

No. 639,145.

Patented Dec. 12, 1899.

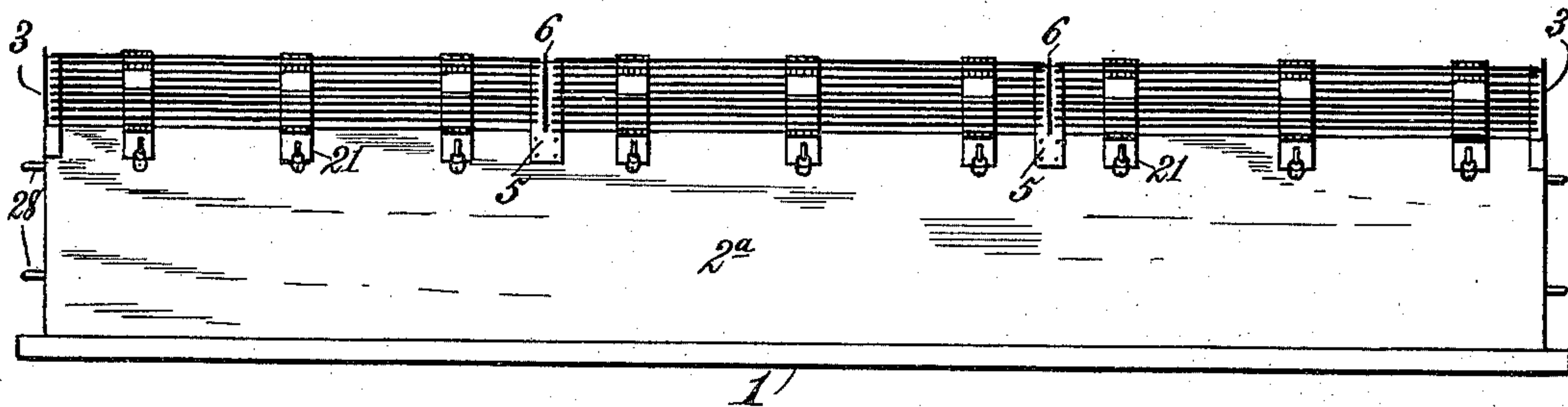
D. BUTLER.  
COAL CAR.

(Application filed June 17, 1899.)

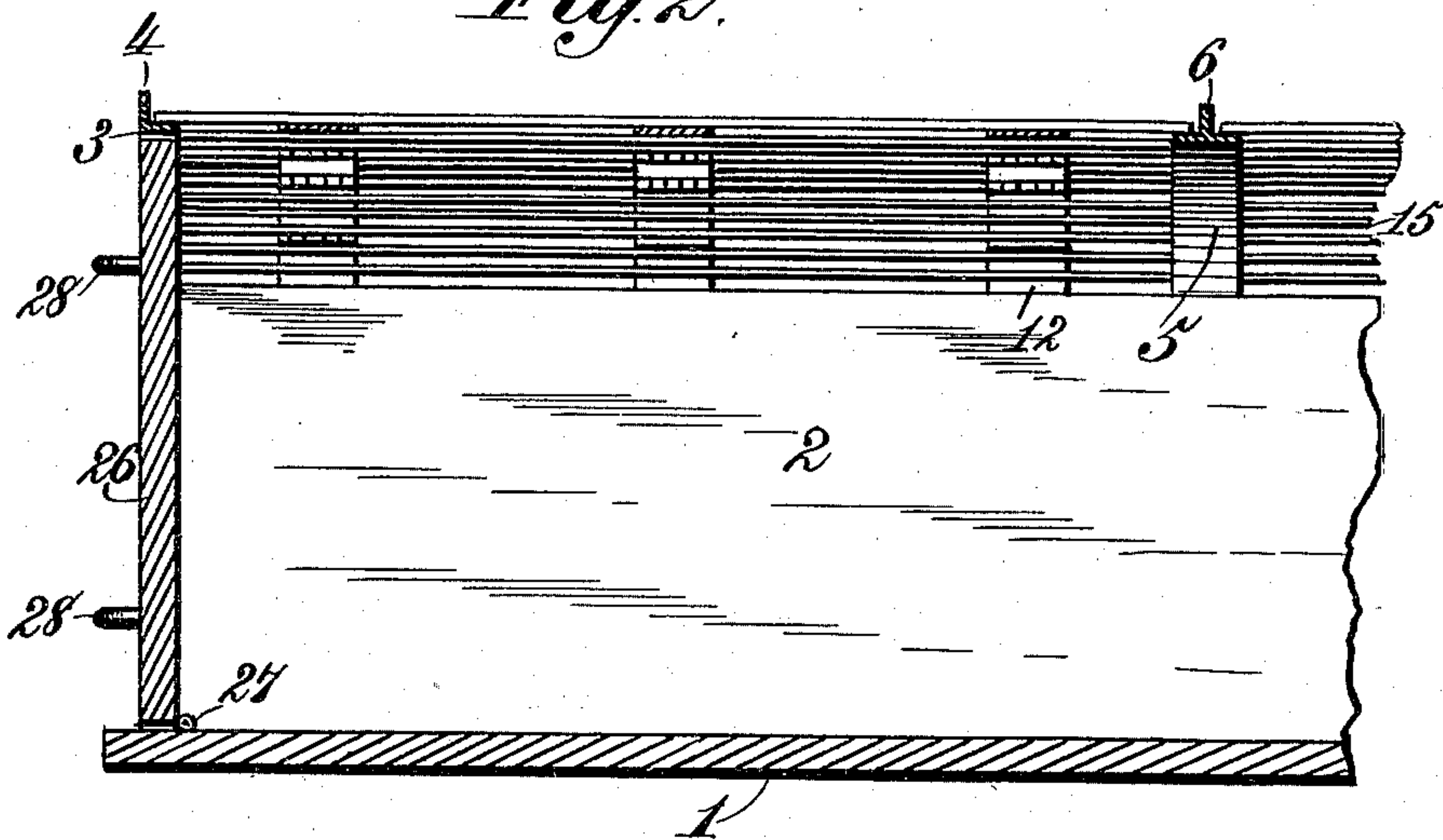
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*Fig. 1.*



