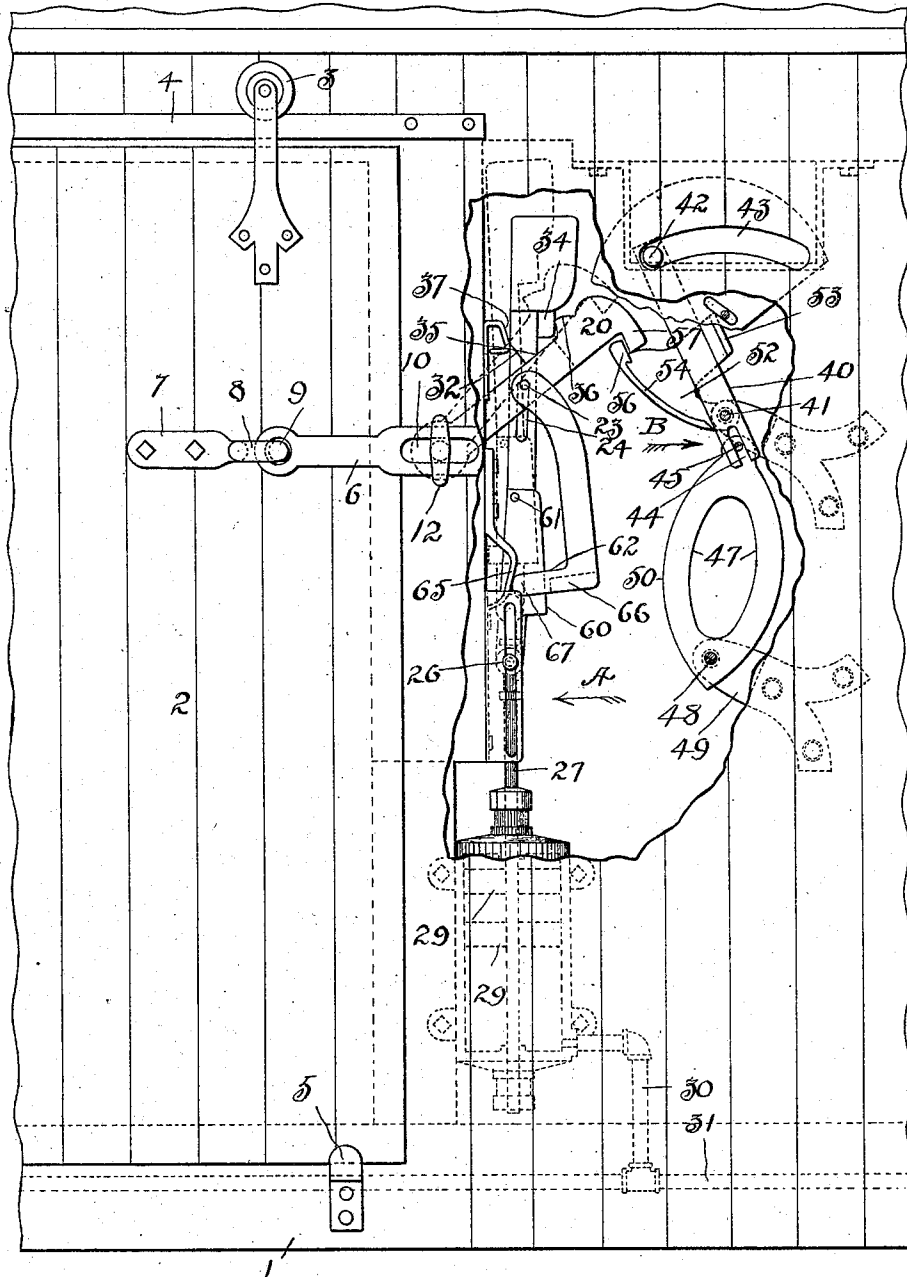


L. WADSWORTH.
 LOCK FOR FREIGHT CAR DOORS.
 APPLICATION FILED FEB. 1, 1909.

932,658.

Patented Aug. 31, 1909.
 3 SHEETS—SHEET 1.



