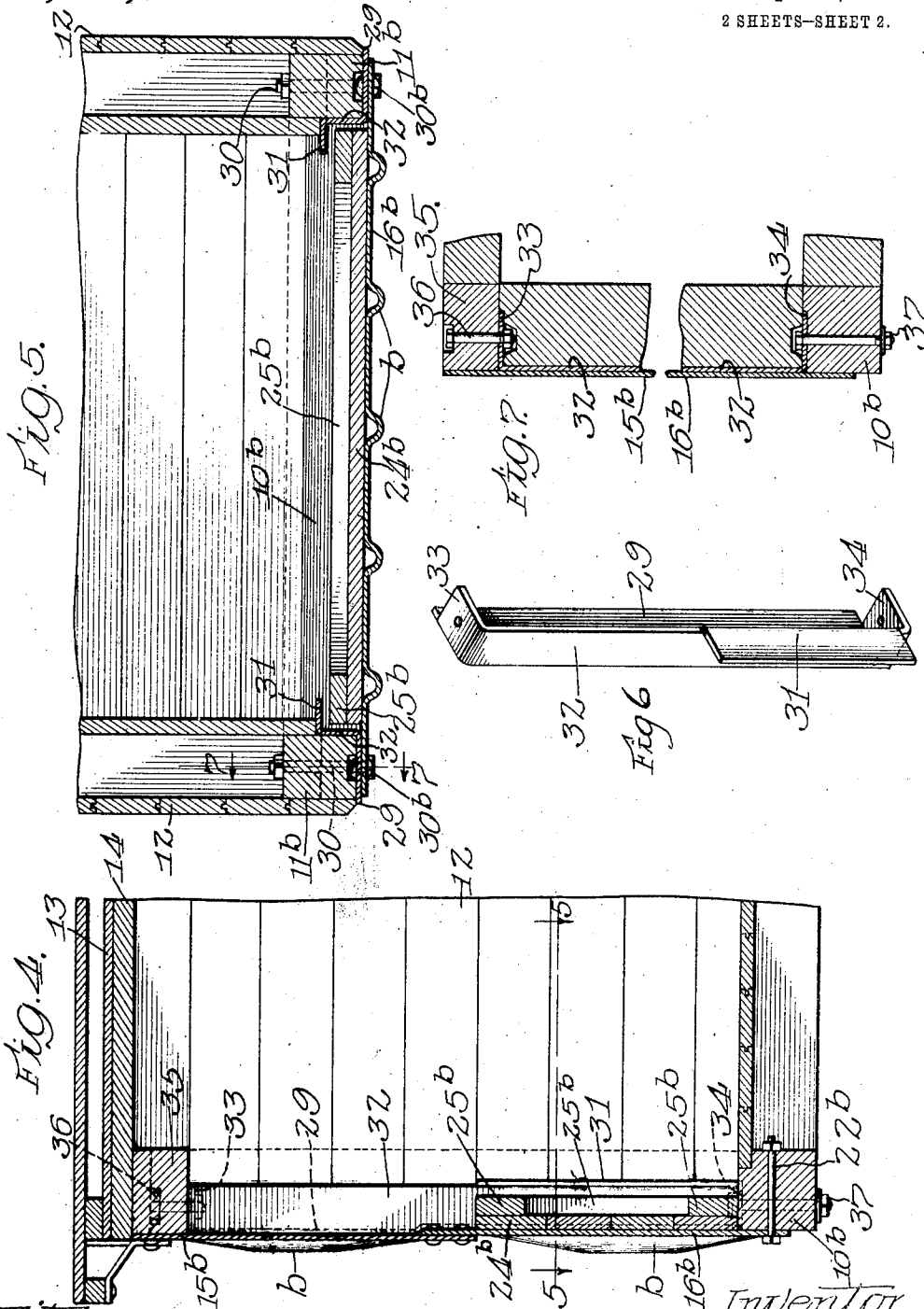


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 END STRUCTURE FOR RAILWAY CARS.
 APPLICATION FILED JUNE 17, 1912.

