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(54) **RAILWAY WAGON UNDERFRAME, IN PARTICULAR TANK WAGON**

BAHNWAGENUNTERGESTELL, INSBESONDERE KESSELWAGEN

CHÂSSIS DE WAGON FERROVIAIRE, EN PARTICULIER DE WAGON DE RÉSERVOIR

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Description

[0001] The object of the invention is a railway wagon underframe, in particular tank wagon.

[0002] The underframe for freight wagons, in particular tank wagons known from the Polish utility model No. PL60303Y1 is characterized in that the outermost parts of the underframe, composed of the buffer beam and the coupling bar such that the lower planes of the coupling bar and the longitudinal members form one plane, are connected by means of anchor plates to both ends of the central part composed of longitudinal members connected by means of a torsion bar at the king-pin support. The ends of buffer beams are connected to appropriate ends of torsion bars by means of side sills formed from K-bar whose vertical longitudinal frame has a welded horizontal flat rod, with fifth wheel coupling side sheet metals mounted thereon, joined with saddle webs set on torsion bars and paired by washers.

[0003] The document EP 0 526 894 A1 discloses a railway wagon underframe, the railway wagon underframe comprising two end parts of the underframe interconnected with a central part, the central part having two bearing beams parallel to each other.

[0004] An underframe of a freight wagon with spindles for attaching containers is known from Polish Patent Publication No. PL201607B1. Side sills of the underframe are composed of beams, which contain horizontal belts and horizontal lower belts connected by vertical webs, the vertically oriented spindles being connected to the upper belts and are next to them on the jibs. The side sill webs are located asymmetrically with respect to the vertical axis of symmetry of its cross-section such that they are offset in the direction of the spindles, the vertical axis of each spindle passing through the shear centre of the cross-section of the side sill.

[0005] A frame of a wagon, in particular a tank wagon, known from a Polish Patent Publication No. PL186 041B1 has two independent sets of bolsters, each consisting of two transverse webs joined in the central part of the beam with two vertical walls arranged in parallel and symmetrically with respect to the longitudinal axis of the frame. As the extension of these walls, two longitudinal front walls are attached to the front web, terminated by a thick vertical front plate. In analogy to the above, two rear longitudinal vertical walls are attached to the rear web, to the ends of which a transverse vertical rear appropriately thick plate is attached. The central part of the bolster is topped with a sheet metal bent at the centre longitudinally with a radius corresponding to the outside diameter of the tank. From the bottom the central part of the bolster is covered with a plate, to which a known king-pin mounting flange is attached. Upper horizontal sheet metals and bottom sheet metals covering the ends of the bolster have variable shapes with longitudinal dimensions increasing in the direction of the middle plate and bottom plate and towards the outer beams. The above upper and lower sheet metals on each side of the bolster are connected

by a vertical bracket arranged obliquely to the longitudinal axis of the frame. One vertical edge of the bracket is connected to the rear web and the other one to the outer beam. From the front, arched vertical ribs are mounted to the lower sheet metal to eliminate the stress concentration in the horizontal sheet metals from the drawbar coupling box. Vertical ribs connected with the webs by means of the ends are mounted at the lower sheet metals in places where the side bearings are fastened. Independent assembly of the drawbar coupling box, whose other end is connected to the buffer beam assembly, is fastened to the front transverse plate of a bolster. The end of the independent top beam assembly is fastened to the rear plate of the bolster. This beam, apart of known C-section cross-bars, has horizontal sheet metal cross-bars with extended ends, which are used to connect them to the webs.

[0006] The invention consists in providing a railway wagon underframe according to claim 1.

[0007] Preferably, the inner web incorporated in the bolster from the side of the central part of the underframe has a height equal to the height of the central part of the underframe and which is smaller than the height of the outer web enclosed in the bolster from the coupling bar side and having a height equal to the height of the coupling bar.

[0008] Railway wagon underframe, in particular tank wagon allows the fifth wheel couplings of the tank mounted on the lowered part of the body bolster to be mounted on the wagon of the tank with a bigger diameter, and thus to increase the tank capacity without increasing the length of the wagon, in particular for long railway wagons railway regulations make it impossible to increase the length of the wagon. Moreover, it allows lowering the height of the bearing beams of the central part and thus lowering the mass of the whole underframe, as a result of which the capacity of the wagon increases.

