

April 8, 1930.

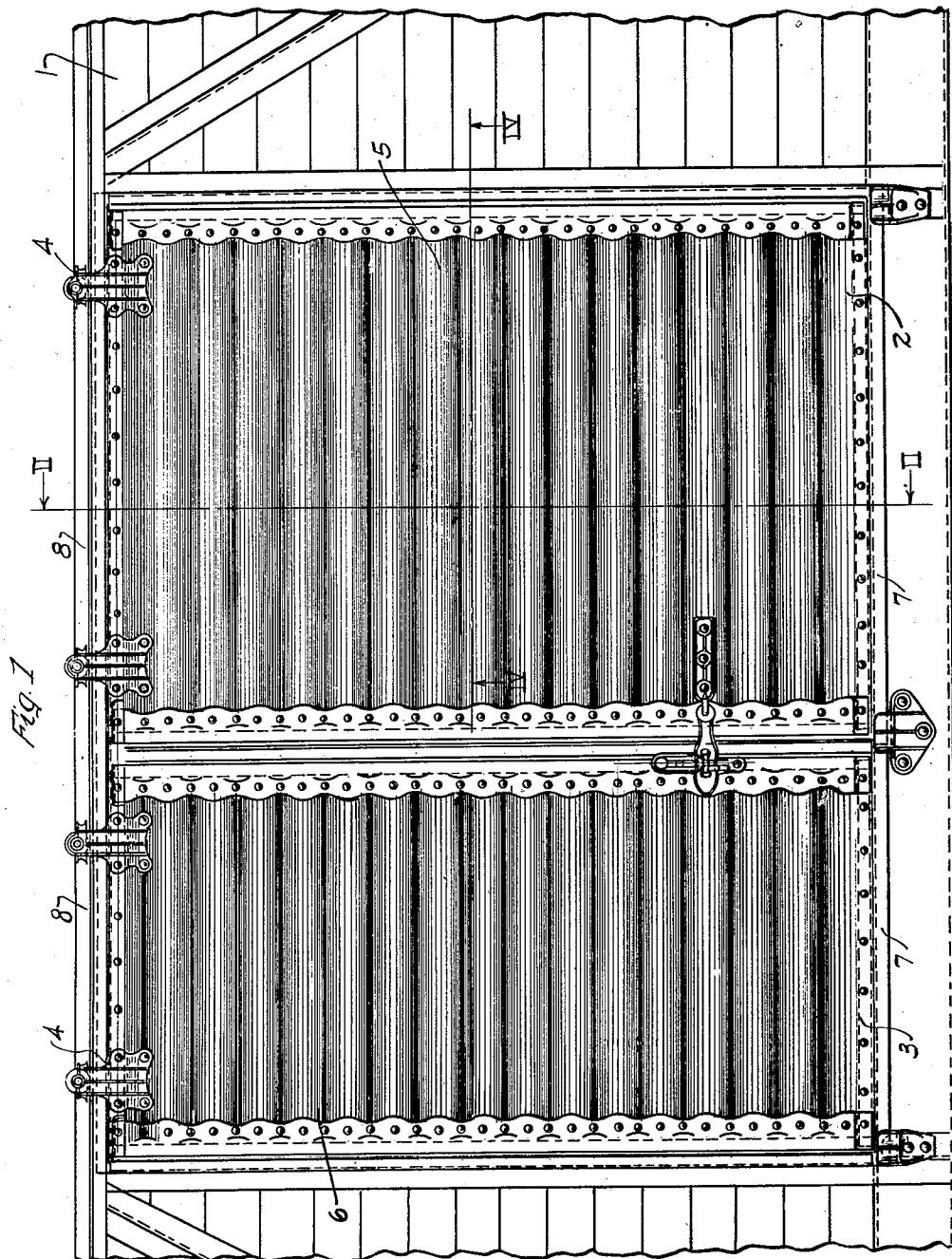
F. C. HEINEN ET AL

1,753,375

METAL CAR DOOR

Filed Feb. 6, 1926

3 Sheets-Sheet 1



“Inventors”
Frederick C. Heinen.
William W. Darrow.

