Nov. 3, 1931. J. E. MUHLFELD 1,829,962

LOCOMOTIVE BED

Filed May 13, 1930 2 Sheets-Sheet 1

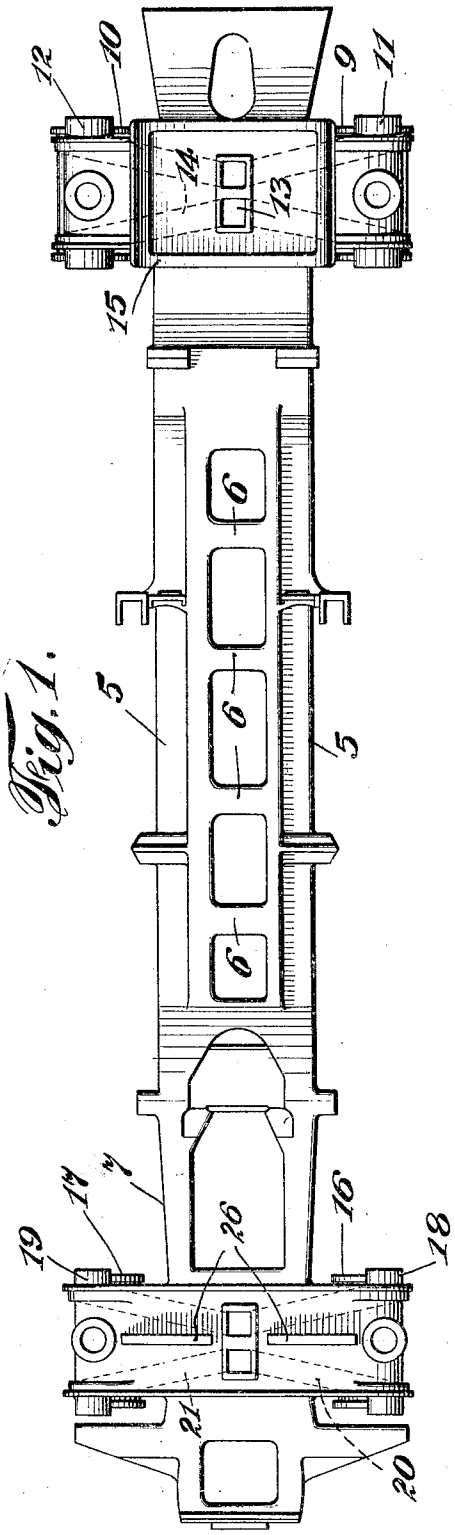


Fig. 1.

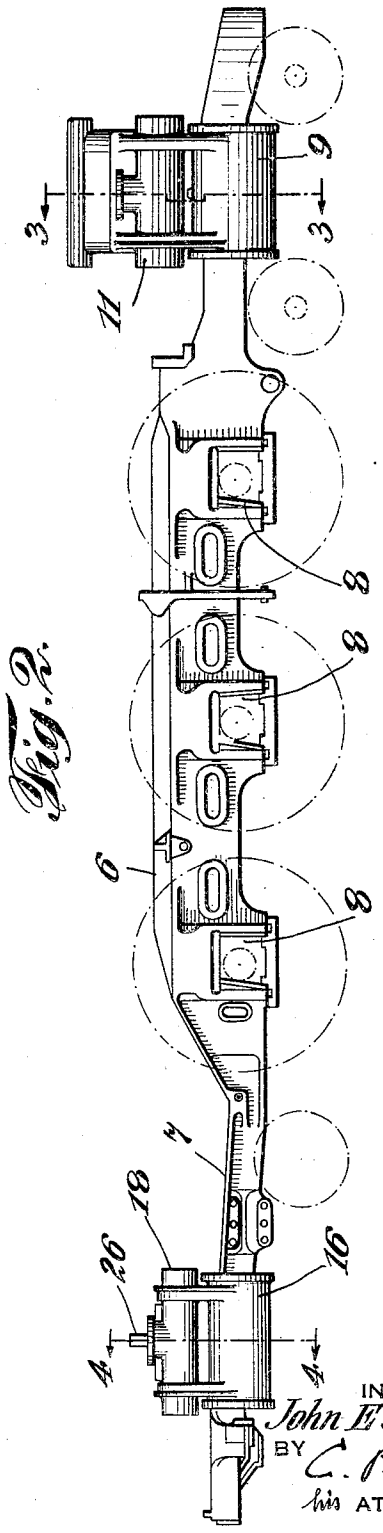


Fig. 2.

