Design and Research of Iron Removal Device for Road Sweeper

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The iron spills on the highways are called "invisible mine”. If a car hits the iron spills, its tires will burst, which can lead to a series of serious accidents, and may sometimes cause secondary casualties. These spills are dangerous and hard to be cleaned.If we employ someone to clean them, not only is the disposal efficiency low, but also the risk is high,because workers are exposed to high speed cars. Based on the principle of magnetic phase absorption used by the circulating transmission mechanism, I devised a brand new device with the functions of automatic adsorption, transmission, shedding and collection of iron spills. Equipped with a hydraulic vertical adjustment mechanism, it is suitable for different roads because the distance between the road and the machine can be adjusted by the drivers. Once the sweeper is engaged. It will pick up all ironware and will clean the small rubbish that dropped by the passengers.Working in that way, the device is capable to achieve the purpose of flexible, safe and efficient iron removal operation. Up to now, the device has been put into practical application in Shaoxing section of G92 expressway, with an average monthly iron removal of more than 400 kg, and the number of spills in this section decreased by 46.1% year over year. The use of the device can effectively improve the driving environment, reduce the number of spills, and promote the safety and efficiency of the expressway.

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