Jan. 28, 1941. S. JACKSON 2,229,925

ARTICULATED LOCOMOTIVE AND LIKE VEHICLES

Filed Sept. 11, 1939

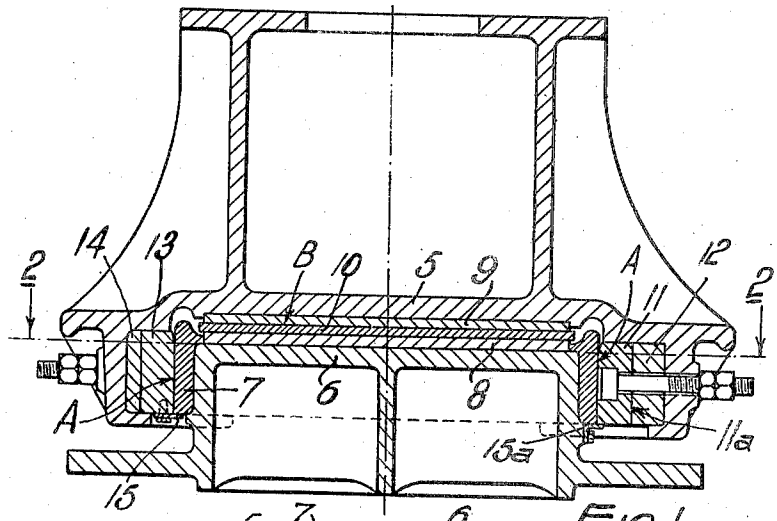


FIG. 1.

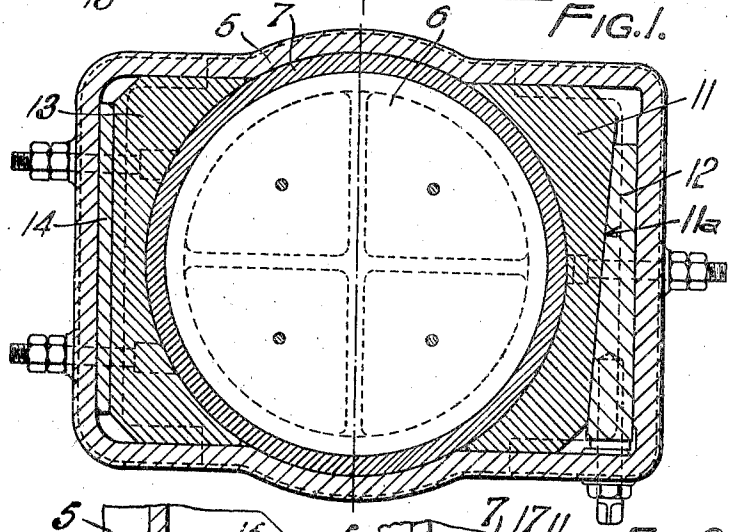


FIG. 2.

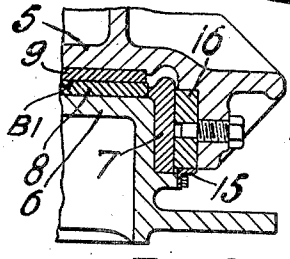


FIG. 3.

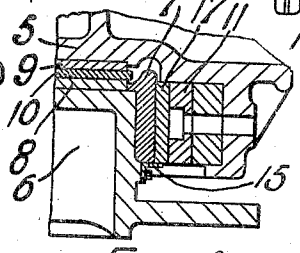


FIG. 4.

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Patented Jan. 28, 1941 2,229,925

UNITED STATES PATENT OFFICE

2,229,925

ARTICULATED LOCOMOTIVE AND LIKE VEHICLES

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Application September 11, 1939, Serial No. 294,396
In Great Britain December 1, 1938

7 Claims. (Cl. 308—137)

This invention relates to articulated locomotives and like vehicles, that is to say vehicles in which articulated or pivoted joints are used, and is concerned with the pivotal centre pieces or "pivot centres" of such vehicles.

Hitherto the pivot centres of such vehicles have been constructed and employed in such manner that the female pivot centre is on the underside whilst the male pivot centre is located thereabove and this construction necessarily leaves the upper edges of the vertical working surfaces between the centres open to easy ingress of coal dust, grit and similar harmful substances which cause rapid wear of the working surfaces of the male and female pivot centres.