*Fig. 2.*



Witnesses.  
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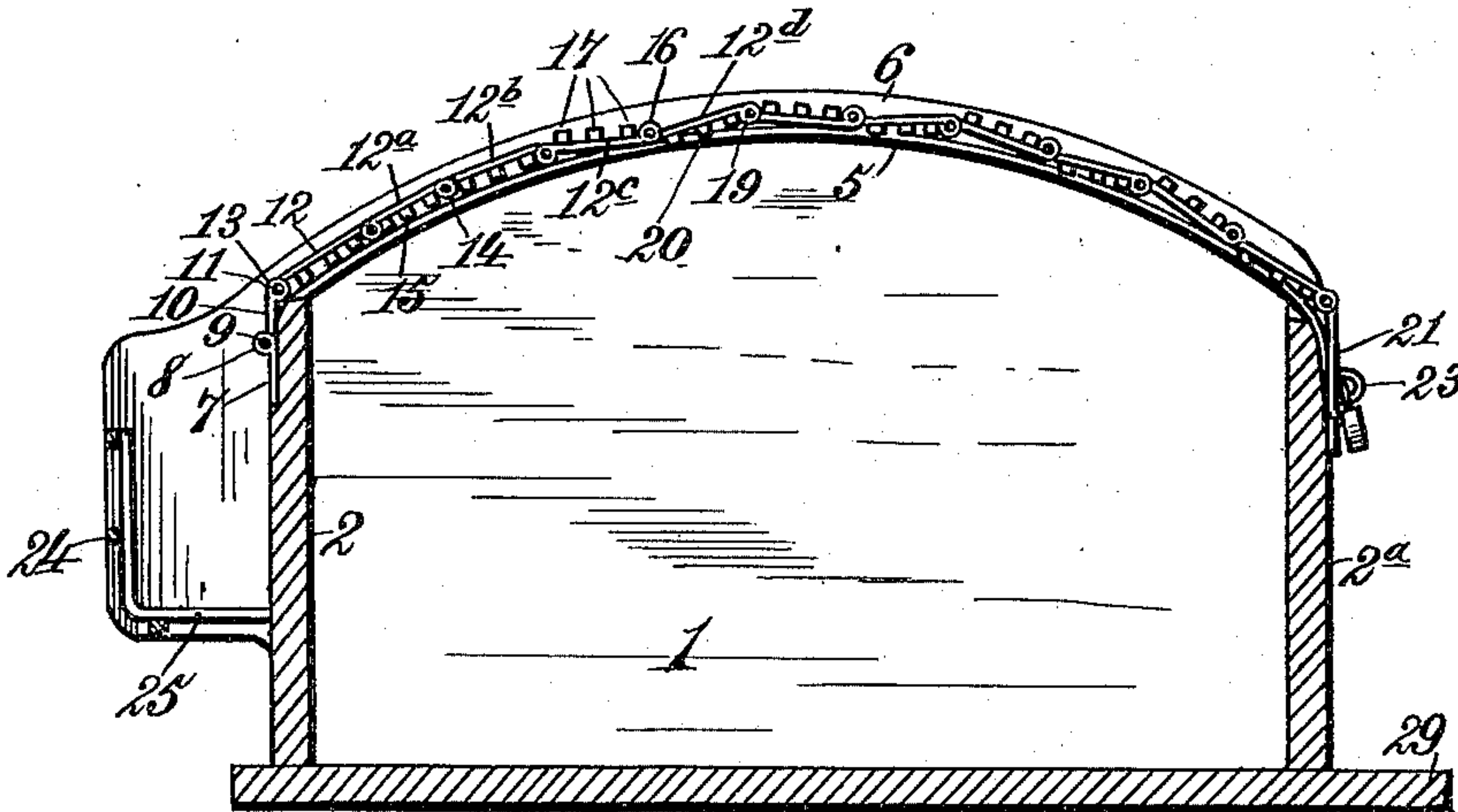
