

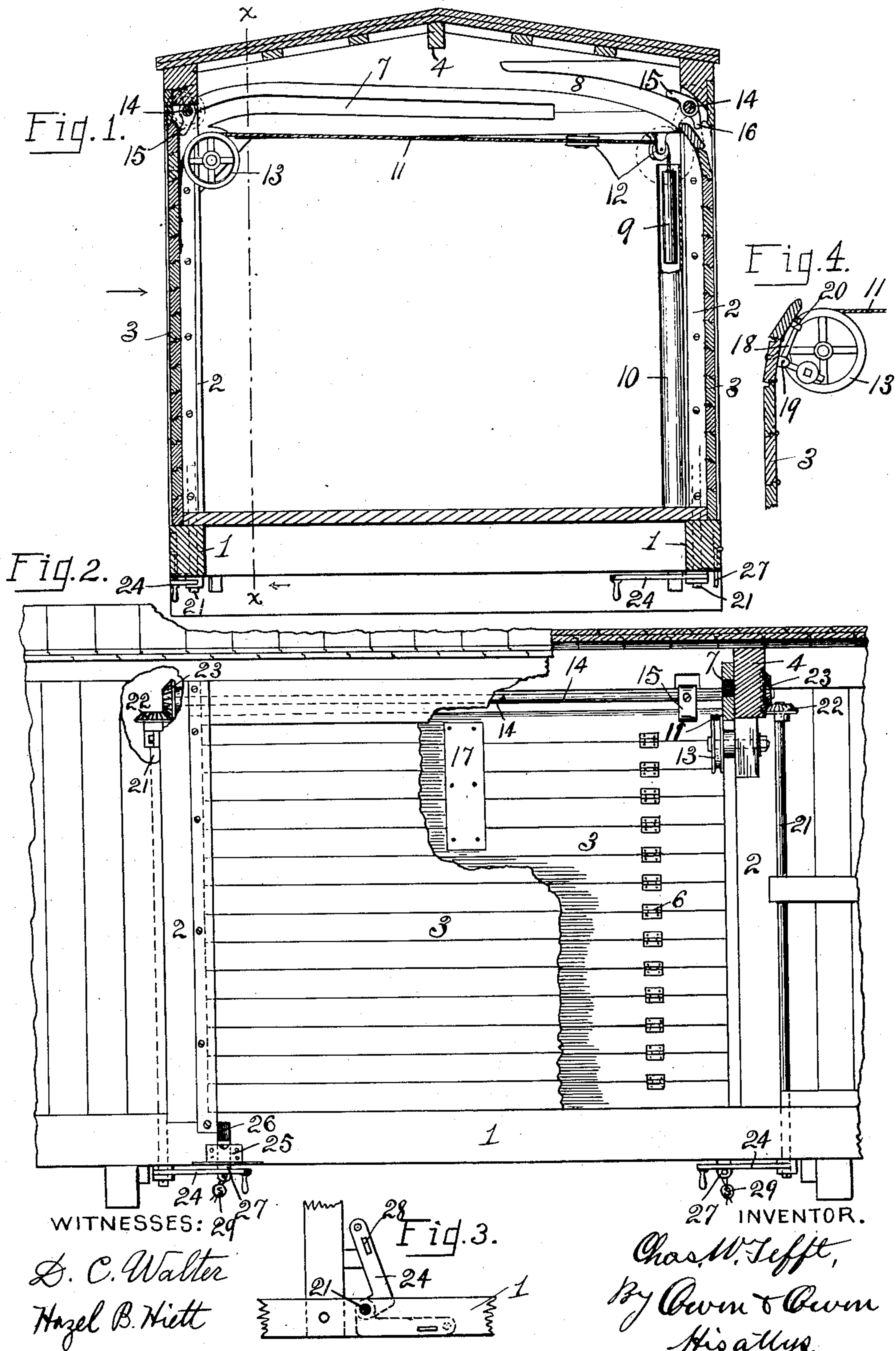
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PATENTED AUG. 20, 1907.

C. W. TEFFT.

CAR DOOR.