With a view to curing this fault it has been proposed to provide adjustable or renewable wearing blocks for taking up the wear on the vertical working surfaces of the pivot centres. Also in an endeavour to prevent the fault arising, various devices, such as covers over the open top of the pivot, have been tried but have not been successful in actual service.

The present invention aims at obviating this undue wear of the working surfaces of the pivot centres by providing efficient and adequate protection against the ingress of dust, dirt or other foreign matter which tends to cause this wear of the surfaces.

With this end in view the relative positions of the male and female pivot centres are reversed so that the open edges of the vertical working surfaces are on the underside while the horizontal working surfaces are located above the vertical working surfaces. Consequently there is no tendency for dust, grit or other harmful substances to enter the narrow spaces between the vertical working surfaces, nor can such substances obtain access to the horizontal working surfaces due to their location above the vertical surfaces.

The invention therefore comprises pivot centres for articulated locomotives and like vehicles wherein the male pivot centre is placed on the underside and the female pivot centre on the upper side of the assembly for the purpose described and wherein adjustable wearing blocks are provided for the vertical working surfaces of the female pivot centre.

The invention also comprises pivot centres for articulated locomotives and like vehicles wherein the male pivot centre is placed on the underside and the female pivot centre on the upper side of the assembly, the male pivot centre being provided with a peripheral rim projecting above the horizontal working surfaces to form a recess or well to receive and retain lubricant on the horizontal working surfaces.

Although undue and rapid wear of the working surfaces of the pivot centre due to the causes mentioned is avoided with the aforesaid inverted arrangement of the parts, unavoidable slight wear will, of course, still occur due to the normal operation of the pivot centre. This wear may be taken up by the aforesaid adjustable wearing blocks as previously proposed or renewable wearing members may be provided for the vertical working surface of the female centre and a renewable wearing ring may be attached to the periphery of the male centre. The adjustable wearing blocks may be one or more in number and placed at any part or parts of the circumference of the pivot. A loose solid or split ring of any suitable material may be placed between the vertical wearing surfaces of the male and female pivot centres and the said surfaces may be of any desired depth and may be parallel or inclined or curved or any other desired shape or form.

The horizontal working surfaces of both or either of the male and female centres may be fitted with renewable wearing pieces such as steel plate or other suitable substance such as asbestos or other hard wearing material. These renewable wearing pieces are preferably attached to the male or female centres but may be loose and a loose renewable wearing piece of any suitable material may be placed between the horizontal wearing surfaces of the male and female pivot centres. The horizontal wearing surfaces may be flat or cambered or any other desired shape or form. Furthermore an assembly may be formed in which the horizontal and vertical wearing surfaces are made of manganese steel or other wear-resisting material and in such a case the female pivot centre is preferably fitted with a fixed renewable ring of this material.

Embodiments of the invention will now be more particularly described, by way of example, with reference to the accompanying drawing, in which:

Figure 1 is a vertical section through a pivot centre incorporating the salient features of the invention,

Figure 2 is a sectional plan on the lines 2—2 of Figure 1, and

Figures 3 and 4 are fragmentary views in vertical section illustrating modified forms of wearing pieces for the working surfaces of the male and female pivot centres.

Referring to Figures 1 and 2, the female pivot centre 5 is arranged above the male pivot centre 6. The latter has a renewable wearing

ring 7 fixed to its periphery and a renewable wearing piece 8 attached to its upper horizontal surface. The female pivot centre 5 has a similar renewable wearing piece 9 attached to its lower horizontal surface and a loose wearing piece 10 is arranged between the renewable wearing pieces 8 and 9 as shown. The wearing pieces 8, 9 and 10 may be of steel plate or other suitable material, such as asbestos or other hard wearing substance, and in some instances may be loose instead of fixed to the male and female pivot centres. Renewable wearing blocks are fitted to the vertical surface of the female pivot centre and one form of such renewable wearing block is indicated at 11 on the right hand of the centre line in Figures 1 and 2. Means for adjustment of the renewable wearing block 11 are provided in the form of a wedge 12 movable along the tapered surface 11*a* of the block. On the left hand of the centre line in Figures 1 and 2 is shown an alternative form of renewable wearing block 13 with means for adjustment by plates or shims 14, but other methods of adjustment may be employed if desired.

