubber tip and a pipe by a bracket on the bogie box wing for accurate, dosed sand supply. Free running of the wheel pair regarding the box equals 2 mm, allowing the tip, fastened to the box, to move with lower amplitude than at fastening to the bogie frame, and to compensate this movement by the spray angle of sand-air stream. At the same time the bunker with sand is suspended to the supporting structures (the bogie frame) with special elastic or flexible elements (twisted springs, leaf springs, rubber elements), and the connection between the nozzle and the bunker is ensured by a corrugated rubber element that helps to compensate the bunker movement.

Patentable and competitive results. Ukraine patent №88288 for utility model Sand System of Locomotive IPC (2006.01) B61C 15/10 / Kovtanets M.V., Gorbunov M.I., Kostiukevych O.I., Mohyla V.I., Mokrousov S.D., Prosvirova O.V.; applicant and owner – VDEUNU. – u201311295; appl. 23.09.2013; publ. 11.03.2014, Bull. № 5. – 4 p.

Ukraine patent №77313 for utility model Method of Improving Adhesion in the Rail-Wheel Contact Zone IPC B61C 15/10 / applicant and owner Mokrousov S.D., Gorbunov M.M., Kovtanets M.V., Shcherbakov V.P., Mohyla V.I., Naish N.M. – u201208878; appl. 18.07.2012; publ. 11.02.2013, Bull. № 3. – 5 p.

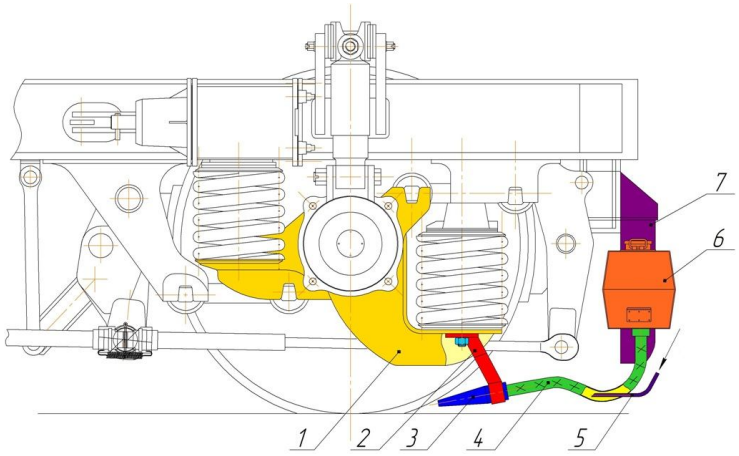
Comparison with world analogues. At the level of world analogues.

Economic attractiveness of the development for market promotion, implementation, parameters, price. According to the results of theoretical and experimental research conducted at the Chair of Railway Transport of VDEUNU with PJSC "Luganskteplovoz", scientific justification of the obtained results, predictable calculations of economic efficiency in production of the proposed system is 35,000 USD per one locomotive section. Use of the proposed system can reduce sand consumption by 2.5-3 times that will be about 94,000 USD per the locomotive park numbering 45 units.

Branches, ministries, departments, enterprises and organizations where the development results are going to be implemented. Engineering enterprises and design organizations involved in conduction of research and design-and-engineering activities on creation of locomotive underframes while designing advanced diesel locomotives, electric locomotives and diesel trains for domestic and foreign railways.

Development readiness level. Design documentation is finished, production of a prototype is nearing completion.

Implementation results. The results of the development have been implemented in PJSC "Luganskteplovoz" and JSC "SPC Transmash".



General view of the box of triaxle locomotive bogie
equipped with adaptable sand system of block-modular type
1 – box wing, 2 - tip fastening bracket, 3 - tip, 4 - pipe for sand-air mixture supply, 5 - compressed air pipe, 6 - bunker with sand, 7 – bunker fastening bracket.