July 22, 1930. T. A. LADAS 1,771,090

SILL AND BODY BOLSTER FOR RAILWAY VEHICLES

Filed Aug. 21, 1929 2 Sheets-Sheet 1

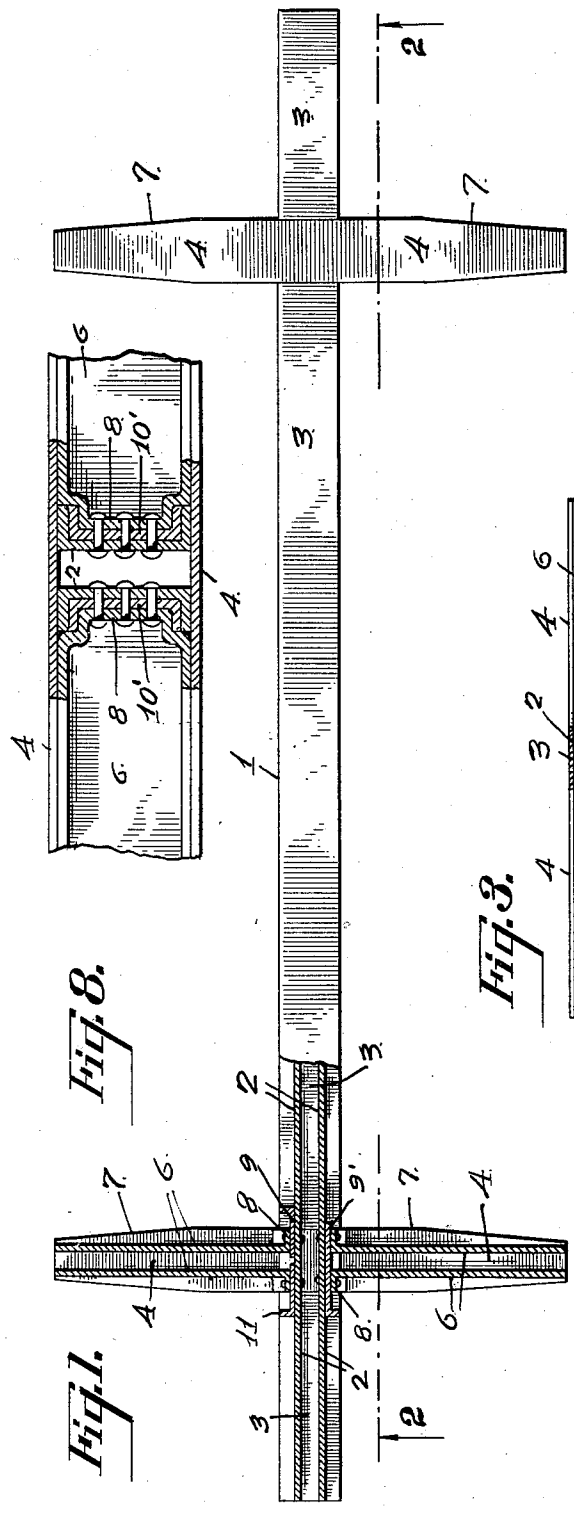


Fig. 1.

Fig. 3.

Fig. 2.

INVENTOR
THEODORE A. LADAS.
BY Curtiss L. Slee.
HIS ATTORNEY.

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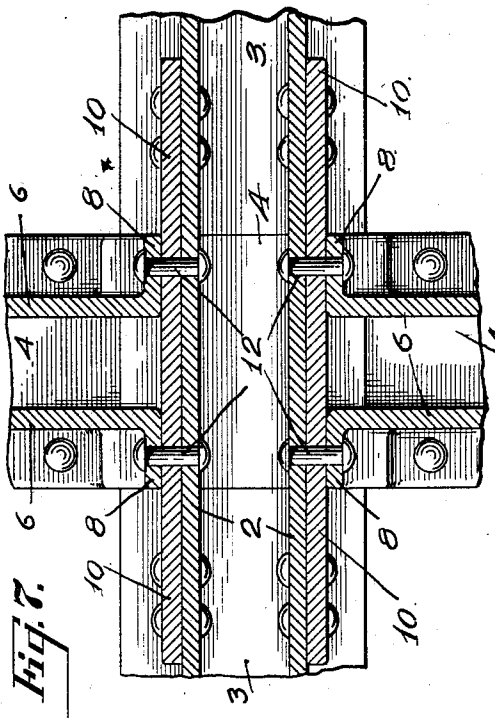


Fig. 7.