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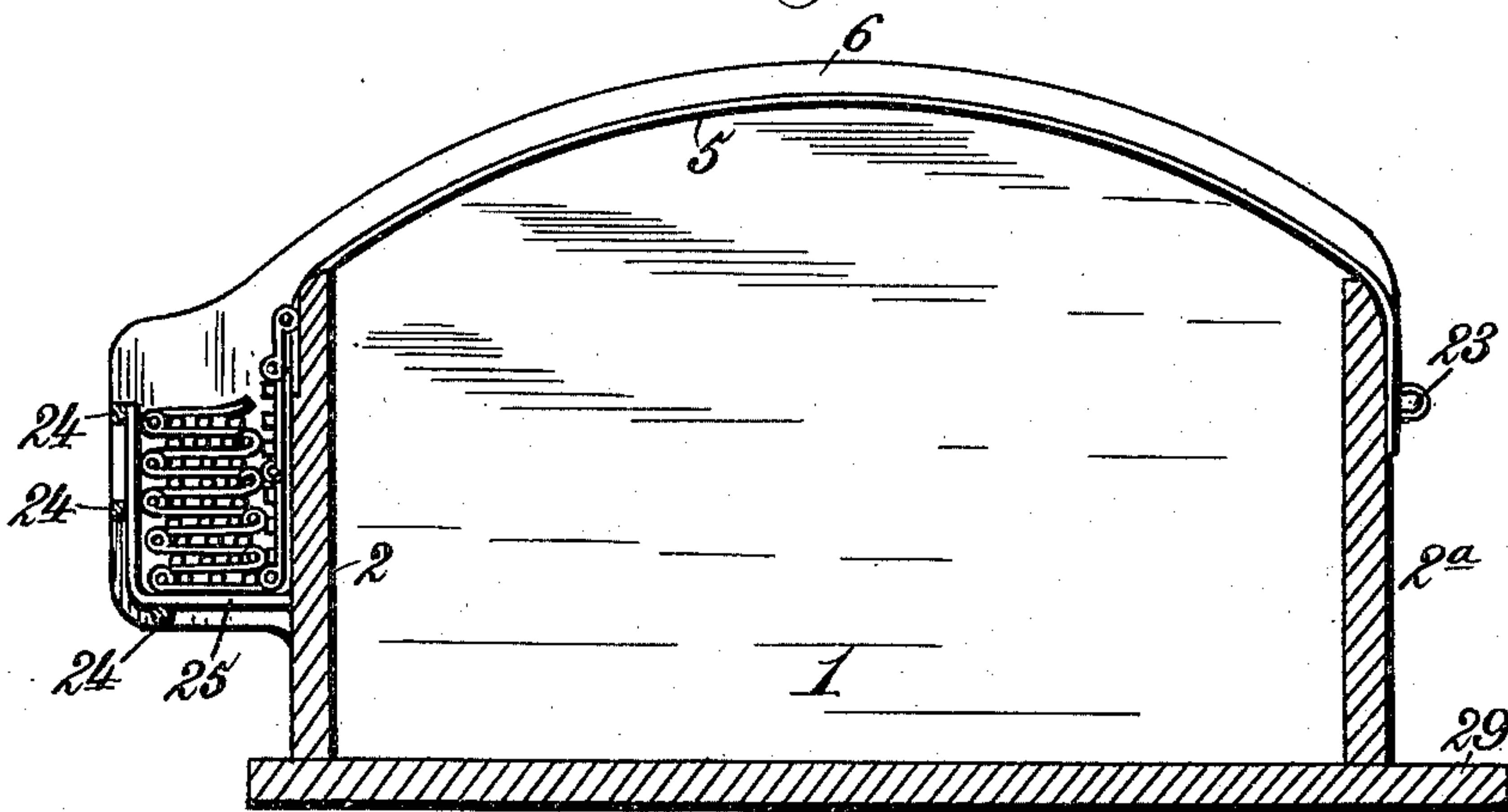
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*Fig. 3.*



