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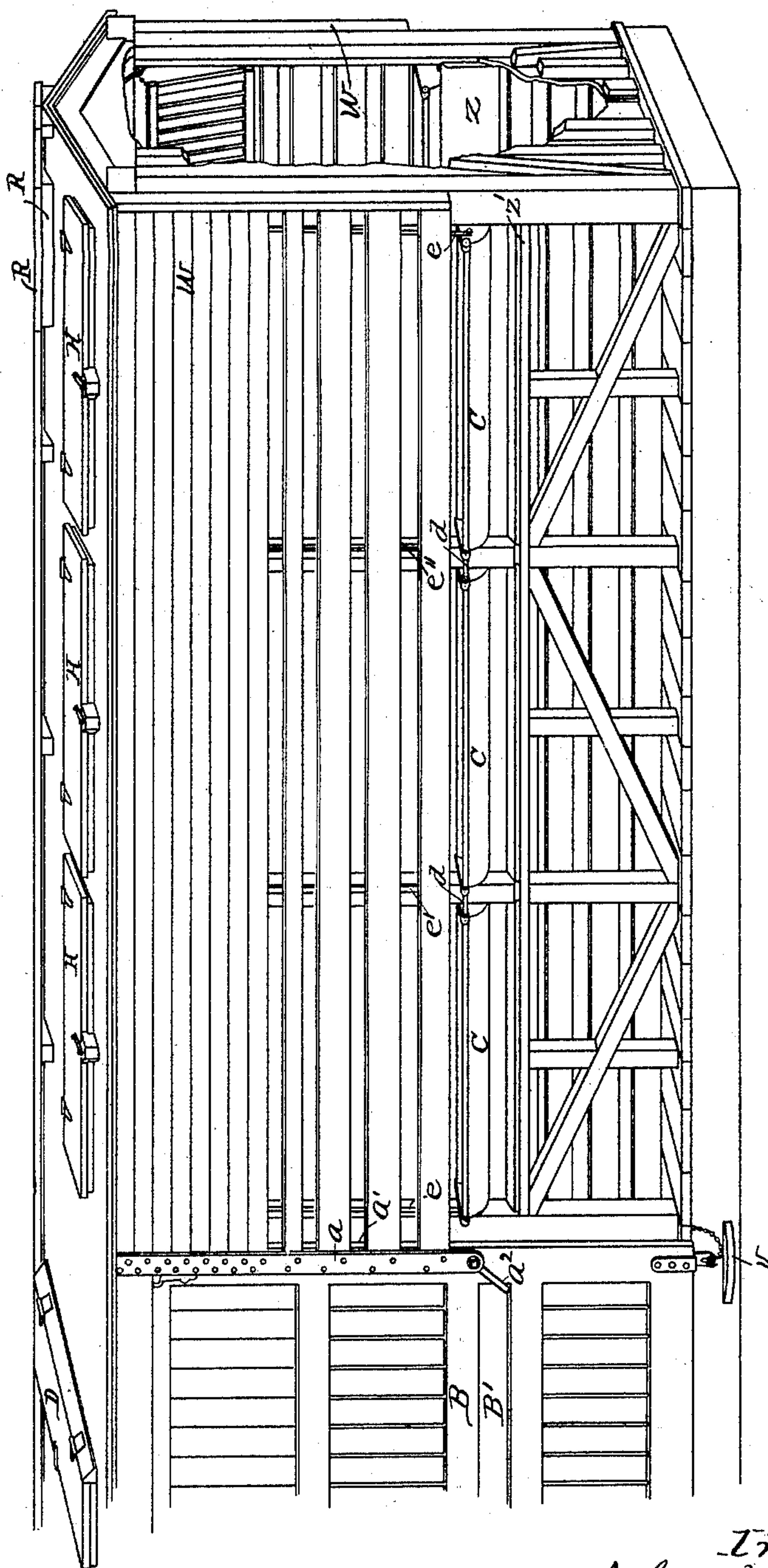
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J. M. BURTON.  
STOCK CAR.

No. 497,945.

Patented May 23, 1893.

Fig. 1.



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Fig. 2.

