[Claims]

1. A branching device that leads a track vehicle, which is guided by a central guide rail disposed in the center of a travel track and travels, to one of a main line travel track or a branch line travel track branching off from the main line travel track,

wherein the track vehicle includes central guide wheels that are allowed to be engaged with the central guide rail and a pair of branch guide wheels that are arranged side by side in a vehicle width direction and are disposed at both sides of a vehicle body,

the branching device comprising:

a branch line side guide rail which is disposed from the main line travel track to the branch line travel track at one side of these travel tracks, and with which the branch guide wheel of the one side of the track vehicle is engaged to lead the track vehicle to the branch line travel track;

a main line side guide rail which, based on a branch starting position at which the branch line travel track begins to branch off from the main line travel track, is disposed from a near side main line travel track, which is the main line travel track of a traveling-direction near side of the branch starting position, to the far side main line travel track, which is the main line travel track of a traveling far side, at the other side of the main line travel tracks, and with which the branch guide wheel of the other side of the track vehicle is engaged to lead the track vehicle to the far side main line travel track;

a switching mechanism that realizes a branch line guide position at which the branch guide wheel of the one side is engaged with the branch line side guide rail and the branch guide wheel of the other side is unable to be engaged with the main line side guide rail, and a main line guide position at which the branch guide wheel of the other side is

engaged with the main line side guide rail and the branch guide wheel of the one side is unable to be engaged with the branch line side guide rail;

a near side central guide rail which is the central guide rail of the near side main line travel track, and which is configured so that, at a traveling-direction near side with respect to a portion at which a central position of the far side main line travel track in a travel track width direction crosses the branch line travel track, and a traveling far side with respect to the branch starting position is set as a traveling far side end;

a far side central guide rail which is the central guide rail of the far side main line travel track, and which is configured so that a traveling far side with respect to a portion at which the central position of the far side main line travel track in the travel track width direction crosses the branch line travel track is set as a traveling near side end; and

a branch line central guide rail which is the central guide rail of the branch line travel track, and which is configured so that a traveling far side with respect to a portion at which the central position of the branch line travel track in the travel track width direction crosses the far side main line travel track is set as a traveling near side end.

2. The branching device according to claim 1, wherein the switching mechanism shifts at least a part of each of the branch line side guide rail and the main line side guide rail to realize the branch line guide position and the main line guide position.

3. The branching device according to claim 1 or 2, wherein a distance between the traveling near side end of the far side central

guide rail and the traveling near side end of the branch line central guide rail in the travel track width direction is a distance at which the travel wheels of the track vehicle travelling on the far side main line travel track are unable to be in contact with the branch line central guide rail and at which the travel wheels of the track vehicle travelling on the branch line travel track are unable to be in contact with the far side central guide rail.

4. The branching device according to any one of claims 1 to 3, wherein:

the track vehicle is configured so that the pair of branch guide wheels are disposed apart from the central guide wheels at intervals in a forward/backward direction of the vehicle body; and

both a distance dimension between the traveling far side end of the near side central guide rail and the traveling near side end of the branch line side guide rail in a direction along the branch line travel track, and a distance dimension between the traveling far side end of the near side central guide rail and the traveling near side end of the main line side guide rail in a direction along the far side main line travel track, are greater than a dimension of the distance between the central guide wheels of the track vehicle and the pair of branch guide wheels.

5. The branching device according to any one of claims 1 to 4, wherein:

the track vehicle has the central guide wheels in each of the front and rear of the vehicle body; and

both a distance dimension between the traveling far side end of the near side central guide rail and the traveling near side end of the far

side central guide rail in a direction along the main line travel track, and a distance dimension between the traveling far side end of the near side central guide rail and the traveling near side end of the branch line central guide rail in a direction along the branch line travel track, are smaller than a distance dimension between the central guide wheels disposed in the front of the vehicle body and the central guide wheels disposed in the rear of the vehicle body.

6. The branching device according to any one of claims 1 to 5, wherein:

the branch line side guide rail and the main line side guide rail each include a movable rail that is displaceable between the main line guide position and the branch line guide position, and an immovable rail that is immovable relative to the travel track disposed at the traveling far side of the movable rail; and

the traveling far side end of the near side central guide rail is located at a traveling-direction near side with respect to a traveling far side end of the movable rail of the branch line side guide rail and a traveling far side end of the movable rail of the main line side guide rail.

7. The branching device according to any one of claims 1 to 6, wherein positions of a lower edge of the branch line side guide rail and a lower edge of the main line side guide rail are higher than a position of an upper edge of the central guide rail.

