A. CAMPBELL.

COMBINED PLOW, GONDOLA, AND BALLAST CAR.

APPLICATION FILED SEPT. 8, 1913.

1,125,959.

Patented Jan. 26, 1915.

3 SHEETS—SHEET 1.

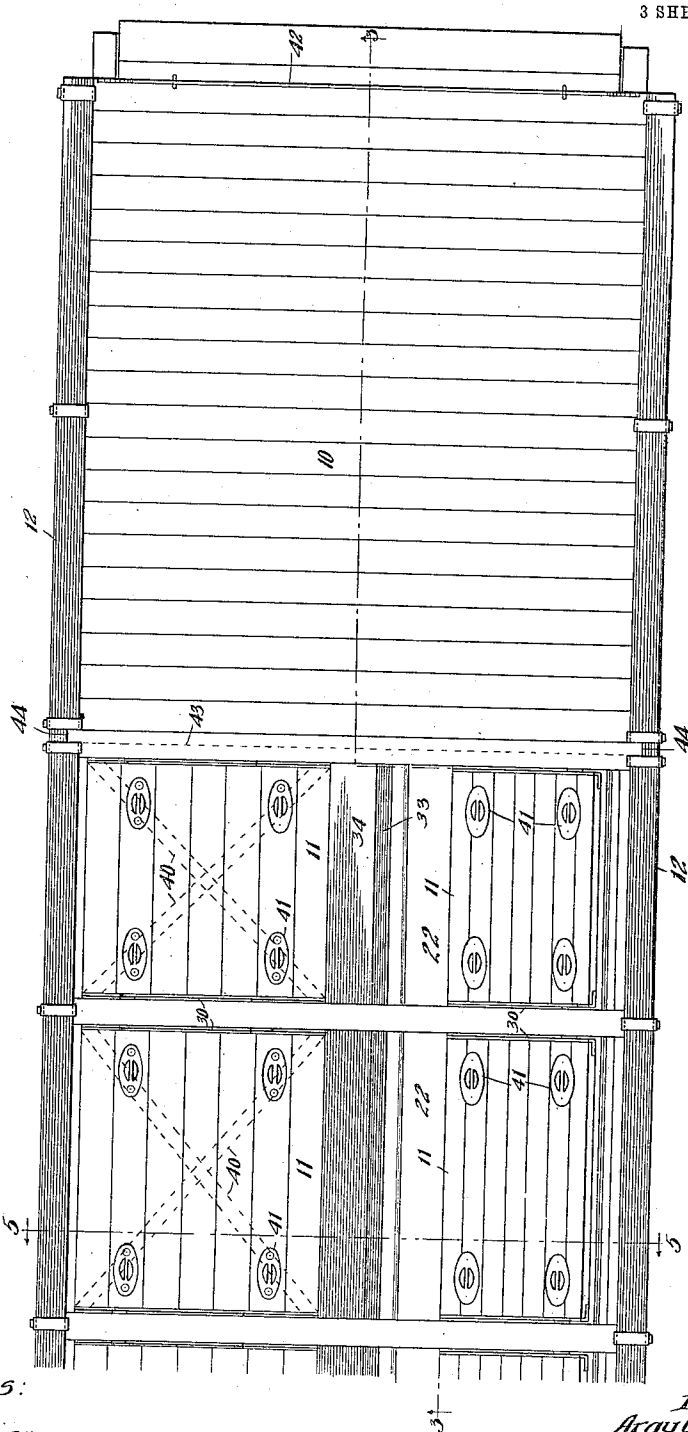


Fig. 1

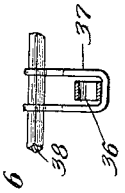


Fig. 6

Witnesses:
Wm. Geiger
Esther Abrams.

