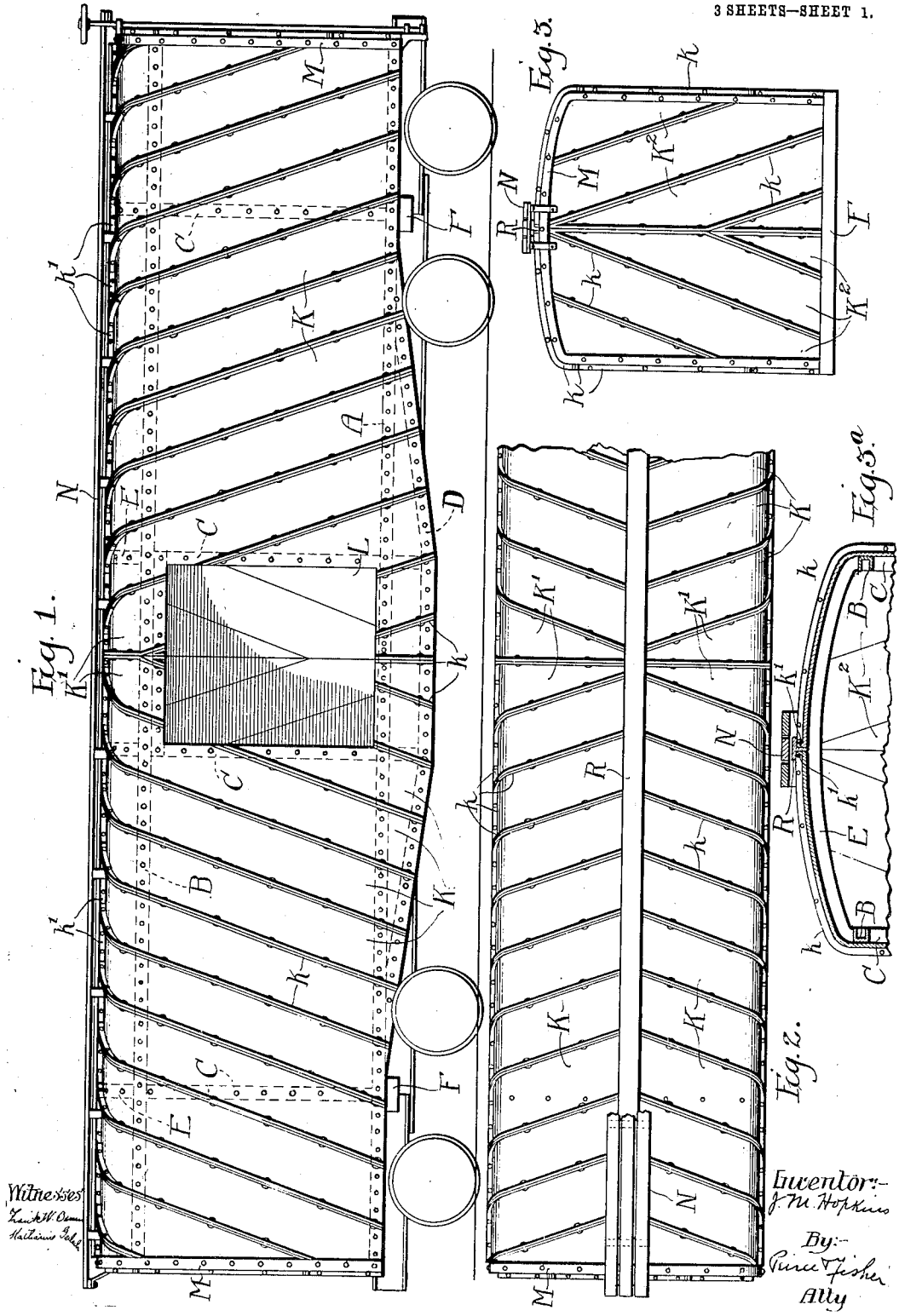
J. M. HOPKINS.

CAR BODY.

APPLICATION FILED JAN. 27, 1909.