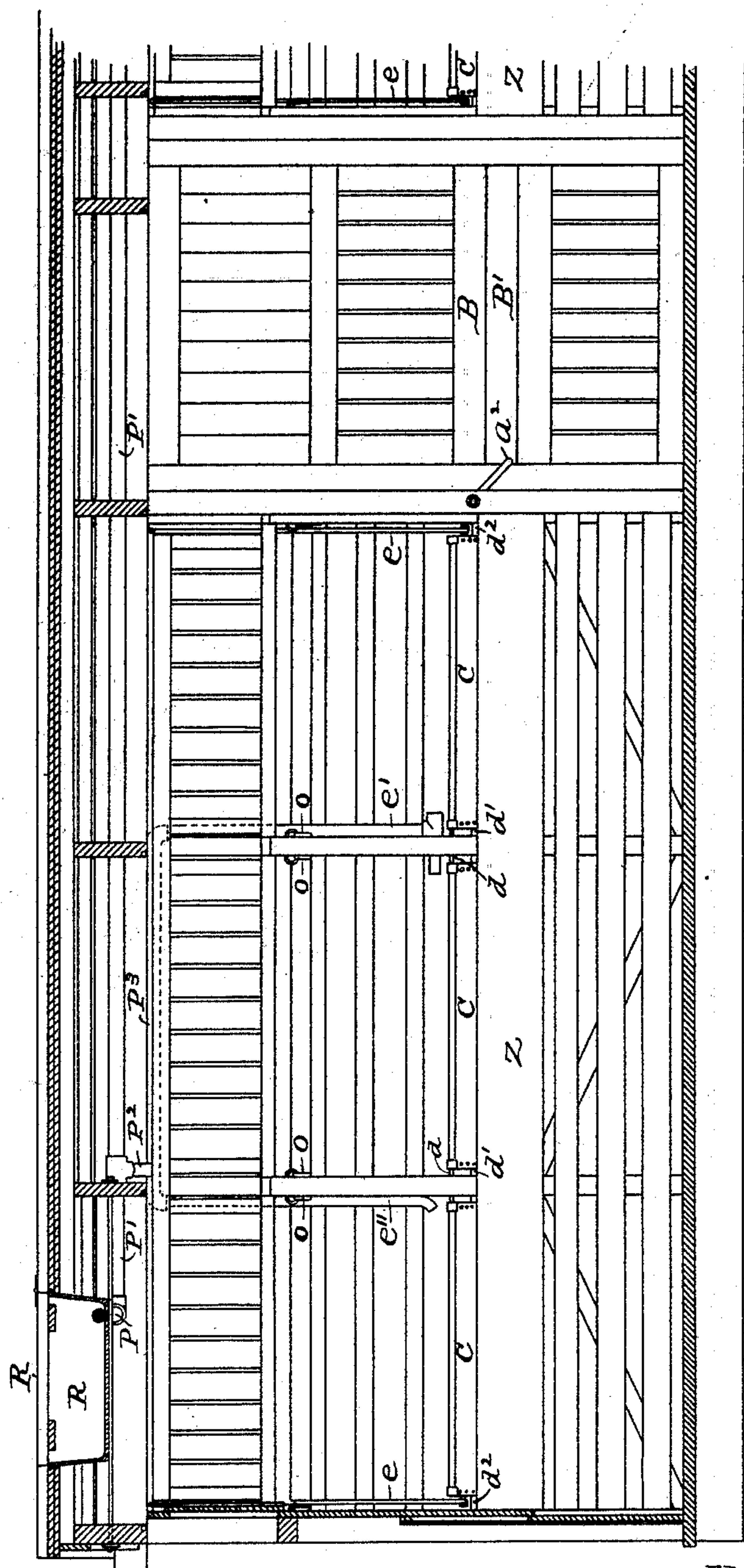
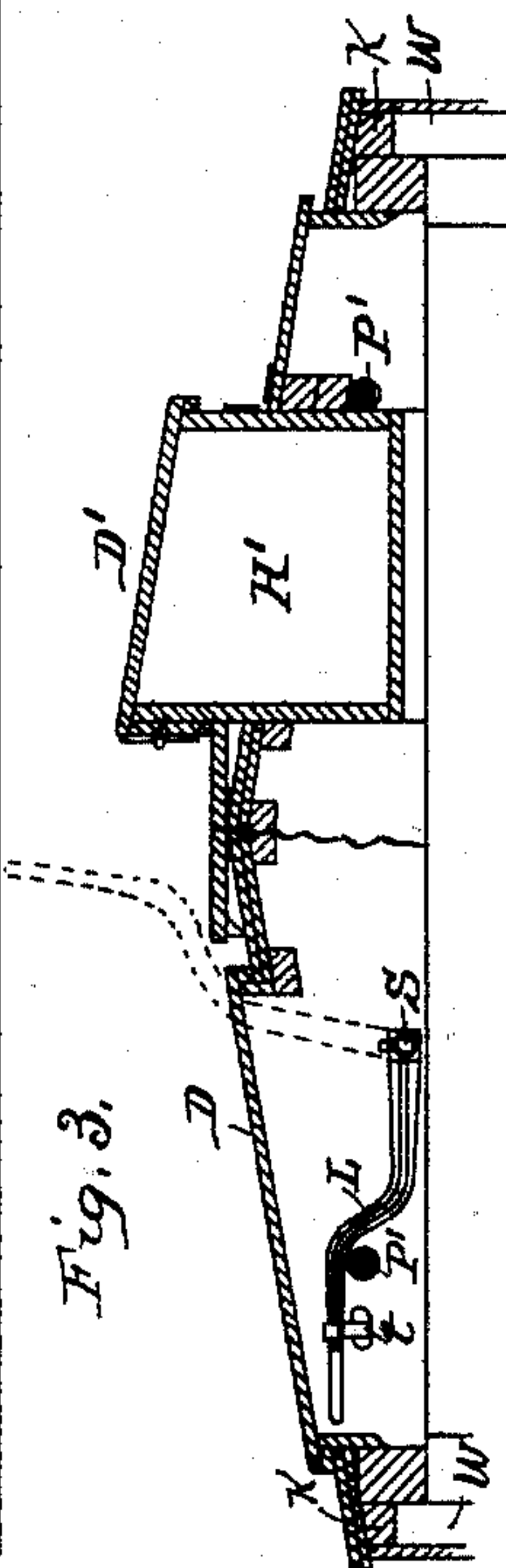


Fig. 3.



