W. D. LOWRY.

UNDERFRAME FOR CARS AND TENDERS.

APPLICATION FILED JUNE 1, 1908.

922,787.

Patented May 25, 1909.

2 SHEETS—SHEET 1

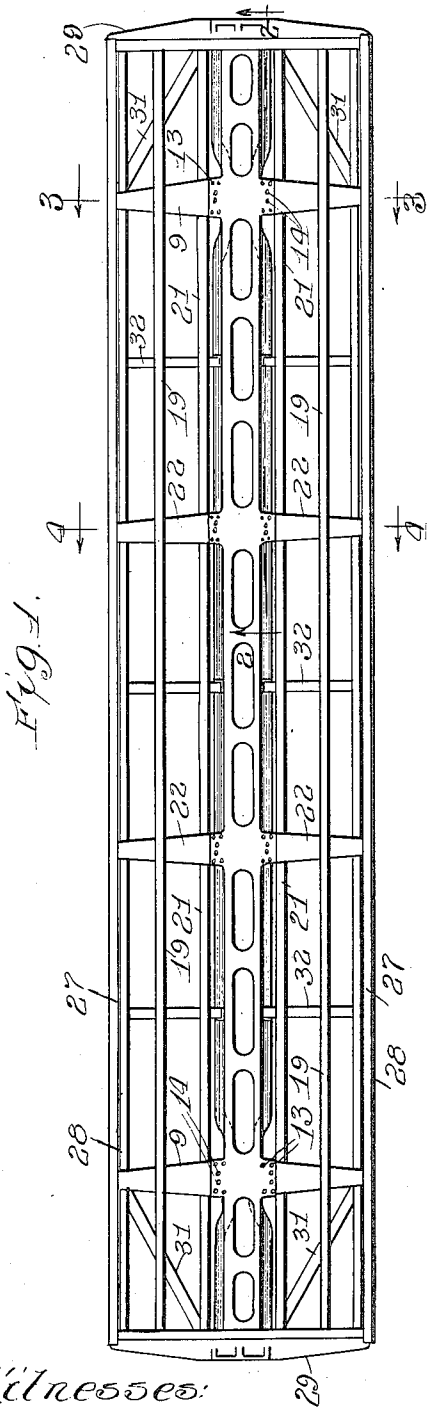

Fig. 1.

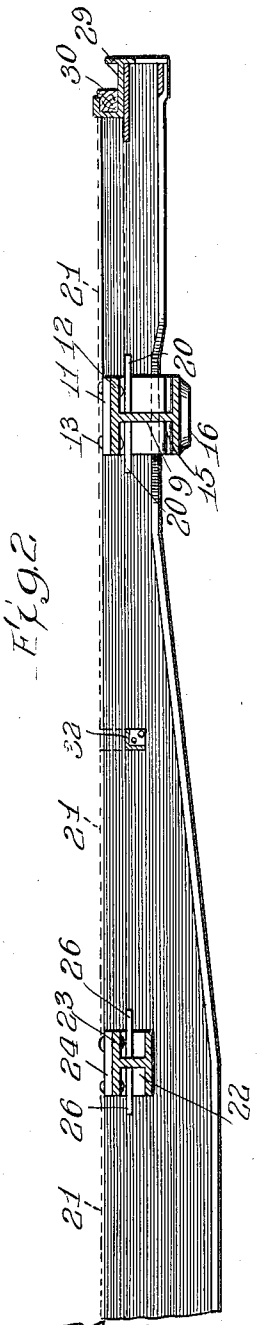

Fig. 2.

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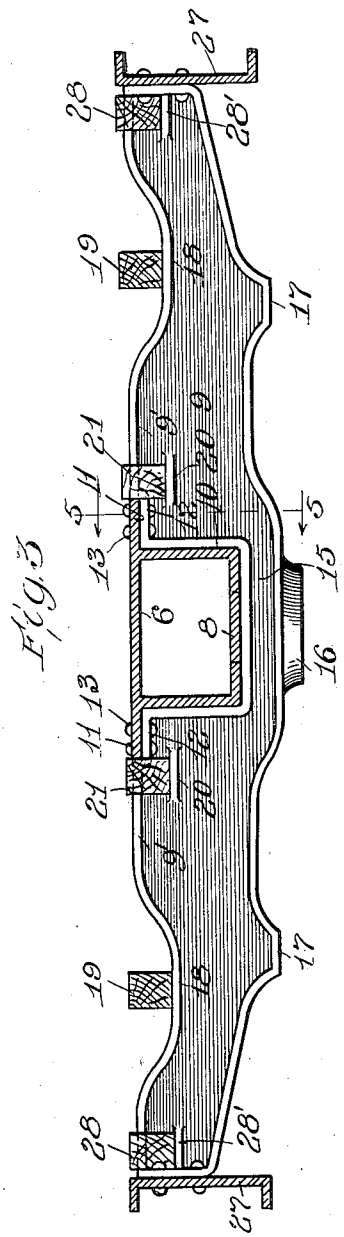

Fig. 3.