Inventor:
Argyle Campbell

By Munday, Evarts, Adcock & Clarke

Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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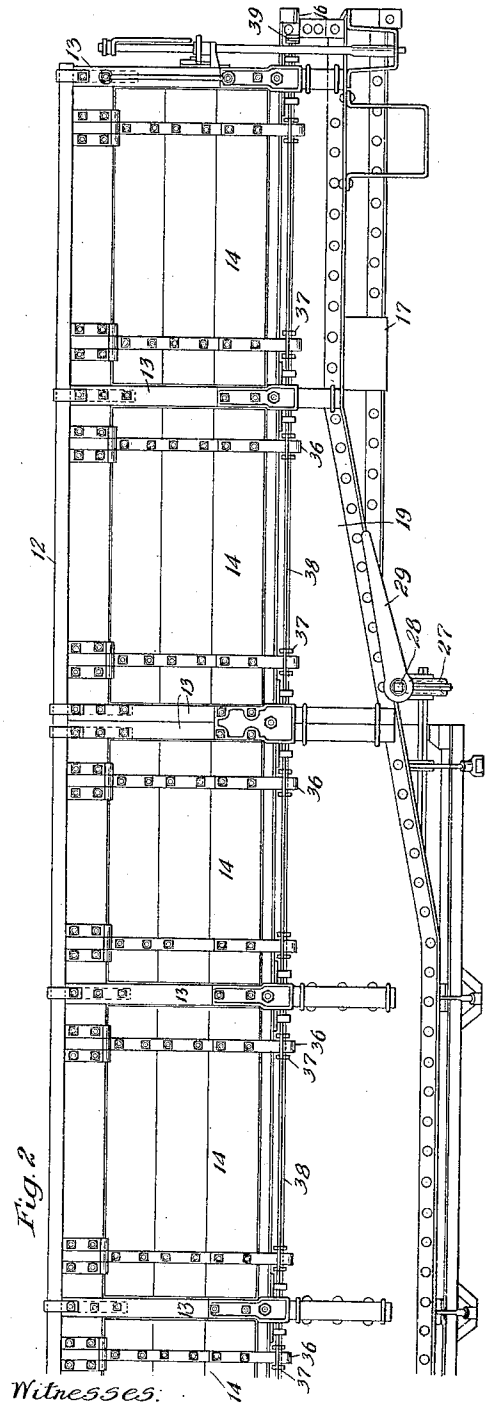


Fig. 2

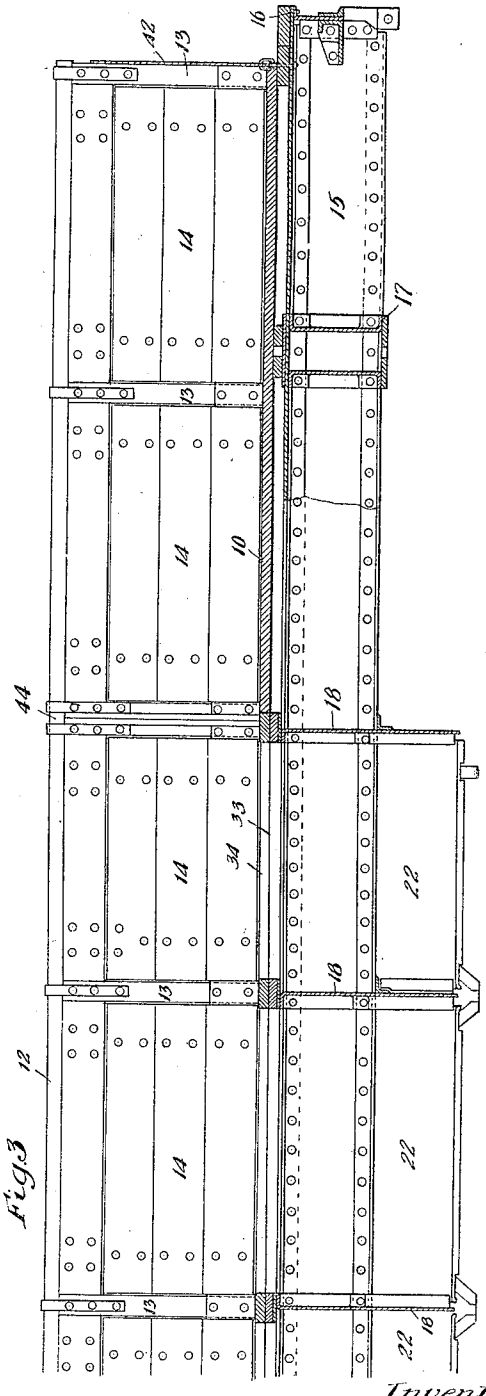


Fig. 3

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3 SHEETS—SHEET 3.

