No. 717,540. PATENTED JAN. 6, 1903.

H. C. BUHOUP.

METALLIC CAR CONSTRUCTION.

APPLICATION FILED OCT. 7, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

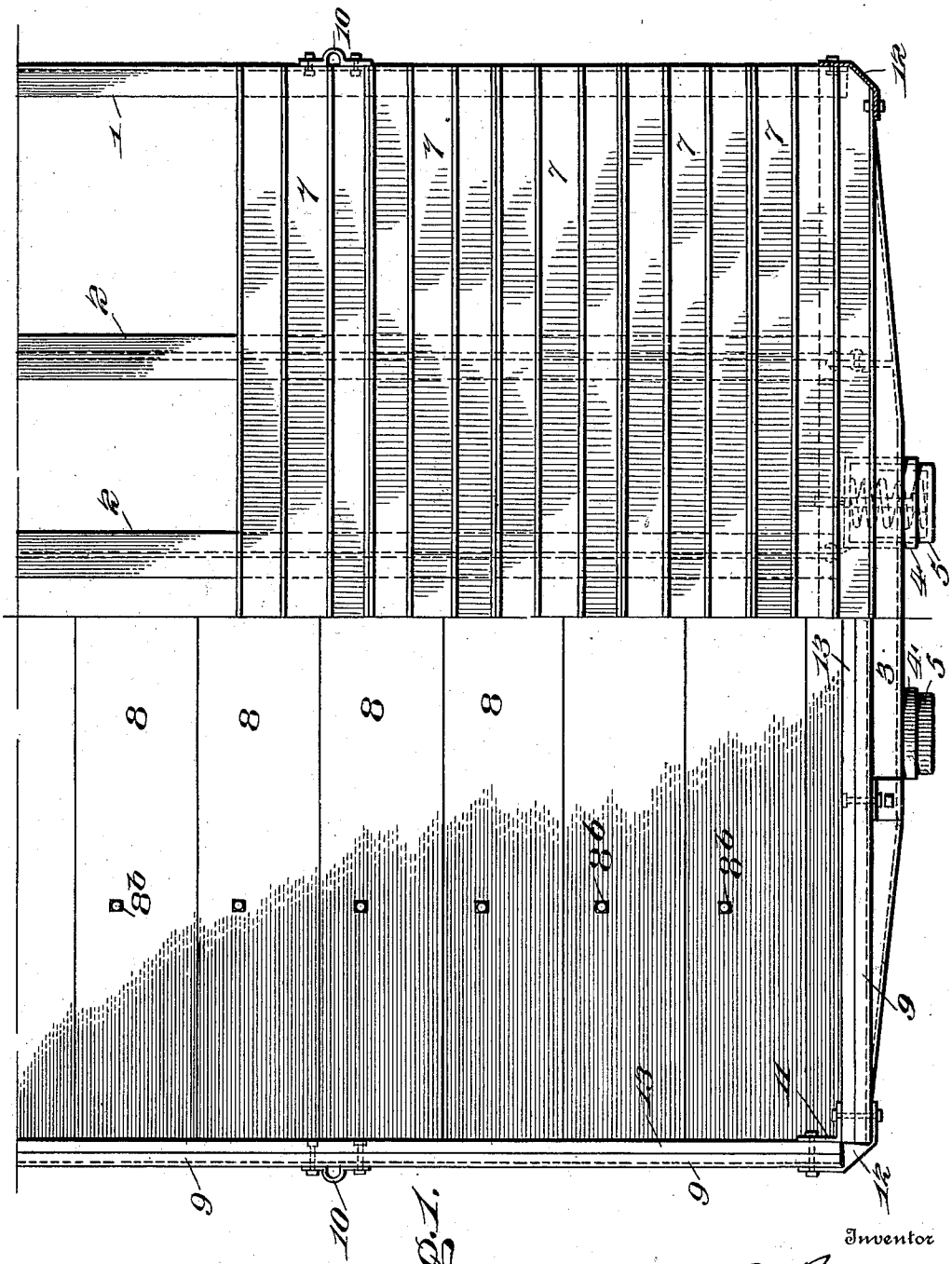


Fig. 1.

