Direction Control System Using the Trailable Point Machine

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A spring point machine is used for the turnouts on secondary lines in Japan, since it has advantage of being operated independently of the interlock. The machine was designed for 37kg/m and 40kg/m turnouts, which were generally used on secondary lines. However, some of the machines are currently used for the heavier turnouts, and it has been thought that the insufficient switching force of the spring points causes the problem of the switch malfunctions. A method proposed to solve this problem is the installation of an electric point machine and an interlock having function to control point machine, however, replacing with the electric point machine and improvement of interlocking needs a large amount of expenses. We propose a method for installing a powerful point machine without an interlock replacing: the direction control system which controls the point machine independent of the interlock. In addition, we propose the pneumatic trail-able point machine, which keeps safety level competing with the spring point machine. In this paper, we describe the test results of the system proposed on the test track. Moreover, we discuss the results of an endurance test, in which the operations of more than 110,000 times of the proposed system were carried out.