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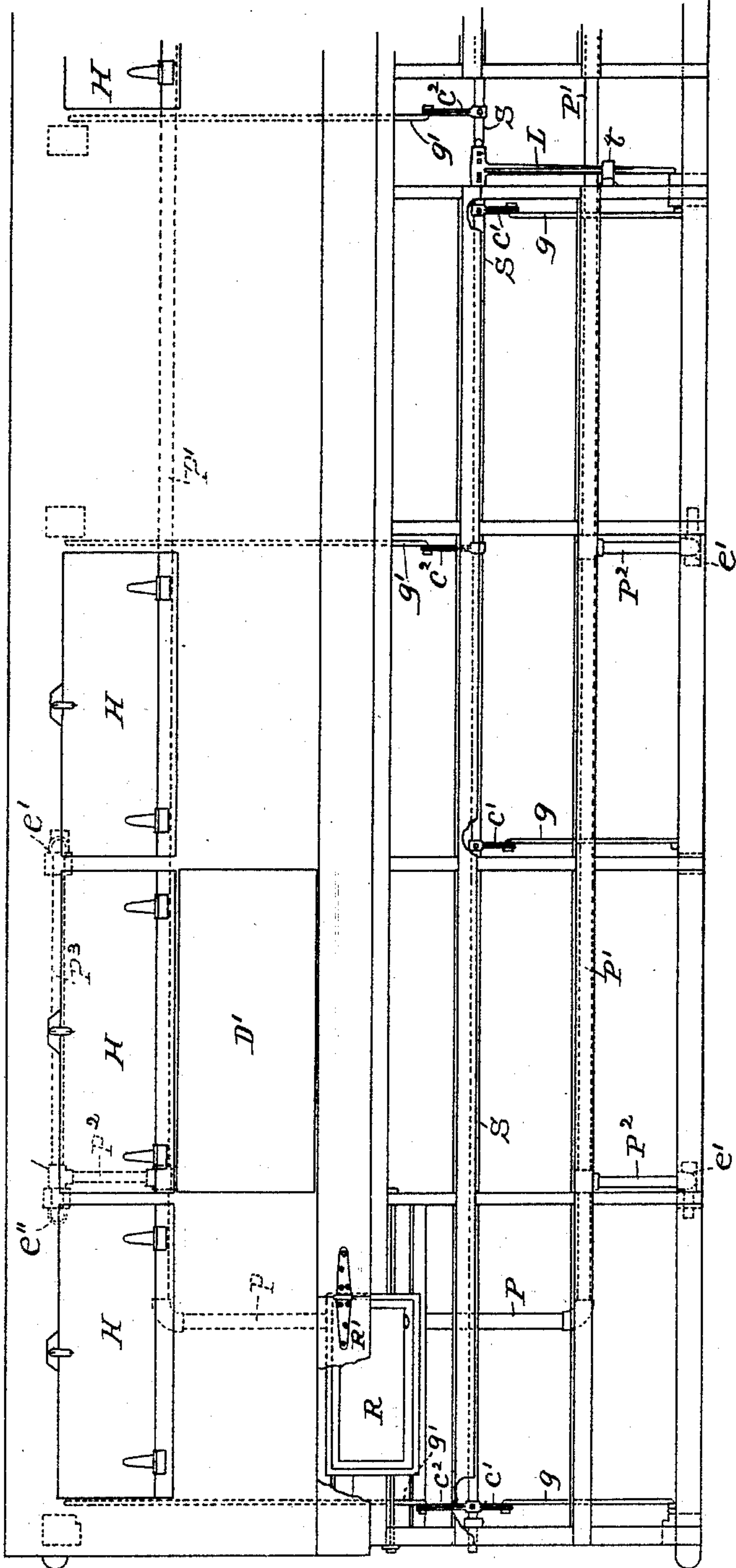
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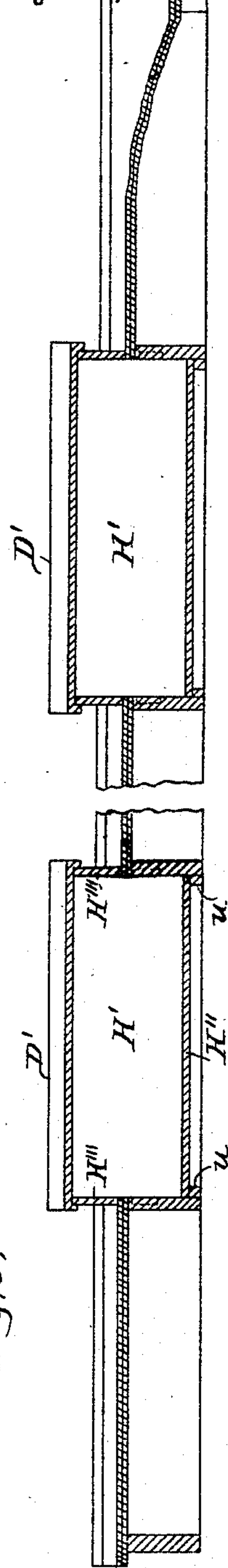
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Fig. 4.