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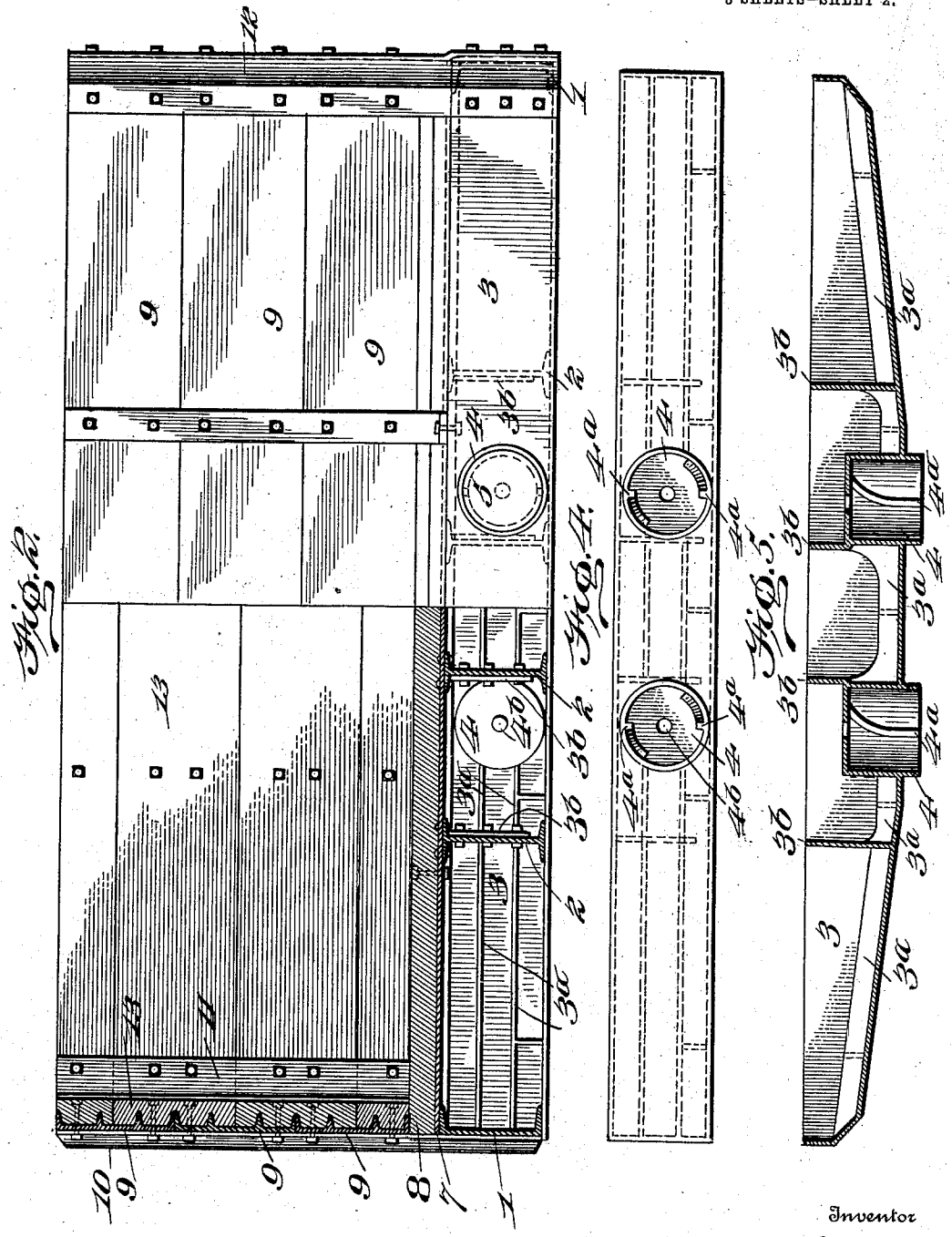
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NO MODEL. 3 SHEETS—SHEET 2.



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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 3.