*Fig. 4.*



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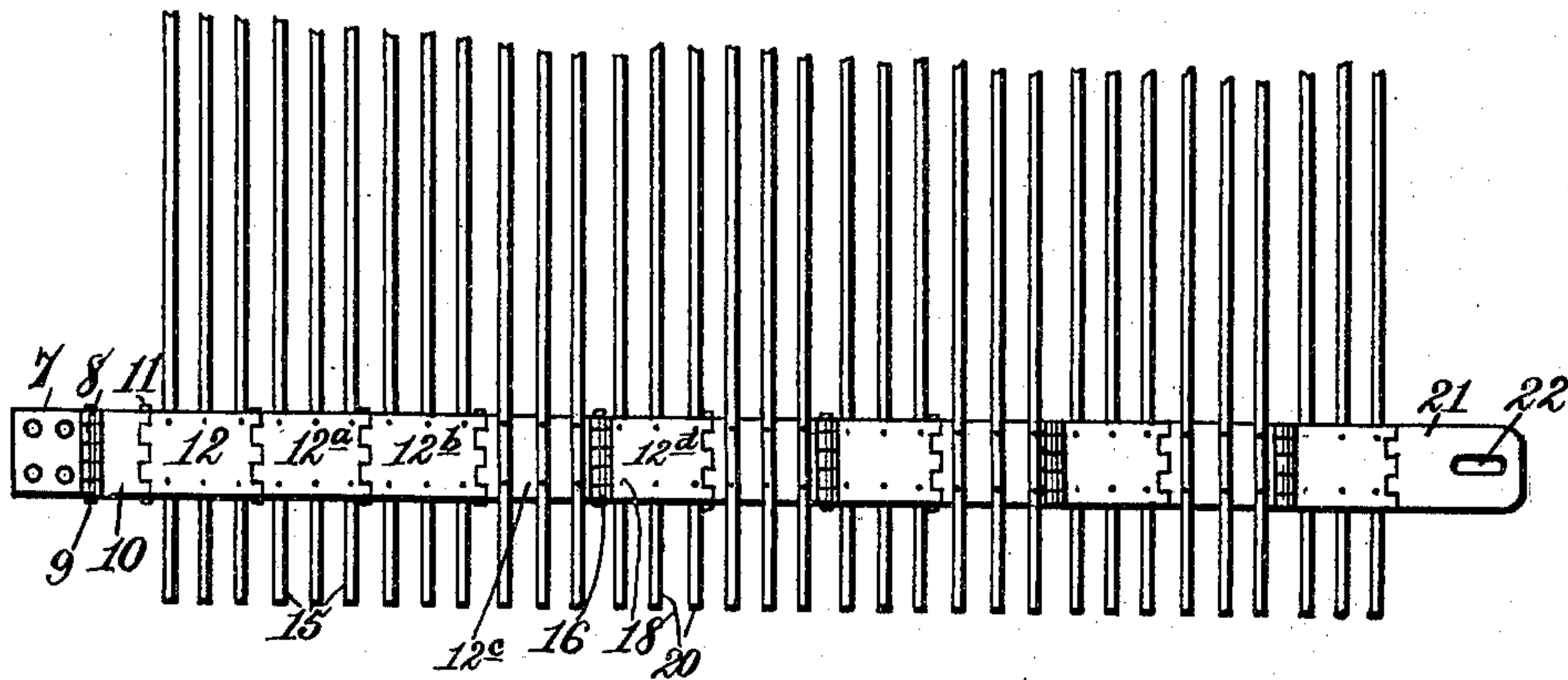
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