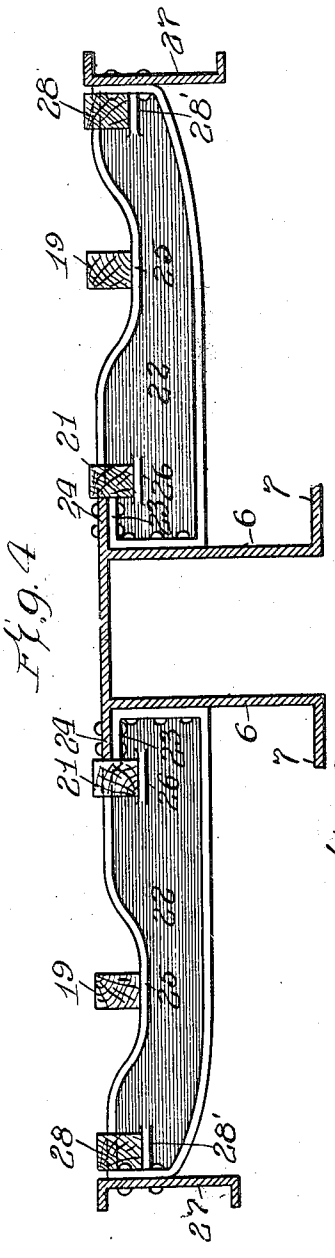

Fig. 4.

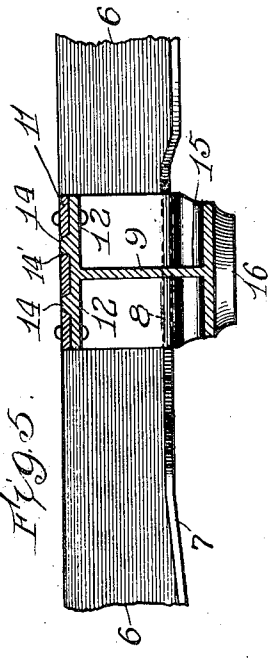

Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM D. LOWRY, OF ST. LOUIS, MISSOURI.

UNDERFRAME FOR CARS AND TENDERS.

No. 922,787. Specification of Letters Patent. Patented May 25, 1909.

Application filed June 1, 1908. Serial No. 435,854.

To all whom it may concern:

Be it known that I, WILLIAM D. LOWRY, a citizen of the United States, residing at St. Louis, in the county of St. Louis City and State of Missouri, have invented new and useful Improvements in Underframes for Cars and Tenders, of which the following is a specification.

This invention relates to cast steel underframes for freight cars of all descriptions and engine tenders and its object is to provide a strong and substantial underframe of comparatively light weight but adapted to carry a heavy load and consisting of comparatively few parts whereby the cost of manufacture is materially reduced.

In the accompanying drawings Figure 1 is a top plan view of an underframe embodying my invention. Fig. 2 is a longitudinal sectional view on the line 2—2 of Fig. 1. Figs. 3 and 4 are transverse sectional views on the lines 3—3 and 4—4 of Fig. 1. Fig. 5 is a sectional view on the line 5—5 of Fig. 3.

Referring to the drawings, the underframe comprises a single center sill 6 which extends throughout the length of the underframe and is made in substantially inverted U-shape in a single casting. This center sill is preferably made deeper between the bolsters than at its ends and it is provided with lateral flanges 7 which project outwardly from its bottom throughout the length of the center sill except at the bolsters where the center sill is provided interiorly with a cross web 8 (Fig. 3) to strengthen the sides of the center sill.

Each bolster 9 is made in a single casting with a central recess 10 to receive the center sill 6. The center sill is provided with integral side lugs 11 which are arranged to rest on the bolster in depressions 12 therein so that the plane of the top of the bolster will be flush with the plane of the top of the center sill. The bolster is fastened to the center sill by bolts or rivets 13 which pass through the lugs 11 on the center sill and the top flange 9′ of the bolster (Fig. 3). The bolster may be provided with integral dowel pins 14 to enter openings 14′ in the lugs 11, if desired (Fig. 5). The arch 15 which forms the integral connection between the two sides of the bolster lies beneath the center sill and provided with an integral center bearing 16. The bolster is also provided with side bearings 17 and it may be depressed at 18 to receive the stringers 19 and provided with integral lugs 20 to support the stringers 21. The top of the bolster may be made level through its length and the stringers laid thereon, if desired.

Each cross tie consists of two parts 22 cast alike and riveted or bolted to the sides of the center sill. The cross ties are constructed, like the bolsters, with depressions 23 to receive the integral side lugs 24 on the center sill, with depressions 25 to receive the stringers 19, and with lugs 26 to support the stringers 21, but they may also be varied in details of construction, like the bolsters, without departing from my invention.