INVENTOR
John E. Muhlfeld
BY
C. P. Goepel
his ATTORNEY

Nov. 3, 1931. J. E. MUHLFELD 1,829,962

LOCOMOTIVE BED

Filed May 13, 1930 2 Sheets-Sheet 2

Fig. 3.

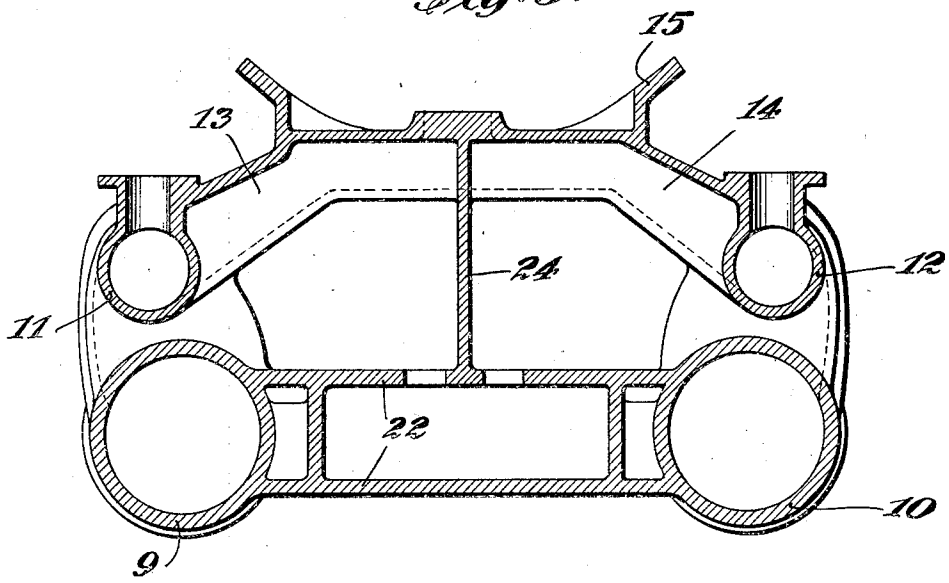
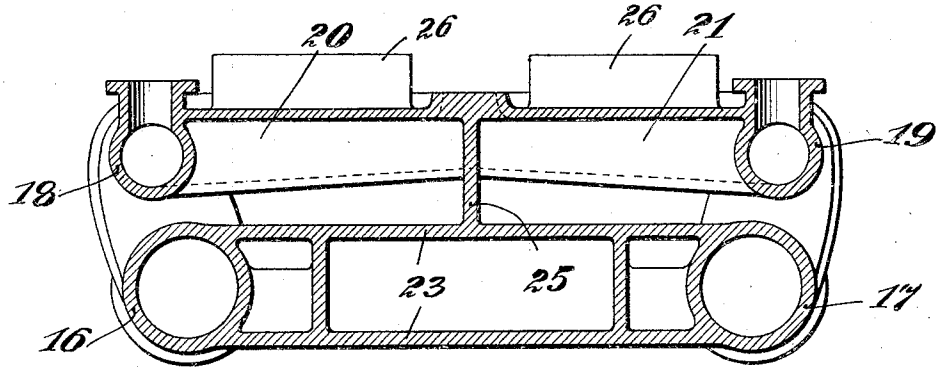


Fig. 4.



INVENTOR
John E. Muhlfeld
BY C. P. Goepel
his ATTORNEY

Patented Nov. 3, 1931 1,829,962

UNITED STATES PATENT OFFICE

JOHN E. MUHLFELD, OF SCARSDALE, NEW YORK

LOCOMOTIVE BED

Application filed May 13, 1930. Serial No. 451,904.

This invention relates to an improved locomotive bed, and more particularly to a bed construction in which the engine cylinders together with the cylinder valve chests and cylinder supporting means for either single or multiple expansion of steam are integrally formed with the front and rear end portions of the bed frame structure as a single one piece unitary casting.

It is also a further general object of my invention to provide a locomotive bed structure as above characterized which will be exceedingly strong and durable, and which is of such construction that the weight thereof will be comparatively low for a structure of this kind.

With the above and other objects in view, the invention consists in the improved locomotive bed, and in the form, construction and relative arrangement of its several parts as will be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have shown one simple and practical embodiment of my invention, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a top plan view of a locomotive bed constructed in accordance with one embodiment of my invention;

Fig. 2 is a side elevation thereof;

Fig. 3 is a transverse section taken on the line 3—3 of Fig. 2, and

Fig. 4 is a similar sectional view taken on the line 4—4 of Fig. 2.

