WHAT IS CLAIMED IS:

1. An automatic pivoting mechanism for controlling a relative movement of a first object (400) and a second object (600), characterized in that the automatic pivoting mechanism comprises:

a locking mechanism (100), disposed in the first object (400) and capable of switching between a locked position for preventing the relative movement and an unlocked position for allowing the relative movement;

a driving mechanism (200), disposed in the second object (600) and capable of being actuated to switch the locking mechanism (100) from the locked position to the unlocked position; and

an actuating mechanism (300), disposed in a third object (700) and actuates the driving mechanism (200) when the third object (700) moves relative to a fourth object (500);

the first object (400) is capable of being pivoted between an unfolded position and a folded position in respect to the second object (600), and when the first object (400) is in the unfolded position, the locking mechanism (100) is capable of being switched to the locked position, such that the first object (400) is kept in the unfolded position; and

a foldable elastic member is disposed at a pivot joint between the first object (400) and the second object (600), and the foldable elastic member biases the first object (400) to the folded position.

2. The automatic pivoting mechanism according to claim 1, characterized in that:

when the first object (400) is in the folded position, the driving mechanism (200) keeps the locking mechanism (100) in the unlocked position.

3. The automatic pivoting mechanism according to any of claims 1-2, characterized in that the locking mechanism (100) comprises:

a locking pin (120), slidably disposed in the first object (400) and capable of sliding between an extended position to be engaged with the second object (600) and a retracted position to be disengaged from the second object (600);

a slotted portion (110), disposed on the second object (600) and having a locking slot (111) opened toward the locking pin (120), and the locking pin (120) is at least partially inserted into the locking slot (111) while in the extended position; and

a locking elastic member (130), disposed between the locking pin (120) and the first object (400) and biasing the locking pin (120) to the extended position;

a release member (140), connected to the locking pin (120) and capable of being operated from an outside of the first object (400) to switch the locking pin (120) between the extended

position and the retracted position.

4. The automatic pivoting mechanism according to claim 3, characterized in that the driving mechanism (200) comprises:

a cam (210), pivotably disposed in the second object (600) and capable of abutting against the locking pin (120), the cam (210) is provided with a driving portion (211) and an avoidance portion (212) arranged circumferentially adjacent to each other, wherein the cam (210) is capable of being pivoted such that the driving portion (211) abuts against the locking pin (120) thereby driving the locking pin (120) to slide to the retracted position, or being pivoted such that the avoidance portion (212) faces the locking pin (120) thereby allowing the locking pin (120) to slide to the extended position; and

a traction member (220), connected between the cam (210) and the actuating mechanism (300), the actuating mechanism (300) is capable of actuating the cam (210) to be pivoted through the traction member (220), such that the driving portion (211) abuts against the locking pin (120).

5. The automatic pivoting mechanism according to claim 4, characterized in that the driving mechanism (200) further comprises:

a cam elastic member (214), disposed between the cam (210) and the second object (600) to exert a force for driving the cam (210) to be pivoted such that the avoidance portion (212) faces the locking pin (120).

6. The automatic pivoting mechanism according to claim 5, characterized in that the actuating mechanism (300) comprises:

a locking member, connected to the traction member (220), including:

a locking member first end, abutting against the fourth object (500); and

a locking member second end, movably coupled to the third object (700);

when the third object (700) and the fourth object (500) move relatively, the locking member first end (311) is disengaged from the fourth object (500), and the locking member second end (312) slides in a pulling direction and pulls the traction member (220);

an actuating mechanism elastic member (330), disposed between the third object (700) and the locking member (310), and biases the locking member second end (312) in a direction opposite to the pulling direction (314).

7. The automatic pivoting mechanism according to claim 6, characterized in that:

the locking member is a locking lever (310), the locking member first end is a locking lever first end (311), the locking member second end is a locking lever second end (312), and the locking lever second end (312) is connected to the traction member (220);

the fourth object (500) is provided with a limit slot (510) that is opened to the third object (700), and the locking lever (310) extends obliquely from the third object (700) to the fourth object (500) in respect to the pulling direction (314), such that the locking lever first end (311) is capable of being abutted against in the limit slot (510), when the third object (700) and the fourth object (500) move relatively, the locking lever first end (311) is rotated out of the limit slot (510) toward the third object (700); and

the actuating mechanism (300) further comprises an auxiliary rod (320) including:

an auxiliary rod first end (321), pivotably connected to an auxiliary rod engaging portion (313) of the locking lever (310) between the locking lever first end (311) and the locking lever second end (312); and

an auxiliary rod second end (322), pivotably connected to the third object (700).

8. The automatic pivoting mechanism according to claim 7, characterized in that:

the auxiliary rod second end (322) is located at a position in a direction opposite to the pulling direction (314) in respect to the locking lever second end (312); and

the auxiliary rod first end (321) is connected to a substantively middle position of the locking lever (310).

9. The automatic pivoting mechanism according to any one of claims 7 or 8, characterized in that:

the locking lever first end (311) is in a shape of a triangle protruding toward the fourth object (500), two inclined planes of the triangle respectively form two guide inclined planes (311a), the limit slot (510) has portions respectively corresponding to the two guide inclined planes (311a), and when the third object (700) moves relative to the fourth object (500) in different directions, the two guide inclined planes (311a) are separated from abutment with the limit slot (510), such that the locking lever first end (311) is rotated out of the limit slot (510) toward the third object (700).

10. The automatic pivoting mechanism according to any one of claims 6 to 9, characterized in that:

the locking member is a locking slider (350), the locking member first end is a slider first end (351), and the locking member second end is a slider second end (352);

the fourth object (500) is provided with a limit slot (510) that is opened to the third object (700);

the locking slider (350) is located in a slider slot (740) of the third object (700) and capable of sliding close to or away from the fourth object (500), and when the third object (700) and the fourth object (500) move relatively, the limit slot (510) pushes the slider first end (311),

such that the locking slider (350) slides away from the fourth object (500); and

the locking slider (350) is provided with an actuating slot (353) extending obliquely to the sliding direction of the locking slider (350), a traction head (223) of the traction member (220) is slidably inserted in the actuating slot (353), such that when the locking slider (350) slides away from the fourth object (500), the locking slider (350) pulls the traction member (220).

11. The automatic pivoting mechanism according to claim 10, characterized in that:

the third object (700) is provided with a guiding slot (750); the guiding slot (750) is disposed vertically below the locking slider (350), and extend in the pulling direction; and

the traction head (223) is also slidably inserted in the guiding slot (750), thus being limited to slide in the pulling direction.

12. A side impact protection device comprising:

the automatic pivoting mechanism according to any of claims 1-11; and

a protection block body (420) serve as the first object (400).

13. A child safety seat (1) comprising:

a base (500);

a rotating seat (700), rotatably disposed above the base (500);

a seat (600), disposed above the rotating seat (700); and

the side impact protection device according to claim 12, the side impact protection block (400) of the side impact protection device is disposed on one or two sides of the seat (600);

wherein the second object (600) is the seat (600), the third object (700) is the rotating seat (700), and the fourth object (500) is the base (500).

14. The child safety seat (1) according to claim 13, characterized in that:

the seat (600) is fixed to the rotating seat (700) or capable of sliding back and forth or swinging in respect to the rotating seat (700).