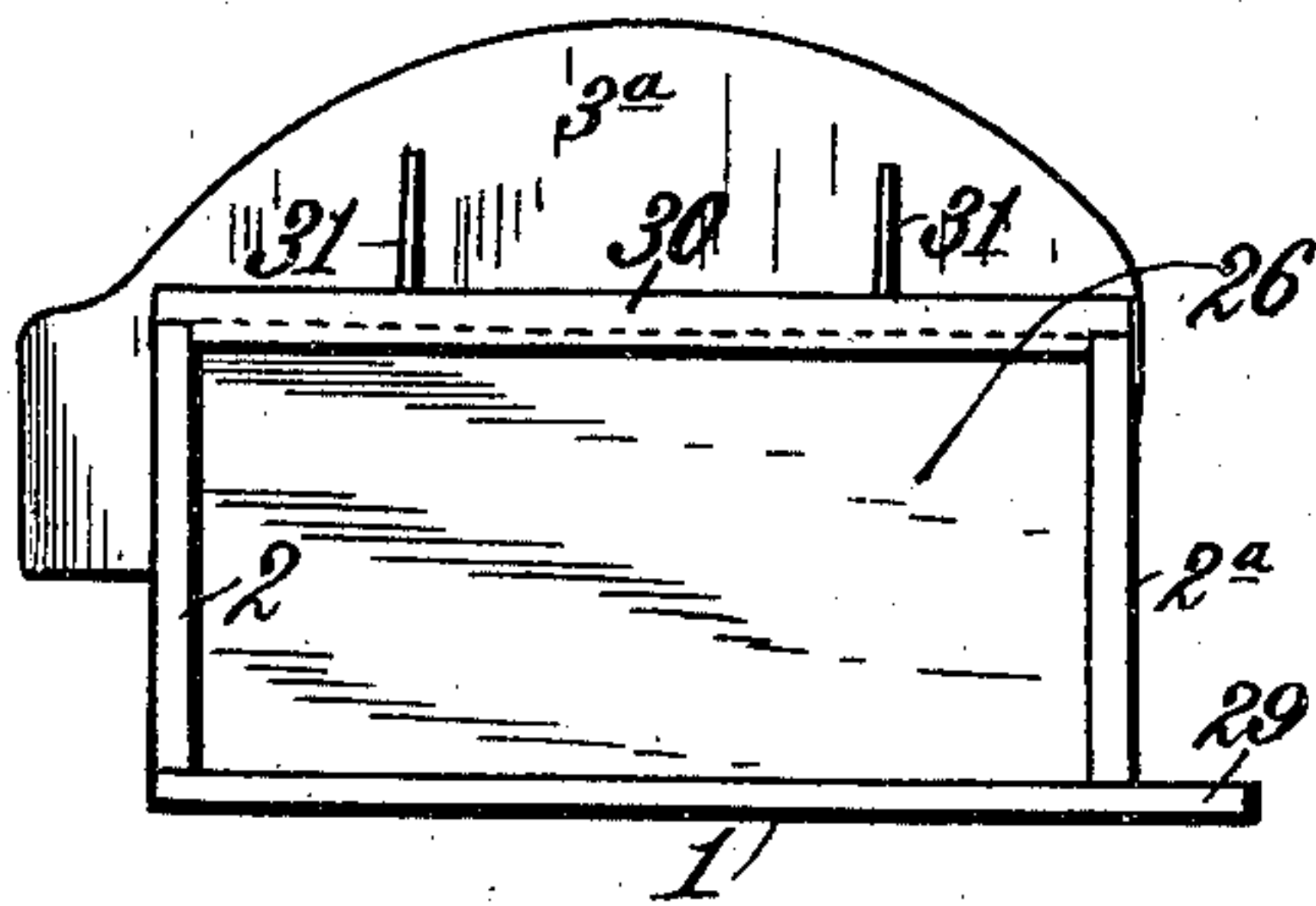
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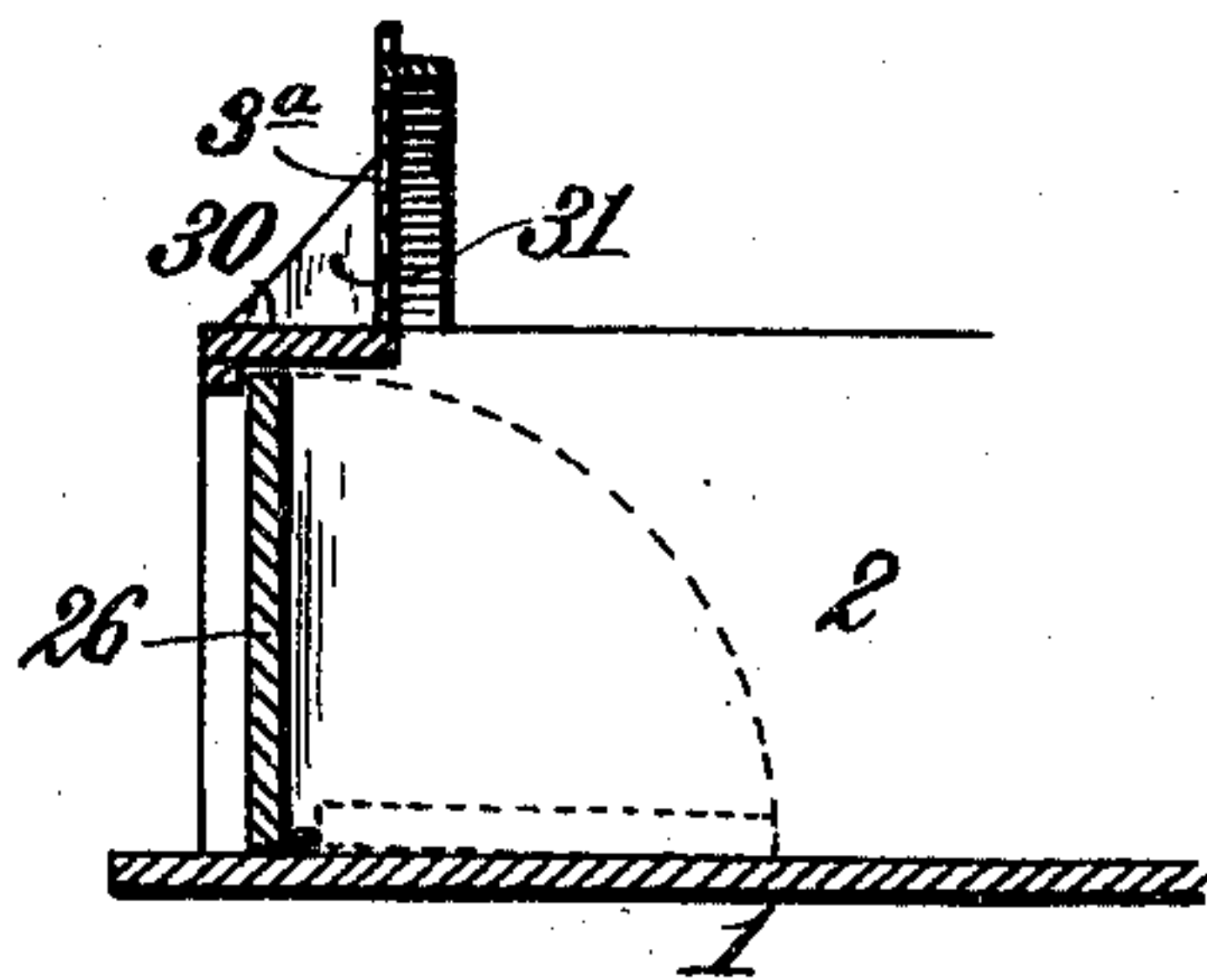
*Fig 5.*