By

Charles W. Allen
Attys

April 8, 1930.

F. C. HEINEN ET AL

1,753,375

METAL CAR DOOR

Filed Feb. 6, 1926

3 Sheets-Sheet 2

Fig. 2

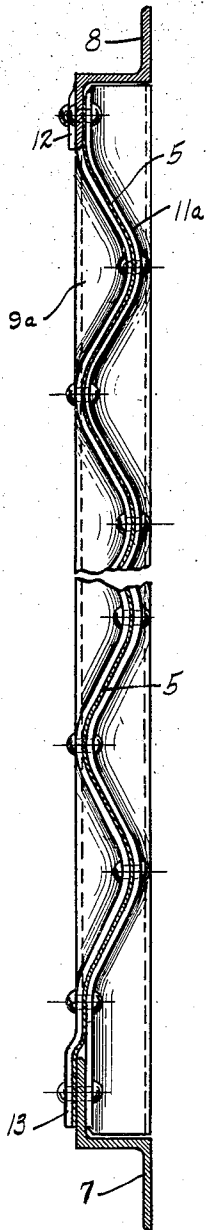
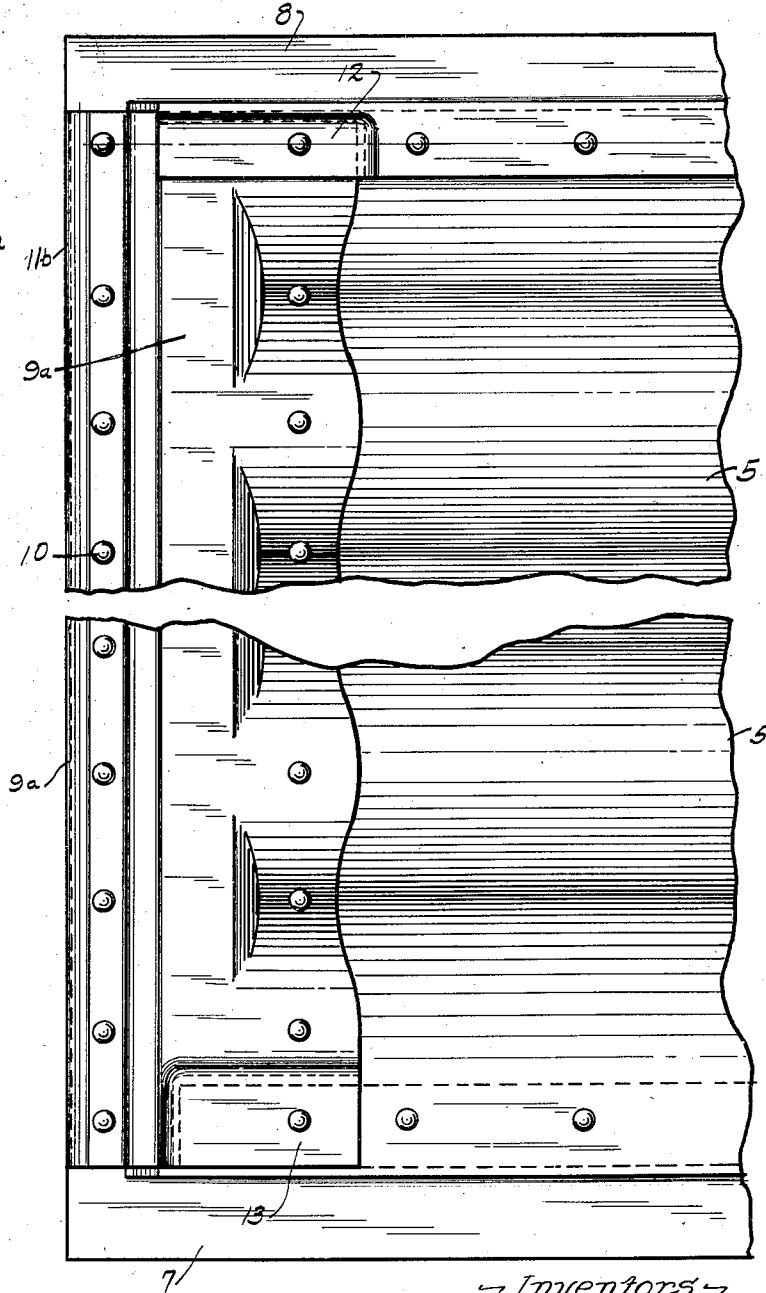