926,416. **Patented June 29, 1909.**

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

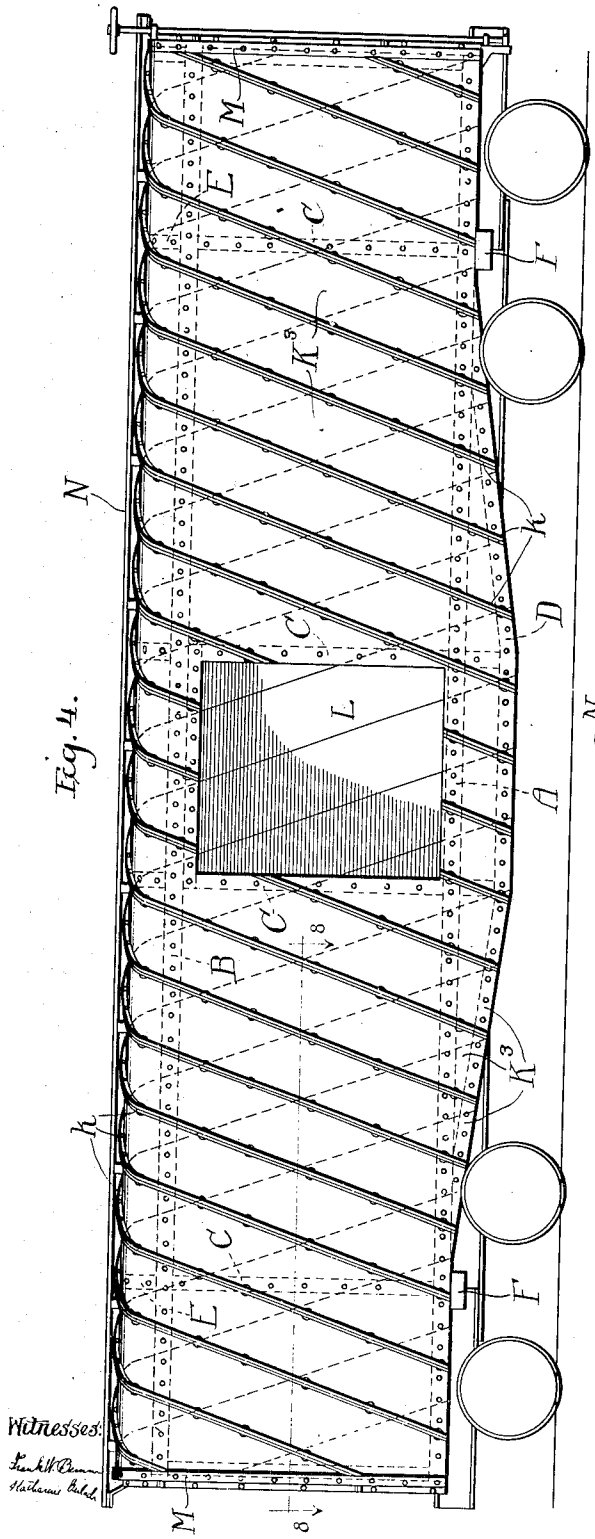


Fig. 4.

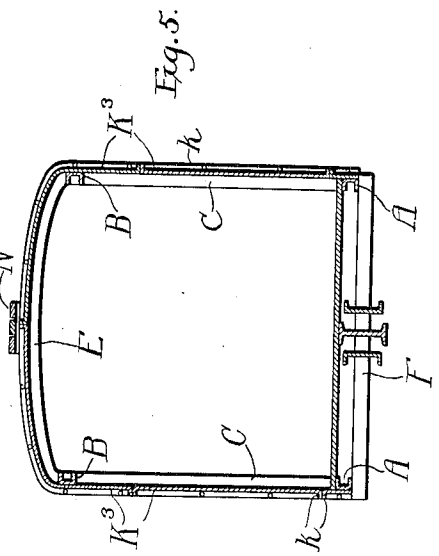


Fig. 5.

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3 SHEETS—SHEET 3.