Fig. 4

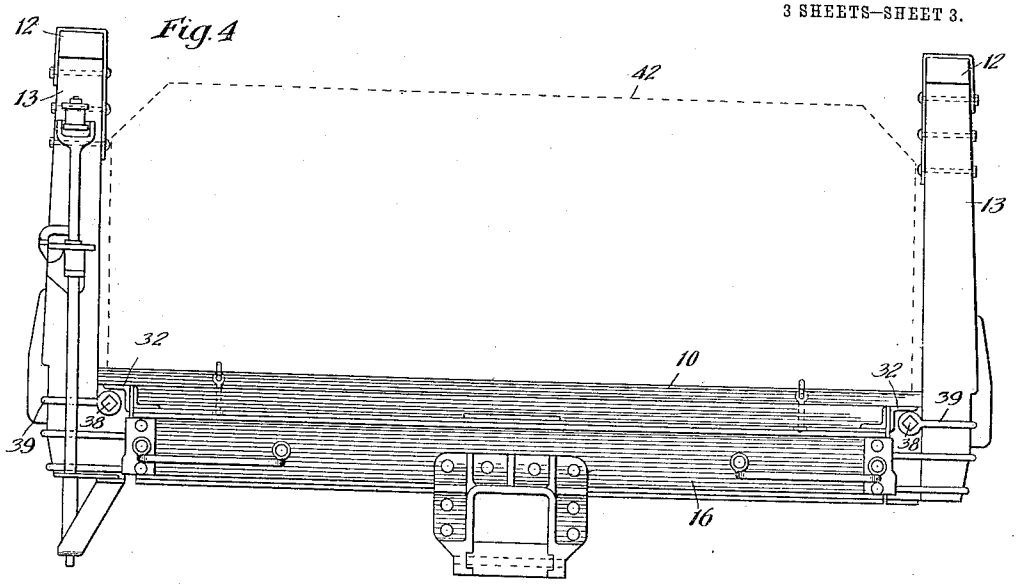
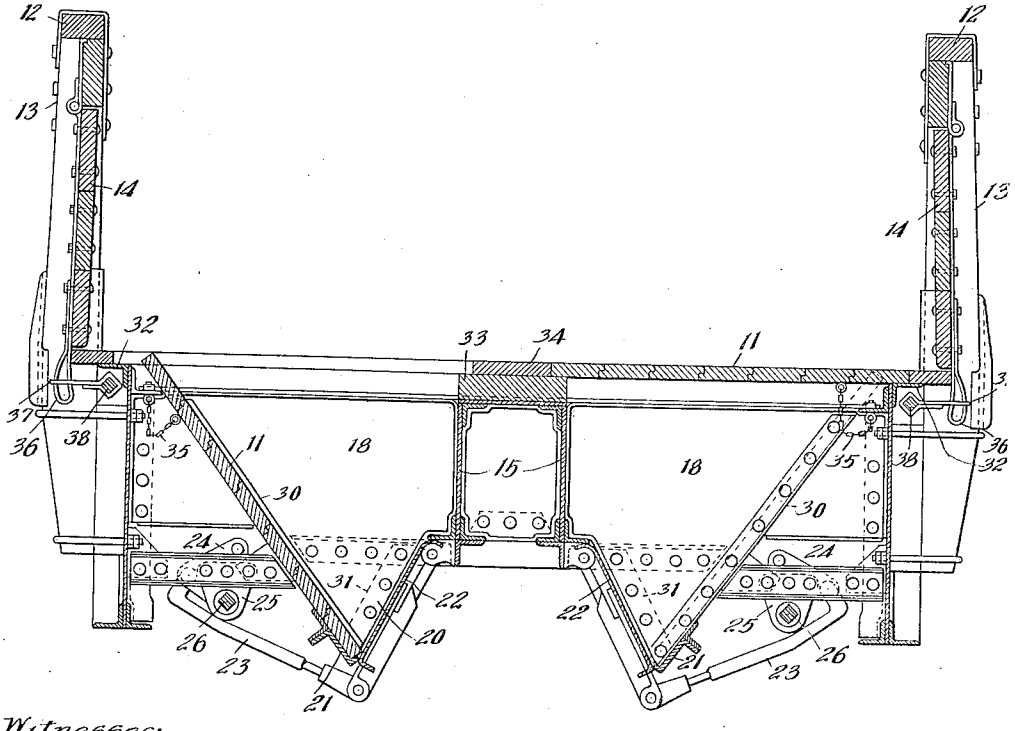


Fig. 5



Witnesses:

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UNITED STATES PATENT OFFICE.