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Fig. 5.



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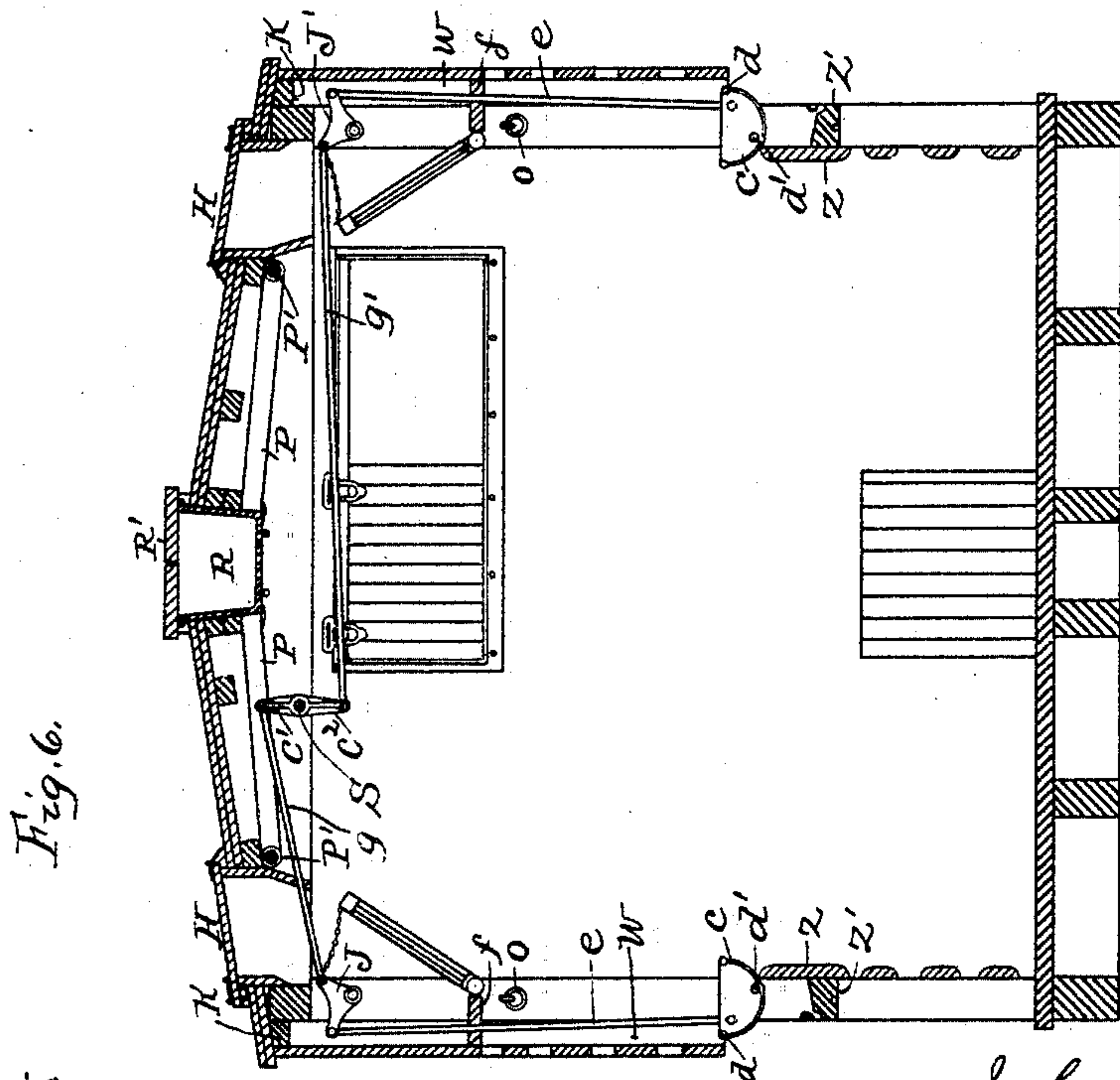
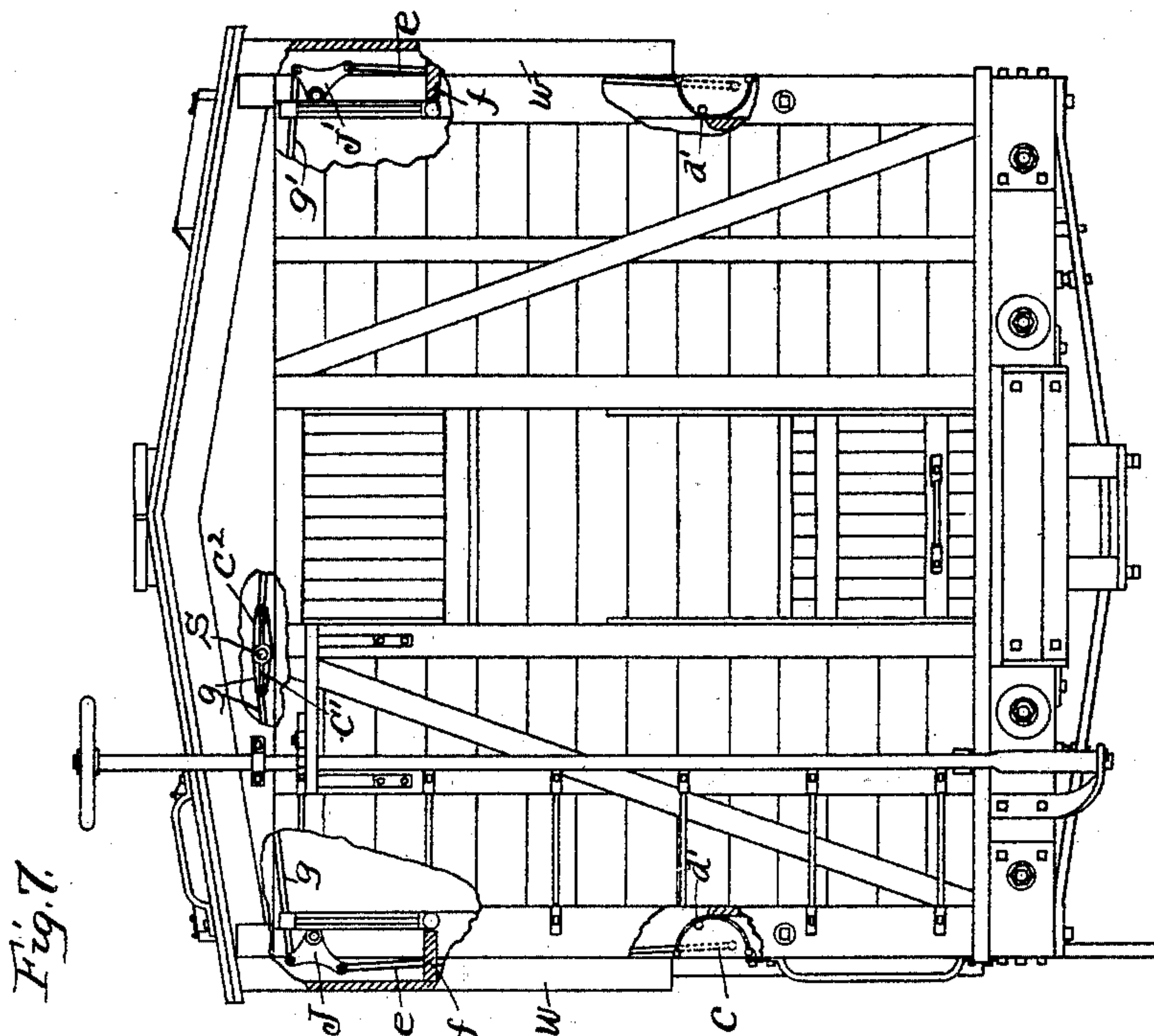