Fig. 3



→ Inventors →
Frederick C. Heinen
William W. Darrow

Charles W. Hill
Att'y.

Br →

April 8, 1930.

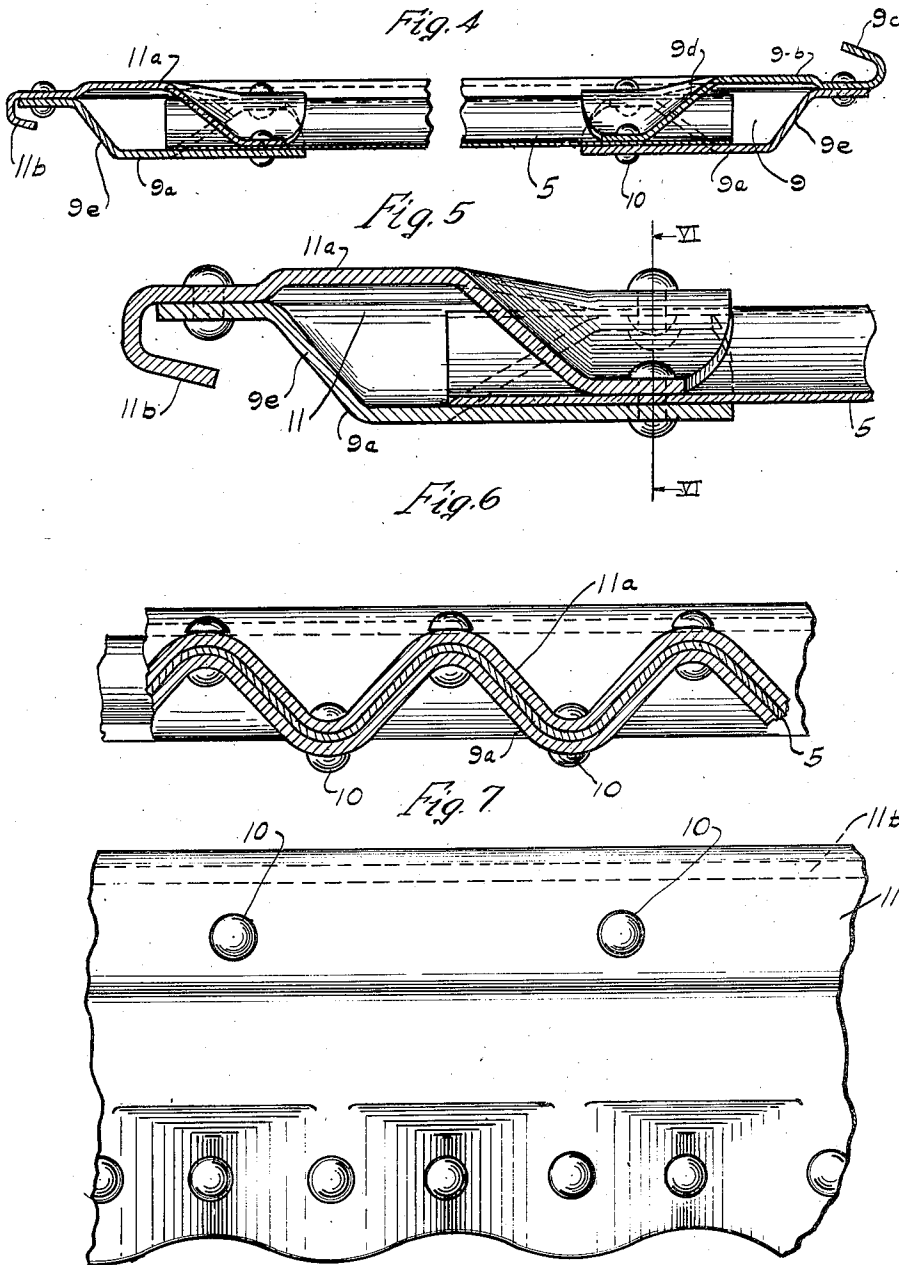
F. C. HEINEN ET AL

1,753,375

METAL CAR DOOR

Filed Feb. 6, 1926

3 Sheets-Sheet 3



"Inventors"
Frederick C. Heinen.
William W. Darrow

By

Charles Hill Att'y's

UNITED STATES PATENT OFFICE

FREDERICK C. HEINEN AND WILLIAM W. DARROW, OF CHICAGO, ILLINOIS, ASSIGNORS
TO CAMEL COMPANY, OF EAU CLAIRE, WISCONSIN, A CORPORATION OF ILLINOIS

METAL CAR DOOR

Application filed February 6, 1926. Serial No. 86,396.

This invention relates to a metal car door for railway box cars and the like.

It is among the objects of this invention to provide a construction in which panels or rolled sheets of standard width may be used for doors of various width, which, possesses but few parts and can hence be economically manufactured and in which rivets need not be countersunk to avoid the car when the door is operated and which possesses the requisite strength and rigidity combined with the proper lightness.

With these and other objects in view, as will become more apparent in the following description and disclosures, this invention comprises the novel structure and combinations hereinafter described and more particularly pointed out and defined in the appended claims.

In the accompanying drawings which illustrate a preferred embodiment of this invention and in which similar reference numerals refer to similar features in the different views.

On the drawings:

Figure 1 is a fragmentary front elevational view of a railway box car illustrating a pair of sliding doors involving this invention;

Fig. 2 is an enlarged sectional view upon the line II—II of Figure 1;

Fig. 3 is an enlarged broken front elevational view of the door adjacent one end thereof;

Fig. 4 is a broken sectional view upon the line IV—IV of Figure 1;

