CLAIMS

[Claim 1]

A rail vehicle comprising:

a bolster provided in an underframe forming a floor portion; and

a bogie provided below the bolster, wherein

the bolster includes:

side beam abutting portions that are provided along a longitudinal direction of the rail vehicle, that are provided at both end portions of the underframe in a width direction, and that abut against side beams;

a center beam abutting portion that is provided along the longitudinal direction of the rail vehicle, that is provided at a center portion of the underframe in the width direction, and that abuts against a center beam; and

air spring abutting portions that are provided between the respective side beam abutting portions and the center beam abutting portion, and against which air springs provided in the bogie abut, and

the air spring abutting portion includes a plurality of ribs formed radially from a substantially center portion of the air spring abutting portion, wherein

the air spring abutting portion includes:

a longitudinal edge rib adjacent to the center beam abutting portion;

a pair of width direction edge ribs provided along the width direction at both end portions of the air spring abutting portion in the longitudinal direction;

an air spring center portion provided at the substantially center portion of the air spring abutting portion;

a width direction linear rib and a width direction curved rib that connect the air spring center portion and the longitudinal edge rib; and

a longitudinal linear rib and a longitudinal curved rib that connect the air spring center portion and the width direction edge rib.

[Claim 2]

The rail vehicle according to claim 1, wherein

the width direction linear rib is provided along the width direction at a center portion of the air spring abutting portion in the longitudinal direction,

the longitudinal linear rib is provided along the longitudinal direction at a center portion of the air spring abutting portion in the width direction,

the width direction curved rib is connected to the longitudinal edge rib in a manner of gradually extending along the width direction as a distance from the air spring center portion increases, and

the longitudinal curved rib is connected to the width direction edge rib in a manner of gradually extending along the longitudinal direction as a distance from the air spring center portion increases.

[Claim 3]

The rail vehicle according to claim 2, wherein

the width direction curved rib is connected to the longitudinal edge rib in a manner that a width direction dimension of the width direction curved rib gradually increases as the distance from the air spring center portion increases, and

the longitudinal curved rib is connected to the width

direction edge rib in a manner that a width direction dimension of the longitudinal curved rib gradually increases as the distance from the air spring center portion increases.

[Claim 4]

The rail vehicle according to claim 3, wherein

a height direction dimension of the width direction linear rib is largest in a vicinity of the air spring center portion, and the height direction dimension of the width direction linear rib decreases as the width direction linear rib approaches the longitudinal edge rib.

[Claim 5]

The rail vehicle according to claim 4, wherein

a width direction dimension of the width direction linear rib is smallest in the vicinity of the air spring center portion, and the width direction dimension of the width direction linear rib increases as the width direction linear rib approaches the longitudinal edge rib.

[Claim 6]

The rail vehicle according to claim 1, wherein

a thickness of the air spring abutting portion on a side close to the longitudinal edge rib is thinner than a thickness of the air spring abutting portion on a side close to the air spring center portion.

[Claim 7]

A method for manufacturing the rail vehicle according to claim 1, comprising:

a step of forming the bolster,

by forming the side beam abutting portions, the

air spring abutting portion, and the center beam abutting portion at a surface of a block material by a cutting process,

by forming the air spring center portion at the air spring abutting portion by the cutting process,

by forming the ribs radially from the air spring center portion by the cutting process, and

by forming an air spring abutting surface at a back surface of the block material by the cutting process; and

a step of placing piping and wiring on the underframe, and then fixing the bolster to the underframe.