1,058,783.

Patented Apr. 15, 1913.

2 SHEETS-SHEET 2.



Witnesses:
 E. H. Thomas Jr.
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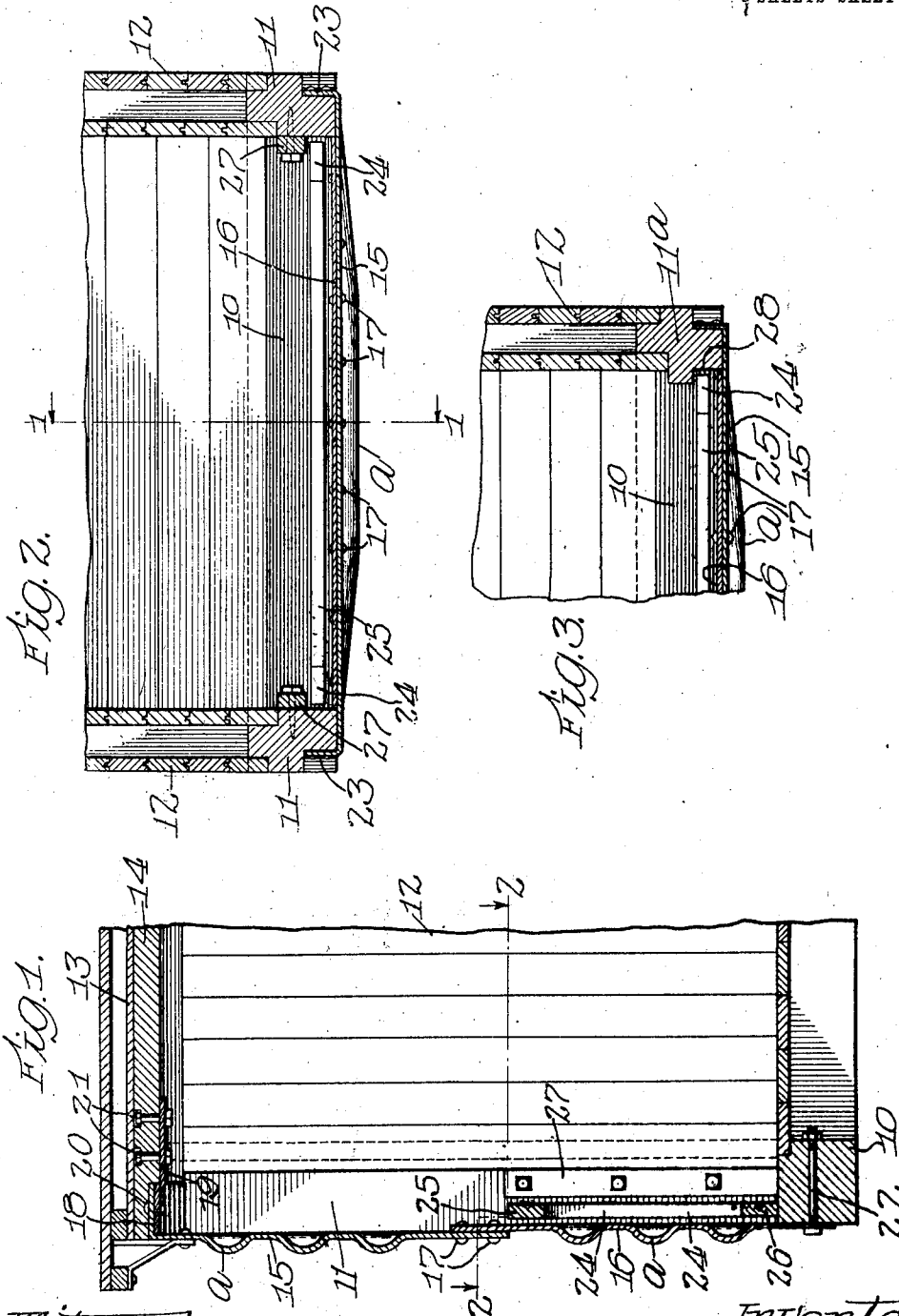
Inventor
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UNITED STATES PATENT OFFICE.

