

Sept. 23, 1941.

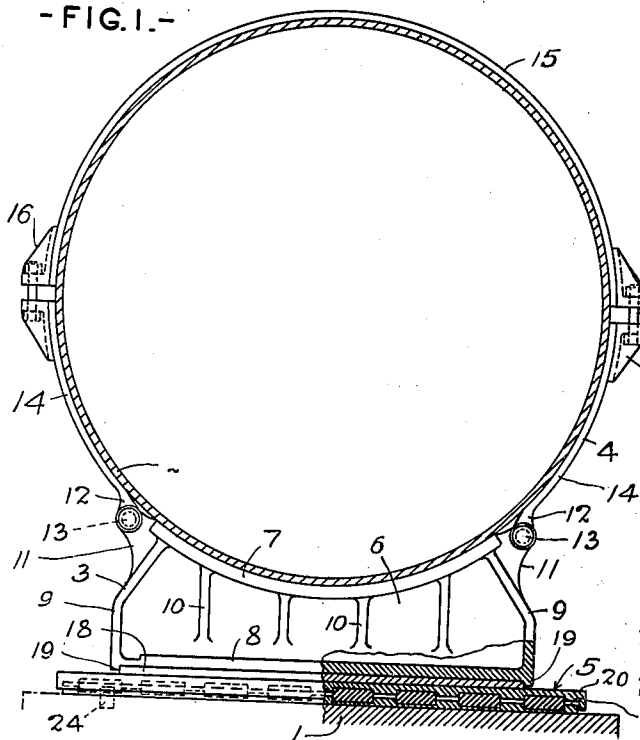
W. W. LEMEN ET AL

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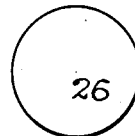
LOCOMOTIVE

Filed April 17, 1941

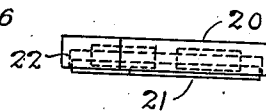
- FIG. 1.-



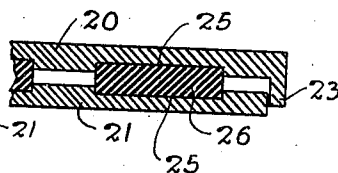
- FIG. 6.-



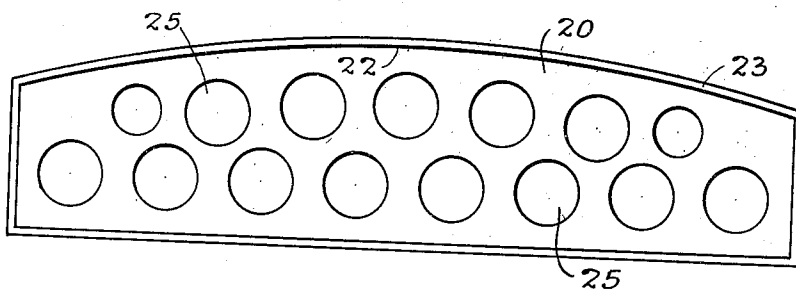
- FIG. 5.-



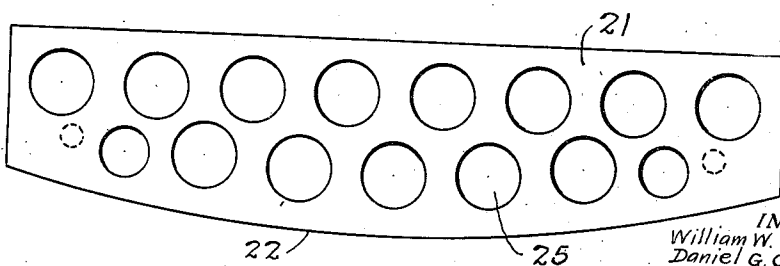
- FIG. 4.-



- FIG. 2.-



- FIG. 3.-



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2,256,984

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Application April 17, 1941, Serial No. 388,932

1 Claim. (Cl. 105—44)

This invention relates to locomotives and more particularly to boiler saddle spacer supports.