8. A track transportation system having the branching device according to any one of claims 1 to 7 and the track vehicle.

[Claims]

1. A branching device that leads a track vehicle, which is guided by a central guide rail disposed in the center of a travel track and travels, to one of a main line travel track or a branch line travel track branching off from the main line travel track,

wherein the track vehicle includes central guide wheels that are allowed to be engaged with the central guide rail and a pair of branch guide wheels that are arranged side by side in a vehicle width direction and are disposed at both sides of a vehicle body,

the branching device comprising:

a branch line side guide rail which is disposed from the main line travel track to the branch line travel track at one side of these travel tracks, and with which the branch guide wheel of the one side of the track vehicle is engaged to lead the track vehicle to the branch line travel track;

a main line side guide rail which, based on a branch starting position at which the branch line travel track begins to branch off from the main line travel track, is disposed from a near side main line travel track, which is the main line travel track of a traveling-direction near side of the branch starting position, to the far side main line travel track, which is the main line travel track of a traveling far side, at the other side of the main line travel tracks, and with which the branch guide wheel of the other side of the track vehicle is engaged to lead the track vehicle to the far side main line travel track;

a switching mechanism that realizes a branch line guide position at which the branch guide wheel of the one side is engaged with the branch line side guide rail and the branch guide wheel of the other side is unable to be engaged with the main line side guide rail, and a main line guide position at which the branch guide wheel of the other side is engaged with the main line side guide rail and the branch guide wheel of the one side is unable to be engaged with the branch line side guide rail;

a near side central guide rail which is the central guide rail of the near side main line travel track, and which is configured so that, at a traveling-direction near side with respect to a portion at which a central position of the far side main line travel track in a travel track width direction crosses the branch line travel track, and a traveling far

side with respect to the branch starting position is set as a traveling far side end;

a far side central guide rail which is the central guide rail of the far side main line travel track, and which is configured so that a traveling far side with respect to a portion at which the central position of the far side main line travel track in the travel track width direction crosses the branch line travel track is set as a traveling near side end; and

a branch line central guide rail which is the central guide rail of the branch line travel track, and which is configured so that a traveling far side with respect to a portion at which the central position of the branch line travel track in the travel track width direction crosses the far side main line travel track is set as a traveling near side end,

wherein positions of a lower edge of the branch line side guide rail and a lower edge of the main line side guide rail are higher than a position of an upper edge of the central guide rail.

2. The branching device according to claim 1, wherein the switching mechanism shifts at least a part of each of the branch line side guide rail and the main line side guide rail to realize the branch line guide position and the main line guide position.

3. The branching device according to claim 1 or 2, wherein a distance between the traveling near side end of the far side central guide rail and the traveling near side end of the branch line central guide rail in the travel track width direction is a distance at which the travel wheels of the track vehicle travelling on the far side main line travel track are unable to be in contact with the branch line central guide rail and at which the travel wheels of the track vehicle travelling on the branch line travel track are unable to be in contact with the far side central guide rail.

4. A branching device that leads a track vehicle, which is guided by a central guide rail disposed in the center of a travel track and travels, to one of a main line travel track or a branch line travel track branching off from the main line travel track,

wherein the track vehicle includes central guide wheels that are allowed to be engaged with the central guide rail and a pair of branch guide wheels that are arranged

side by side in a vehicle width direction and are disposed at both sides of a vehicle body,

the branching device comprising:

a branch line side guide rail which is disposed from the main line travel track to the branch line travel track at one side of these travel tracks, and with which the branch guide wheel of the one side of the track vehicle is engaged to lead the track vehicle to the branch line travel track;

a main line side guide rail which, based on a branch starting position at which the branch line travel track begins to branch off from the main line travel track, is disposed from a near side main line travel track, which is the main line travel track of a traveling-direction near side of the branch starting position, to the far side main line travel track, which is the main line travel track of a traveling far side, at the other side of the main line travel tracks, and with which the branch guide wheel of the other side of the track vehicle is engaged to lead the track vehicle to the far side main line travel track;

a switching mechanism that realizes a branch line guide position at which the branch guide wheel of the one side is engaged with the branch line side guide rail and the branch guide wheel of the other side is unable to be engaged with the main line side guide rail, and a main line guide position at which the branch guide wheel of the other side is engaged with the main line side guide rail and the branch guide wheel of the one side is unable to be engaged with the branch line side guide rail;