WALTER P. MURPHY, OF CHICAGO, ILLINOIS.

END STRUCTURE FOR RAILWAY-CARS.

1,058,783.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed June 17, 1912. Serial No. 704,032.

To all whom it may concern:

Be it known that I, WALTER P. MURPHY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in End Structures for Railway-Cars, of which the following is a specification.

My invention relates to the construction of railway freight cars and particularly to the construction of railway cars known as box cars.

The primary object of the invention is to provide an end structure for railway box cars which will be composed essentially of sheet metal but will comprise also a non-metallic, preferably wooden, lining element or batten arranged so as to stand against and cover the lower portion of the sheet metal structure on the inside of the car. One of the purposes of this wooden element is to prevent the possible puncture or denting of the sheet metal end by heavy sharp pointed or sharp cornered articles. It is well known that when a train starts and stops a cargo has a tendency to be thrust in one direction or the other against one of the ends of the car. A sheet metal end structure, because of its strength and rigidity, is well calculated to withstand the thrust of a cargo as a whole but unless the metal sheets are very thick and heavy it is possible to puncture or dent them by the thrust of some heavy article having a small area of contact. Another purpose is to prevent grain, flour, or other like material, when the car is loaded in bulk with such material, from coming into contact with the metal of the end and being injured by the "sweating" of the metal. Furthermore by providing the metal structure with the separate lining element, made of wood or like material, a cargo of grain or the like is kept from leaking out even if, as may happen, the sheets of metal composing the end structure proper are bent, sprung or warped away from their attachments to the end sill and corner post; or if for any other reason the tight joint does not exist between the metal end and the wooden body of the car. The lining may also be used to advantage if the car is loaded with powder, in which case it is customary not to have any metal exposed. The lining element is preferably made entirely separate from the fixed sheet metal structure and secured thereto re-

movably so that it may or may not be used as occasion requires.

My invention has for further objects such other novel and improved arrangements and devices relating to the construction of freight cars as will be hereinafter described and claimed.

The invention is illustrated, in certain preferred constructions, in the accompanying drawings, wherein—

Figure 1 is a fragmentary sectional view of the end of a freight car, being taken on line 1—1 of Fig. 2; Fig. 2, a sectional plan taken on line 2—2 of Fig. 1; Fig. 3, a sectional plan illustrating a modification; Fig. 4, a longitudinal sectional view of the end of a box car illustrating another modification; Fig. 5, a sectional plan on line 5—5 of Fig. 4; Fig. 6, a view, in perspective, of one of the angle bars shown in the preceding figures, and Fig. 7, a sectional view taken on line 7—7 of Fig. 5, looking in the direction of the arrows.

Like characters of reference indicate like parts in the several figures of the drawing.

Referring to the drawing, 10 designates one end sill of a box car, 11, 11 the corresponding corner posts, 12 the sheathing, 13 the roof, and 14 the ridge pole. The end consists, in the particular construction shown, of an upper horizontal sheet metal plate 15 and a lower similarly corrugated plate 16, these plates being overlapped and secured together by the rivets 17. The plate 15 is formed with an intumed flange 18 which carries the ridge pole 14. A clip 19 is secured to the flange 18 by rivets 20 and to the ridge pole by the bolts 21. The lower edge of the lower plate 16 is secured to the end sill by bolts 22. The end sheets 15 and 16 are formed on their vertical edges with flanges 23 and are secured thereby to the corner posts 11. The plates are formed with horizontally extending corrugations *a*, which are preferably tapered down at their extremities as shown. Obviously the particular construction of the metal end above described need not be adhered to.