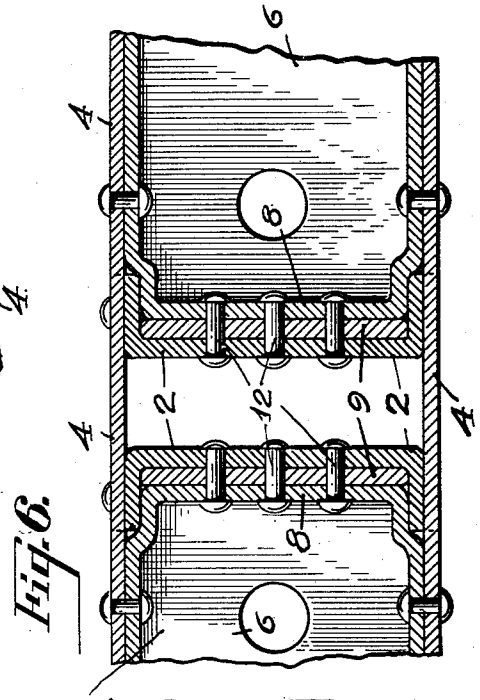


Fig. 6.

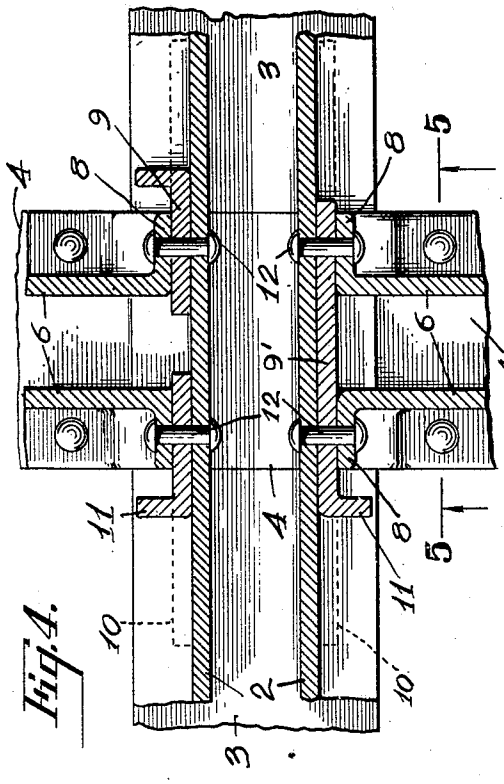


Fig. 4.

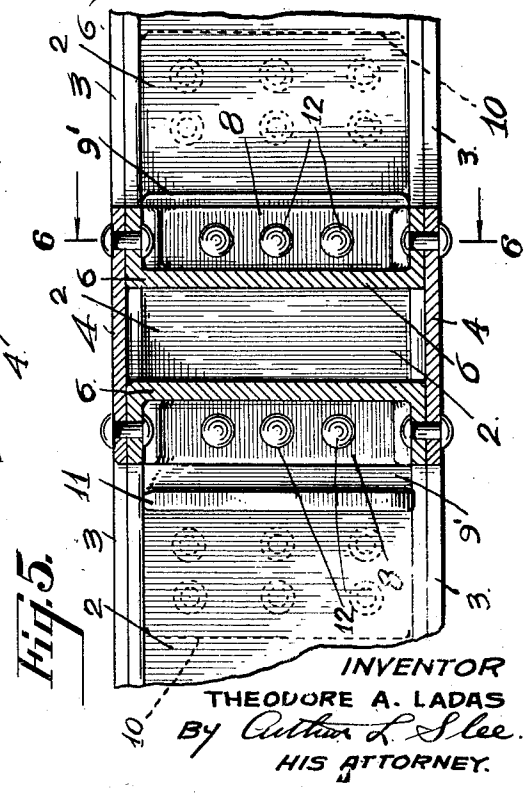


Fig. 5.

INVENTOR
THEODORE A. LADAS
By Arthur L. Slee.
HIS ATTORNEY.

Patented July 22, 1930

1,771,090

UNITED STATES PATENT OFFICE

THEODORE A. LADAS, OF SAN FRANCISCO, CALIFORNIA

SILL AND BODY BOLSTER FOR RAILWAY VEHICLES

Application filed August 21, 1929. Serial No. 387,405.