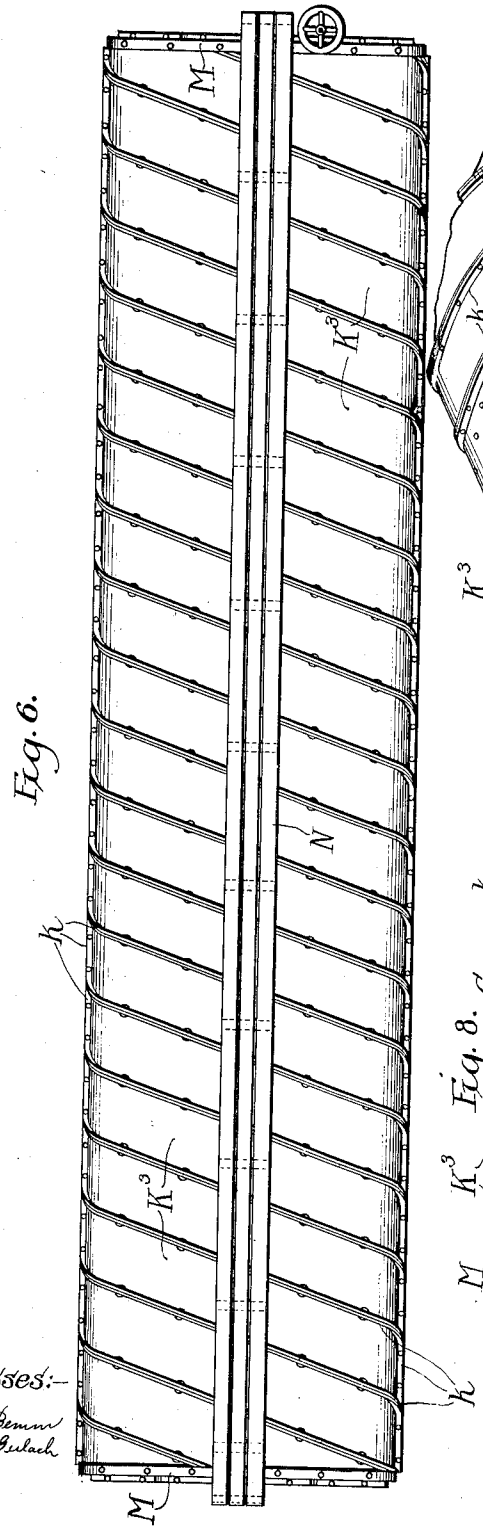


Fig. 6.

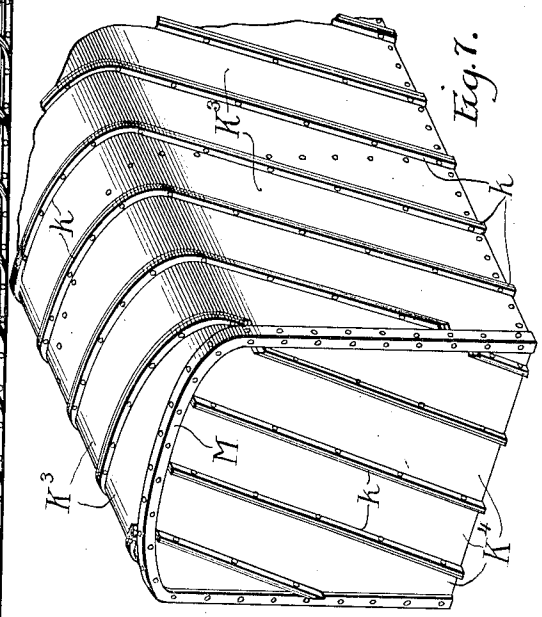


Fig. 7.

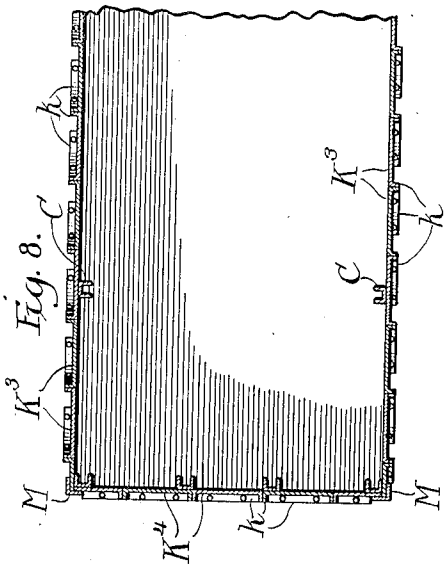


Fig. 8.

Witnesses:-

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UNITED STATES PATENT OFFICE.

JAMES M. HOPKINS, OF CHICAGO, ILLINOIS.

CAR-BODY.

