March 29, 1932. A. S. BARROWS 1,851,693

CAR DOOR

Original Filed June 27, 1924

Fig. 1.

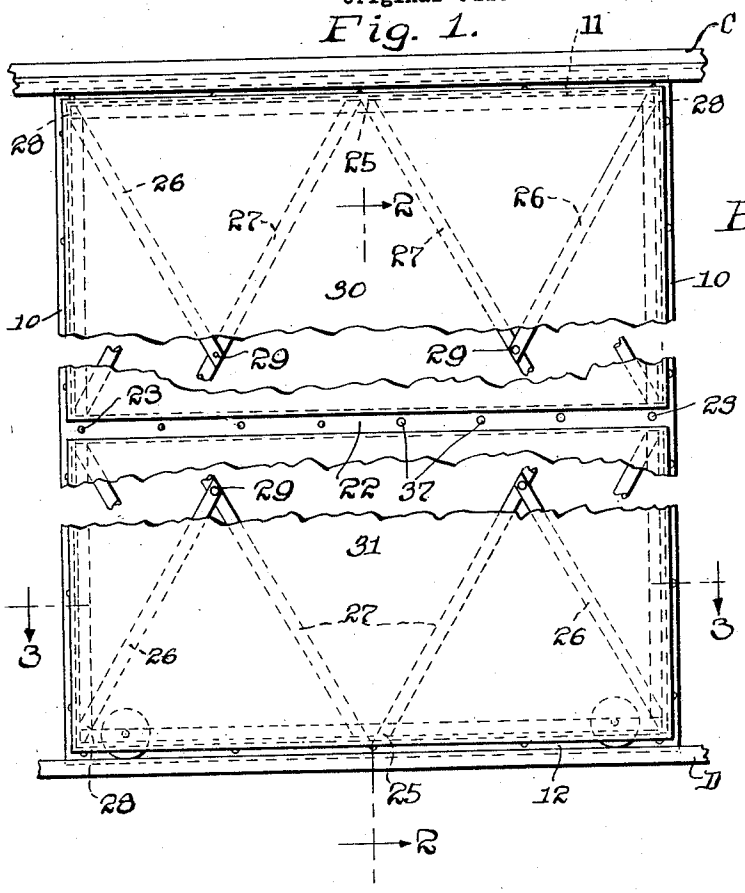


Fig. 2.

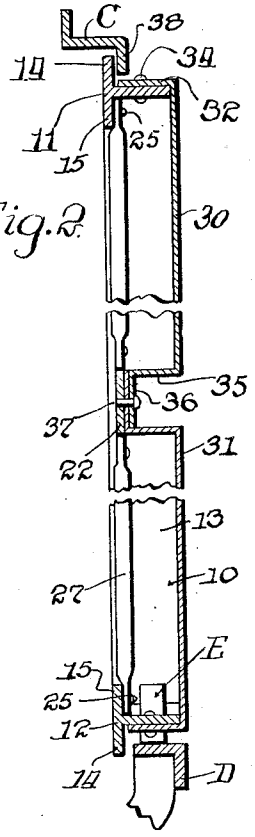
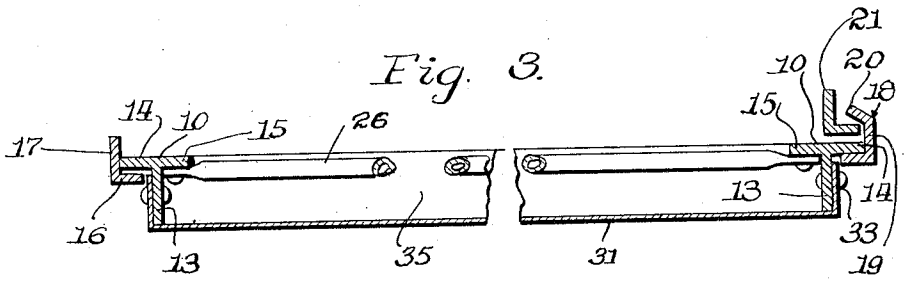


Fig. 3.



Witness
William P. Kilroy

Inventor,
Allan S. Barrows
By Joseph Harris
His Atty.

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UNITED STATES PATENT OFFICE

ALLAN S. BARROWS, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO THE YOUNGSTOWN STEEL DOOR CO., OF CLEVELAND, OHIO, A CORPORATION OF OHIO

CAR DOOR

Original application filed June 27, 1924, Serial No. 722,759. Divided and this application filed May 25, 1928. Serial No. 280,426.

This invention relates to improvements in car doors. This application is a division of my application Ser. No. 722,759, for doors, filed June 27, 1924, now Patent 1,752,286, issued April 1, 1930.

One object of my invention is to provide a house car door having a metal frame with diagonally arranged braces combined with sheet metal panels or fillers whereby to obtain a door of great strength while being of relatively light weight.

