

Title (en)  
Railway car

Title (de)  
Schienenfahrzeug

Title (fr)  
Véhicule ferroviaire

Publication  
**EP 1295772 A1 20030326 (EN)**

Application  
**EP 02250822 A 20020207**

Priority  
JP 2001291255 A 20010925

Abstract (en)  
A front end portion 100 is disposed on the front end of a car body. The floor thereof consists of hollow shape members 200 that construct a shock absorber 200. The shock absorber 200 includes an upper shock absorber 200 and a lower shock absorber 200. Annealed hollow shape members are used to form the hollow shape member 210. The hollow shape members 210 have their longitudinal directions disposed along the longitudinal directions of the car body. Plural hollow shape members 210 are arranged next to one another in the width direction, and bonded together by friction stir welding. When the hollow shape members receive impact load, the members 210 deform into an accordion-like shape, absorbing the impact force. At this time, the friction stir welded portions also receive the impact force, but unlike other weld joints, cracks are not created at the friction-stir-weld joints, and the weld joints do not prevent the hollow shape members 210 from deforming into an accordion-like shape. <IMAGE>

IPC 1-7  
**B61D 15/06**; **B61F 1/10**

IPC 8 full level  
**B61D 17/00** (2006.01); **B61D 15/06** (2006.01); **B61D 17/10** (2006.01); **B61F 1/10** (2006.01); **B61F 19/04** (2006.01)

CPC (source: EP KR US)  
**B61D 15/06** (2013.01 - EP US); **B61D 17/00** (2013.01 - KR); **B61F 1/10** (2013.01 - EP US)

Citation (applicant)  
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**EP 02250822 A 20020207**; AU 1554702 A 20020208; CN 02103236 A 20020130; JP 2001291255 A 20010925; KR 20020005796 A 20020201; US 6791302 A 20020208