[0009] The object of the invention in the embodiment is shown in the drawing, which in Fig. 1 presents an underframe in a top view, with a partial cross-section, Fig. 2 - A-A cross-section through the body bolster.

[0010] A railway wagon underframe, in particular on a tank wagon has two end parts of the underframe 1 interconnected with the central part 2. Central part of the underframe 2 consists of two bearing beams 3 parallel to each other connected with cross-bars 4. On each end part of the underframe 1 there is a coupling bar 5 in form of two parallel "L" profiles 8 covered with an upper flange of 9 coupling bar 5 formed from a sheet metal. Buffer beam 6 shaped like a welded C-section is fastened on one end of the coupling bar 5 and the bolster 7 is fastened on the other end of the coupling bar 5. The body bolster 7 with a box construction has two webs, inner 10 and outer 11 one of different heights, that are joined in the central part of the bar by walls 12 arranged symmetrically with respect to the longitudinal axis of the underframe, from the bottom it is closed with a body bolster lower flange 13 formed from a sheet metal and from the top

with a body bolster upper flange 15 also formed from a sheet metal. The inner web 10 arranged in the body bolster 7 from the central part of the underframe 2 has a smaller height equal to the height of the central part of the underframe 2, and the outer web 11 arranged in the body bolster from the side of the coupling bar 5 has a higher height equal to the height of the coupling bar 5. A body bolster upper flange 15 is supported by the upper edges of the inner 10 and outer webs, and cross-section shape of the body bolster is similar to the stretched letter "Z". King-pin mounting flange 14 is attached to the body bolster lower flange 13. From the top the coupling chamber is closed with the upper sheet metal 15 shaped so that it compensates for differences in heights of webs 10 and 11. Moreover, lateral ends of the body bolsters 7 are connected to the ends of the buffer beam 6 by means of external beams 16.

List of designations:

[0011]

1. the outermost part of the underframe,
2. the central part of the underframe,
3. bearing beam,
4. crossbar,
5. coupling bar,
6. buffer beam,
7. bolster,
8. angle,
9. coupling bar upper flange,
10. inner web,
11. outer web,
12. wall,
13. bolster lower flange,
14. flange,
15. bolster upper flange,
16. external beam.

Claims

1. A railway wagon underframe, in particular tank wagon, the railway wagon underframe comprising two end parts (1) of the underframe interconnected with a central part (2), the central part (2) having two bearing beams (3) parallel to each other and connected with cross bars (4), while on each end part (1) of the underframe there is a coupling bar (5) in form of two parallel angles profiles (8) covered with an upper flange (15) of the coupling bar (5), a buffer beam (6) shaped like a C-section being fastened on one end of the coupling bar (5), and a bolster (7) with a box construction formed of two parallel webs being fastened on the other end of the coupling bar (5), wherein the bolster (7) has two webs, inner web (10) and outer web (11) of different heights, that are joined in the central part (2) of the bar by walls (12) symmet-

rical with respect to the longitudinal axis of the underframe, wherein the bolster (7) is closed from the top with a body bolster lower flange (13) and body bolster upper flange (15), made of sheet metals, while the body bolster upper flange (15) is supported by the upper edges of the inner web (10) and the outer web (11), and the cross-section shape of the bolster (7) is similar to a stretched letter "Z".

2. An underframe according to claim 1 **characterized in that**, the inner web (10) incorporated in the bolster (7) from the side of the central part (2) of the underframe has a height equal to the height of the central part (2) of the underframe, and wherein the inner web (10) height is smaller than the height of the outer web (11) enclosed in the bolster (7) from the coupling bar (5) side and having a height equal to the height of the coupling bar (5).