More specifically, an object of my invention is to provide a slidable car door having a frame comprised of commercial sections rigidified by diagonally disposed braces, the entire framework and braces being sheathed or covered by sheet metal panels.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawings forming a part of this specification, Fig. 1 is an elevational view of a car side door embodying my improvements, portions being broken away in order to better accommodate the view on the sheet. Fig. 2 is a vertical sectional view corresponding approximately to the line 2—2 of Fig. 1; parts being broken away in this view also. And Fig. 3 is a horizontal sectional view corresponding to the line 3—3 of Fig. 1, parts being broken away.

In carrying out my invention, I provide a suitable frame of rectangular outline, the same being shown as comprised of two vertical T-bars 10—10, an upper horizontal T-bar 11, and a lower horizontal T-bar 12. The T-bars are so arranged as to have their medial flanges 13—13 extending outwardly, that is, away from the inner plane of the door, and with their base flanges 14 and 15 extending outwardly and inwardly, respectively, with reference to the center of the door.

With this construction, it is apparent that the inwardly extending flanges 15 are around all sides of the door and provide efficient means for the attachment of the braces, hereinafter described. Also, the outwardly extended base flange 14 of the front vertical T-bar 10 is adapted to enter beneath the flange 16 of a weather-sealing member 17, such as customarily provided on cars of the house type. Similarly, the outwardly extended flange 14 of the rear T-bar 10 provides a suitable means of attachment for a weather-sealing strip 18, having an inwardly extending web 19 and forwardly and inwardly extending flange 20, the latter seating beneath a cooperating weather strip 21, such as customarily provided on cars.

Preferably, the door is braced at a point approximately midway of its height by a transversely extending brace 22 secured at its ends as indicated at 23—23 to the inwardly extending base flanges 15 of the side T-bars, said brace 22 preferably being of flat plate-like form, as best indicated in Fig. 2.

To further brace and rigidify the frame of the door, I provide four diagonally extending braces 27—27. Each brace 27 has one end thereof secured to the inwardly extending base flange 15 of a side T-bar at a point closely adjacent the cross brace 22, as indicated at 23—23. From this point of attachment, the brace 27 extends diagonally toward the center point of the corresponding top or bottom edge of the door and is there secured to the correspondingly inwardly extending base flange 15 of the upper or lower T-bar 11 or 12, as indicated at 25—25. The braces 27 are preferably of tubular formation, flattened at their ends, as best indicated in Figs. 2 and 3, where the same are attached to the corresponding T-bars. As further means of bracing the door frame and particularly to prevent skewing thereof, I provide secondary braces 26 of similar construction to the braces 27, each of said secondary braces 26 being secured by its flattened end in a corner of the frame, as indicated at 28 and having its other flattened end secured to an intermediate flattened portion of the corresponding adjacent brace 27, as indicated at 29—29. With this construction, it is evident that the frame and bracing therefor may be fabricated at comparatively small expense; the same is relatively light; and is well adapted to resist distortion in any direction.

The frame and braces are shown as covered or sheathed by upper and lower sheet

metal panels 30 and 31. Each of said panels has three of its marginal portions flanged inwardly at right angles, as indicated at 32—33, so as to overlie and be secured to the corresponding medial flanges of the frame T-bars, as by the series of rivets 34. At the horizontal center of the door, the sheet metal panels 30 and 31 are bent inwardly at right angles, as indicated at 35—35 and thence are extended parallel to the main portions of the sheets, as indicated at 36—36, the latter flanges being overlapped and riveted to the horizontal brace 22, as by the series of rivets 37, thus providing a somewhat channel-like form at the center of the door.

My improved door may be used with either top hung or bottom hung fixtures, a bottom hung arrangement being shown for purposes of illustration and comprising rollers E, rotatably journaled, within the door and having portions thereof projecting through suitable slots in the bottom of the door and riding upon a horizontal track D, it being noted that the depending or outer base flange 14 of the bottom T-bar is positioned behind the track D and serves to prevent the door from coming off the track. The upper edge of the door may be held in place by any suitable means, such as the guard rail C having a depending flange 38 overlying the adjacent base flange 14 of the upper T-bar 11.

Although I have herein shown and described what I now consider the preferred manner of carrying out my invention, the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a car door, the combination with a frame comprised of upper, lower and side T-bars having the medial flanges thereof extending outwardly; and sheet metal panels having their marginal portions flanged and overlying said medial flanges and secured thereto.

2. In a car door, the combination with a frame comprised of upper, lower and side T-bars having the medial flanges thereof extending outwardly; sheet metal panels having their marginal portions flanged and overlying said medial flanges and secured thereto; and diagonally disposed braces each secured at its ends to intermediate points of two T-bars.

3. As an article of manufacture, a car side door comprising a frame having vertical front and rear and upper horizontal rolled members, each of said members including a section extending perpendicularly to the main plane of the door; a weather sealing formation along the rear vertical edge of the door adapted to cooperate with a corresponding sealing arrangement carried by a car side; metal braces for said frame, each of which is riveted to one of said vertical side members at a point substantially midway of the height thereof and extended diagonally downwardly to an intermediate part of the bottom edge of the door and there secured, whereby to diagonally brace substantially the lower half of the door; and sheet metal panels having their marginal portions secured to said frame members.

In witness that I claim the foregoing I have hereunto subscribed my name this 14th day of May, 1928.

ALLAN S. BARROWS.