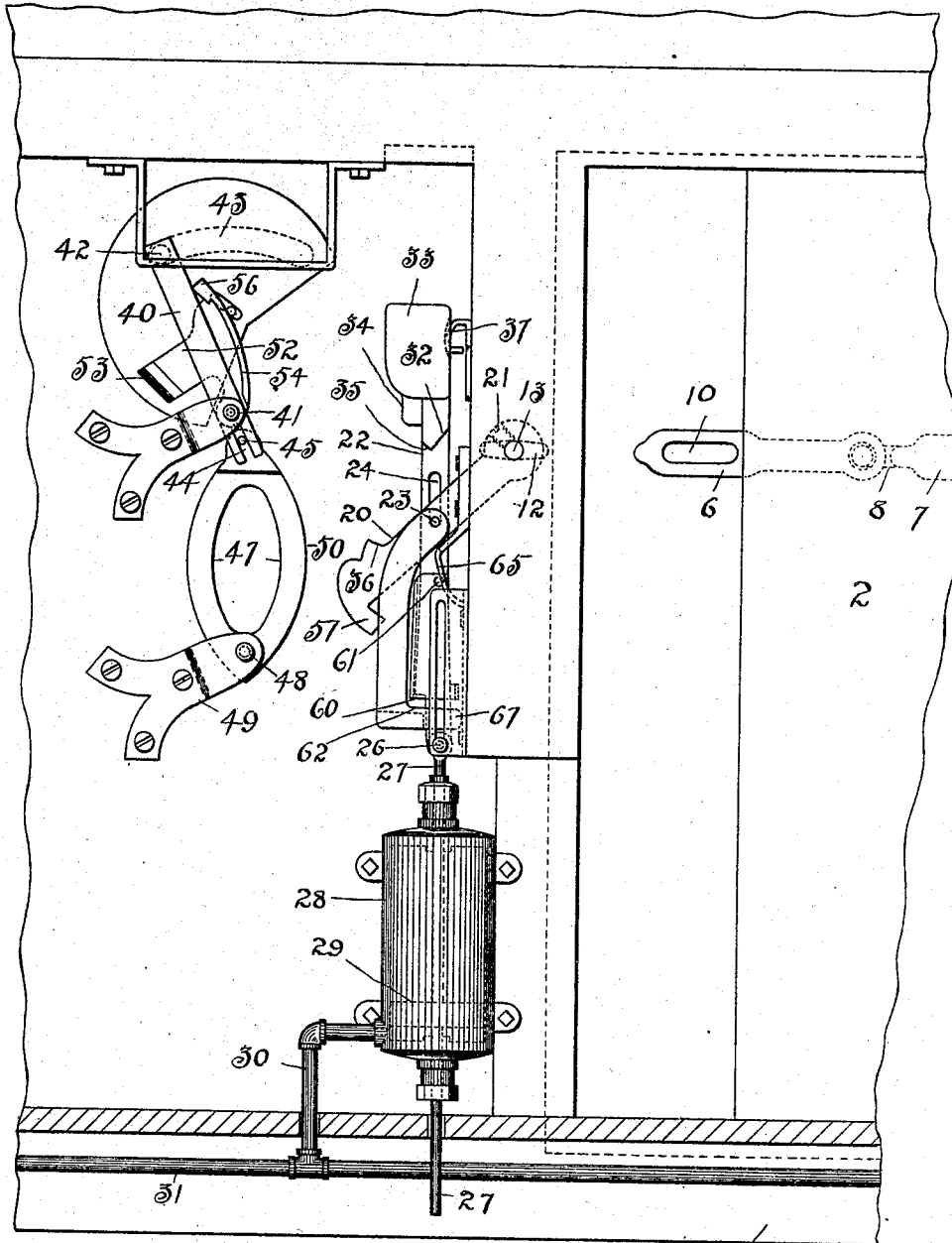
WITNESSES
 J. Donebach.
 L. C. Kennedy.

