

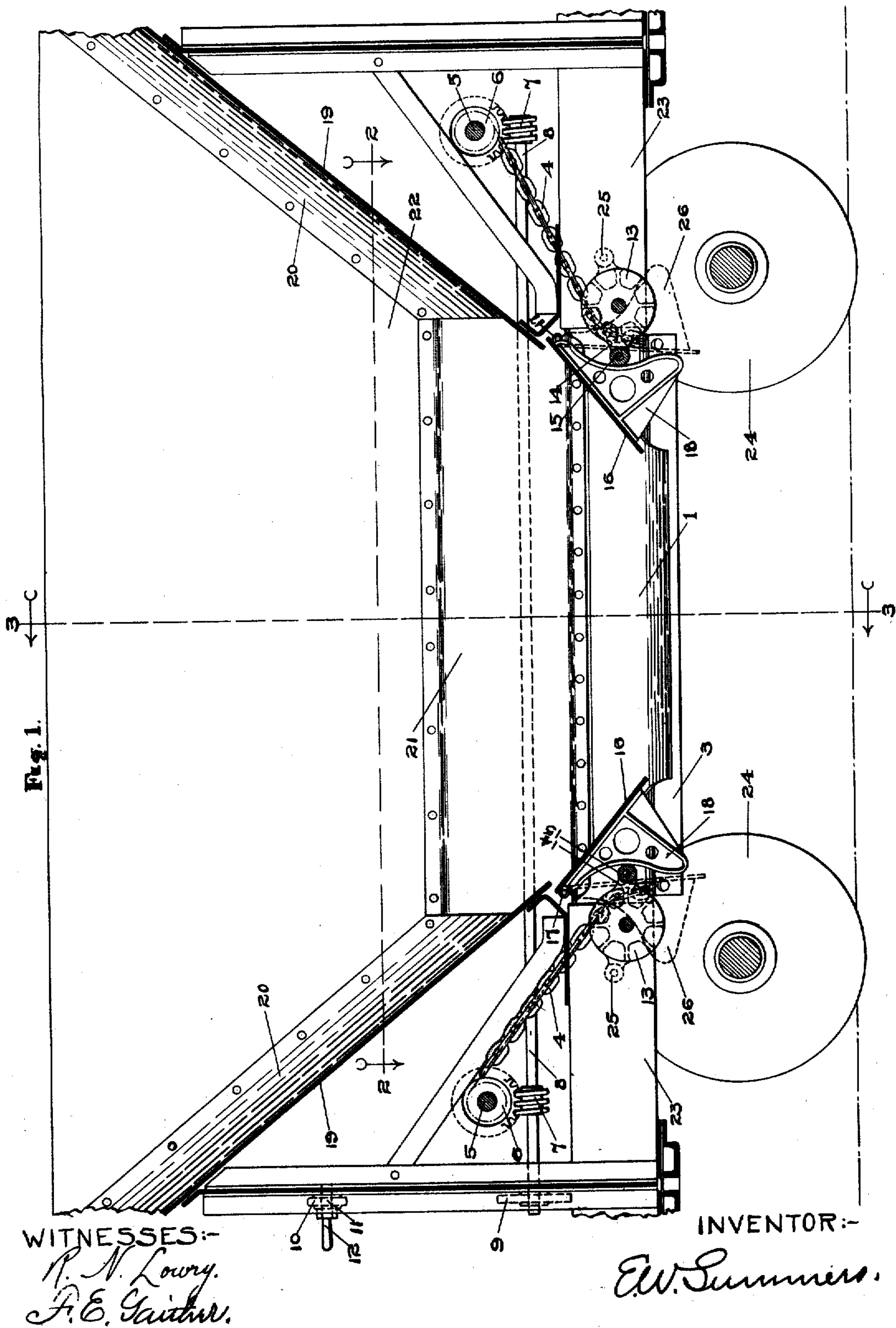
No. 835,167.

E. W. SUMMERS.
CAR.

PATENTED NOV. 6, 1906.

APPLICATION FILED AUG. 13, 1906.