*Fig 6.*



*Fig 7.*



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*Att'y.*



# UNITED STATES PATENT OFFICE.

DENNIS BUTLER, OF WATSON, ILLINOIS.

## COAL-CAR.

SPECIFICATION forming part of Letters Patent No. 639,145, dated December 12, 1899.

Application filed June 17, 1899. Serial No. 720,958. (No model.)

*To all whom it may concern:*

Be it known that I, DENNIS BUTLER, a citizen of the United States, residing at Watson, in the county of Effingham and State of Illinois, have invented new and useful Improvements in Coal-Cars, of which the following is a specification.

This invention relates to railway coal-cars, and has for its object to provide such a car with a simple, inexpensive, strong, and durable removable, folding, and flexible cover that is adapted to be easily and readily folded up into a small and compact form and stored in a receptacle fitted to one side of the car to enable the latter to be loaded in the usual manner and which when in place on top of the car will prevent the loss of coal through shaking and jolting of the car or from pilfering.

To these ends my invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a side elevation of the body of my improved car, showing the cover drawn over in place. Fig. 2 is a longitudinal central sectional view of one end of the car. Fig. 3 is a transverse sectional view. Fig. 4 is a similar view showing the cover folded up in its cage or receptacle. Fig. 5 is a detail plan view illustrating the manner of hinging together the panels of the cover, and Figs. 6 and 7 are detail views of a slightly-modified construction.