The vertical working and wearing surfaces of the assembly described are therefore the adjacent surfaces of the renewable wearing ring 7 and of the renewable wearing blocks 11 or 13 respectively, and are indicated generally at A. Likewise the horizontal working and wearing surfaces are the adjacent surfaces of the loose wearing piece 10 and fixed wearing pieces 8 and 9 and are indicated generally at B. The renewable wearing ring 7 projects above the horizontal wearing surfaces B, as a peripheral rim for the male pivot centre, to form an annular recess or well to receive and retain lubricant, thereby ensuring efficient lubrication of the horizontal working surfaces. An annulus of plate or angle material, 15 or 15*a* respectively, is attached to the underside of the female or male pivot centres to provide additional protection for the vertical working surfaces A of the centres and to retain lubricant.

Referring to Figure 3, this shows a generally similar arrangement except that the loose wearing piece 10 is omitted so that the horizontal working surface is formed between the fixed wearing pieces 8 and 9, as indicated at B^1. Also the adjustable and renewable wearing blocks 11 or 13 are replaced by a renewable ring 16 fixed to the female pivot centre 5. The rings 7 and 16 and horizontal wearing pieces 8 and 9 are preferably formed of manganese steel or other wear-resisting material.

Referring to Figure 4, this shows an assembly in which a loose solid or split ring 17 is placed between the fixed ring 7 and wearing blocks 11, the arrangement being otherwise similar to that shown in Figure 1.

It will be seen that with all the constructions described, due to the arrangement of the female pivot centre above the male pivot centre, ingress of dust, grit or other substances to the vertical wearing surfaces A and to the horizontal wearing surfaces B located thereabove, is definitely avoided.

What I claim and desire to secure by Letters Patent is:

1. In a center bearing for articulated railway vehicles, a lower male bearing member and an upper female bearing member, said lower male bearing member comprising an upstanding portion having a horizontal bearing surface at the upper end thereof and a vertical cylindrical bearing surface peripherally thereof and having at the upper end thereof a lubricant retaining peripheral rim surrounding and projecting above said horizontal bearing surface, said upper female bearing member comprising a center plate having a horizontal bearing surface facing the horizontal bearing surface at the upper end of said male bearing member and having a depending annular bearing wall surrounding the horizontal bearing surface thereof and providing a vertical bearing surface facing the vertical cylindrical bearing surface of said male bearing member.

2. In a center bearing for articulated railway vehicles, a lower male bearing member and an upper female bearing member, said lower male bearing member comprising an upstanding cylindrical portion having a horizontal bearing surface at the upper end thereof, a renewable annular bearing ring mounted on said upstanding cylindrical portion having an upstanding rim projecting above said horizontal bearing surface to retain lubricant thereon, said upper female bearing member comprising a center plate having a horizontal bearing surface facing the horizontal bearing surface at the upper end of said upstanding cylindrical portion of said lower male bearing member and having a depending annular bearing wall surrounding the horizontal bearing surface thereof and providing a vertical bearing surface facing the annular bearing ring on said upstanding cylindrical portion of said lower male bearing member.

3. A center bearing according to claim 1 in which renewable flat wearing plates carried by the upstanding cylindrical portion of said male bearing member and by the center plate of said female bearing member constitute the horizontal bearing surfaces of the respective members.

4. A center bearing according to claim 2 in which the depending annular bearing wall of said female bearing member comprises a fixed renewable ring of wear resisting metal and in which said annular bearing ring mounted on said upstanding cylindrical portion of said male bearing member is also formed of wear resisting metal.

5. A center bearing according to claim 1 in which renewable flat wearing plates carried by the upstanding cylindrical portion of said male bearing member and by the center plate of said female bearing member constitute the horizontal bearing surfaces of the respective members and in which a loose flat wearing piece is disposed between the respective renewable wearing plates.

6. A center bearing according to claim 1 in which a loose bearing ring is disposed between the vertical cylindrical bearing surfaces of said male and female bearing members.

7. In a center bearing according to claim 1, a sealing plate carried by one of said bearing members for protecting the lower edges of the vertical bearing surfaces aforesaid.

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