In the form of my invention which I have selected for purposes of illustration, the locomotive bed includes side frames 5 which are integrally connected at intervals throughout their length by the transverse elements 6. The bed structure at its rear end terminates in the usual cradle frame 7 and each of the side frame members 5 is provided with the customary driving box pedestals indicated at 8.

Located at the front end of the locomotive bed at the outer sides of the side frames 5 and integrally formed therewith are the cylinders 9 and 10 respectively, each cylinder having a steam supply chamber or chest 11 and 12 respectively, integrally formed with the upper portion thereof. Suitable exhaust passages shown at 13 and 14 extend inwardly from the valve chambers or chests and open upwardly through a supporting saddle 15, said saddle being integrally formed as a unitary part of the engine cylinder and valve chest structure. Thus, it will be understood that these exhaust passages will open in the customary manner into the smoke box at the forward end of the locomotive cylinder.

At the rear end of the locomotive bed, and also at the outer sides of the cradle frame 7, the engine cylinders 16 and 17 are formed as integral parts of the frame structure, each of said cylinders likewise having steam supply chambers or chests 18 and 19 respectively, integrally formed therewith provided with inwardly extending exhaust passages 20 and 21 respectively opening upwardly through the center of the structure. I also provide between the cylinder valve chests 18 and 19, one or more upstanding integrally formed flanges or supports 26 for the rear or firebox end of the boiler. This provides what is technically known as a waist-sheet connection between the bottom of the boiler furnace and the rear end of the bed structure.

The cylinders 9 and 10 at the front end of the bed, as well as the cylinders 16 and 17 at the rear end thereof have their walls integrally connected by the vertically spaced transversely extending elements or webs 22 and 23 respectively, the upper web in each instance being integrally connected with the walls of the steam exhaust passages by the central vertically positioned webs 24 and 25 respectively.

In the illustrated form of the invention, I have shown a locomotive bed and engine cylinder construction designed for the multiple expansion of steam, and therefore, having low pressure cylinders 9 and 10 at the front end of the bed structure and high pressure cylinders 16 and 17 at the rear end thereof. However, this is not essential, and the novel features of my invention may be utilized in a cylinder structure designed for the single

separate expansion of steam in each pair of cylinders. Also, it will be apparent that without great modification or change a three cylinder engine might be provided at each end of the locomotive bed by integrally incorporating a third cylinder centrally arranged between the side frames between the two outer side cylinders.

From the foregoing description considered in connection with the accompanying drawings, the construction and several advantages of my present invention will be clearly and fully understood. It will be seen that I have designed a locomotive bed and cylinder structure having a multiple arrangement of cylinders at the front and rear ends of said bed, in the form of a single one piece unitary casting. Thus a very strong and rugged construction may be produced, eliminating the necessity of bolting separate rear and front end cylinders to the side frames of the locomotive bed. While I have shown a preferred structural embodiment of my invention, it is nevertheless to be understood that in practice the same may be susceptible to the more or less modification in the form, proportion and relative arrangement of the several parts, and I therefore, reserve the privilege of resorting to all such legitimate changes therein as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:

1. A locomotive bed in the form of a one piece unitary casting having steam cylinders formed integrally with the front and rear ends thereof.

2. A locomotive bed structure consisting of a one piece unitary casting having steam cylinders at opposite sides thereof at its front and rear ends and integrally formed with said bed structure.

3. A locomotive bed structure having steam cylinders at its rear end and at each side thereof integrally formed with said structure, and waist-sheet engaging means integrally formed with said structure and extending transversely between said cylinders.

4. A locomotive bed structure having steam cylinders at its rear end and at each side thereof integrally formed with said structure, and upstanding flanges extending transversely between said cylinders and integrally formed with the bed structure constituting supporting means for the firebox end of the locomotive boiler.

5. In a one piece casting, a locomotive bed having a rear end provided with integrally formed spaced upstanding flanges constituting supporting means for the fire box of the locomotive boiler.

6. In a one piece casting, a locomotive bed and cylinders formed integrally therewith at its front and rear ends, in alignment with each other longitudinally of the bed.

7. In a one piece casting, a locomotive bed, and cylinders on each side of the bed and its front and rear ends in alignment with each other longitudinally of the bed and formed integrally therewith.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

JOHN E. MUHLFELD.