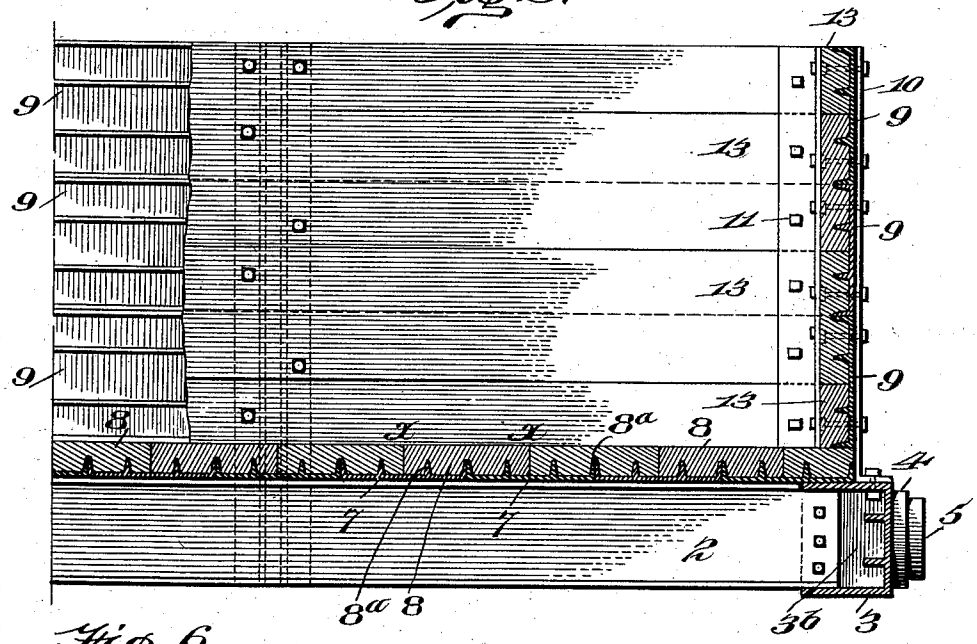


Fig. 6.

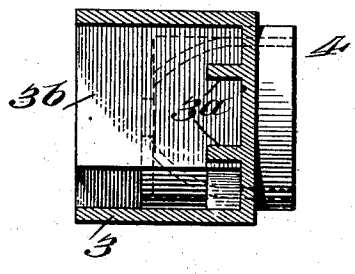


Fig. 8.

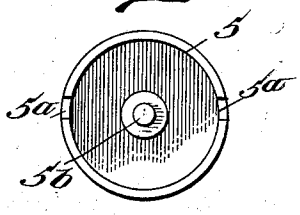


Fig. 9.

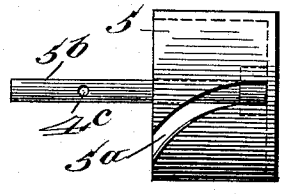


Fig. 7.

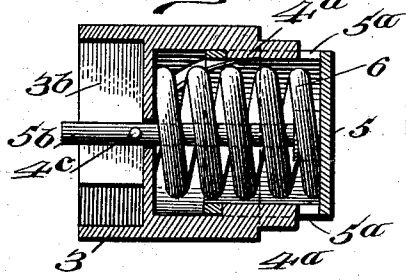


Fig. 11.

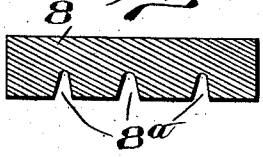


Fig. 10.

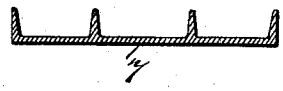


Fig. 12.



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UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS.

METALLIC-CAR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 717,540, dated January 6, 1903.

Application filed October 7, 1902. Serial No. 126,269. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Metallic-Car Constructions; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of the end of a car embodying my invention, the right-hand portion being in horizontal section and the flooring thereof removed. Fig. 2 is an end view of a car embodying my invention, the right-hand portion being in elevation and the left-hand portion in vertical transverse section. Fig. 3 is a longitudinal central vertical section of the end of a car embodying my invention, a portion of the lining of the side wall of the car broken away. Fig. 4 is a detached face view of the end sill of the car, the buffer-caps and buffer-springs being removed to show the friction-flanges on the interior of the spring-chamber. Fig. 5 is a horizontal central section of the end sill shown in Fig. 4. Fig. 6 is an enlarged vertical transverse section of the end sill between the buffers. Fig. 7 is an enlarged central section of one of the buffers, the buffer-spring being in elevation. Figs. 8 and 9 are respectively end and side elevations of the buffer-cap. Fig. 10 is a transverse section of one of the flanged plates used in the car construction. Fig. 11 is a transverse section of one of the lining and flooring planks employed where a flanged plate is used in the car construction. Fig. 12 is a transverse section of a modified form of plate for use in lieu of the flanged plate.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of metallic cars for the transportation of merchandise in general, and especially such as ore, coal, &c., which from their nature, bulk, and weight tend to overload and deteriorate the structure, and has for its objects to reduce the weight and stiffen the car structure the better to enable it to withstand strains and shocks and to protect the interior metallic walls and floor of the car against injury from contact with its contents, as well as to facilitate the cleaning and repair of the car without materially reducing the capacity of the car.

To obtain the first and last of the above-noted results, I construct the car of flanged or corrugated sheet metal and of planking kerfed or channeled to receive the flanges or corrugations or flanges and corrugations of the sheet metal, the latter forming the interior walls and flooring of the structure, whereby a lighter or thinner sheet of metal may be employed, the apposition or extended contact of the wood lining therewith supporting the same against bending or buckling, as well as protecting the same from deterioration, and such a construction embodies the main feature of my invention.

There are other minor features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, 1 1 are side sills, 2 2 intermediate sills, and 3 one of the end sills, of a car, of which the intermediate and side sills may be I-beams or other suitable forms of structural iron, while the end sills 3 are preferably steel castings open on the inner face and reinforced by longitudinal and transverse (or vertical) webs or flanges 3^a 3^b on the interior, the latter so disposed as to correspond with the arrangement of the intermediate sills 2 2, to the ends of which (see Figs. 2 and 3) the webs 3^b are bolted, riveted, or otherwise secured.