a near side central guide rail which is the central guide rail of the near side main line travel track, and which is configured so that, at a traveling-direction near side with respect to a portion at which a central position of the far side main line travel track in a travel track width direction crosses the branch line travel track, and a traveling far side with respect to the branch starting position is set as a traveling far side end;

a far side central guide rail which is the central guide rail of the far side main line travel track, and which is configured so that a traveling far side with respect to a portion at which the central position of the far side main line travel track in the travel track width direction crosses the branch line travel track is set as a traveling near side end; and

a branch line central guide rail which is the central guide rail of the branch line travel track, and which is configured so that a traveling far side with respect to a portion at which the central position of the branch line travel track in the travel track width direction crosses the far side main line travel track is set as a traveling near side end, wherein:

the track vehicle is configured so that the pair of branch guide wheels are disposed apart from the central guide wheels at intervals in a forward/backward direction of the vehicle body; and

both a distance dimension between the traveling down side end of the near side central guide rail and the traveling near side end of the branch line side guide rail in a direction along the branch line travel track, and a distance dimension between the traveling down side end of the near side central guide rail and the traveling near side end of the main line side guide rail in a direction along the down side main line travel track, are greater than a dimension of the distance between the central guide wheels of the track vehicle and the pair of branch guide wheels.

5. A branching device that leads a track vehicle, which is guided by a central guide rail disposed in the center of a travel track and travels, to one of a main line travel track or a branch line travel track branching off from the main line travel track,

wherein the track vehicle includes central guide wheels that are allowed to be engaged with the central guide rail and a pair of branch guide wheels that are arranged side by side in a vehicle width direction and are disposed at both sides of a vehicle body,

the branching device comprising:

a branch line side guide rail which is disposed from the main line travel track to the branch line travel track at one side of these travel tracks, and with which the branch guide wheel of the one side of the track vehicle is engaged to lead the track vehicle to the branch line travel track;

a main line side guide rail which, based on a branch starting position at which the branch line travel track begins to branch off from the main line travel track, is disposed from a near side main line travel track, which is the main line travel track of a

traveling-direction near side of the branch starting position, to the far side main line travel track, which is the main line travel track of a traveling far side, at the other side of the main line travel tracks, and with which the branch guide wheel of the other side of the track vehicle is engaged to lead the track vehicle to the far side main line travel track;

a switching mechanism that realizes a branch line guide position at which the branch guide wheel of the one side is engaged with the branch line side guide rail and the branch guide wheel of the other side is unable to be engaged with the main line side guide rail, and a main line guide position at which the branch guide wheel of the other side is engaged with the main line side guide rail and the branch guide wheel of the one side is unable to be engaged with the branch line side guide rail;

a near side central guide rail which is the central guide rail of the near side main line travel track, and which is configured so that, at a traveling-direction near side with respect to a portion at which a central position of the far side main line travel track in a travel track width direction crosses the branch line travel track, and a traveling far side with respect to the branch starting position is set as a traveling far side end;

a far side central guide rail which is the central guide rail of the far side main line travel track, and which is configured so that a traveling far side with respect to a portion at which the central position of the far side main line travel track in the travel track width direction crosses the branch line travel track is set as a traveling near side end; and

a branch line central guide rail which is the central guide rail of the branch line travel track, and which is configured so that a traveling far side with respect to a portion at which the central position of the branch line travel track in the travel track width direction crosses the far side main line travel track is set as a traveling near side end, wherein:

the track vehicle has the central guide wheels in each of the front and rear of the vehicle body; and

both a distance dimension between the traveling down side end of the near side central guide rail and the traveling near side end of the down side central guide rail in a direction along the main line travel track, and a distance dimension between the

traveling down side end of the near side central guide rail and the traveling near side end of the branch line central guide rail in a direction along the branch line travel track, are smaller than a distance dimension between the central guide wheels disposed in the front of the vehicle body and the central guide wheels disposed in the rear of the vehicle body.

6. The branching device according to any one of claims 1 to 5, wherein:

the branch line side guide rail and the main line side guide rail each include a movable rail that is displaceable between the main line guide position and the branch line guide position, and an immovable rail that is immovable relative to the travel track disposed at the traveling far side of the movable rail; and

the traveling far side end of the near side central guide rail is located at a traveling-direction near side with respect to a traveling far side end of the movable rail of the branch line side guide rail and a traveling far side end of the movable rail of the main line side guide rail.

7. A track transportation system having the branching device according to any one of claims 1 to 6 and the track vehicle.