3 SHEETS—SHEET 1.



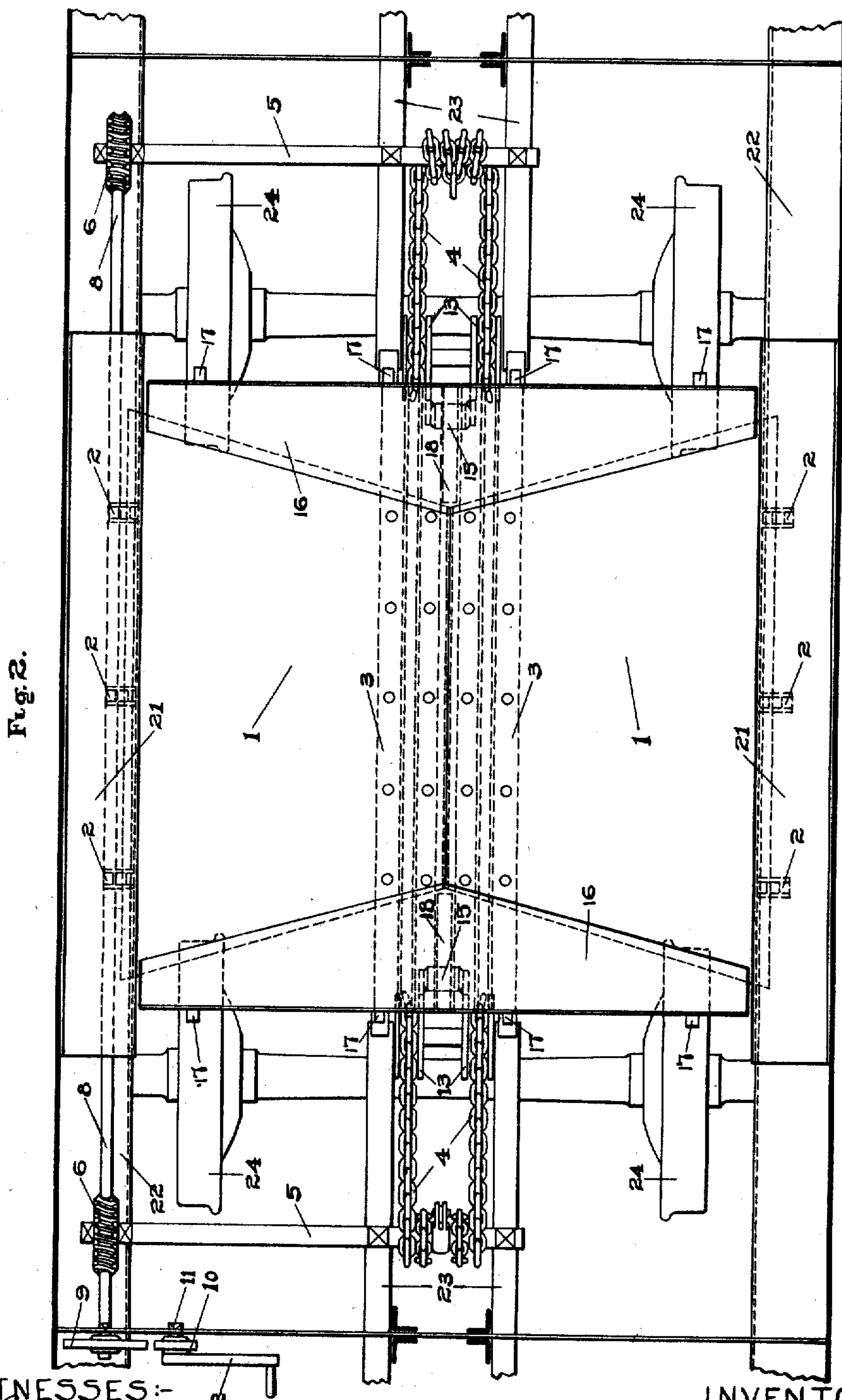
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3 SHEETS—SHEET 2.



WITNESSES:-
R. N. Lowry.
J. C. Gaither.

INVENTOR:-
E. W. Summers.