Patentansprüche

1. Untergestell für Eisenbahnwaggons, insbesondere Kesselwaggons, wobei das Untergestell für Eisenbahnwaggons aus zwei mit dem Mittelteil (2) verbundenen Endteilen (1) des Untergestells besteht, die zwei zueinander parallele und mit Querstangen (4) verbundene Tragbalken (3) aufweisen, während an jedem Endteil (1) des Untergestells eine Koppelstange (5) in Form von zwei parallelen Winkelprofilen vorhanden ist, die mit einem oberen Flansch (15) der Koppelstange (5) abgedeckt sind, wobei an einem Ende der Koppelstange (5) ein Pufferbalken (6) in Form eines C-Profils befestigt ist und am anderen Ende der Koppelstange (5) ein aus zwei parallelen Stegen gebildeter Träger (7) mit einer Kastenkonstruktion befestigt ist, **wobei** der Träger (7) zwei Stege, Innensteg (10) und Außensteg (11) unterschiedlicher Höhe, aufweist, die im Mittelteil (2) der Stange durch zur Längsachse des Untergestells symmetrische Wände (12) verbunden sind, wobei der Träger (7) von oben mit einem Trägerunterflansch (13) und Trägeroberflansch (15) aus Blechen geschlossen ist, wobei sich der Trägeroberflansch (15) an den Oberkanten von Innensteg (10) und Außensteg (11) abstützt, und die Querschnittsform des Trägers (7) einem gestreckten Buchstaben "Z" ähnelt.
2. Untergestell nach Anspruch 1, **dadurch gekennzeichnet, dass** der Innensteg (10) von der Seite des Mittelteils (2) des Untergestells (2) her in den Träger (7) eingebaut ist und wobei die Höhe des Innenstegs (10) kleiner ist als die Höhe des Außenstegs (11), der von der Seite der Kupplungsstange (5) her in den Träger (7) eingebaut ist und eine Höhe hat, die gleich der Höhe der Kupplungsstange (5) ist.

Revendications

1. Un châssis de wagon de chemin de fer, en particulier wagon-citerne, le châssis de wagon de chemin de fer comprenant deux parties d'extrémité (1) du châssis reliées entre elles à la partie centrale (2), comportant deux poutres porteuses (3) parallèles l'une à l'autre et reliées avec des barres transversales (4), tandis que sur chaque partie d'extrémité (1) du châssis se trouve une barre d'attelage (5) en forme de deux profils d'angles parallèles recouverts d'une aile supérieure (15) de la barre d'attelage (5), poutre de tamponnement (6) en forme de profilé en C étant fixée sur une extrémité de la barre d'attelage (5) et une traverse (7) avec une construction en caisson formée de deux bandes parallèles étant fixée sur l'autre extrémité de la barre d'attelage (5), dans lequel la traverse (7) présente deux bandes, une bande intérieure (10) et une bande extérieure (11) de hauteurs différentes, qui sont réunies dans la partie centrale (2) de la barre par des parois (12) symétriques par rapport à l'axe longitudinal du châssis, dans lequel la traverse (7) est fermée par le haut avec une bride inférieure de traverse de carrosserie (13) et une bride supérieure de traverse de carrosserie (15), constituées de tôles, tandis que la bride supérieure de traverse de carrosserie (15) est supportée par les bords supérieurs de la bande intérieure (10) et de la bande extérieure (11) et la forme de la section transversale de la traverse (7) est similaire à une lettre étirée « Z ».

2. Un châssis selon la revendication 1, **caractérisé en ce que** la bande intérieure (10) incorporée dans la traverse (7) du côté de la partie centrale (2) du châssis (2) et dans lequel la hauteur de la bande intérieure (10) est inférieure à la hauteur de la bande extérieure (11) enfermée dans la traverse (7) du côté de la barre d'attelage (5) et ayant une hauteur égale à la hauteur de la barre d'attelage (5).