Referring to the drawings, the numeral 1 indicates the body of a railway coal-car of ordinary construction, open at the top, as usual. To each end of the sides 2 and 2<sup>a</sup> of the car are attached arched plates 3, the outer edge portions of said plates being provided with upwardly-projecting flanges 4. Similar arched plates 5 are attached to the sides of the car at equal distances from the ends of the latter and from each other, each of said plates being double the width of the plates 3 and provided with a central upwardly-projecting flange 6. The arched plates constitute supports for the folding flexible covers, hereinafter described, and the flanges 6 divide the car into three sections, each of which is pro-

vided with a cover, as will hereinafter appear. Inasmuch as the covers or the three sections of the cover are constructed precisely alike, one only need be described. To the side 2 of the car, between each pair of arched plates, are fixed three hinge-straps 7, two of said hinge-straps being respectively arranged near the arched plates and the third being disposed midway between the other two. The upper ends of the hinge-straps are provided with outwardly-turned knuckles 8, to which are hinged by pintles 9 similar straps 10, the knuckles on the upper ends of which are turned and lie in substantially the same horizontal plane as the top of the car or the ends of the curved portions of the arched plates 3.

It will be understood that where the terms "inner" and "outer" or "upper" and "lower" are employed throughout the description with reference to the folding cover the cover is supposed to be in its extended or unfolded position over the top of the car.

To the inwardly-turned knuckles on the upper ends of the straps 10 are hinged by pintles 11 hinge-leaves 12, the knuckles 13 on the lower ends of which are of course turned inwardly to correspond to the knuckles on the upper ends of the straps 10. To the hinge-leaves 12 are in like manner hinged hinge-leaves 12<sup>a</sup> and 12<sup>b</sup>, the knuckles 14 of which are turned inwardly, and riveted to the under side of said hinge-leaves 12, 12<sup>a</sup>, and 12<sup>b</sup> are transverse bars 15, the ends of which are adapted to rest on the arched supports between the flanges of the latter. The ends of the bars 15 do not in practice quite extend to said flanges in order that the cover may have ample play in folding and unfolding. Three bars 15 are preferably riveted to each set of hinge-leaves, but the number may of course be varied as desired. To the knuckles on the upper ends of the hinge-leaves 12<sup>b</sup> are hinged correspondingly-formed hinge-leaves 12<sup>c</sup>, the knuckles 16 of which are turned outwardly, and to the outer sides of each set of hinge-leaves 12<sup>c</sup> are riveted bars 17. To the outwardly-turned knuckles 16 of the hinge-leaves 12<sup>c</sup> are hinged by correspondingly-turned knuckles 18 hinge-leaves 12<sup>d</sup>, the knuckles 19 of which are turned inwardly, and to the under side of each set of hinge-leaves 12<sup>d</sup> are riveted bars 20. The succeed-



ing hinge-leaves are hinged together in similar manner—that is to say, the knuckles on the ends of the hinge-leaves 12<sup>c</sup> nearest the side 2 of the car are turned inwardly, while the knuckles on the opposite ends of the hinge-leaves 12<sup>c</sup> are turned outwardly, and the bars carried by said hinge-leaves are riveted to the outer sides thereof. The leaves 12<sup>d</sup>, which alternate with the hinge-leaves 12<sup>c</sup>, have their knuckles on the ends nearest the sides 2 of the car turned outwardly and the knuckles on the opposite ends turned inwardly, and the bars 20 are riveted to the inner sides of the said hinge-leaves. Each set of hinge-leaves, together with their transverse bars, constitutes a panel, and by hinging the panels together in the manner described and by attaching the bars of the panels alternately on opposite sides of the hinge-leaves the panels may be folded compactly and closely together in opposite directions.

The end straps 21 are slotted, as indicated at 22, and when the cover is in its unfolded position engage or fit over eyebolts or staples 23, fixed to the side 2<sup>a</sup> of the car, and may be locked thereto by any suitable or preferred means.

As shown in the drawings, the flanges of the arched plates are extended down the side 2 of the car, and fitted one above the other in said extended ends of the flanges are bars 24. Similar bars 25 are fitted at their lower and inner ends in the side of the car and project outward therefrom as far as the lowermost of the bars 24 and are then bent up at right angles and riveted to the inner sides of the bars 24. A cage or receptacle is thus formed for the reception of the cover when the latter is folded up.

Let it be assumed that the cover is unfolded and stretched over the top of the car, the ends of the bars resting on the arched plates. Then to uncover the car it is only necessary to unfasten the end straps 21 and push the cover upward and backward, when it will automatically slide over and down the arched supports or slides and fold itself within its cage or receptacle. In the initial portion of the movement of the cover the straps 10 will fold outwardly and downwardly against the straps 7, and then the hinge-leaves 12, 12<sup>a</sup>, and 12<sup>b</sup>, all of which have their knuckles arranged on the inner side of the cover, will fold down against the side of the car and on the bottom of the cage or receptacle, and thereafter as the cover drops into the cage the panels 12<sup>c</sup> and 12<sup>d</sup> will fold alternately backward and forward upon themselves, the alternate arrangement of the hinge-knuckles and bars causing the entire cover to fold closely together and compactly into the cage or receptacle, whereby it will be entirely out of the way to permit the car to be loaded in the usual manner and to avoid striking obstructions on the side of the railway. To unfold the cover, it is only necessary to grasp the cover at its free edge and draw it over the arched supports or slides.