An object of the invention is to provide a spacer support which supports, upon a cross member of a locomotive frame, the saddle which supports a portion of the boiler, which spacer support cushions the shocks emanating from vertically applied forces passing between the cross member and saddle, these shocks being injurious to the boiler.

Other and further objects of this invention will appear from the following description, the accompanying drawing and the appended claim.

Referring to the drawing forming a part of this application, Figure 1 is a diagrammatic view showing a cross section of a boiler shell and associated parts embodying the spacer support of the present invention, the spacer support and associated members having parts broken away and shown in section; Fig. 2 is an enlarged bottom view of the top plate of the spacer support; Fig. 3 is an enlarged plan of the bottom plate of the spacer support; Fig. 4 is a view, in section, similar to Fig. 1, of a portion of the spacer support enlarged; Fig. 5 is an end view of the spacer support on the scale of Figs. 2 and 3; and Fig. 6 is an enlarged plan of one of the rubber blocks employed in the spacer support.

The invention, broadly considered, comprises the employment of resilient rubber material disposed between a locomotive boiler supporting saddle and a frame member that supports the saddle, the rubber material being of sufficient rigidity to support the saddle, the portion of the boiler and other parts supported by the saddle, and also of sufficient resiliency to cushion the vertically applied forces passing between the saddle and frame member when the locomotive is running. The forces are in the nature of shocks and often occur when the locomotive is running over high or low places in the track. These shocks have been found to be injurious to the boiler and associated parts subjected thereto.

The invention has greatest application in articulated locomotives of the Mallet type, and will be hereafter described in connection with such a locomotive where one or more saddles are employed for supporting the front portion of the boiler upon the frame of the forward power truck unit. Such a locomotive is usually constructed so that the boiler forward portion with its saddle or saddles may swing laterally relative to the forward power truck unit when passing curved tracks, and often lateral motion de-

vices are employed to yieldingly resist this movement.

For a fuller understanding of such a locomotive reference is here made to our Patent No. 1,512,473, dated October 21, 1924, there being there shown a strap or band secured to each saddle and embracing the boiler shell for holding the boiler securely upon the saddles. Where desired only one saddle may be employed.

The present invention is illustrated in connection with a boiler of the type disclosed in our aforesaid patent, although the band is of slightly modified construction. The locomotive of the aforesaid patent includes a spacer support disposed between the saddle and frame cross member, and the present invention comprises an improvement of the spacer support there shown.

In the drawing of the present application only sufficient of the locomotive is shown diagrammatically to enable a full understanding of the present invention.

The forward power truck unit is shown only by a frame cross member thereof shown fragmentally and indicated by the reference numeral 1. The boiler shell, at its forward portion, is indicated by the reference numeral 2. The locomotive further comprises a boiler saddle 3, a band 4 for holding the boiler firmly upon the saddle, and the spacer support of the present invention, indicated generally by the reference numeral 5, disposed between the cross member 1 and saddle 3. The saddle comprises a vertical web 6 extending transversely of the boiler, and at its forward side a top flange 7 engaging the shell of the boiler and having a top face of the curvature of the shell face with which it engages, a bottom flange 8, end flanges 9, and strengthening ribs 10. The saddle at the rear of the web 6 is preferably constructed similar to its construction at the front of the saddle.

The saddle is further provided at each end with a lug 11 having orificed forked ends. The boiler beyond the ends of the saddle is embraced by the band 4 which is provided at its two ends with orificed lugs 12. Each is disposed in the adjacent forked end of a lug 11, a bolt 13 passing through the orifices of the interfitting lugs. The band is formed in three sections, two lower sections 14 and an upper section 15. The upper ends of the sections 14 are spaced each from the adjacent end of the section 15, and each end is provided with an angular bracket 16. Each of the brackets includes two legs and a web connecting the legs. One of the legs is secured to its band section end in any desired manner, as by welding or bolting

(not shown). The other leg is orificed and a bolt 17 passes through the orifices of the two brackets on each side of the boiler. By tightening these bolts the boiler is firmly held upon the saddle.

