# DESCRIPTION

## Title of Invention: RAILCAR BOGIE AND RAILCAR INCLUDING SAME

### Technical Field

[0001] The present invention relates to a bogie supporting a carbody of a railcar, and particularly to a railcar bogie which prevents a plate spring from falling.

### Background Art

[0002] Typically, a bogie of a railcar is constituted by wheels, axles, and a bogie frame. The bogie frame includes a cross beam and a pair of side sills. The cross beam extends in a railcar width direction. The side sills are joined to both respective ends of the cross beam by welding or the like and extend in a front/rear direction. Axle boxes accommodating respective bearings for supporting the axle are supported by an axlebox suspension and are configured to be displaceable in an upper/lower direction relative to the bogie frame. Problems of such a bogie are that the manufacturing cost is high due to a large number of welded portions, and the weight of the bogie is heavy. Here, PTL 1 proposes a bogie from which side sills are omitted.

### Citation List

### Patent Literature

[0003] PTL 1: Japanese Laid-Open Patent Application Publication No. 55-47950

### Summary of Invention

### Technical Problem

[0004] The bogie described in PTL 1 is configured such that: plate springs are used as primary suspensions; front/rear direction middle portions of the plate springs are fixed to both respective railcar width direction end portions of a cross beam; and both front/rear direction end portions of the plate springs are inserted in respective spring receiving portions provided at respective axle boxes. Each of the spring receiving portions described in PTL 1 has a tubular shape, and work of inserting the plate spring into the spring receiving portion is not easy. In addition, the bogie including the plate spring is required to have such a structure that the plate spring hardly falls.

[0005] Embodiments of ~~The present invention was made under these circumstances, and an object of~~ the present invention ~~is to~~ provide a railcar bogie including a plate spring, the railcar bogie being configured such that: the plate spring is easily attached to the railcar bogie; and the plate spring hardly falls.

**Solution to Problem**

[0006] A railcar bogie according to one aspect of the present invention includes: a cross beam extending in a car width direction and supporting a carbody; plate springs extending in a car longitudinal direction and supporting both respective car-width-direction end portions of the cross beam; axle boxes accommodating respective bearings for axles and supporting respective car longitudinal-direction end portions of the plate springs; plate spring receivers each located between the plate spring and the axle box and including an upper surface which is inclined toward a longitudinal-direction middle portion of the plate spring, the upper surface receiving the plate spring; and stoppers each arranged in a vicinity of the car longitudinal-direction end portion of the plate spring so as to cover at least a part of an upper surface of the plate spring and prevent the plate spring from falling off even when the plate spring floats up, the car longitudinal-direction end portion being located above the axle box.

[0007] According to embodiments of the above railcar bogie, the plate springs can be attached only by placing the members on the upper surfaces of the axle boxes in order, and the plate springs can be prevented from falling by the stoppers.

**Advantageous Effects of Invention**

[0008] ~~According to the above configuration,~~Embodiments of the present invention can provide the railcar bogie configured such that: the plate spring is easily attached to the railcar bogie; and the plate spring hardly falls.

**Brief Description of Drawings**

[0009] Fig. 1 is a side view of a bogie according to a first embodiment.

Fig. 2 is a plan view of the bogie shown in Fig. 1.

Fig. 3 is an enlarged side view of an upper portion of an axle box of the bogie shown in Fig. 1.

Fig. 4 is a plan view of the portion shown in Fig. 3.

Fig. 5 is an exploded view of the portion shown in Fig. 3.

Fig. 6 is an enlarged side view of the upper portion of the axle box of the bogie according to a second embodiment.

Fig. 7 is a plan view of the portion shown in Fig. 6.

**Description of Embodiments**

[0010] Hereinafter, embodiments will be explained in reference to the drawings. In the

**CLAIMS**

1. A railcar bogie comprising:

a cross beam extending in a car width direction and supporting a carbody;

plate springs extending in a car longitudinal direction and supporting both respective car-width-direction end portions of the cross beam;

axle boxes accommodating respective bearings for axles and supporting respective car longitudinal-direction end portions of the plate springs;

plate spring receivers each located between the plate spring and the axle box and including an upper surface which is inclined toward a longitudinal-direction middle portion of the plate spring, the upper surface receiving the plate spring; and

stoppers each arranged in a vicinity of the car longitudinal-direction end portion of the plate spring so as to cover at least a part of an upper surface of the plate spring and prevent the plate spring from falling off even when the plate spring floats up, the car longitudinal-direction end portion being located above the axle box.

2. The railcar bogie according to claim 1, wherein:

the stoppers are fixed to the respective plate spring receivers; and

upward movements of the plate spring receivers relative to the axle boxes are restricted.

3. The railcar bogie according to claim 2, wherein:

the axle boxes include respective locking members;

the plate spring receivers include respective locked members, the locked members being locked with the respective locking members; and

the upward movements of the plate spring receivers relative to the axle boxes are restricted.

4. The railcar bogie according to claim 3, wherein:

each of the locked members extends from a car-longitudinal-direction outer side of the plate spring receiver to the axle box and has a locking hole; and

each of the locking members extends toward the car-longitudinal-direction outer side and penetrates the locking hole.

5. The railcar bogie according to claim 1, further comprising stopper holding members located at both car-width-direction sides of the plate springs and fixed to the axle boxes, wherein:

the stoppers extend in the car width direction; and

both ends of the stoppers are held by the stopper holding members.

6. A railcar comprising the railcar bogie according to any one of claims 1 to 5.