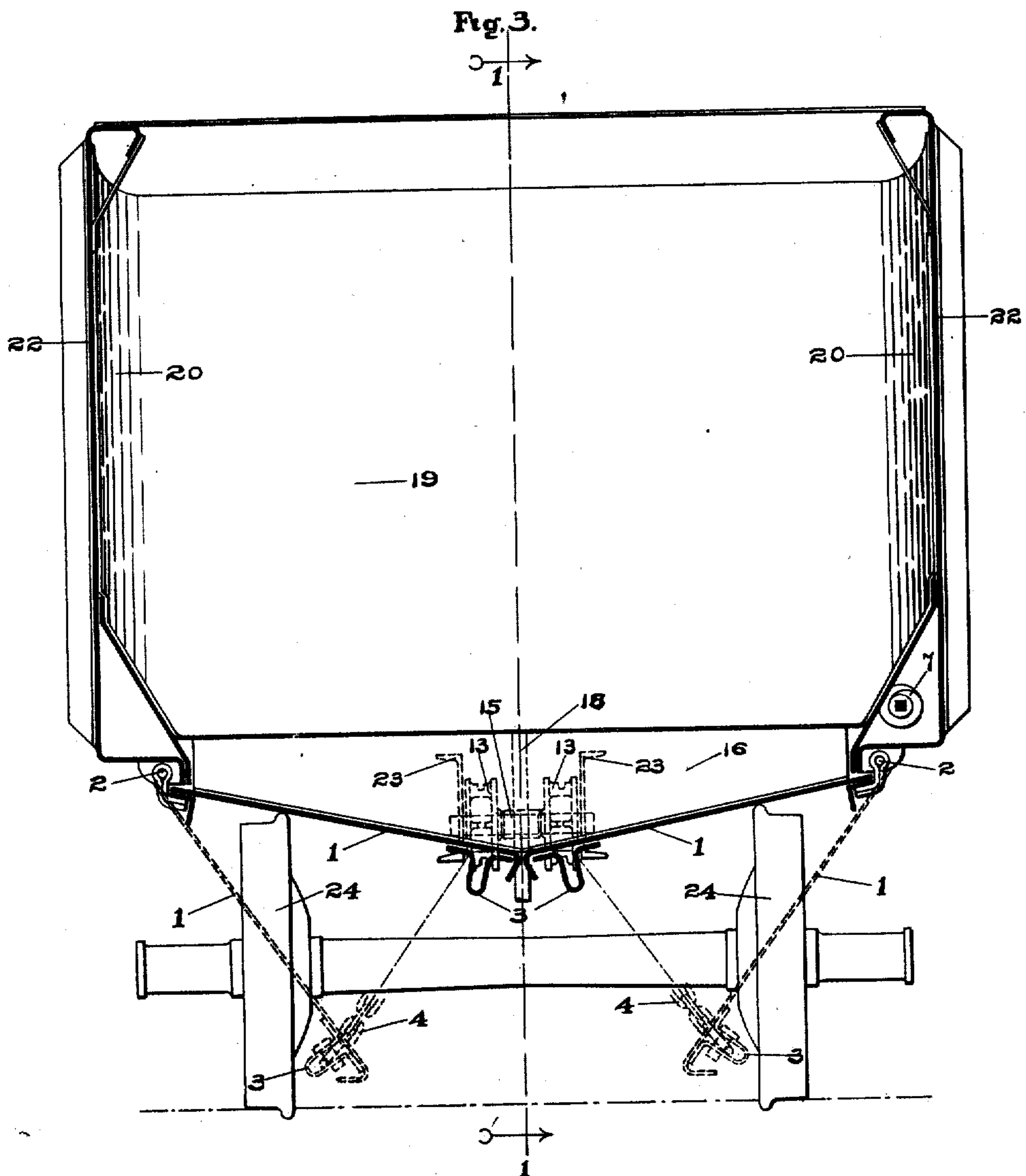
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EDGAR WEBSTER SUMMERS, OF WILKINSBURG, PENNSYLVANIA.

CAR.

No. 835,167.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed August 13, 1906. Serial No. 330,442.