The lining element consists preferably of a number of vertically arranged boards 24 secured together by any suitable means, for example, by the horizontal strips 25 and 26. The boards 24 are arranged on end, that is, with the grain running up and down because if horizontally arranged they would be likely

to be split if pressure were brought to bear at points opposite the horizontal corrugations. Obviously the construction of the lining will in this regard depend upon the character of the steel end structure. The lining element is retained in place by any suitable means. In Figs. 1 and 2 I have shown guide strips 27 nailed to the inner faces of the corner posts 11 extending a trifle less than half way up the posts. In the construction shown in Fig. 3 the guideways for the removable lining are made by forming a rabbet 28 in the inner face of the corner posts 11^a.

In Figs. 4 to 7 inclusive I have shown a further modification. Between the sheet metal end structure 15^b, 16^b and the corner posts 11^b are interposed angle bars 29 which are secured to the corner posts by the bolts 30 and to which the end structure is secured by rivets 30^b. The lower portions of the angle bars 29 are Z-section in their configuration, the flanges 31 providing the guideways for the removable lining. The end sheets 15^b, 16^b are shown as formed with vertically extending corrugations *b*, which are tapered at their extremities. With an end-structure of this sort it is desirable that the lining element be made up of horizontally arranged boards 24^b which are secured together by the strips 25^b. The flanges 31 are cut off half way up the bar so as to permit the lining to be removed when desired. Preferably the flanges 32 of the angle bars are made longer than the rest of the bar and bent over at each end to provide the upper and lower horizontal flanges 33 and 34. The flange 33 is secured to the end plate 35 of the car (a wooden end plate being shown in this construction although that is not essential) by means of the bolts 36. The lower flanges 34 bear upon the end sill 10^b and are secured thereto by the bolts 37. When this construction is employed the flanges on the vertical edges of the end sheets may be omitted. The riveting of the end sheets 15^b, 16^b to the angle bars provides a water proof joint. Furthermore, the angle bars reinforce and strengthen the end of the car. In fact, with the angle bars constructed and arranged as shown, they become compression members and take a part of the roof load so that the corner posts 11^b need not be relied upon to take the roof stresses but serve chiefly as nailing strips. For the reasons just noted the use of the angle bars in this connection

has utility apart from their function in providing guideways for the lining element.

It will be understood that when there is no occasion to use the wooden lining element it may be easily removed by lifting it up and taking it out from the guideways. There will ordinarily be no occasion for protecting the upper part of the sheet metal end. Heavy articles such as might cause injury to the metal sheets are always placed in the lower part of the car; and of course grain, or like material, is never loaded up much beyond the middle of the car.

I claim:

1. The combination in a freight car of a sheet metal end structure, means providing guideways at opposite sides of the car on the inside of said end structure, and a removable lining consisting of a single structure of wood or the like extending across the end of the car from side to side adapted to be received in said guideways, substantially as described.

2. The combination in a freight car of a sheet metal end structure, a removable lining consisting of a single structure of wood or the like extending across the end of the car from side to side, and metal retaining strips for the lining element which are angular in cross section and secured directly to said sheet metal structure.

3. The combination in a freight car of a sheet metal end structure, angle bars which intervene between the outer edges of the sheet metal structure and the side structures of the car, the sheet metal end structures being secured to said angle bars; the lower portions of the angle bars being Z-section in configuration so as to provide guideways, and a removable lining element adapted to be received in said guideways.

4. The combination in a freight car comprising corner posts of a sheet metal end structure secured to said posts, and angle bars which intervene between the outer edges of the sheet metal structure and the corner posts of the car, the angle bars being provided with horizontal flanges at each end, the upper flange being secured to the roof structure of the car and the lower flange bearing upon and secured to the under frame of the car.

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Witnesses:

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