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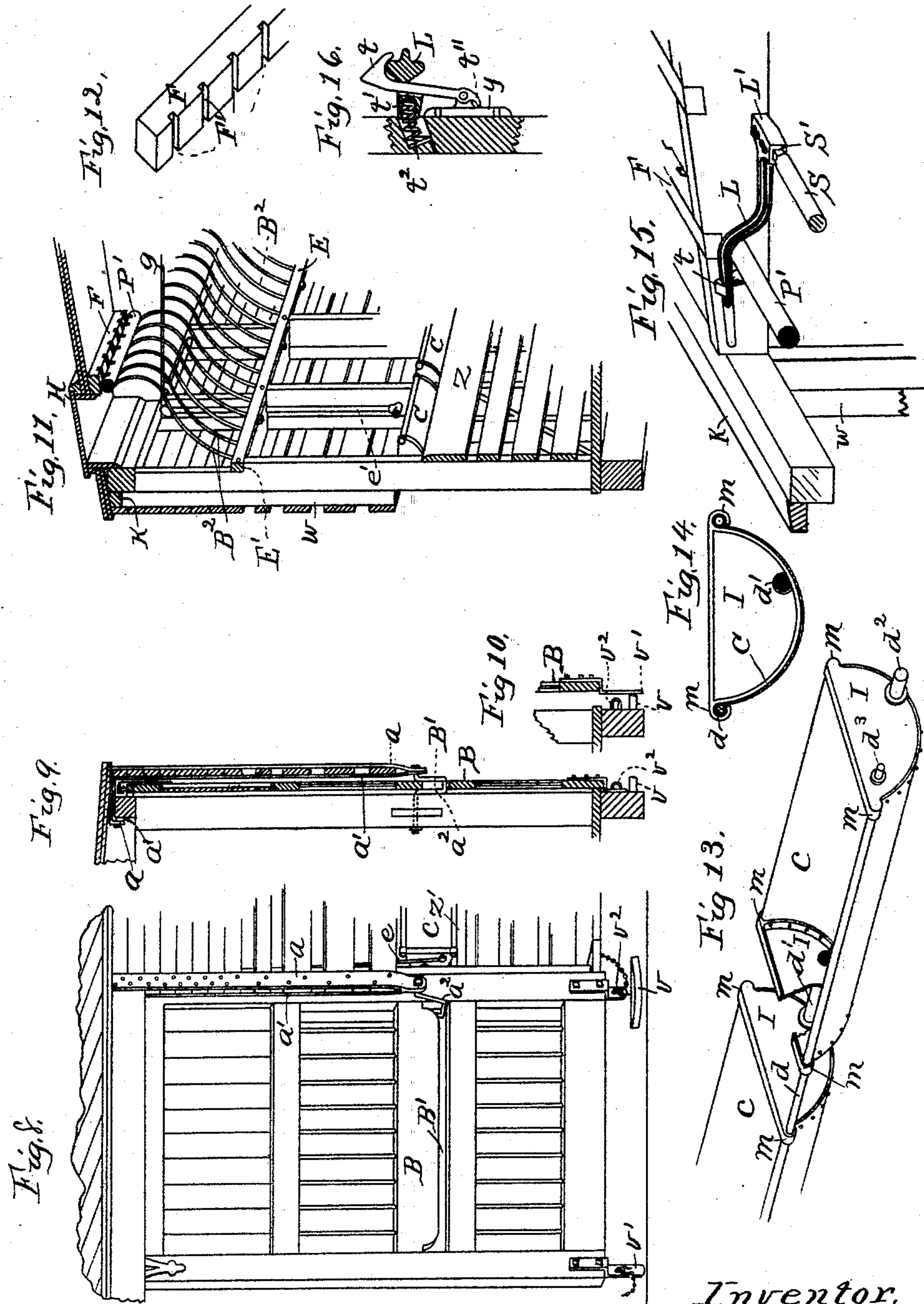
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# UNITED STATES PATENT OFFICE.