Fig. 5 is an enlarged fragmentary sectional view of the end construction of the door;

Fig. 6 is a sectional view upon the line VI—VI of Figure 5; and

Fig. 7 is a fragmentary enlarged plan view of the end marginal structure of the door.

As shown on the drawings:

In the drawings there is illustrated a portion of one side of a railway box car 1 having a door opening which in the present instance is closed by a pair of doors 2 and 3 involving this invention. These doors are suspended by means of the usual roller hangers 4, the rollers of which travel upon suitable tracks or rails as is common in the art. The doors 2

and 3 are of substantially similar construction, except that one is wider than the other.

This invention concerns itself more directly with the door structure whereby commercially rolled and corrugated sheets of standard size may be used in the construction of doors of different width. The door 2 shows a corrugated panel 5 of one standard size while the door 3 shows a corrugated panel 6 of another standard size.

It will be noted that the panels are transversely corrugated from one edge to the other edge for stiffening the same. A Z-bar 7 is secured to the lower margin of each panel and a Z-bar 8 is secured to the upper margin of each panel. The Z-bars for the doors 3 will of course be shorter than the Z-bars for the doors 2.

The lateral margins of the panels are enclosed by corrugated sheaths, the free margins of which are deformed for weatherproofing purposes, the attached margins being corrugated to fit the panel. The sheaths are substantially similar except for the weatherproofing features, and they generally consist of a pair of opposed metal members having intermediate spaced portions with connected margins. The sheaths on the door 2 are illustrated in detail in Figures 4 to 7 and will now be described.