ARGYLE CAMPBELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO ENTERPRISE RAILWAY EQUIPMENT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

COMBINED PLOW, GONDOLA, AND BALLAST CAR.

1,125,959. Specification of Letters Patent. Patented Jan. 26, 1915.

Application filed September 8, 1913. Serial No. 788,524.

To all whom it may concern:

Be it known that I, ARGYLE CAMPBELL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Combined Plow, Gondola, and Ballast Cars, of which the following is a specification.

This invention relates to improvements in combined plow, gondola and ballast cars.

An object of the invention is to provide a dump car which may be easily interchanged for use as either a plow car, gondola car or ballast car.

Another object of the invention is to provide a car of the type above indicated which is of strong, rigid and durable construction; in which the sections of the floor located above the hoppers may be readily displaced to occupy a position below the floor level of the car to form the bottoms of the hoppers; in which the mechanism for holding the pivoted sides of the car in locked position serve to positively cam the sides while being locked; in which the locking mechanism for the pivoted sides of the car is so arranged that it does not project beyond the sides of the car and is protected; in which the arrangement is such that when the car is used as a ballast car, the tops of the hoppers are open to their full width, that is, from the center sill to the car sides; and in which the first cost of the car is materially reduced by having the floor sections over the hoppers serve the double function of floors and bottoms of the hoppers.

The invention furthermore consists in the improvements in the parts and devices and in the novel combinations and arrangements of the parts and devices as herein shown, described or claimed.

In the drawing forming a part of this specification, Figure 1 is a top plan view of approximately a half of a car embodying my improvements. Fig. 2 is a side elevation of the structure illustrated in Fig. 1. Fig. 3 is a longitudinal, vertical section taken substantially on the line 3—3 of Fig 1. Fig 4 is an end view of the improved car. Fig. 5 is a transverse, vertical section taken substantially on the line 5—5 of Fig. 1, the displaceable floor section on the left-hand side of the car as shown in Fig. 5 being arranged in a position to form the bottom of the hopper and the floor section on the right-hand side of the car as shown in Fig. 5 occupying a position to form a portion of the car floor, and Fig. 6 is a detail of the mechanism for closing the swinging sides of the car.

In said drawings, the improved car is shown as having fixed end sections of floor 10, removable and displaceable floor sections 11 located intermediate the trucks and disposed over the hopper section of the car, top, longitudinally extending side members 12 supported by side stakes 13, the members 12 having pivoted or hinged thereto for the full length of the car and between each of the side stakes, side doors 14. The underframe of the car, as shown, comprises a box-like center sill 15, end sills 16, body bolsters 17, transverse diaphragms 18 and side girders 19. As shown more clearly in Fig. 5, the transverse diaphragms 18 are each provided with downwardly extending, triangular-shaped portions 20 to thereby form the end hopper sheets of the hoppers located intermediate the trucks. Extending longitudinally of the car and from one transverse diaphragm to another are Z-bars 21 arranged as shown in Fig. 5, the lower ends of which form supports for the displaceable floor sections 11 when the latter are positioned as shown on the left-hand side of Fig. 5 where said sections form the bottoms of the hoppers. Each hopper is also provided with a hinged door 22 pivoted at its upper edge to the center sill and operated by mechanism comprising links 23 and 24, drum 25 and common longitudinally extending shafts 26, the latter, at their ends, being provided with worm gears 27 operated by worms on transversely extending shafts 28, the latter having hand levers 29 thereon, see Fig. 2. As will be understood, by the worm and worm gear arrangement for operating the hopper doors 22 as above described, said doors may be held in any desired open position to thereby regulate the streams of ballast dropped from the car while the latter is moving as is customary in ballasting roadbeds. Secured to the diaphragm 18 are angle irons 30 and 31 which form the edges of the end hopper sheets and provide abutments for the floor sections 11 and hopper doors respectively.

As clearly shown in Fig. 5, the displace-

able floor sections 11, when in position to form a portion of the floor, are supported at their outer edges on suitable angle irons 32 and at the inner edges on a longitudinally extending plank 33 on which is secured a narrower longitudinally extending plank 34, the latter forming with the former a notch or rabbet so that the floor sections when in place will be flush with the plank 34. If desired, the floor sections 11 may be attached to the car by chains 35 to prevent misplacement or loss of the same.