To all whom it may concern:

Be it known that I, EDGAR WEBSTER SUMMERS, of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Cars, of which improvement the following is a specification, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section taken on line 1 1 in Fig. 3, the end portions of the car, from the bolster out, being broken away, showing only the inner wheels of the four-wheeled trucks. Fig. 2 is a plan view of the car, taken in line 2 2 in Fig. 1, the end sloping floor-plates being omitted in this view and the ends of the car broken away from the bolster out, the truck-wheels shown being the inner wheels of the ordinary four-wheeled truck. Fig. 3 is a vertical cross-section of the car, taken in line 3 3 in Fig. 1.

It is intended to use the standard equipment—such as trucks, brake mechanism, &c.; but only such portions of this equipment are shown, as is needed to show the relation of such equipment to the new feature in this car.

My invention relates to that class of cars having drop-bottoms for discharging the load and is intended more particularly for carrying and discharging iron ore and similar materials.

The conditions in the ore-handling trade require a car much shorter than the ordinary railway-car in order that a whole train of them may be placed so that each car will be located centrally over a pocket in the ore-docks, the spacing of the pockets being made to conform with the spacing of the hatchways on the ore-carrying ships. On account of the short length of the car the space (longitudinally of the car) between the inner truck-wheels is so small that the door-opening in this space has not been sufficient to prevent the ore bridging over the opening. As an improvement over this condition I have devised a drop-door construction which permits of a larger clear opening in the bottom of the car than the space between the wheels, both longitudinally and transversely of the car.

In the drawings I show the side doors 1, the side-door hinges 2, the side-door-supporting beams 3, the door-supporting chains 4, the chain-winding shafts 5, the worm-wheels 6, the worms 7, the worm-shaft 8, the

sprocket-wheel 9 on the worm-shaft, the sprocket-wheel 10 on the crank-shaft 11, the crank 12, the chain-pocket wheels 13, with their roller-supporting arm 14, the roller 15, which is pivotally connected to the roller-arms 14, the end doors 16, having their hinge-axis transversely of the car, the end-door hinges 17, the end-door-closing bracket 18, the end sloping floor 19, with its curved portions 20 at the sides of the car, the side sloping floor 21, the car sides 22, the draft-sills 23, the inner truck-wheels 24. It will be seen that the doors 1 and 16 extend both transversely and longitudinally beyond the truck-wheels 24, leaving a clear opening in the car-bottom, which opening is wider than the car-tracks transversely of the car and longer longitudinally of the car than the space between the inner truck-wheels. The draft-sills 23 extend from the end of the car into the door-opening only, there being no center sills.

The side doors 1 are hinge-connected at the sides of the car and are supported near the center line of the car on the door-supporting beams 3, which beams extend beyond the doors 1 and are supportedly connected to the chains 4 and the winding-shaft 5, which winding operation is operated through the worm-gearing 6 and 7 by means of the shafting 8, the sprocket-wheels 9 and 10, and the crank 12. The sprocket-wheels 9 and 10 are connected by means of a chain belt, which for clearness of detail is omitted from the drawings. The doors 1 are shown in full lines in their closed position, and in Fig. 3 they are also shown by broken lines in an open position. The chains 4 pass over the pocket-wheels 13. The links of the chain engaging in the pockets of the wheel cause the wheel to rotate about its axis in the direction the chain is moving. In Fig. 1 the roller 15 is shown in contact with the end-door-closing bracket 18. By lowering the side doors the chain 4 in passing over the wheel 13 causes the roller 15 to rotate downwardly and then toward the end of the car until the said roller reaches a position, as shown by dotted lines 25, which permits the end doors 16 to rotate about their hinge-axes 17, the door and bracket assuming the position as shown in dotted lines 26. The reverse action of closing the side doors will also close the end doors, the whole door-operating mechanism being actuated when opening and closing by means of the one crank 12.

On account of the adhesive properties of iron ore and such materials I have made the end sloping floor-plate with a curved section at its juncture with the side plates. The end and side sloping floor-plates are made quite steep in order that the material may slide off into the door-opening. The door-opening is made large in order that the ore or other material may not bridge or arch itself over the opening.

Many changes may be made in the form and arrangement of the doors and in the details of actuating mechanism and in the shape and arrangement of the car-body in general without departing from my invention.