My invention relates to improvements in sills and body-bolsters for railway vehicles, such as freight cars and the like, wherein laterally extending body-bolsters operate in conjunction with top and bottom sill plates to hold the inner ends of said body-bolsters in spaced relation to the sill to provide a recess for the introduction of stiffener plates onto the sill adjacent said bolster to further stiffen and strengthen said sill after the same has become weakened from a period of use.

In the present practice of the manufacture of steel freight-cars and the like, it is the custom to provide a centrally and longitudinally disposed center-sill composed of a pair of parallel vertically disposed and outwardly facing channels connected throughout by top and bottom plates. Adjacent the ends of the sill, and over the truck centers, laterally and oppositely extending body-bolsters are provided, which bolsters are likewise composed of parallel outwardly faced channels connected by top and bottom plates which extend the length of said bolsters.

The bolster channels, unlike the sill channels, are generally formed from sheet metal so as to provide, in addition to the top and bottom flanges of said channels, likewise end flanges on the inner ends of the bolsters which end flanges are formed to fit and are riveted to the sill channels.

After a period, usually an average of about ten years, the sill channels become weakened and, in order to stiffen and strengthen the same, it is necessary to cut the rivets connecting the bolster channels to the sill channels and to the bolster top and bottom plates and entirely remove the bolsters from the sill. After suitable stiffener plates have been applied to the sides of the sill adjacent to, and extending beyond, both sides of the bolsters, the inner ends of the said bolster channels must be shortened and re-formed to fit over, and sometimes, into the new stiffeners, thus requiring considerable labor and time to effect the repair during which time the car is out of commission.

The object of the present invention is to so connect the inner ends of the body-bolsters to the sill when the car is built, that the sill stiffeners may be readily applied without removing the bolster channels or top and bottom plates, thereby effecting a saving of time and labor and reducing the cost of repairing and also to return the car into commission within a shorter space of time.

It is also an object of the present invention to lengthen the time or period of usage of the vehicle before strengthening or stiffening of the sill becomes necessary.

A further object is to eliminate the cost of carrying the weight of the stiffeners through the period of time and mileage from the time the new car or vehicle is placed in commission to the time ordinarily required for repairs.

A still further object is to provide a new and improved article of manufacture comprising a car center-sill and component body-bolsters having improved means for permitting the application of stiffeners to a sill adjacent and extending on both sides of said bolsters, without removing said bolsters.

I accomplish these and other objects by means of the improved device disclosed in the drawings forming a part of the present application wherein like characters of reference are used to designate similar parts throughout the specification and drawings, and in which—

Fig. 1 is a plan view, partly in section, of a center-sill and bolsters, removed from the car;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1 in the direction indicated;

Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 2 in the direction indicated;

Fig. 4 is an enlarged, broken, horizontal, sectional view taken at the junction of one set of body-bolsters with the center sill;

Fig. 5 is a vertical sectional view taken on line 5—5 of Fig. 4, in the direction indicated;

Fig. 6 is a vertical transverse sectional view of the sill and bolster taken on line 6—6 of Fig. 5 in the direction indicated;

Fig. 7 is a view similar to Fig. 4 but with the shims removed and disclosing the newly applied stiffeners in place thereof; and

Fig. 8 is a view, similar to Fig. 6, but on a smaller scale and disclosing a modified form of the stiffener plate.

Referring to the drawings, the numeral 1 is used to designate in general a center-sill comprising a pair of continuous vertically disposed outwardly facing channels 2 and top and bottom plates 3 connecting said channels to form a column. The top and bottom plates are also continuous throughout the length of the center-sill 1 excepting where the transverse top and bottom plates 4 cross the sill 1, which transverse top and bottom plates connect vertically disposed and outwardly facing lateral channels 6 to form body-bolsters 7, as disclosed in Fig. 1 of the drawings.

The inner ends of the channels 6 forming the bolsters are provided with suitable lateral flanges 8 formed thereon, which flanges 8, in the present state of the art, are formed to fit into and are riveted directly onto the side channels 2 of the center-sill 1, but in the present invention said flanges 8 are formed, as disclosed in Figs. 6 and 8 of the drawings, to fit over a shim 9 or stiffener plate 10, so that said inner ends of the body-bolsters are thus held in spaced relation to the channels 2 of the center-sill 1, when the car is newly constructed, said space or recess thus provided, being filled by either a pair of shims 9, one for each bolster channel 6, as disclosed in the upper portion of Fig. 4, or by a single shim 9′, as disclosed in the lower portion of said figure.

