Claims

1. An energy-absorbing anti-creeper, comprising:

a guiding cylinder, a first end of the guiding cylinder being configured to be in assembly connection with a train;

an energy-absorbing material, filled in the guiding cylinder;

a collision mechanism, arranged at a second end of the guiding cylinder; and

a discharging mechanism for discharging the energy-absorbing material being arranged at the first end of the guiding cylinder;

wherein the first end of the guiding cylinder and the second end of the guiding cylinder are two opposite ends of the guiding cylinder, and the energy-absorbing material is extruded to deform when a collision occurs between the collision mechanism and a collision object and then is discharged by the discharging mechanism so as to buffer an collision energy of the collision object; and wherein the discharging mechanism comprises: a guiding cone, covering an opening of the first end of the guiding cylinder, wherein a gap is provided between the guiding cone and a cylinder edge of the first end of the guiding cylinder, the gap forming a passage for discharging the energy-absorbing material.

2. The energy-absorbing anti-creeper according to claim 1, wherein the guiding cylinder is of cylindrical, and an end face of the guiding cone is provided with a flange portion coupled to the guiding cylinder.

3. The energy-absorbing anti-creeper according to claim 1, wherein the energy-absorbing anti-creeper comprises:

a connecting flange, coupled to the guiding cone and disposed on the first end of the guiding cylinder; and

a guiding ring, coupled to the connecting flange wherein the guiding ring extends along a circumferential direction of the guiding cylinder, and the passage for discharging the energy-absorbing material is formed between the guiding ring and an inner wall surface of the guiding cone.

4. The energy-absorbing anti-creeper according to claim 3, wherein the guiding ring is of annular, and the discharging mechanism further comprises:

a plurality of rear cutters, the plurality of rear cutters being spaced apart on the guiding ring along a circumferential direction of the guiding ring,

wherein an extrusion groove is formed between two adjacent rear cutters in the plurality of rear cutters, and the energy-absorbing material is cut into a plurality of

pieces by each of the plurality of rear cutters in a process of being extruded by the collision mechanism and discharged from a gap between the extrusion groove and the inner wall surface of the guiding cone.

5. The energy-absorbing anti-creeper according to claim 1, wherein the collision mechanism comprises:

a pressing plate, arranged inside a cylinder body of the second end of the guiding cylinder and abutted against the energy-absorbing material, wherein the pressing plate is configured to extrude the energy-absorbing material when colliding with the collision object.

6. The energy-absorbing anti-creeper according to claim 5, wherein the pressing plate is coupled to an inner wall of the guiding cylinder by a shear pin.

7. The energy-absorbing anti-creeper according to claim 5, wherein the energy-absorbing anti-creeper comprises an annular flange abutting against the inner wall of the guiding cylinder, wherein the annular flange is arranged along a circumferential direction of the pressing plate, and the annular flange extends along an axial direction of the guiding cylinder.

8. The energy-absorbing anti-creeper according to claim 5, wherein the collision mechanism further comprises:

a collision plate, arranged at the second end of the guiding cylinder, an end face, facing the guiding cylinder, of the collision plate, is coupled to the pressing plate, and an end face, facing away from the guiding cylinder, of the collision plate, is provided with anti-creeping teeth for contacting the collision object.

9. The energy-absorbing anti-creeper according to claim 8, wherein the collision mechanism further comprises:

a plurality of front cutters, arranged on the end face of the collision plate facing the guiding cylinder, the plurality of front cutters being spaced apart along a circumferential direction of an inner wall of the guiding cylinder to cut the guiding cylinder along a movement direction of the collision plate when the collision mechanism is collided by the collision object.

10. The energy-absorbing anti-creeper according to claim 9, wherein the collision mechanism further comprises:

a guiding groove, provided on the end face of the collision plate facing the guiding cylinder, the guiding groove surrounding a circumferential direction of the guiding cylinder such that an end wall of the guiding cylinder is curled along the guiding

groove when being cut and extruded.

11. The energy-absorbing anti-creeper according to claim 9, wherein a position of the guiding cylinder corresponding to each of the plurality of front cutters is provided with a preset defect groove, the preset defect groove extending along the axial direction of the guiding cylinder.

12. A train vehicle, comprising an energy-absorbing anti-creeper, wherein the energy-absorbing anti-creeper is the energy-absorbing anti-creeper according to any one of claims 1 to 11.

13. The train vehicle according to claim 12, wherein there are a plurality of energy-absorbing anti-creepers, the plurality of energy-absorbing anti-creepers are arranged at front and rear ends of the train vehicle respectively.