FIG. 1
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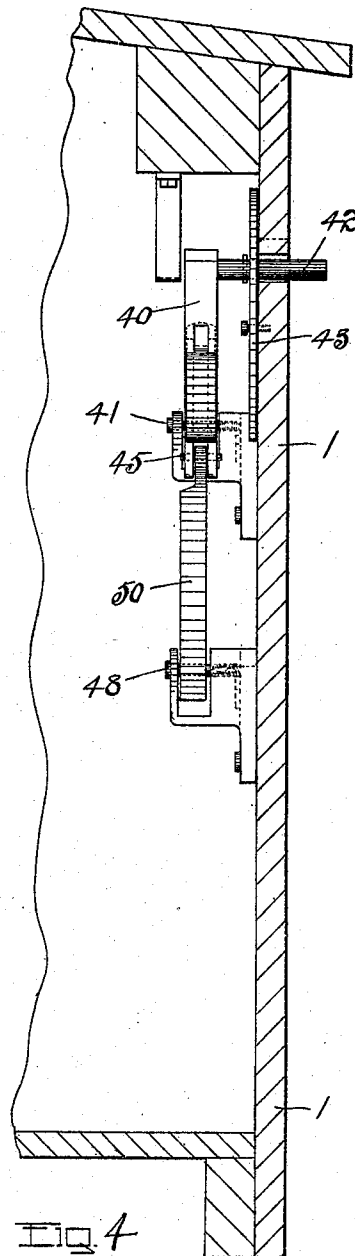
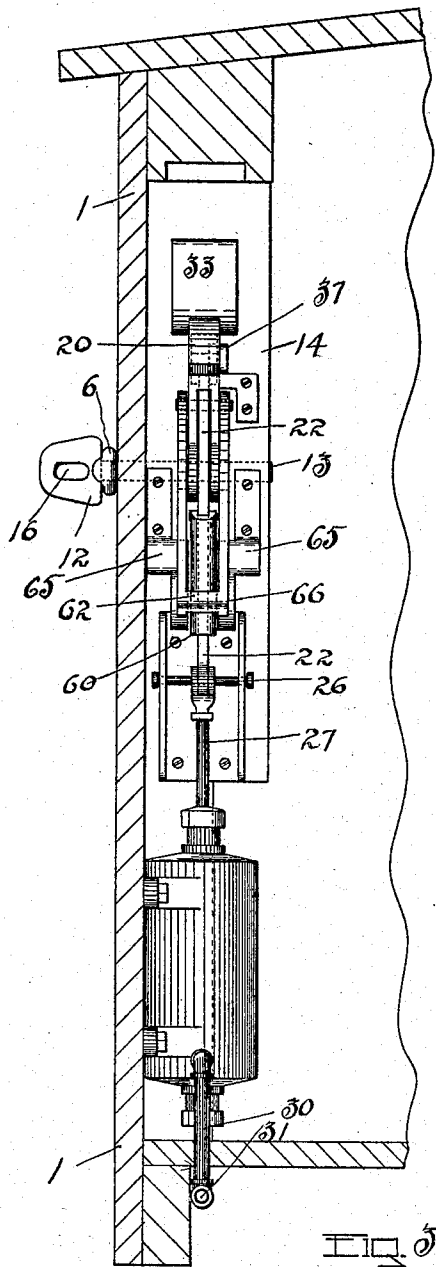
FIG. 2

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WITNESSES

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 L. C. Kennedy.

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UNITED STATES PATENT OFFICE.

LELAND WADSWORTH, OF TROY, NEW YORK.

LOCK FOR FREIGHT-CAR DOORS.

932,658.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed February 1, 1909. Serial No. 475,344.

To all whom it may concern:

Be it known that I, LELAND WADSWORTH, a citizen of the United States, residing at Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Locks for Freight-Car Doors, of which the following is a specification.

The invention relates to such improvements and consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the reference characters marked thereon, which form a part of this specification. Similar characters refer to similar parts in the several figures therein.

The general object of the invention is to utilize the air-pressure, employed in connection with an air-brake system, for locking the doors of freight-cars.

Specifically, some of the objects are to lock and maintain in a locked position by means of air-pressure, accessible interlockable members so long as the car provided with such members is connected by air-pipes with the train-locomotive, and when any car is cut off from such connection to maintain such members in a locked position by means of certain mechanism which can, when desired, be so operated by hand exteriorly of the car before the car is so disconnected from the locomotive as to permit the locked members to be unlocked when the air-pressure is cut off from such car; another specific object is to provide means whereby the interlockable members may be locked by the hand of the operator when the air-supply is cut off from the car in such manner that such members cannot be unlocked except by air-pressure when the car is again connected with the locomotive.

The invention consists of exteriorly located and accessible interlockable members, one of which members is provided with mechanism adapted to be operated by an air-engine connected with the compressed-air pipe of the brake-system to lock such members, and means for retaining such mechanism in the locking position after the air-supply is cut off; also in providing means for prearranging the locking mechanism while the air-engine is energized, so that when the air-supply is cut off, the interlocked members may be unlocked; also in providing certain attachments whereby the

interlockable members may be interlocked by the hand of the operator when the air-pressure is cut off, as will be hereinafter more fully described and subsequently pointed out in the claims.

Figure 1 of the drawings is a view in side elevation of a part of a freight-car, showing a door locked by the improved locking mechanism, a portion of the side of the car being broken away to show the inaccessible portions of the mechanism located interiorly of the car-wall, and occupying the locking position. Fig. 2 is an interior elevation of that side-wall of the car shown in Fig. 1, with the door partly open, and with the locking mechanism occupying the unlocked position. Fig. 3 is a vertical cross-section of a portion of the car showing portions of the locking mechanism in elevation, viewed in the direction of the arrow, A, in Fig. 1. Fig. 4 is a similar view, viewed in the direction of the arrow, B, in Fig. 1.

