CLAIMS

1. A plate-shaped member transfer facility comprising:

a rack configured to store a plurality of plate-shaped members such that the plurality of plate-shaped members are arranged in an arrangement direction intersecting with a conveying direction, the plurality of plate-shaped members being supported by supporting portions and standing to extend in the conveying direction, the rack further configured such that the plurality of plate-shaped members are able to be carried therein in the conveying direction and carried out therefrom in the conveying direction; and

a plate-shaped member transfer mechanism configured to carry the plate-shaped members in the rack in the conveying direction and carry the plate-shaped members out from the rack in the conveying direction, wherein:

the plate-shaped member transfer mechanism includes

a flip rotating mechanism including a flip and configured to cause the flip to rotate to stand or lay the plate-shaped member, the flip being configured to support the plate-shaped member and be rotatable about a rotation axis line parallel to the conveying direction,

a conveying mechanism including a conveyance body in which a feed portion is formed, the feed portion extending in the conveying direction and being configured to transfer the plate-shaped member in a standing state in the conveying direction, and

a transporting mechanism configured to cause the flip rotating mechanism and the conveying mechanism to move in the arrangement direction; and

the conveying mechanism is configured to cause the conveyance body to move in the conveying direction from the flip to extend into the rack and is configured such that the plate-shaped member in the standing state is transferred between the rack and the

flip by the feed portion.

2. The plate-shaped member transfer facility according to claim 1, wherein the conveying mechanism is configured to be able to cause the conveyance body to move in a upper-lower direction.

3. The plate-shaped member transfer facility according to claim 2, wherein:

the plurality of supporting portions are arranged in the rack so as to be spaced apart from one another in the conveying direction;

the feed portion of the conveyance body includes a plurality of driving members arranged in the conveyance body so as to be scattered in the conveying direction and configured to transfer the plate-shaped member in the conveying direction; and

a plurality of recesses are formed on the conveyance body so as to correspond to the plurality of supporting portions, and the at least one driving member is provided at a convex portion formed between the adjacent recesses.

4. The plate-shaped member transfer facility according to claim 3, wherein the conveying mechanism is configured to: position the conveyance body such that an upper end of the convex portion is lower in position than the supporting portions of the rack at a reference position at which the conveyance body is located on a conveying-direction near side of the rack; causes the conveyance body to move in the conveying direction from the reference position to position the recess under the supporting portions of the rack; and cause the conveyance position to move upward such that upper ends of the driving members are higher in position than the supporting portions of the rack.

5. The plate-shaped member transfer facility according to claim 4, wherein:

the flip includes a supporting portion configured to support the plate-shaped member when the flip stands; and

the conveying mechanism is configured such that when the conveyance body is moved upward, the plate-shaped member supported by the supporting portion is mounted on the driving members.

6. The plate-shaped member transfer facility according to any one of claims 1 to 5, wherein the flip includes a plurality of spherical rollers configured to be able to roll and is configured to support a rear surface of the plate-shaped member by the plurality of spherical rollers.

7. The plate-shaped member transfer facility according to any one of claims 1 to 6, wherein the flip rotating mechanism is configured to, when the flip rotating mechanism moves, cause the flip to rotate to lay the plate-shaped member supported by the flip.

CLAIMS

[1] A plate-shaped member transfer facility comprising:

a rack configured to store a plurality of plate-shaped members such that the plurality of plate-shaped members are arranged in an arrangement direction intersecting with a conveying direction, the plurality of plate-shaped members being supported by supporting portions and standing to extend in the conveying direction, the rack further configured such that the plurality of plate-shaped members are able to be carried therein in the conveying direction and carried out therefrom in the conveying direction; and

a plate-shaped member transfer mechanism configured to carry the plate-shaped members in the rack in the conveying direction and carry the plate-shaped members out from the rack in the conveying direction, wherein:

the plate-shaped member transfer mechanism includes

a flip rotating mechanism including a flip and configured to cause the flip to rotate to stand or lay the plate-shaped member, the flip being configured to support the plate-shaped member and be rotatable about a rotation axis line parallel to the conveying direction,

a conveying mechanism including a conveyance body in which a feed portion is formed, the feed portion extending in the conveying direction and being configured to transfer the plate-shaped member in a standing state in the conveying direction, and

a transporting mechanism configured to cause the flip rotating mechanism and the conveying mechanism to move in the arrangement direction; and

the conveying mechanism is configured such that the plate-shaped member in the standing state is transferred between the rack and the flip by the feed portion.

[2] The plate-shaped member transfer facility according to claim 1, wherein the conveying mechanism is configured to be able to cause the conveyance body to move in the conveying direction from the flip to extend into the rack.

[3] The plate-shaped member transfer facility according to claim 1 or 2, wherein the conveying mechanism is configured to be able to cause the conveyance body to move in the upper-lower direction.

[4] The plate-shaped member transfer facility according to claim 3, wherein:

the plurality of supporting portions are arranged in the rack so as to be spaced apart from one another in the conveying direction;

the feed portion of the conveyance body includes a plurality of driving members arranged in the conveyance body so as to be scattered in the conveying direction and configured to transfer the plate-shaped member in the conveying direction; and

a plurality of recesses are formed on the conveyance body so as to correspond to the plurality of supporting portions, and the at least one driving member is provided at a convex portion formed between the adjacent recesses.

[5] The plate-shaped member transfer facility according to claim 4, wherein the conveying mechanism is configured to: position the conveyance body such that an upper end of the convex portion is lower in position than the supporting portions of the rack at a reference position at which the conveyance body is located on a conveying-direction near side of the rack; causes the conveyance body to move in the conveying direction from the reference position to position the recess under the supporting portions of the rack; and cause the conveyance position to move upward such that upper ends of the

driving members are higher in position than the supporting portions of the rack.

[6] The plate-shaped member transfer facility according to claim 5, wherein:

the flip includes a supporting portion configured to support the plate-shaped member when the flip stands; and

the conveying mechanism is configured such that when the conveyance body is moved upward, the plate-shaped member supported by the supporting portion is mounted on the driving members.

[7] The plate-shaped member transfer facility according to any one of claims 1 to 6, wherein the flip includes a plurality of spherical rollers configured to be able to roll and is configured to support a rear surface of the plate-shaped member by the plurality of spherical rollers.

[8] The plate-shaped member transfer facility according to any one of claims 1 to 7, wherein the flip rotating mechanism is configured to, when the flip rotating mechanism moves, cause the flip to rotate to lay the plate-shaped member supported by the flip.