JOHN M. BURTON, OF WICHITA, KANSAS.

## STOCK-CAR.

SPECIFICATION forming part of Letters Patent No. 497,945, dated May 23, 1893.

Application filed March 25, 1890. Serial No. 345,212. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. BURTON, a citizen of the United States of America, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Stock-Cars, of which the following is a specification, reference being had therein to the accompanying drawings and the letters and figures of reference thereon, forming a part of this specification, in which—

Figure 1. is a perspective elevation of one portion of the car, having a portion of the end sheathing broken away to show the car interior. Fig. 2. is a central vertical longitudinal-sectional view of a portion of the car, showing the inner side plan thereof. Fig. 3. is a vertical cross-sectional view on line 3—3 of Fig. 4 of the upper portion and roof of the car, showing the hand lever for operating the crank and rod mechanism for turning the troughs, and a hay storage box. Fig. 4. is a top plan view of one end portion of the car, showing above the center line, a plan of the roof and roof doors, and below the center line a plan of the car frame work, the water receiver, the distributing water pipes, and the lever, shaft, crank and rod mechanism employed for turning the troughs. Fig. 5. is a vertical longitudinal-sectional view on line 5—5 of Fig. 4 of the upper portion and roof of the car on a line between the side hay doors and the center run-board, at the car side opposite from the lever, shaft, and crank mechanism, having the center portion broken away to condense the view. Fig. 6. is a vertical cross-sectional view of the car at one end on line 6—6 of Fig. 4 through one of the water receivers. Fig. 7. is an end elevation of the car, having portions broken away to show the interior mechanism. Fig. 8. is a detailed perspective view of one of the side doors of the car, also showing a portion of the car. Fig. 9. is a detailed cross-sectional view of one side door of the car, a similar view of a portion of the car through the doorway, and an end plan of the side wing of the car at the place where the door slides back. Fig. 10. is a similar view of the lower portion of the same, showing the doors swung out from the face of the car. Fig. 11. is a detailed perspective view of a portion of the car, showing

in vertical cross-section, one side portion of the car, also showing the arrangement of the hay rack, the hay receptacle, the side distributing water pipe and the hay doors. Fig. 12. is a detailed perspective view of a portion of one of the purlins of the car, located adjacent the hay doors, and above the hay racks. Fig. 13. is a detailed perspective view of a portion of the connected watering troughs, of the car. Fig. 14. is a cross-sectional view of the same. Fig. 15. is a detailed perspective view of a portion of the frame work of the car, showing the arrangement of the shaft of the crank and rod mechanism, the lever thereof, the latch for retaining the lever and of the side distributing water pipe.

This invention relates to certain improvements in stock cars wherein the stock aboard the car is supplied with hay and water, during transportation, at stations along the railway, at suitable intervals, and consists in the particular construction and arrangement of certain portions of the car which improvements I will proceed to explain by reference to the accompanying drawings.

For the purpose of directing the thought of others skilled in the art, I wish to state that, the degree of success in stock cars depends largely upon the construction, arrangement, and operation of the several detailed parts or mechanism of the car.

In the drawings I have shown a car having its frame work constructed in about the usual manner, excepting however the arrangement of certain parts to accommodate certain mechanism. The car proper consists of the usual sills and stringers, a floor laid upon said sills and stringers, of side and end posts arranged upon the sills, of plates upon the side posts, of carlings crossing upon the plates and provided with purlins for supporting the roof, of the roof, the roof hay doors and the center runboard, of side extending wings, of girths between the side posts, of side and end doors, of the usual sheathing and of hay receptacles in the upper part of the side wings, and the usual braces.

Referring to the drawings the several improvements are as follows.