In referring to said figures, it will be noted that the rear edge sheath 9 consists of a pair of metal members 9^a and 9^b. The inner member 9^b has a rear deformed margin providing an inwardly and forwardly sloping flange 9^c adapted for engaging an angle member on the car as is well known in the art. The forward portion of the member 9^b slopes outwardly as indicated at 9^d. The end of the sloping portion extends parallel to the door and is secured to the member 9^a preferably by rivets 10 or the like. The member 9^a has a rearwardly and inwardly sloping portion 9^e, the forward end of which extends parallel to the plane of the panel for securement to the member 9^b preferably by rivets 10 or the like.

The sheath 11 at the front edge of the door 2 is best shown in Figure 5. It consists of a member 9^a as previously described and a member 11^a which is similar to the member

9^b with the exception of the outer end which is deformed to provide a weather proofing flange 11^b which extends outwardly and rearwardly. The edges of the sheath 11 are connected together preferably by rivets 10 or the like.

The door panel 5 has its lateral margins confined between the respective members of the sheaths and is secured thereto by the rivets 10.

It will be noted as shown in Figure 4 that the lateral edges of the panel 5 are spaced inwardly from the sloping ends 9^a of the sheaths. It, therefore, would have been possible to bring the sheaths closer together until the side edge of the panel abut the sloping ends 9^a to form a narrower door. It will also be apparent that since the lateral margins of the panel extend into the sheaths much further than necessary. The sheaths might have been spaced further apart upon the door to provide a wider door. Obviously thru the instrumentality of the sheaths it is possible to construct doors of various widths by using the same standard size panel. Sheaths of different width may also be used where there is an appreciable variation in the width of doors. A pair of sheaths of certain size will however provide for ordinary small variations.

In order to prevent the weather from entering at the top of the sheaths, the Z-bar 8 is outwardly offset as indicated at 12 (Figures 1 and 3) to overlap the upper margins of the sheaths. To shed the rain and weather at the lower ends of the sheaths, the outer members thereof together with the panel 5 are offset over the Z-bars as indicated at 13.

With reference to Figure 2 it will be noted that the upper flange of the Z-bar 7 at its ends lies between the panel 5 and the inner member of the sheath.

It will also be appreciated that while the sheaths make it possible to construct doors of different width, they also stiffen the door and impart sufficient rigidity thereto to prevent objectionable weaving or flexure.

We are aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention and we therefore, do not propose limiting the patent granted hereon otherwise than as necessitated by the prior art.

We claim as our invention:

1. In a railway car door, a metal panel and sheaths enclosing the lateral margins of the panel, the outer margin of one sheath having an inwardly and forwardly bent flange, the outer margin of the other sheath having an outwardly and rearwardly directed flange.

2. In a car door, a metal panel having corrugations extending from one edge to the

opposite edge and corrugated sheaths enclosing said edges, said sheath having a telescopic adjustment with relation to the panel for varying the width of the door, said sheaths having outer deformed margins.

3. In a car door, a metal panel having corrugations extending from one edge to the opposite edge, a metal sheath enclosing each edge, each sheath comprising a pair of members with intermediate spaced portions and connected margins.

4. In a car door, a metal panel having corrugations extending from one edge to the opposite edge, and stiffening corrugated sheaths enclosing said edges, each sheath comprising spaced intermediate portions and an outer deformed margin for the purpose set forth.

5. In a metal car door, a marginal stiffening sheath comprising a pair of members having intermediate spaced portions and connected margins, one margin being deformed for the purpose set forth.

6. In a metal car door, a marginal sheath comprising a pair of corrugated members having intermediate spaced portions and connected margins, one margin being deformed for the purpose set forth.

7. In a metal car door, a metal panel, a metal sheath consisting of superposed members embracing the lateral margin of each panel, and slidable in relation therewith before securement to secure the proper width of door; each sheath having a deformed outer margin for weather proofing purposes.

In witness whereof, we have hereunto subscribed our names.

FREDERICK C. HEINEN.
WILLIAM W. DARROW.