Where the boiler with its saddle member is designed for lateral movement relative to the cross member the spacer support is secured to one of the members to move therewith and the other member is preferably provided with a wear plate so that the sliding movement will be between the wear plate and the spacer support. In the present embodiment the spacer support is secured to the cross member, as will presently appear, and the saddle is provided with the wear plate, indicated by the reference numeral 18. The saddle is provided with flanges 19 overlapping the periphery of the wear plate to prevent relative movement between the wear plate and saddle, and the wear plate may be further secured to the saddle in any desired manner.

The spacer support 5 in its preferred embodiment will now be described. The spacer support comprises two superposed spaced plates, namely an upper plate 20 and a lower plate 21. The spacer support extends transversely of the locomotive between the cross member 1 and saddle 3 with the lower face of the plate 21 engaging the upper face of the cross member, and the upper face of the plate 20 engaging the lower face of the wear plate 18. The plates are substantially rectangular except preferably their front edge 22 is curved corresponding to the arc of swing of the saddle when moving transversely relative to the cross member. One of the plates, shown as the top plate in the present instance, is provided with a peripheral flange 23 overriding the periphery of the lower plate holding the plates together. The lower plate and cross member are provided with registering sockets, in which are inserted dowels 24, two being shown, one at each end of the lower plate 21. Thus the spacer support is held against lateral movement relative to the cross member. The spacer support has end portions extending beyond the saddle, as clearly shown in Fig. 1, in order that the wear plate 18, in sliding upon the spacer support, may always be in full contact therewith.

The plates 20 and 21 are provided throughout their areas with cylindrical sockets 25, a socket of one plate registering with a similar socket of the other plate. The sockets of each plate are arranged in two rows, one row being straight and the other row being curved to take the curvature of the edge 22, this curved row terminating at each end in a smaller socket on account of the narrowing of the plate at its ends due to the curvature of its edge.

Rubber blocks 26, of disc-like formation, are disposed in each registering pair of sockets. These blocks are made to snugly fit the sockets and obviously the smaller sockets aforementioned will be provided with blocks of smaller diameter. The blocks seat upon the bottom or base of the sockets and span the space between the plates,

as clearly shown in Fig. 4. The blocks are made of resilient rubber material and are sufficiently rigid to collectively support the load superposed thereupon, which is mainly the saddle and the boiler portion supported thereby. The blocks are of sufficient resiliency to cushion the vertically applied forces passing between the cross member and saddle when the locomotive is running. These forces act as shocks to the boiler, often fracturing or otherwise injuring it and its associated parts.

While the preferred embodiment has been described it will be understood that in some instances it may be desired not to employ sockets but to interpose between the plates resilient rubber material in sheet form, or as separate spaced blocks, the blocks or sheet, as the case may be, being secured to at least one of the plates in any desired manner such as vulcanizing or cementing them to the plate or plates as desired. Furthermore where sockets are employed they may be provided in suitable manner and so disposed that each block has but one socket, the block at one face thereof seating in the base of the socket and at its other face seating upon the face of the opposite plate. However the pairs of registering sockets are preferable. They enable blocks of maximum height to be employed, thereby providing maximum resiliency. The only spreading or distortion of the block in such a case is at the space between the plates, the portions of the blocks within the sockets being snugly held by the defining walls thereof against spreading or distortion.

While there has been hereinbefore described an approved embodiment of this invention, it will be understood that many and various changes and modifications in form, arrangement of parts and details of construction may be made thereto without departing from the spirit of the invention and that all such changes and modifications as fall within the scope of the appended claim are contemplated as a part of this invention.

The invention claimed and desired to be secured by Letters Patent is:

A spacer support for application between a locomotive frame cross member and a boiler-supporting member for supporting said boiler-supporting member and transmitting vertically directed forces passing between said members, said members being adapted for relative sliding movement in a direction transversely of said boiler, said spacer support comprising an assemblage of two superposed plates vertically spaced from each other adapted for engagement each with one of said members, and resilient rubber material engaging said plates and spanning said space for cushioning said forces; and means for securing said assemblage to one of said members for movement therewith and for sliding movement relative to the other of said members.

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