No. 926,416. Specification of Letters Patent. Patented June 29, 1909.

Application filed January 27, 1909. Serial No. 474,381.

To all whom it may concern:

Be it known that I, JAMES M. HOPKINS, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Car-Bodies, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The present invention has relation more particularly to that class of railway cars the walls of which are formed of sheet metal.

In the manufacture of metallic car-bodies, it has been heretofore proposed to extend the metal sheets (of which the wall of the car body is formed) in vertical direction up the sides and across the top of the car, these sheets being formed with flanged edges whereby they are united together.

The object of my present invention is to give to the car body greater strength and rigidity; and to this end one feature of my invention consists in forming the side walls and the roof of the car of metal plates that extend diagonally upward along the side walls and continuously around the eaves and onto the roof of the car; and the invention further consists in forming a car body with its walls comprising metal plates secured together and having flanges extending in diagonal direction, the diagonal arrangement of flanges in the wall of the car body serving to materially increase the strength and rigidity thereof; and the invention consists also in features of improvement hereinafter described, illustrated in the accompanying drawings and particularly pointed out in the claims at the end of this specification.

Figure 1 is a view in side elevation of a railway freight car embodying my invention. Fig. 2 is a plan view of a car-body, portions being broken away. Fig. 3 is an end view of the car-body shown in Fig. 1. Fig. 3ª is a view in cross section through the upper part of the car-body shown in Fig. 1. Fig. 4 is a view similar to Fig. 1, but showing a modified form of the invention. Fig. 5 is a view in cross section similar to Fig. 3. Fig. 6 is a plan view of a car-body illustrated in Fig. 4. Fig. 7 is a perspective view of one end of the car-body shown in Fig. 4. Fig. 8 is a view in horizontal section on line 8—8 of Fig. 4.

The frame-work of the car-body may be of any suitable or approved construction. In the drawings (see Fig. 5) I have shown the frame-work as comprising longitudinal side sills A formed of channel-bars and, as comprising also, the side plates B extending along the top of the car-body beneath the roof. Between the sills A and the plates B extend the vertical posts C that will be suitably secured to the sills and plates. If desired, supplemental truss-bars D may extend beneath the sills A throughout the central portion of the car, (see dotted lines, Fig. 1), the ends of these truss-bars being bolted to the sills A. As shown also, carlines E, in suitable number, extend beneath the roof portion of the car-body, the ends of these carlines resting upon the plates B. It will be understood, of course, that the car will be provided with suitable draft sills and with bolsters F. These several features, however, are not essentials of my invention.

The outer wall of the car-body is formed of a plurality of diagonally disposed, sheet metal plates K. Preferably, the plates K have their edges formed with flanges k which permit the plates to be securely riveted or otherwise connected together. In the form of the invention illustrated upon Sheet 1 of the drawings, the plates K extend upward in diagonal direction at the opposite sides of the car, are bent at the eaves of the car-body and are united at the center of the car roof. Preferably the abutting ends of the plates K at the center of the car-roof are formed with flanges k' which permit the plates to be securely riveted or otherwise connected together at such point. By preference, a metal bar or beam R, extending longitudinally and centrally of the roof, is interposed between the flanges k' and, as shown, this bar or beam may be a T-shaped bar, the rivets that unite the flanges k' passing through the central web of the bar R.

In the form of the invention illustrated in Figs. 1 and 2 of the drawings, the plates K at one side of the transverse center of the car extend in opposite diagonal arrangement from the plates K at the other side of the center of the car, and the central plates K′ meet and are secured together at the center of the car, as clearly shown in the drawings. Around the door-way L will be extended preferably a suitable metal framework, as indicated by dotted lines in Fig. 1, this framework being riveted to the adjacent wall of the car-body.

The end walls of the car-body shown on Sheet 1, may be formed either of straight plates or of plates diagonally disposed, with-

out departing from the spirit of the invention, and, preferably, the corners of the car-body will be finished by extending channel irons M around them. In Fig. 3, one of the end walls of the car-body is shown as formed of plates K^2 arranged in reverse direction from the longitudinal center of the car, but, while this is regarded as the preferable arrangement for the end walls of the car, it is not essential. The car-body will be provided with the usual running board N and with other features commonly found in cars of this character.

