The methods and strategies of relay transfer channel on high-speed rail systems

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Abstract: With the rapid development of economy and high-speed rail in China, high-speed rail have been put on the agenda in many provinces. "fast, fast, fast" has become the current theme. Although the high-speed train is fast, the transfer time takes up a lot of time, which makes it "slow down". There is an urgent need for a tool which enables high-speed trains to maintain high-speed travel and enables passengers to transfer, which can save passengers' transfer time, avoid the stop at high-speed rail stations.

1. Introduction
This paper describes a relay fast transmission channel, which is related to the field of high-speed railway transportation. As shown in Fig. 1 3D schematic diagram of the structure's transfer channel. The top of the support leg is fixedly connected with the bottom of the transfer channel. One side of the bottom is fixedly connected with one end of the fixing plate, the fixing plate is sleeved on the outer surface of the bolt, one end of the bolt is inserted in the nut, and the bottom of the inside is fixedly connected with the bottom of the track, the top of the track is connected with the bottom of the pulley, and the top of the pulley is fixedly connected with the bottom of the closed door. When transfer is in need the transfer channel is fixedly connected with the relay car through a fixed plate, the relay car and the high-speed railway travel to the designated position, the high-pressure air pumping fixing device is fixedly connected with the high-speed railway[1], the purpose of transferring the transfer personnel to the relay car through the fixed transfer channel is achieved[4], thus, the problem that the high-speed railway needs to stop and the passengers waste a lot of time to get off the train is solved[2][3].

Fig.1 3D schematic diagram of the structure's transfer channel
2. The methods and strategies
This paper adopts the following technical scheme to realize the proposed scheme: A relay type fast transfer channel, including a support leg, the top part of which is fixedly connected with the bottom part of the transfer channel, one side of the bottom of the transfer channel is fixedly connected with one end of the fixing plate [5], the fixing plate is sleeved on the outer surface of the bolt, one end of the bolt is plugged with the nut, and the bottom of the inside side of the transfer channel is fixedly connected with the bottom of the track, the top of the track is sliding connected with the bottom of the pulley, the top of the pulley is fixedly connected with the bottom of the closed door, one side of the top of the transfer passage is fixedly connected with one side of the connecting buckle, and the other side of the connecting buckle is fixedly connected with one end of the Hook [6][7]. As shown in Fig. 2 Schematic cross-section of the designed structure.

One side of the supporting leg is fixedly connected with one side of the power cabinet, the bottom of the inner side of the power cabinet is fixedly connected with the bottom of the motor, one side of the motor is fixedly connected with one end of the rotating shaft, and the other end of the rotating shaft is fixedly connected with one side of the gear three, one side of the outer surface of gear 3 engages with the other side of the outer surface of gear 2. One side of gear 2 is fixedly connected to the top part of the inner wall of the power cabinet through a supporting rod. One side of the outer surface of gear 2 is far away from gear 3 and engages with the Gear 1, a gear is sleeved on the outer surface of one end of the threaded sleeve, one end of the threaded sleeve is movably connected with one side of the bearing, the other side of the bearing is fixedly connected with one side of the supporting plate, and the supporting plate is sleeved on the outer surface of one end of the threaded shaft, one end of the threaded shaft is inserted into one end of the fixed sleeve, and one end of the fixed sleeve is fixedly connected with one end at the bottom of the transfer channel, the other end of the threaded shaft is fixedly connected with one end of the high-pressure air pumping fixing device through the supporting plate and the threaded sleeve [8].

![Fig. 2 Schematic cross-section of the designed structure](image)

3. THE RESULT
When a transfer is needed, the transfer channel is fixedly connected with the relay car through a fixed plate, the relay car and the high-speed railway travel to a designated position, and the high-pressure air pumping fixing device is fixedly connected with the high-speed railway, to achieve the transfer personnel through the fixed transfer channel into the relay car, solved the traditional transfer needs high-
speed rail stop, passengers get off the waste of a large number of time, delay the normal operation of high-speed rail problems. As shown in Fig.3 3D schematic diagram of the closed door of the structure. In use, when the high-speed railway carrying the transfer personnel enters the transfer area, the relay car is started, and the transfer Channel 5 is fixedly connected with one side of the relay car through a fixed plate 3, when the relay car and the high-speed railway travel to the position where the transfer conditions are met, the motor 20 makes the threaded casing 13 rotate through gear 3 and gear 1, and the threaded casing 13 is in the process of rotation, the screw shaft 17 drives the high-pressure air-pumping fixing device 12 to move in the direction of one side of the high-speed railway. The high-pressure air-pumping fixing device 12 is fixed with the side of the high-speed railway by emptying the internal air, and after the fixing is completed, the closed door 7 is opened, passengers can leave the inner part of the high-speed railway through the transfer channel to complete the high-speed railway transfer.

![Fig.3 3D schematic diagram of the closed door of the structure](image)

4. THE CONCLUSION
The relay-type fast transfer channel can transfer passengers without stopping or slowing down the high-speed railway. Instead of the traditional transfer personnel having to wait for the high-speed railway to stop, they get off and transfer, waste passengers and high-speed rail operation of a large number of valuable time, thus to the high-speed rail "speed" to reduce time costs, improve efficiency, ensure passenger safety.

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