The car, 1, is shown provided with a slide-door, 2, supported by wheels, 3, adapted to travel on track, 4, in the usual well known manner. The bottom of the door is held against the car-body by means of keepers 5.

The door is provided with a hasp, 6, secured in the usual manner to the door, as by the bracket, 7, having the ring, 8, inserted in aperture, 9, in one end of the hasp, so that the hasp is free to swing in any direction upon the ring. The hasp constitutes one of the interlockable members. The other interlockable member consists of the flattened head, 12, provided with a cylindrical shank or stem, 13, rotatory in suitable bearings located in the car-wall, and the post, 14, secured thereto.

The head, 12, is adapted to be inserted in the slot, 10, when the head occupies a position corresponding with the slot, as indicated by dotted lines in Fig. 2. After the hasp has been placed upon the head, and the head rotated through 90 degrees to the position shown by solid lines in Figs. 1 and 3, the two interlockable members are locked together.

The head may be provided with the slot, 16, adapted to receive a padlock, which may, when desired, be inserted and sealed in the usual well known manner.

The stem, 13, of the rotatory interlockable members is provided with a rock-lever, 20, fixed thereon as by set-screw, 21, indicated by dotted lines in Fig. 2. This rock-lever

is loosely and pivotally connected with the link, 22, by means of the pivot, 23, movable longitudinally of the slot, 24, on the link, thereby maintaining what is termed a loose-connection with the link. The link, 22, is pivotally connected at its lower end by means of pivot, 26, with the upper projecting end of piston-rod, 27, reciprocatory in the air-cylinder, 28, and provided with a piston, 29, indicated by dotted lines within the air-cylinder. The air-cylinder is provided with an inlet-pipe, 30, connected with the air-supply pipe, 31, forming part of the air-brake system, and communicating with the air-pump on the train-locomotive. The upper end of the link, 22, is provided with the weight, 33, and the stops, 34, 35 and 32.

When air is admitted from the air-supply pipe, 31, to the cylinder, 28, of the air-engine, the piston, 29, is forced to the upper end of the cylinder, and the rock-lever, 20, and link, 22, to the positions indicated by dotted lines in Fig. 1, and maintained in such positions so long as the air-pressure continues, which imparts to the interlockable member a rotatory movement, which positions the head, 12, crosswise of the hasp-lock, 10, and locks the interlockable members together.

When the air-supply is cut off from the air-engine, the weighted link, 22, and the rock-lever descend to the positions shown by solid lines in Fig. 1. The rock-lever is detained at the position shown by solid lines by means of a detent which will be herein-after more fully explained, and the weighted link continues its descent after the rock-lever has been stopped until the stop, 34, on the link engages with the stop, 36, on the rock-lever, and holds the lever in engagement with the detent. The inclined stop, 32, riding upon the inclined stationary stop, 37, forces the stop, 34, into engagement with the stop, 36, and the stop, 35, on the link engages the upper side of the lever to prevent the further descent of the link.

It will be observed that the pivot, 23, rests in the upper end of the slot, 24, the slot permitting the descending movement of the link after the rock-lever has been stopped by the detent. The detent is made up of several parts consisting of the oscillatory lever, 40, pivoted at, 41. The longer end of the lever is provided with a crank or handle, 42, projecting exteriorly of the car through the curved slot 43. The shorter end of the lever is provided with an open slot, 44, adapted to receive the pin, 45, fixed in the upper end of the lever, 47, oscillatory upon the pivot, 48, fixed in the projecting end of bracket, 49, secured to the wall of the car. The lever, 47, is provided with the convex surface, 50, adapted to be engaged by the oscillatory end of the rock-lever, 20, when the same passes to and fro from the locking position shown in Fig. 1 to the unlocking position shown in

Fig. 2, and back again. The lever, 40, is slotted, and within the slot rests an oscillatory lever 52. This lever is provided with a flange, 53, on one side to prevent the lever from escaping from the slot in the lever, 40, and with the flange, 54, on the other side to prevent the lever from escaping from the slot in the opposite direction. The oscillatory end of the flange, 54, is provided with the stop, 56, adapted to engage with the stop, 57, on the rock-lever to hold the parts in the position shown by solid lines in Fig. 1. The outer surface of flange, 54, is curved or convex to permit the oscillatory end of the rock-lever to ride along the same and force the lever, 52, from the position shown in Fig. 1 to the position shown in Fig. 2, and fall back again by gravity to the position shown in Fig. 1, when the rock-lever has passed beyond the stop 56.