The plates K may be secured to the sills A and other parts of the metal framework by rivets, bolts or any other suitable manner, and, if desired, the plates K may be extended downwardly along the central portion of the car and be secured to the truss-bars D, as seen in Fig. 1.

From the foregoing description, it will be seen that by reason of the diagonal arrangement of the flanged plates K, the strength of the car-body is very materially increased, since any downward sagging or crushing strain upon the car at one point is transmitted by the plates to a portion of the car lying in a different vertical section. Moreover, by reason of the diagonal arrangement of the plates K, their flanged edges *k* form diagonal braces tending to direct the strains toward the transoms of the car, where they may be most effectively resisted. In railway cars, particularly such as are used for the carriage of freight, a great variety of strains and stresses are thrown upon the car-body, not only because of the sudden starting and stopping of the cars, and the violent movement of the trains, but because of the character and disposition of the freight within the cars. My invention will be found particularly well adapted in the construction of the bodies of freight cars, although susceptible of wider use.

In the form of the invention illustrated on Sheets 2 and 3 of the drawings, the framework of the car-body may be the same as that hereinbefore described, or of any other suitable construction. In this form of the invention, the plates K^3 extend upward in diagonal direction along one side of the car, as seen in Fig. 4, thence diagonally across the top of the car, as seen in Fig. 6, and thence downwardly in diagonal direction, as indicated by dotted lines in Fig. 4. The plates K^3 will have their edges flanged and connected together, as hereinbefore described, and the lower ends of the plates will be suitably riveted to the side sills of the car frame and at such other points as may be desired.

The end walls of the car-body illustrated upon Sheets 2 and 3 of the drawings, are preferably formed of diagonally disposed plates K^4, the flanged edges of which are secured together by rivets or otherwise. By reference to Fig. 7, it will be seen that the plates K^4 are so inclined that their upper ends extend toward the side of the car at which terminate the ends of those plates K^3 that extend over the top of the car. Hence, the strains exerted upon the plates K^4 will be transmitted more directly to such plates K^3 and, as these plates lead inward from the ends of the car and toward the transoms F, the strains thrown thereon will be distributed more directly over the transoms.

While I have described the plates of which the car-body is formed, as "diagonal" and have shown these plates at a uniform inclination, I do not wish the invention to be understood as limited to the precise arrangement shown, since, obviously, the dimension, shape and lines of inclination of the plates may be varied, while still accomplishing the purposes of the invention. It is obvious, also, that in other respects the details of construction above set forth may be varied without departing from the spirit of the invention, and that features of the invention may be employed without its adoption as an entirety.

The feature of employing plates with diagonal flanges in the walls of a car-body will be found advantageous whether such plates comprise the entire extent of the walls, or not. So, also, the feature of employing flanged, diagonal plates in the walls of a car-body will be found advantageous, regardless of the number of plates used and of their precise arrangement, since the flanged portions of the plates serve as brace bars which, because of their diagonal position, materially strengthen the body of the car.

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

1. A car body comprising in its wall metal plates extending diagonally of the sides and continuously around the eaves and up onto the roof of the car.

2. A car body comprising sides and roof formed of diagonally arranged plates secured together, the diagonal plates comprising the roof being formed integral with the diagonal plates comprising the sides of the car body.

3. A car-body, the wall whereof comprises metal plates secured together and having flanges extending diagonally.

4. A car-body, the sides whereof comprise metal plates having flanges extending diagonally from bottom to top of the car.

5. A car-body, comprising in its walls diagonally arranged plates having flanged edges secured together.

6. A car body the sides whereof are formed of diagonally arranged flanged metal plates and the roof whereof is formed of diagonally

arranged metal plates integral with said side plates of the car body, said side plates inclining upwardly and toward the middle of the car toward the end thereof.

7. A car-body, the sides and roof of which comprise diagonally arranged metal plates united together, the upper ends of said plates being secured together about the longitudinal center of the roof.

8. A car-body, the sides and roof of which comprise diagonally arranged metal plates secured together, the upper ends of said plates being secured together about the longitudinal center of the roof, and a bar extending longitudinally of the roof at its center, to which bar said plates are secured.

9. A car-body comprising sides formed of metal plates secured together and having diagonally disposed flanges, the flanges at opposite sides of the transverse central plane of the car being oppositely inclined.

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Witnesses:
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