Each of the pivoted side sections or doors 14 has its hinge butts extended and each is provided with a loop 36 at the lower edge, the outer portion of which loop forms a cam surface for coöperation with U-shaped loops 37 fixed to the longitudinally extending shafts 38 on each side of the car. As will be understood, when the shafts 38 are rotated by the levers 39 at the ends thereof (see Fig. 4), to close the doors, the members 37 thereon will cam and positively force the pivoted side doors 14 to closed position and securely hold the same. As most clearly shown in Fig. 5, the shafts 38 are located within an angle formed by a portion of the car floor and the side girders 19, whereby the side door operating mechanism is protected from injury and none of the parts thereof extend outside of the planes of the car sides.

As shown in dotted lines in Fig. 1, the boards forming the floor sections 11 are held together by straps 40 and for convenience in handling said sections, the same are provided with hand grips 41.

The car at its ends is provided with pivoted end doors 42 adapted to be swung out over the ends of the car or inwardly in the usual manner to adapt the car for plow service. When the car is used as a hopper or ballast car, wooden partitions 43 will be placed at the ends of the hopper section as shown in Fig. 1, said partitions being held in place in grooves 44 formed in the side stakes at this point.

From the preceding description, it will be seen that the car may be easily adapted for service as either a plow car, gondola car or ballast car and also that when used as a ballast car the full capacity of the car above the hoppers is obtained, inasmuch as the displaceable floor sections are moved to a position below the floor level to form the bottoms of the hoppers and thus do not occupy any space above the floor. At the same time, the full opening of the hoppers is maintained.

Although I have herein shown and described what I now consider the preferred embodiment of my improvements, yet it will be understood that various changes and modifications may be made without departing from the spirit of the invention and all such changes and modifications are contemplated as come within the scope of the claims appended hereto.

I claim:

1. A combined plow, gondola, and ballast car having swinging side doors, a floor comprising removable sections adapted to be positioned below the floor level to form hoppers, and means for securing said sections in position to provide a level floor disposed in a single plane whereby to permit a plow to move over the floor and remove all of the contents of the car through the swinging doors, substantially as specified.

2. A combined plow, gondola, and ballast car having swinging side doors, a flat floor comprising bodily removable sections, and means beneath the floor for supporting said sections in inclined position to form a hopper, said means comprising swinging hopper doors pivoted adjacent the longitudinal axis of said car and adapted, when open, to direct the contents of the car adjacent and within the rails of a track, substantially as specified.

3. A car of the character described having hoppers intermediate the trucks and displaceable floor sections above the hoppers, the latter being adapted to occupy a position below the floor level to form the bottoms of the hoppers and each hopper having a longitudinally extending Z-bar at the bottom thereof for supporting said floor sections when the latter form the bottoms of the hoppers, substantially as specified.

4. A car of the character described comprising a car body having a hopper section between the trucks and provided with a flat floor throughout, each hopper in the hopper section having a swinging center dump door and the floor of the car over the hoppers being composed of a plurality of bodily displaceable floor-sections, one floor section for each hopper, said floor sections being adapted to be placed below the floor level of the car in downwardly and inwardly inclined positions to form the bottoms of said hoppers, and means for supporting said floor sections in said inclined positions.

5. A combined plow, gondola and ballast car having swinging side doors provided with a flat floor to thereby adapt the car for use with a plow, said car having a hopper section between the trucks, the floor over said hopper section comprising bodily displaceable floor sections, and means for supporting said floor sections in an inclined position below the floor level to form the bottoms of the hoppers, each hopper having a swinging hopper door pivoted to the car center sill.

6. In a car of the character described, a car body having an under-frame including a center sill and a plurality of transverse diaphragms, the car being provided also with

a hopper section intermediate the trucks, the floor of the car over the hopper section comprising detachable floor sections, each hopper of the hopper section having a swinging door hinged to said center sill, and means for supporting said detachable floor sections in an inclined position below the floor level to thereby form the bottoms of the hoppers, said diaphragms serving as the end hopper sheets of the hoppers.

Signed this 3rd day of September, 1913, in the presence of two witnesses.

ARGYLE CAMPBELL.

Witnesses:

JOSEPH HARRIS,

WILLIAM A. GEIGER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."