(No Model.)

E. L. PHIPPS.

FREIGHT CAR DOOR.

No. 463,127. Patented Nov. 10, 1891.

Fig-1-

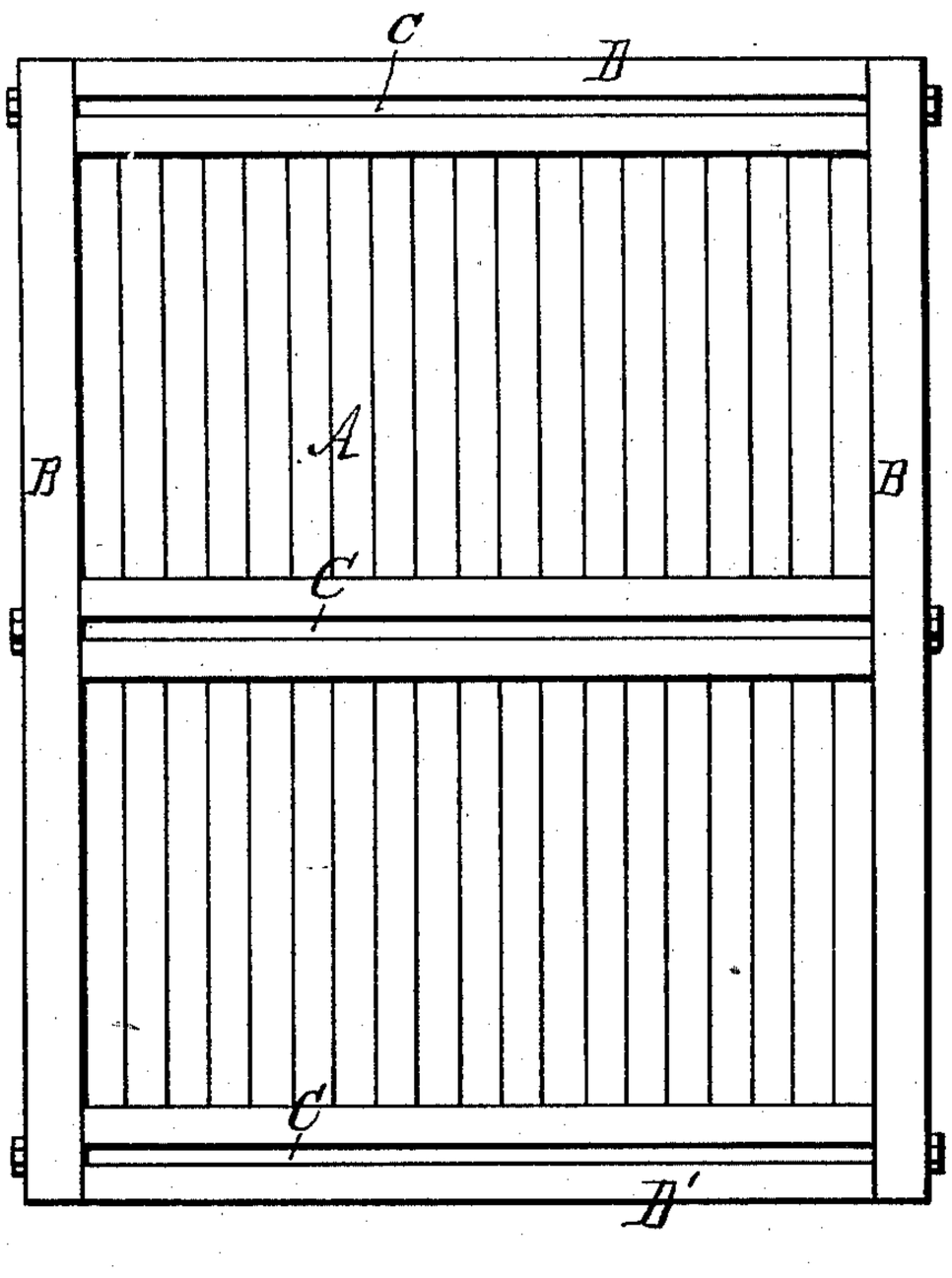


Fig-5.