Cast integral with or, if preferred, attached to the end sill 3 are the spring-pockets 4 of the buffers, preferably of cylindrical form and having on their interior spirally-disposed friction-flanges 4^a, which engage in similar slots of the buffer 5. (See Figs. 7, 8, and 9.)

5 indicates the buffer-cap, of cylindrical shape and cup form, provided with the spirally-disposed slots 5^a, which recieve the spirally-disposed friction-flanges 4^a, and with a center post or bolt 5^b, which passes through a hole 4^b in the bottom of the spring-pocket, said post or bolt having an eye 4^c for a pin, which confines the cap 5 to the spring-pocket 4 and the buffer-spring 6 between the cup and pocket, as indicated in Figs. 1 and 7 of the drawings. As a result of the above-speci-

fied construction of buffer or its equivalent the buffer-spring will be dampened or controlled in both compression and expansion by the friction incident to the spirally-disposed slot and flange, and the car structure will be relieved of those intense sudden shocks due to the action and reaction of the buffer-springs as commonly applied to the end sills.

The metallic floor of the car is composed of either flanged or corrugated plates 7, (see Figs. 10 and 12,) transversely disposed with relation to the side sills 1 1 and intermediate sills 2 2, the flanges extending upward into the car, and said plates may be connected with each other by rivets passing through the contacting flanges and with the sills by suitable bolts or rivets. Upon said metallic floor comprised of the flanged or corrugated plates 7 is laid a wooden floor comprised of planking 8, having in its under surface a series of kerfs or channels 8^a, adapted to receive the ribs or flanges of the flanged or corrugated flooring-plates 7, and said kerfs or channels are of such depth as to bring the under surface of the planking in extended contact with the upper surface of the plates 7, whereby the buckling of the plates is prevented and an exceedingly-stiff composite bottom is obtained for the car with comparatively light or thin metal plates and with the loss of little or no carrying capacity. By preference the plates 7 and planking 8 are arranged to break joints, as at x, (see Fig. 3,) and the planking 8, if desired, may be secured to the metallic flooring by bolts 8^b (see Fig. 1) or in other suitable manner. The side and end walls of the car are or may be also constructed of like corrugated or flanged plates 9, arranged with the flanges turned inward, connected by rivets through the adjacent flanges and braced at intervals by vertically-disposed flanged channel or U bars 10. Of the wall-plates 9 those constituting the side walls are preferably disposed longitudinally of the car and those constituting the end walls transversely of the car, the side and end plates being united at the corners by an inner angle-plate 11 and an outer cap-plate 12, or in lieu of the latter a cast-steel corner-post (see Fig. 1) may be employed, if desired. The lower plates 9 of the side and end walls of the car may be extended down so as to rest upon or contact with the floor-plates 7, but preferably as facilitating repairs the lower flange of lower plates 9 (see Figs. 2 and 3) rests upon the floor-planking 8.

The interior side and end walls of the car are or may be lined by longitudinally and transversely disposed planking 13, having in that face which comes in contact with the wall-plates 9 a series of kerfs or channels in all respects like that of the flooring 8 and for a like purpose—viz., to receive the flanges and corrugations of the metallic plates of which said side and end walls are comprised, and also, as in the case of the flooring, the planking of the side and end walls is preferably arranged to break joints with the plates 9 of said walls.

As a result of the construction hereinbefore described a very stiff and strong car structure can be obtained by combining comparatively thin and light flanged metallic plates with planking without loss of carrying capacity, and the extended close contact of the plate and lining from which the stiffness and strength of the composite structure arises will by reason of the modification of the braking and buffing shocks by the friction-buffers of the end sill remain intact under the severe service incident to railway transportation, while repairs to either shell or lining can be circumscribed and readily made.

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

1. In a composite car structure, the combination of flanged or corrugated outer plates, and interior planking having kerfs or channels for the reception of the flanges or corrugations of the outer metallic plates, said outer plates and inner planking being in extended contact; substantially as and for the purposes specified.

2. In a car structure, a composite car-bottom comprised of flanged or corrugated metal bottom plates and superposed planking having kerfs or channels for the reception of the flanges or corrugations of the metallic bottom plates; substantially as and for the purposes specified.

3. A car structure consisting of composite floor and walls, said floor and walls comprised of flanged or corrugated metallic plates, and planking having kerfs or channels, said plates and planking being in extended contact; substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 4th day of October, 1902.

HARRY C. BUHOUP.

Witnesses:
G. P. RITTER,
EDWIN S. CLARKSON.