It will of course be understood that there will be a cover such as above described arranged between each two arched supports, and in the drawings I have shown the car divided into three sections, each provided with a cover; but it will be understood that the car may be divided into as many sections, each provided with a folding cover, as may be desired.

It will be noted that the end arched plates 3 are not attached to the ends 26 of the car-body, and hence the latter may be hinged so as to drop down, as indicated in dotted lines 27, whereby the car may be adapted for carrying lumber and articles too long to be arranged in the car. The ends 26 of the car are also provided with the usual hand and foot holds 28. A car equipped with covers constructed as described makes it difficult for the trainmen to walk over the tops of the cars, and in order to provide a convenient and safe footway I arrange a running-board 29 on the side 2<sup>a</sup> of the car, and the running-board may be conveniently formed by extending the floor of the car beyond the side 2<sup>a</sup>.

By forming the cage or receptacle of open-work in the manner described no dirt, coal, trash, or the like can collect in and lumber up the receptacle.

In Fig. 6 of the drawings I have shown a slightly-modified manner of constructing the ends of the car. As shown in said figure, the upper edges of the ends 26 of the car are straight or horizontal, and fastened to the upper edges of the sides of the car above the ends 26 are transverse planks or bars 30. To the inner edges of the planks or bars 30 are attached the arched plates 3<sup>a</sup>, which instead of being formed on the arcs of circles, as before described, are segment-shaped and are braced and held rigidly in place by triangular-shaped metallic straps or braces 31, fixed to said arched plates and to the planks or bars. The lower edges of the ends 26 of the car-body are hinged to the car-bottom to fold inwardly, as before described. Such arrangement permits the ends of the car to be folded down flat against the floor of the car, where they will be out of the way, and adds strength and rigidity to the car-body.

Having described my invention, what I claim is—

1. The combination with a car having an open top, of a flexible cover attached at one end to the side of the car and comprising a series of panels constructed to alternately fold backward and forward upon each other, and a cage or receptacle attached to one side of the car for the reception of the cover when the latter is folded up, substantially as described.

2. The combination with a car having an open top, of a flexible cover attached at one end to the side of the car and comprising a series of panels constructed to alternately fold backward and forward upon each other, and an open-work cage or receptacle attached to one side of the car for the reception of the



cover when the latter is folded up, substantially as described.

3. The combination with a car having an open top, of arched plates attached to the sides of the car, and a flexible cover attached at one end to the side of the car and comprising a series of rigid panels hinged to each other and constructed to alternately fold backward and forward on top of one another, substantially as described.

4. The combination with a car having an open top, of arched supports attached to the sides of the car, and a flexible cover attached at one end to the side of the car and comprising a plurality of hinge-leaves hinged together and constructed to alternately fold backward and forward upon each other, and bars fixed transversely on the hinge-leaves and arranged to rest at their ends on the arched supports, substantially as described.

5. The combination with a car having an open top, of arched supports attached to the side of the car, and a flexible cover attached at one end to the side of the car and comprising a plurality of hinge-leaves hinged together and constructed to alternately fold backward and forward upon each other, and bars fixed alternately to the inner and outer sides of the hinge-leaves, substantially as described.

6. The combination with a car having an open top, of arched supports attached to the

side of the car, and a flexible cover attached at one end to the side of the car and comprising a plurality of hinge-leaves hinged together, the knuckles of the hinge-leaves being turned alternately in opposite directions and bars fixed to the hinge-leaves alternately on the inner and outer sides of the latter, substantially as described.

7. The combination with a car having an open top, of arched supports attached to the side of the car, a plurality of pairs of strap-hinges the lowermost strap of each of which is attached to the side of the car, and a flexible cover comprising a plurality of hinge-leaves hinged together and constructed to alternately fold forward and backward upon each other and bars fixed transversely to the hinge-leaves alternately on the inner and outer sides of the latter, the end hinge-leaves at one side of the cover being hinged to the free straps of the said strap-hinges, and the knuckles of the hinge-leaves next to the fixed end of the cover being turned inward, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DENNIS BUTLER.

Witnesses:

JESSIE THOMPSON,  
HENRY B. KEPLEY.