CLAIMS

1. A straddle-type multimodal transportation interworking system, comprising a rail system, a cargo vehicle, a transfer apparatus and a processor, wherein

the cargo vehicle is movably provided on a rail beam of the rail system, wherein two ends of the cargo vehicle in a running direction thereof are provided with anti-collision devices which are disposed at two opposite ends of a train frame;

the transfer apparatus is used for transferring a goods loading device from a transportation tool to the cargo vehicle and loading the goods loading device onto the cargo vehicle, or unloading the goods loading device from the cargo vehicle and conveying the goods loading device onto the transportation tool;

the processor is connected to the cargo vehicle and the transfer apparatus so as to control the transfer apparatus to transfer the goods loading device, and to control the cargo vehicle to move on the rail beam after the goods loading device is secured onto the cargo vehicle;

wherein, as the goods loading device needs to be transferred, the transfer apparatus transfers the goods loading device from the transportation tool to the cargo vehicle and loads the goods loading device onto the cargo vehicle, and the processor controls the cargo vehicle to move on the rail beam, or the transfer apparatus unloads the goods loading device from the cargo vehicle and conveys the goods loading device onto the transportation tool;

the cargo vehicle comprises: a base frame, at least two travelling wheels, at least two guide wheels, a travelling-driving device, the train frame and an elastic member; the at least two travelling wheels are rotatably disposed on the base frame and can rotate on an upper surface of the rail beam; the at least two guide wheels are rotatably disposed on the base frame and come into contact with two side surfaces of a travel rail of the rail beam respectively; the travelling-driving device is fixed onto the base frame and is connected to the at least two travelling wheels for driving the at least two travelling wheels to rotate; the elastic member is fixed onto the base frame; and the train frame is disposed on the elastic member.

2. The interworking system of claim 1, further comprising an elevated pillar, on which the rail beam is provided.

3. The interworking system of claim 2, wherein the rail beam comprises a seat fixed on the elevated pillar and the travel rail fixed on the seat; the at least two travelling wheels are located on an upper surface of the travel rail and is rotatable on the upper surface of the travel rail; the at least two

guide wheels come into contact with the two side surfaces of the travel rail of the rail beam respectively and rotate; and the processor is connected to the travelling-driving device.

4. The interworking system of claim 3, wherein the cargo vehicle further comprises at least two stabilizing wheels, which are rotatably provided at the base frame and come into contact with the two side surfaces of the travel rail of the rail beam respectively and rotate.

5. The interworking system of claim 3, wherein the cargo vehicle further comprises a traction beam, one end of which is fixed to the base frame and the other end of which is fixed to the train frame.

6. The interworking system of claim 5, wherein a length of the traction beam is larger than a distance between the base frame and the train frame.

7. The interworking system of claim 3, wherein the cargo vehicle further comprises two safety wheels, which are rotatably disposed on the base frame and positioned at two ends of the cargo vehicle in the running direction thereof.

8. The interworking system of claim 1, wherein the transfer apparatus at least comprises: a conveyance mechanism, a grab mechanism and a lift mechanism; the grab mechanism places the goods loading device on the conveyance mechanism; the conveyance mechanism transports the goods loading device to the lift mechanism; the lift mechanism raises or lowers the goods loading device, and loads the goods loading device onto or unloads the goods loading device from the cargo vehicle; and the processor is communicatively connected to the conveyance mechanism, the grab mechanism and the lift mechanism.

9. The interworking system of claim 8, wherein the conveyance mechanism at least comprises: a first frame, a chain, a first group of rotation shafts and a power outputting device; the first group of rotation shafts is disposed on the first frame; each rotation shaft of the first group of rotation shafts is provided with a gear; the chain is fitted around the gears to drive each rotation shaft of the first group of rotation shafts to rotate; and a power output end of the power outputting device is connected to the chain.

10. The interworking system of claim 1, wherein the transfer apparatus comprises: an underframe, a lifting device, a lifting table, a lift driving device, multiple travel wheels, and a travel driving device; and wherein

the lifting device is connected between the underframe and the lifting table;

the lift driving device is connected to the lifting device for driving the lifting device to raise or lower the lifting table;

the multiple travel wheels are fixed under the underframe;

the travel driving device is fixed on the underframe and connected to the travel wheels, for driving the travel wheels to rotate; and

the processor is communicatively connected to the lift driving device and the travel driving device.