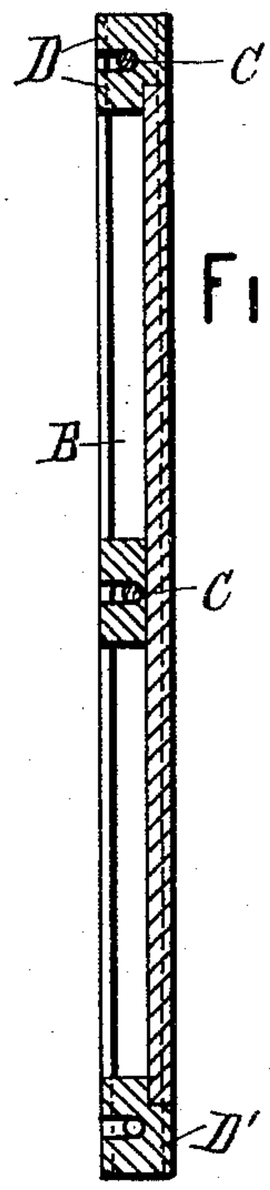


Fig-2-

Fig-3-

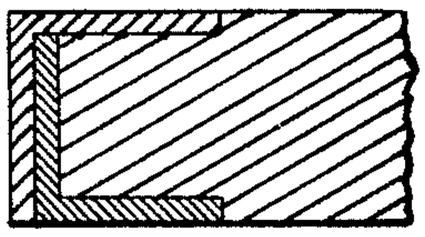
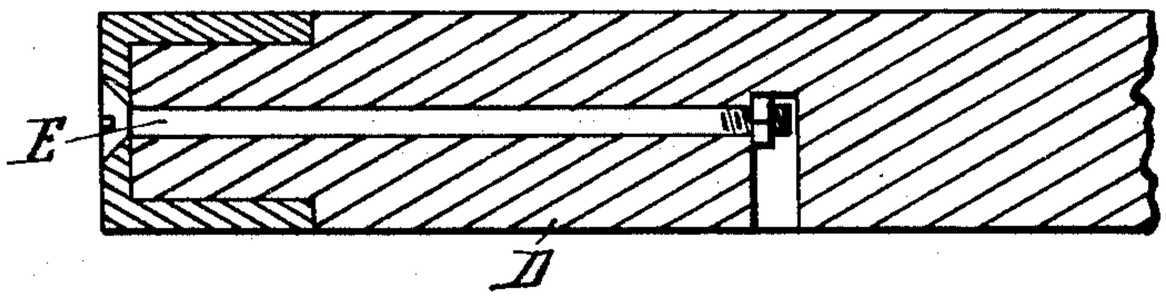


Fig-4-



WITNESSES

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EDWARD L. PHIPPS, OF MILFORD, MICHIGAN.

FREIGHT-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 463,127, dated November 10, 1891.

Application filed July 15, 1890. Serial No. 358,808. (No model.)

To all whom it may concern:

Be it known that I, EDWARD L. PHIPPS, a citizen of the United States, residing at Milford, county of Oakland, State of Michigan, have invented a certain new and useful Improvement in Freight-Car Doors; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object the production of a car-door which shall be lighter in weight, cheaper to construct, and much more durable than the doors now in use, which has other advantages that I will hereinafter mention; and it consists, essentially, in forming the upright posts or edges of the door of metal instead of wood, as has heretofore been the case.

In the drawings, Figure 1 is an elevation of the inner face of my improved door. Fig. 2 is a cross-section of the same, illustrating the construction. Fig. 3 illustrates a variation in the form of the metallic edge. Fig. 4 is a part section illustrating a variation in the manner of engaging the parts together. Fig. 5 is a section at right angles to Fig. 2.

In carrying out my invention, A represents the panel of a freight-car door. Ordinarily these panels have around the edge a framework consisting of upright wooden pieces and cross-pieces at the top and bottom, with usually diagonal pieces extending from corner to corner and crossing at the middle. There is thus a large amount of weight made necessary in order to gain the required strength. This weight I dispense with by providing the upright metallic pieces B at each upright edge of the panel.

C are tie-rods extending from edge to edge of the door to tie the metallic pieces firmly against the panel.

D D′ are cross-pieces extending across the upper and lower edges and completing the frame.

It is obvious that instead of using wooden cross-pieces at the top and bottom, as shown, I might provide metallic cross-pieces at these points also; but I have found that the cheapest and most effective construction is that shown. Where what is termed a "flush door" is desired, I make the construction, as shown in Fig. 4, with the head of the bolt E countersunk and the nut engaging in the cross-pieces D D′. These bolts E in this case take the place of the tie-rods C. It is also obvious that the metallic pieces may be any suitable form in cross-section—that is, they may be channel-iron, such as shown in Fig. 2, or two angle-irons, as in Fig. 3—it being only necessary that a U-shaped channel be formed which may closely embrace the ends of the cross-pieces. These channel-uprights are rabbeted into the wooden cross-pieces which are made flush therewith upon both the inside and outside of the door. This affords a smooth flush finish upon both the inside and outside, while the ends of the cross-pieces, both outside and inside, are thoroughly protected. Moreover, the bolts, running longitudinally of the cross-pieces, do away with the necessity of any small bolts or rivets and afford ready means for the removal of the side uprights in the making of repairs, &c., and do away with the expense of uniting the frame-work originally by dowels and tenons.

The advantages of this form of door over the old style are numerous. It is cheaper, lighter, stronger, and more durable. It will not warp, as is the case with the present form of wooden door. Because of the metallic binding at the edges the latter are preserved intact and cannot be broken or worn away, as is now the case.

What I claim is—

1. A car-door consisting of an upper, a lower, and an intermediate cross-piece, having the spaces filled with board panels A flush with the outer faces of the cross-pieces and the edges of the door closely embraced by U-shaped channel-iron uprights B, rabbeted in flush with the faces of the cross-pieces and bound in place by bolts running longitudinally of the cross-pieces, substantially as described.

2. A car-door consisting of an upper, a

lower, and an intermediate cross-piece, having the spaces filled with board panels A flush with the faces of the cross-pieces and the edges of the door closely embraced by U-shaped channel-iron uprights B, rabbeted in flush with the faces of the cross-pieces and bound in place by bolts E, running longitudinally of the cross-pieces and having countersunk heads in the latter, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

EDWARD L. PHIPPS.

Witnesses:

MARION A. REEVE,

W. H. CHAMBERLIN.