C L A I M S

1. A tray for a physical distribution sorter, comprising:

a first frame body configured to move in a predetermined direction on a track of the physical distribution sorter;

a first pulley configured to rotate about a predetermined axis with respect to the first frame body;

a second pulley configured to rotate about the predetermined axis with respect to the first frame body;

a first rotating plate configured to rotate with rotation of the first pulley;

a second rotating plate configured to rotate with rotation of the second pulley;

a first wire wound around the first pulley and the second pulley, and configured to, when the first wire is unwound from the second pulley and wound around the first pulley, the first rotating plate and the second rotating plate rotate and close, and when the first wire is unwound from the first pulley and wound around the second pulley, the first rotating plate and the second rotating plate rotate and open in a double-open manner;

a first buffer portion provided between the first pulley and the first frame body that is configured to buffer an impact when the first rotating plate is opened; and

a second buffer portion provided between the second

pulley and the first frame body that is configured to buffer an impact when the second rotating plate is opened,

wherein

the second buffer portion includes:

a damper provided between the second pulley and the first frame body, and

a biasing member provided between the second pulley and the first frame body that biases the second pulley to be separated from the first pulley.

2. The tray according to claim 1, wherein

when the first wire is wound by the first pulley, the first wire is wound toward a side opposite to a first direction while being in contact at a tangent in the first direction in a radial direction of the first pulley with respect to a rotation axis of the first pulley, and

when the first wire is wound by the second pulley, the first wire is wound toward a side opposite to a second direction while being in contact at a tangent in the second direction in a radial direction of the second pulley with respect to a rotation axis of the second pulley.

3. The tray according to claim 1 or 2, wherein

the first pulley is provided between the first frame body and the first rotating plate, and

the second pulley is provided between the first frame body and the second rotating plate.

4. A tray for a physical distribution sorter,

comprising:

a first frame body configured to move in a predetermined direction on a track of the physical distribution sorter;

a first pulley configured to rotate about a predetermined axis with respect to the first frame body;

a second pulley configured to rotate about the predetermined axis with respect to the first frame body;

a first rotating plate configured to rotate with rotation of the first pulley;

a second rotating plate configured to rotate with rotation of the second pulley;

a first wire wound around the first pulley and the second pulley, and configured to, when the first wire is unwound from the second pulley and wound around the first pulley, the first rotating plate and the second rotating plate rotate and close, and when the first wire is unwound from the first pulley and wound around the second pulley, the first rotating plate and the second rotating plate rotate and open in a double-open manner; and

a wire cover supported by the first frame body between the first pulley and the second pulley, covering an outer periphery of the first wire, and allowing movement along an axial direction of the first wire.

5. The tray according to any one of claims 1 to 4, comprising:

a tray cover provided on the first frame body and

covering at least a part of the first frame body, the first pulley, the second pulley, and the first wire.

6. The tray according to claim 5, wherein

the tray cover includes a plate-shaped body facing a side of the first rotating plate and a side of the second rotating plate, and

the first rotating plate and the second rotating plate are each provided with a partition wall that is configured to separate the first rotating plate and the second rotating plate from the first frame body, the first pulley, the second pulley, and the first wire in cooperation with the plate-shaped body at a position where the first rotating plate and the second rotating plate are closed, with the first wire being wound around the first pulley.

7. The tray according to any one of claims 1 to 6, comprising:

a lock part provided on the first frame body, the lock part being configured to switch between a lock position where the first rotating plate and the second rotating plate are locked so as to place an article on the first rotating plate and the second rotating plate, and an unlock position where the article falls from between the first rotating plate and the second rotating plate.

8. The tray according to any one of claims 1 to 7, comprising:

a second frame body facing the first frame body;

a third pulley configured to rotate about a predetermined axis with respect to the second frame body;

a fourth pulley configured to rotate about the predetermined axis with respect to the second frame body;

a third rotating plate provided closer to the second frame body than the first rotating plate and configured to rotate with rotation of the third pulley;

a fourth rotating plate provided closer to the second frame body than the second rotating plate and configured to rotate with rotation of the fourth pulley; and

a second wire wound around the third pulley and the fourth pulley, and configured to, when the second wire is unwound from the fourth pulley and wound around the third pulley, the third rotating plate and the fourth rotating plate rotate and close, and when the second wire is unwound from the third pulley and wound around the fourth pulley, the third rotating plate and the fourth rotating plate rotate and open in the double-open manner.

9. An article sorting apparatus comprising:

a physical distribution sorter including the tray according to any one of claims 1 to 8; and

a track on which the tray is configured to move.