APPLICATION FILED MAR. 18, 1907.



UNITED STATES PATENT OFFICE.

CHARLES W. TEFFT, OF TOLEDO, OHIO.

CAR-DOOR.

No. 864,042.

Specification of Letters Patent.

Patented Aug. 20, 1907.

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To all whom it may concern:

Be it known that I, CHARLES W. TEFFT, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Car-Doors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in car-doors of the class comprising a series of flexibly-connected sections mounted in runways and adapted when opened to be moved up out of the way under the car-roof, and has particular reference to improvements upon the construction of door described and shown in my former United States Letters Patent No. 820,153, granted May 8, 1906.

The primary object of the invention is to provide simple and efficient means within the car for locking the door against an unauthorized opening, said means being controlled from without the car and capable of being sealed by the usual car seal.

Further objects of the invention, as well as the operation, arrangement and construction of the parts thereof will be apparent by reference to the following detailed description and the accompanying drawings, in which—

Figure 1 is a cross-section of a car taken through the doors thereof and embodying the features of my invention. Fig. 2 is a fragmentary side elevation of a car with a portion thereof in section on the line xx in Fig. 1. Fig. 3 is a plan of the lock controlling lever and a portion of the frame timbers with which it is associated, and Fig. 4 illustrates a modified means of throwing the top door section in so as to permit a raising thereof when released.

Referring to the drawings, 1 designates the side floor-sills, 2 the door-posts or sides of the door frame, 3 the doors, and 4 the roof-beams of an ordinary freight-car.

Each door 3 is composed of a series of sections, flexibly connected together by links or hinges 6, or in any other suitable or convenient manner. These doors operate in guides or runways formed in the contiguous sides of the door-posts 2, one set of said runways communicating at their upper ends with horizontal guides or runways 7 and the other set communicating with horizontal guides or runways 8, which are formed in or provided on the contiguous faces of the properly positioned roof-beams 4 of the car-body, thus enabling the doors to be raised out of the way under the car-roof. The vertical portions of the runways are preferably positioned so that the outer faces of the doors when closed are substantially flush with the sides of the car, as shown in Fig. 1, and have their upper ends extending to the top of the door-frame to permit the upper door

section to abut the under side of the frame top and stand in the plane of the major portion of the door. To facilitate a raising or lowering of the doors, each is counterbalanced by a set of weights 9 which operate in tubular vertical guides 10 disposed on the opposite side of the car from the associated door and each is connected to the upper portion of the door by a cable 11. This cable is guided in its course by a desired number of suitably positioned sheaves 12 and the sheave 13, the latter being placed at the point of juncture of the vertical and horizontal portions of the contiguous runway in which the associated door operates in suitable position for its periphery to contact with the door when it is being moved, thus tending very materially to reduce the frictional resistance which would otherwise be present when the door is raised or lowered. In order to avoid confusion the counterbalancing means of only one door is shown.

I will now proceed to describe the means employed for locking the door against an unauthorized opening, which means constitutes the primary features of improvement over my said former Letters Patent No. 820,153.

Disposed above each door when in closed position and out of the path of raising movement thereof is a shaft 14 the ends of which are journaled in the upper ends of the door-posts 2 or otherwise suitably supported. Fixedly mounted on each of these shafts are one or more armed members, each of which has an arm 15 of suitable length to engage the inner upper edge of the door when in closed position, whereby to throw the top door sections outwardly under the top of the door casing, as shown at the left of Fig. 1, thus preventing a raising of the door. Said members may also each be formed with a similar arm 16, which, when the shaft is turned in the proper direction, is intended to coact with the upper outer edge of the door when in closed position and cause the top door sections to be thrown inwardly upon the contiguous inclined surfaces of the inner shoulders of the runways in position to permit a raising of the door, as shown at the right of Fig. 1.

In Fig. 2 I have shown the door as provided near its top with a flat spring 17, which crosses several slats or sections of the door and is tensioned so that the upper door sections normally have a tendency to move inwardly and rest against the inclined surfaces of the associated runways. Still another method of automatically moving the top-most slats or sections inwardly when released by an unlocking movement of the arm 15, is shown in Fig. 4, and consists in pivoting a bell-crank lever 18 to the door, as at 19, and weighting the outwardly extending arm while the other arm passes freely through an eye 20 carried by the door.