The shims 9 are preferably provided with lateral extensions 11 to facilitate removal of the same when said shims are to be replaced by stiffeners.

In operation, the channels 6 and top and bottom plates 4 of the laterally extending bolsters 7 are fitted onto the channels 2 of the sill 1 and over the shims 9 or 9′, as the case may be, and are permanently secured in place by suitable rivets 12, thereby securing the inner ends of the bolster channels 6 to the sill 1 but in spaced relation thereto.

After a period of usage the sill 1 becomes weakened at the juncture, in the great majority of cases, of the bolsters with the main sill, and in the present state of the art it is then necessary to cut the bolsters 7 entirely away from the sill 1 and shorten and reshape the inner ends and the flanges 8 thereon to fit over the stiffener 10 after the same has been riveted into place on the said sill 1.

In the present invention, however, it is only necessary to remove the rivets 12, and by means of the lateral extensions 11 and the shims 9 or 9′ are removed from between the inner ends of the bolsters 7 and the sill 1, and the stiffener plate 10 is then inserted in place of the shim which has been removed, and after the stiffener 10 has been securely riveted into proper position, the rivets 12, or new ones, are replaced and the ends or flanges 8 on the inner ends of the bolsters and said inner ends thereby riveted to the stiffener 10 and sill 1, thereby effecting a saving of time, labor, and expense.

The stiffener plate 10 may be a simple, flat, plate as disclosed in Figs. 2 and 7 of the drawings, or, as is sometimes the case, it may be a channel 10′ as disclosed in vertical sectional view in Fig. 8 of the drawings.

Having thus described by invention what I claim as new and desire to secure by Letters Patent is—

1. A new article of manufacture comprising the combination with a center sill of laterally extending body-bolsters connected to said sill and having their inner ends arranged in spaced relation to said sill to provide recesses for the introduction of stiffeners for said sill adjacent said bolsters to strengthen said sill after said sill has become weakened through a period of use; and shims mounted within said recesses to strengthen said sills adjacent said bolsters and also to retain said inner ends of said bolsters in spaced relation with the sill until such time as stiffeners may be required for said sill.

2. A new article of manufacture comprising the combination with a center sill of laterally extending body-bolsters connected to said sill and having their inner ends arranged in spaced relation to said sill to provide recesses for the introduction of stiffeners for said sill adjacent said bolsters to strengthen said sill after said sill has become weakened through a period of use; and shims mounted within said recesses to retain the inner ends of said bolsters in such spaced relation, said shims being provided with laterally extending ends to facilitate their removal.

3. A new article of manufacture comprising the combination with a sill composed of parallel channels connected by top and bottom plates, of bolster channels extending laterally from each side of said sill adjacent each end thereof; top and bottom bolster plates extending the entire length of said bolsters and extending across and beyond said sill, said plates holding the said bolster channels with their inner ends in spaced relation to the sill channels to provide recesses between said inner ends and said sill to facilitate the application of stiffener plates to be applied to said sill adjacent said bolsters.

4. A new article of manufacture comprising the combination with a sill composed of parallel channels connected by top and bottom plates, of bolster channels extending laterally from each side of said sill adjacent each end thereof; top and bottom bolster plates extending the entire length of said bolsters and extending across and beyond said sill, said plates holding the said bolster channels with their inner ends in spaced relation to the sill channels to provide recesses be-

tween said inner ends and said sill to facilitate the application of stiffener plates to be applied to said sill adjacent said bolsters; and shims mounted within said recesses to retain said inner ends in spaced relation with said sill until the application of stiffeners is required to strengthen said sill adjacent said bolsters.

5. A new article of manufacture comprising the combination with a sill composed of parallel channels connected by top and bottom plates, of bolster channels extending laterally from each side of said sill adjacent each end thereof; top and bottom bolster plates extending the entire length of said bolsters and extending across and beyond said sill, said plates holding the said bolster channels with their inner ends in spaced relation to the sill channels to provide recesses between said inner ends and said sill to facilitate the application of stiffener plates to be applied to said sill adjacent said bolsters; and shims mounted within said recesses to retain said inner ends in spaced relation with the sill, said shims being provided with lateral extensions to facilitate removal of the same to permit the application of stiffeners for the sill in place of said shims.

In witness whereof, I hereunto set my signature.

THEODORE A. LADAS.