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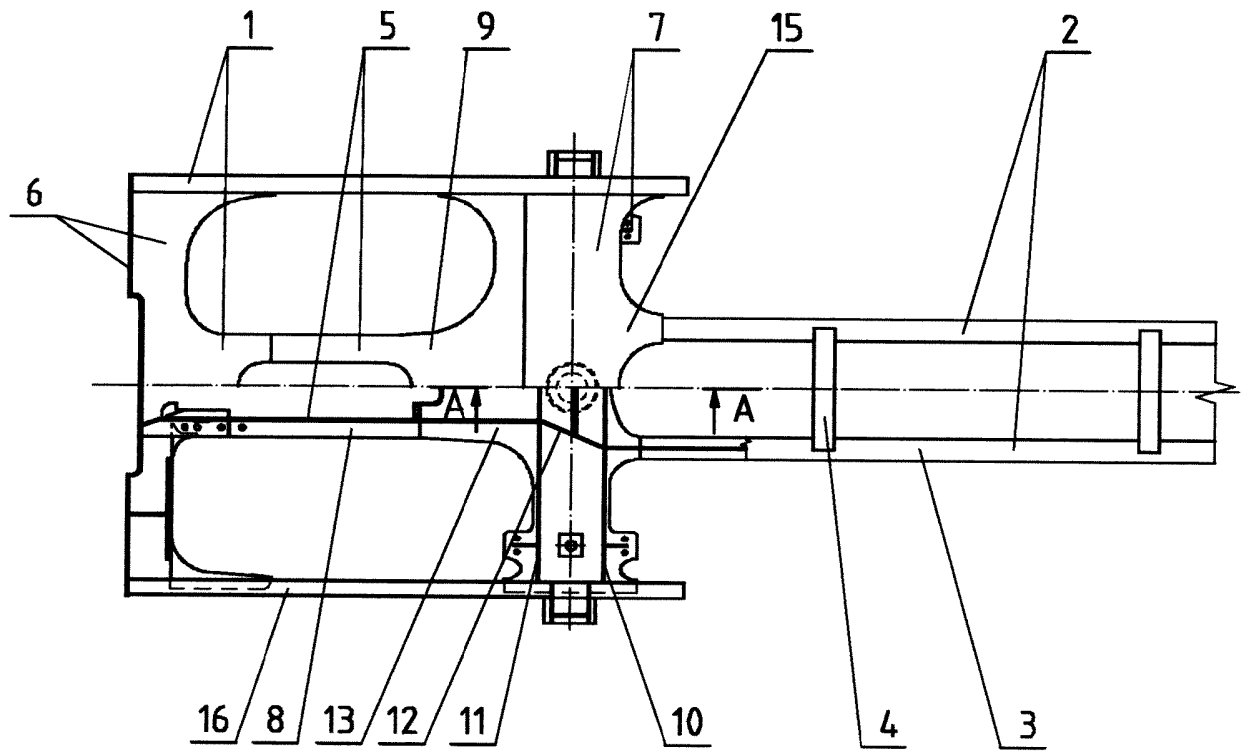


Fig. 1

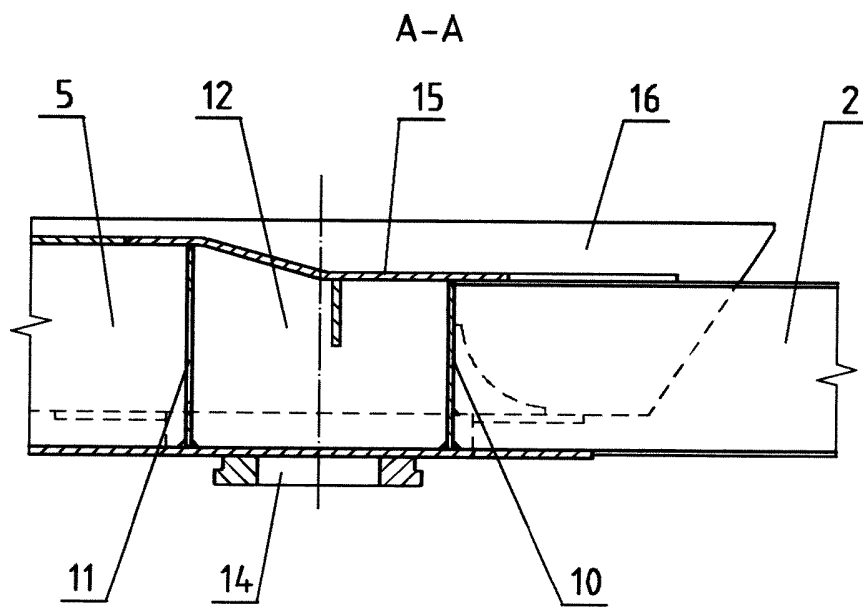


Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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- EP 0526894 A1 **[0003]**
- PL 201607 B1 **[0004]**
- PL 186041 B1 **[0005]**