I may use side sills of any suitable construction such as the channel bars 27 which are riveted or bolted to the ends of the bolsters and cross ties, and stringers 28 may be supported on lugs 28′ integral with the bolster and cross ties as shown in Figs. 3 and 4, or in any other suitable manner. I may also use end sills of any suitable construction and in the drawings I have illustrated one form which may be used and which comprises a single casting 29 made substantially in L-form and in which the wood end sill 30 may be arranged as illustrated in Fig. 2. Side sills and end sills of any other suitable form may be used with my improved center sill, bolsters and cross ties in making an underframe embodying the invention.

The sides of the bolsters are preferably made of a somewhat heavier construction than the sides of the cross ties and are connected by the arch 15 to provide additional strength. This is more especially important to hold the underframe in shape and prevent it from yielding or buckling when the car is jacked up for any purpose, this being done usually at or near the bolsters in which case the top of the bolster is put under compression and the bottom under tension.

My invention provides a strong and substantial underframe especially throughout the longitudinal center of the car where the load is principally carried. The center sill, bolsters and cross ties are preferably made of steel castings and the side sills and end sills may also be made of steel castings or of rolled or pressed steel. I may also use diagonal braces 31 at the ends of the frame and cross braces 32 whenever they are found desirable. The cross ties may also be provided with dowel pins like the bolsters to enter openings in the side lugs 24 on the center sill.

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

1. In an underframe for cars and tenders, a cast steel bolster provided centrally with a recess opening at the top thereof, and a center sill seated in said recess and made in substantially inverted U-shape in cross section.

2. In an underframe for cars and tenders, a cast steel bolster provided centrally with a recess opening at the top thereof, a center sill seated in said recess and made in substantially inverted U-shape in cross section, and integral side lugs on said center sill projecting over the top of the bolster and fastened thereto.

3. In an underframe for cars and tenders, a cast steel bolster provided centrally with a recess opening at the top thereof and depressions in its top adjacent to said recess, a center sill seated in said recess and made in substantially inverted U-shape in cross section, and integral side lugs on the center sill seated in said depressions and fastened to the bolster.

4. In an underframe for cars and tenders, a cast steel bolster provided centrally with a recess opening at the top thereof, a center sill seated in said recess and made in substantially inverted U-shape in cross section, and an interiorly arranged integral web at the bottom of the center sill above the bolster.

5. In an underframe for cars and tenders, the combination of a pair of bolsters, a center sill extending throughout the length of the underframe and made in substantially inverted U-shape in cross section, said bolsters being each provided centrally with a recess opening at the top thereof and said center sill being seated in said recess, and integral outwardly projecting side flanges at the lower edges of the sides of the center sill between the bolsters and between said bolsters and the ends of the center sill.

6. In an underframe for cars and tenders, the combination of a pair of bolsters, a center sill extending throughout the length of the underframe and made in substantially inverted U-shape in cross section, said bolsters being each provided centrally with a recess opening at the top thereof and said center sill being seated in said recess, interiorly arranged integral webs on the center sill at the bottom thereof above the bolsters, and integral outwardly projecting flanges at the lower edges of the sides of the center sill between the bolsters and between the bolsters and the ends of the center sill.

7. In an underframe for cars and tenders, a center sill extending throughout the length of the underframe and made in one casting in substantially inverted U-shape in cross section, interiorly arranged integral webs on the center sill where the bolsters are connected thereto, and outwardly projecting flanges at the sides of the center sill between said webs and between said webs and the ends of the center sill.

8. In an underframe for cars and tenders, the combination of a center sill, integral side lugs on said center sill at the top thereof, and cross ties fastened to said center sill and provided with depressions to receive said lugs.

9. In an underframe for cars and tenders, the combination of a center sill, a side lug on the center sill provided with an opening, a transverse member fastened to said lug, and a pin on said member seated in said opening.

10. In an underframe for cars and tenders, the combination of a center sill, outwardly projecting lugs on the center sill at the top thereof provided with openings, a cast steel bolster provided centrally with a recess to receive said center sill, and pins on the bolster seated in said openings.

11. In an underframe for cars and tenders, a cast steel bolster provided centrally with a recess opening at the top thereof, and a cast steel center sill made in one casting and constructed to fit in said recess and against the side and bottom walls thereof.

12. In an underframe for cars and tenders, a cast steel bolster provided centrally with a recess opening at the top thereof, and a center sill constructed to fit in said recess and made substantially rectangular in cross section with a top, a bottom and sides at the bolster.

13. In an underframe for cars and tenders, a cast steel bolster provided centrally with a recess opening at the top thereof, and a center sill constructed to fit in said recess flush with the top of the bolster.

14. In an underframe for cars and tenders, a cast steel bolster provided centrally with a recess opening at the top thereof, and a center sill constructed to fit in said recess flush with the top of the bolster and with its sides and bottom engaging the sides and bottom of the recess.

15. In an underframe for cars and tenders, the combination of a pair of cast steel bolsters each provided centrally with a recess opening at the top thereof, and a cast steel center sill made in one casting and seated in said recess, said center sill being substantially rectangular in cross section at the bolsters and substantially inverted U-shape in cross section between the bolsters and on each side thereof.

WILLIAM D. LOWRY.

Witnesses:
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