One of my improvements consists in the manner of connecting and arranging the water pipes, and referring to Figs. 2, 4, 6, 11



and 15, the water receivers R are represented arranged, one in each end of the car immediately below the center run-board of the car, and accessible through the doors R' which form part of the run-board when closed. Lateral pipes P lead each way from the reservoirs R toward the opposite sides of the car. Longitudinal pipes P' are disposed in the roof near the opposite sides of the car being supported in pockets cut transversely in the carlings immediately below the purlins. The opposite ends of these longitudinal pipes are connected to the outer ends of the lateral pipes P. By such arrangement said pipes are entirely within the roof frame-work and out of the way for all other purposes and at the same time protected by the roof and purlins, and also open communication between the two receivers so that water may flow from one to the other at each side of the car.

Preparatory to explaining the down pipes for supplying the troughs I wish to state that the ordinary car sides are divided into eight sections, between the side posts, one of which is used as the side door way, at each side of the car, thus leaving three sections at one side and four sections at the opposite side of each doorway, which sections are respectively provided with a trough C and it is the design in this invention that each trough shall be independently supplied with water, although the several troughs at each side of the door ways are connected in series by means of hollow journals d' which permit the flow of water from one to the other. The longitudinal pipes P' are provided with lateral dependent distributing pipes P<sup>2</sup> for conveying the water from said pipes P' to the troughs. Each of these pipes P<sup>2</sup> extend outward and downward from the pipe P' terminating in a plane just above the troughs. For the four sections on one side of the door way on one side of the car there are two distributing pipes P<sup>2</sup> each having an inverted T head e' which discharges water into the adjacent ends of the two troughs of adjoining sections, and for the three sections on the other side of the doorway on the other side of the car there is one pipe P<sup>2</sup> which connects with a horizontal pipe P<sup>3</sup>. This pipe P<sup>3</sup> rests near its opposite ends in holes in the side posts and is provided at one end with an L-shaped bend e'' which discharges into the end trough and at its opposite end with a T-shaped head e' which discharges into adjacent ends of the troughs of the other two sections. The arrangement is the same for the opposite sides of the car. Thus by letting water flow into either receiver it will flow down the side mains throughout the car and through the medium of the several distributing pipes supply each trough independently and simultaneously.

Another of my improvements consists in the construction and arrangement of the mechanism for turning the troughs, wherein S represents a shaft composed of two parts joined near, or at the car center, by means of

being socketed into the hubs S' of the lever L (see Fig. 15.) and extending in bearings in holes through the carlings at one side from the car center, longitudinally, the entire length of the car. This shaft is provided at intervals with crank arms C' C<sup>2</sup>, which have pivotally connected therewith, respectively, the connecting rods g—g' which, through the medium of the bell cranks J. J', respectively pivoted to the side posts adjacent the car plates, and the down connecting rods e, turn the troughs C when the shaft S is rocked. An actuating lever L is rigidly connected at one end to the rock shaft S being disposed under the lever door D in the roof of the car. When this door is opened the lever L may be raised to an upright position, and the crank arms C'. C<sup>2</sup>. will assume the position shown in Fig. 6, holding the troughs in position for use. When the lever is lowered as shown in Figs. 3 and 15 the cranks C', C<sup>2</sup>, will assume the position shown in Figs. 4 and 7, tilting and holding the troughs out of position for use and flush with the outer faces of the side posts their bottom portions being partially protected by the belt rail Z, and their lower rim resting on the girths Z'. The hub of lever L is square and elongated and the shaft sections adjacent the lever are similarly squared and socketed into the lever hub where they are held by means of set screws and thus cannot fail to rock perfectly when the lever is operated and they thus avoid slipping out of position by independent rotation and the like which would interfere with the perfect adjustment of the parts. The lever is preferably curved in body which adapts it to turn down to a horizontal position within the car, engaging the water pipe P' in its elbow, and presenting its handle end immediately beneath the door D where it is convenient to reach. This bend also adapts it to turn up to a vertical position, over-reaching the run-board of the car, as shown in dotted lines in Fig. 3. This construction avoids cutting away the purlin next adjacent the run-board, or cutting a recess into the run board, and thereby gives a full quarter turn to crank arms C', C<sup>2</sup>, or slightly more than a quarter turn if so desired. As shown in Fig. 6 the crank arm C' is shorter than arm C<sup>2</sup>, also that the connecting rod g assumes a position at a greater degree of angle than rod g', when turned to the position shown in Fig. 6, hence the rod g, assuming such angling position is, of necessity, made some longer, to reach the same vertical line, in the car, than otherwise would be required if its position were of the same degree of angle as rod g'. Therefore it becomes necessary to make arm C' some shorter than arm C<sup>2</sup> in order, that when turned to the position shown in Fig. 7., the trough at the side operated by the rod g may not be turned too far. This feature, in a stock car wherein the troughs are operated at each side of the car by means of their connections with the one rock shaft, is a very important one and the successful



working of the troughs depends entirely upon the construction as described.