I claim—

1. A center dumping-car, having a clear opening in the bottom, which opening extends crosswise of the car a distance as great or greater than the width of the car-tracks, and lengthwise of the car a distance greater than the clear space between the inner truck-wheels; substantially as described.

2. A center dumping-car, having a clear opening in the bottom, which opening extends transversely and longitudinally of the car for a greater distance than the space between the inner truck-wheels, and means for closing said opening.

3. A center dumping-car, having a clear opening in the bottom, which opening extends transversely and longitudinally of the car for a greater distance than the space between the inner truck-wheels, with longitudinal and transverse hinged doors for closing the opening; substantially as described.

4. The combination with a car-bottom, of a pair of doors, each of said doors having hinge connection at or near the car side, the hinge-axis being longitudinally of the car, the doors meeting each other at or near the longitudinal center line of the car, the outer edge of the doors along the car sides having a greater length than the clear space between the inner truck-wheels; substantially as described.

5. The combination with a car-bottom, of a pair of doors, each of said doors having hinge connection at or near the car side, the hinge-axis being longitudinally of the car, the outer edge of the door having a length greater than the space between the inner truck-wheels, the door in its closed position extending inwardly toward the center of the car beyond the truck-wheels, and opening outwardly and downwardly; substantially as described.

6. The combination with a car-bottom, of a pair of doors, each of said doors having hinge connection at or near the car side, the hinge-axis being longitudinally of the car, the outer edge of the door having a length greater than the space between the inner truck-wheels, the door in its closed position extending inwardly toward the center of the car beyond the truck-wheels, and opening out-

wardly and downwardly, a portion of the door passing between the inner truck-wheels; substantially as described.

7. The combination with a car-bottom, of a pair of doors, each of said doors having hinge connection at or near the car side, the hinge-axis being longitudinally of the car, the outer edge of the door having a length greater than the space between the inner truck-wheels, the door in its closed position extending inwardly toward the center of the car beyond the truck-wheels, and opening outwardly and downwardly, a portion of the door passing between the inner truck-wheels at their greatest diameter; substantially as described.

8. The combination with a car-bottom, of a pair of doors, the doors hinged at or near the car side, the hinge-axes being longitudinally of the car, the doors in their closed position extending inwardly toward the center of the car, the inner edges of the doors having a length less and the outer edges having a greater length than the clear space between the inner truck-wheels; substantially as described.

9. The combination with a car-bottom, of a pair of doors having hinge-axes longitudinally of the car, and of another pair of doors having hinge-axes transversely of the car, the doors in their closed position extending toward the center of the car from their hinged edges, the two pairs of doors being used to close a single opening in the car-bottom; substantially as described.

10. The combination with a car-bottom, of a pair of doors having hinge-axes longitudinally of the car, and of another pair of doors having hinge-axes transversely of the car, the doors in their closed position extending toward the center of the car from their hinged edges, one pair of doors having chain supports for their inner edges and means being provided for actuating a door-closing mechanism for the other pair of doors by contact with the door-supporting chains; substantially as described.

11. The combination with a car-bottom; of a pair of doors, each of said doors having its hinge-axis extending transversely of the car, a roller-bearing bracket underneath the door and means for closing said door by contacting said bracket with a roller which moves in a circular path about a point outside of the door; substantially as described.

12. The combination with a car-bottom, of a pair of doors having hinge-axes longitudinally of the car, and of another pair of doors having hinge-axes transversely of the car, the doors in their closed position extending toward the center of the car from their hinged edges, the two pairs of doors being used to close a single opening in the car-bottom, and of a worm-gearing device for actuating the doors; substantially as described.

13. The combination in a car, of a clear opening in its bottom, which opening extends transversely and longitudinally of the car for a greater distance than the space between the
5 inner truck-wheels, of floor-plates which slope downwardly toward the said opening and of side plates in the car, the planes of the said floor-plates and side plates having a

curved intersection; substantially as described. 10

In testimony whereof I have hereunto set my hand.

EDGAR WEBSTER SUMMERS.

Witnesses:

R. N. LOWRY,

F. E. GAITHER.