Rotary movement is imparted to the shaft 14 from

a vertical crank-shaft 21, which carries a bevel-gear 22 at the upper end for meshing with a similar gear 23 on the end of the shaft 14 and has its lower end extended through the associated floor sill 1 and provided 5 beneath the same with an operating-crank 24. The arrangement of the locking-arms 15 and crank 24 on their respective shafts is such that the arms 15 are operated to lock the door against raising when the crank 24 is parallel with the sill or stands lengthwise 10 of the car, as shown at the left of Fig. 1 and in Fig. 2, and are in released position when the crank stands crosswise of the car, as shown at the right of Fig. 1 and in Fig. 3.

Secured by the keeper-plate 25 within a gained out 15 portion 26 of the sill 1 through which the crank-shaft 21 passes is a vertically movable bar 27, the lower end of which is intended to pass through a slot 28 in the crank-arm 24 and is provided with an eye for the attaching of a seal 29. The upper end of this bar is 20 bent outwardly both to prevent its withdrawal from the sill and to serve as a finger-grip to facilitate its withdrawal from the slot in the crank. It is thus apparent that to open a car door embodying my invention it is only necessary to break the seal and raise the 25 bar 27 from engagement with the crank-handle after which the crank-handle may be thrown back, thus imparting a sufficient rotation to the shaft 14 to move the arms 15 out of the path of raising movement of the door. Upon a release of the door the top sections 30 thereof are thrown inwardly against the curved surfaces of the inner shoulders or ribs of the runways by the turning action of the arms 16 on the shaft 14, should they be employed, or by the automatic action of the spring 17 or weighted bell-crank 18, thereby 35 permitting the door to be easily raised to the top of the car.

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

1. In a car, a door-casing having runways provided in 40 its sides, said runways continuing under the car roof and having an outward break or recess extending under the top of the casing, a door movable in said runways comprising a series of flexibly-connected sections, a shaft at

the top of the door-casing, arms carried by the shaft and intended to engage and move the top door sections under 45 the top of the door-casing when the shaft is turned in one direction and to move said sections from under the door casing when the shaft is turned in the other direction, and means for rotating said shaft.

2. In a car, a door-casing having runways therein and 50 continuing at an angle from the upper end thereof, a door movable in said runways comprising a series of flexibly-connected sections, means controlled from without the car for positively throwing the top door sections under the 55 top of the door-casing out of the general course of the runways whereby to lock the door against movement, and means operated by said first mentioned means for moving the top door sections inwardly in the course of the runways when released by said first mentioned means.

3. In a car, a door-casing having runways therein and 60 continuing at an angle from the upper end thereof, a door movable in said runways and having its top section abutting against the under side of the top of the door-casing in substantial flush position with the outer surface of the 65 car when the door is completely closed, means controlled from without the car for moving the top door section under the top of the door-casing, and means for positively moving the top door section from under the top of the door-casing when released by said first mentioned means.

4. A door-frame having runways therein and continu- 70 ing at an angle from the upper end thereof, a door movable in said runways comprising a series of flexibly-connected sections, a shaft at the top of the frame carrying an arm for coacting with the top door section when in closed 75 position to throw it under the top of the frame when the shaft is turned in the proper direction, a crank-shaft for driving said first shaft, a crank-arm carried by the crank-shaft and means cooperating with the crank-arm to lock the same against movement.

5. In a car, a door-frame having runways provided in 80 the sides and continuing under the car-roof, a door movable in the runways comprising a series of flexibly-connected sections, counterbalance weights, cables connecting the weights and door, and sets of sheaves over which the 85 cables pass, one of the sheaves of each set being mounted at the angle of each runway in position to act as an anti-friction roll for the door at such point.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

CHARLES W. TEFFT.

Witnesses:

WILBER A. OWEN,
HAZEL B. HIETT.