Another improvement consists in the construction and connection of the hay rack with the body of the car so as to secure a large capacity for hay, avoid contact of the heads of the animals with the rack and strengthen the latter against the danger of breakage by the animal. This improved hay rack is best shown in Fig. 11. The upper portions of the side posts of the car are reduced in width from their upper ends downward to points about twenty-two inches more or less, their tops forming shoulders or offsets 3. The lower rail X' of the hay rack extends longitudinally of the car between the ends thereof and the doors resting on the shoulders 3 flush with the inner edges of the lower side posts. The lower ends of the hay rack bars B<sup>2</sup> are connected with the rail X' being preferably set into sockets into said rails and the upper ends of said bars are connected with suitable supports attached to the top of the carlings. These bars are approximately of ogee shape and thence rounded toward their lower portions receding toward the wall of the car so as to afford room for the heads and horns of the animals and their upper portions above the heads of the animals bulging outward to afford ample capacity for hay. The upper ends of these bars, in the construction shown in the drawings, are hook-shaped and partially encircle the water pipe B' and engage transverse slots cut in the purlin F. This arrangement of the hook-shaped ends of the bars in the transverse slots of the purlin, locks the bars against accidental displacement as they cannot be turned or oscillated.

Another improvement consists in the means employed for bracketing the side wings W adjacent the doors B where the said doors slide back and in the construction of the said doors to accommodate the improved construction. The slatting and sheathing of the wings W, are held at such places by means of two bracket irons *a* and *a'* one arranged at each side of said sheathing and slatting and secured together by means of bolts or rivets holding the sheathing and slatting between them, and meeting at their bottom portion where they are secured together and provided with a hole into which is pivotally secured the outer end of a crank bolt  $\alpha^2$  which bolt is likewise secured in the adjacent door post, and presents its cranked portion between the wing bracket and door post and is the means whereby the brackets *a*, *a'*, are tied to the car at its lower end to hold the wing W at that place. The upper portion of the brackets *a*, *a'* are formed to extend horizontally inward and across the car plate and turn down at the inner side of the plate where they are secured by means of a lag screw or bolt, and thus jointly provide a strong and compact bracket which with the narrow wings W, as shown, permit the doors to slide back within the wings free and clear from obstructions.

The doors B are provided with double cross center rails, a little distance apart thereby forming a slot B' across the body of the door between the stiles, and in this slot is arranged the cranked portion of the bolt  $\alpha^2$  which crank, as the door is moved will ride in the slot B' and turn in either direction inclosing the door stile within the crank hollow, when the door is pushed wide open or pulled closed.

Another improvement consists in securing to the outer side of the car sill opposite the door post where the side door B slides back, a guide block V having an inclined approach at either end, which guide is immediately below the staple V<sup>2</sup> to which one of the door hasps is secured, and in providing the door B, at the opposite side portion, with a depending hasp V' long enough to engage the guide V, when the door is opened for the purpose of holding the lower portion of the door off from the car so the hasp V' will pass and not engage staple V<sup>2</sup>. (See Fig. 10.)

Another improvement consists in providing the upper end of the ribs of the side wings W with a top rail or plate K (see Figs. 6, 11 and 15), adjacent the usual car plate for the purpose of giving stability to the wings, and providing a firm bearing to which the roof boards are secured at their outer end; heretofore the wings have not been provided with any such plate and hence the only place to which the outer end of the roof boards could be secured was to the wing sheathing, which was not sufficient to be durable or successful.

In Figs. 13 and 14 I have shown the troughs of the car in detail wherein I represents the trough heads, which are of cast iron and provided with flanges to which the sheet metal trough body is secured and with corner sockets *m* into which the side rolls of the sheet metal is arranged, which prevents the said rolls from catching and becoming bent out of proper shape.

*d'* represents the hollow connecting bearings which are cast with the heads and form the intermediate bearings upon which the troughs are hung; the end trough heads are provided with studs *d*<sup>2</sup> which form the end trough bearings. *d* represents a rod arranged in the outer roll of the sheet metal of the troughs and through end holes in the sockets of the intermediate heads I, and thus connects the troughs of each connected section for the purpose of giving rigidity to the troughs and preventing twisting of the bearings *d'*. Some of the troughs are provided with end studs *d*<sup>3</sup> to which the connecting rods *e* are pivoted, said studs acting as wrist pins or cranks by which the troughs are oscillated. There are two connecting rods *e* on each three sections and three such rods on each four sections.

The bottom boards *f* which form the bottom of the hay receptacles are made of heavy strong material, as represented, and are framed in between the side posts in such manner as to likewise form a girth about the car sides.



This is stronger than the usual construction where the girth is separate and independent from the bottom board.

As a convenient place for the storage of  
5 bales of hay during transportation I have provided the car with two hay boxes shown at H' which, also, are arranged in the side of the car roof opposite the shaft S and its crank arm mechanism and tend to form a balance  
10 weight to said mechanism.

Having thus described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is as follows:

In a stock car, the combination of the car-  
15 body, two series of tilting watering troughs disposed on opposite sides of said body between the side doorways thereof and one end

of the car, two series of tilting watering troughs disposed on opposite sides of said body between said doorways and the other 20 end of the car, bell-crank levers, rods connecting said troughs with said levers, two longitudinal shafts disposed in alignment in the top of the car and provided with angular tangs at their adjacent ends near the center of the 25 car, an actuating lever having angular sockets engaging said tangs and connecting said shafts, and connecting mechanism between said troughs and said shafts, substantially as set forth.

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