It should be observed that when the parts are in the position shown in Fig. 1, the detent cannot be moved from the position there shown by means of the projecting handle, 42, but when the rock-lever and the link, 22, occupy the position shown by dotted lines in Fig. 1, the stops, 56 and 57, are not in engagement, and the detent can be changed by the hand of the operator applied to the handle, 42, from the position shown in Fig. 1 to the position shown in Fig. 2, which throws the detent and its stop, 56, out of the path of the rock-lever, so that when the air-supply is cut off from the air-engine the rock-lever can be moved to the position shown in Fig. 2 by applying the hand of the operator to the flattened head of the interlockable member, 12, in case it does not fall by gravity to such position, thereby unlocking the interlockable members. Such movement of the rock-lever to the position shown in Fig. 2, causes the head of such lever to engage the curved surface, 50, of the lever, 47, and impart to the latter lever sufficient movement to restore the detent to the position shown in Fig. 1.

As a means for interlocking the interlockable members by hand when the parts are in the position shown in Fig. 2, the link, 22, is provided with a stop, 60, pivoted at, 61, and the rock-lever is provided with the link-stop, 62, pivoted upon the pivot, 23. The operator then grasps the flattened head of the interlockable member, 12, and turns the same toward the interlocking position, which forces the rock-lever from the position shown in Fig. 2, upward to, and a little beyond, the position shown by solid lines in Fig. 1. The stop, 60, engaging with the stop, 62, forces the link, 22, up toward the position shown by dotted lines in Fig. 1.

When the oscillatory end of the rock-lever passes the stop, 56, of the detent, such stop falls by gravity to the position shown in Fig. 1, and a slight additional upward movement

causes the branching toes of the stop, 62, to ride up the inclined stationary stop, 65, which throws the link-stop outwardly away from the stop, 60; until the solid portion of the stop represented by the dotted line, 66, passes from beneath the bottom of stop, 60, and becomes disengaged therefrom, which permits the link, 22, to fall to the position shown by solid lines in Fig. 1; the lower end of the stop, 60, passing down between the branching toes, 67, of stop, 62, one on each side of stop, 60, as seen in Figs. 1 and 3, and the stop, 34, on the link engaging with stop, 36, on the rock-lever, as before described, thereby securely interlocking the interlockable members and preventing them from being unlocked except by the admission of compressed air to the air-engine, and thereby raising the link and oscillatory end of the rock-lever with their locking stops, to the position shown by dotted lines in Fig. 1, which permits the detent to be thrown out of the path of the rock-lever by means of the handle, 42, as before described, when the parts can be unlocked by cutting off the air-supply.

What I claim as new and desire to secure by Letters Patent is:—

1. In a lock for doors of freight-cars provided with an air-brake system, the combination with interlockable members accessible to manual operation; of inaccessible locking mechanism adapted to be operated by compressed air for communicating to one of the interlockable members a locking movement, and for maintaining, while subjected to air-pressure, such members in locked position; a detent for maintaining the interlocking members in locked position when the air-pressure is cut off; and connections between the locking mechanism and the air-supply pipe forming part of the car-brake system.

2. In a lock of the class described, the combination with interlockable members; of locking mechanism adapted to be operated by compressed air for communicating to one of the interlockable members a locking movement, and for maintaining, while subjected to air-pressure, such members in locked position; a detent for maintaining the interlockable members in locked position when the air-pressure is cut off; hand-operated mechanism, accessible from the exterior of the car, for removing the detent while the members are maintained in their locked position by the air-actuated locking mechanism, whereby the interlocking members can be unlocked from the exterior of the car when the air-pressure is cut off.

3. In a lock of the class described, the combination with the interlockable members; of locking mechanism adapted to be operated by compressed air for communicating to one of the interlockable members a locking movement, and maintaining, while

subjected to air-pressure, such members in locked position; means for operating such locking mechanism by hand when the air-pressure is cut off; and an automatic detent for maintaining the interlocking members, when so locked by hand, in locked position while the air-pressure is cut off from the air-operated locking mechanism.

4. In a lock of the class described, the combination with interlockable members accessible exteriorly of the car; of inaccessible locking mechanism adapted to be actuated by compressed air to communicate a locking movement to one of such interlockable members; a movable detent engageable by the air-actuated locking mechanism and automatically located in the path traversed by such mechanism, whereby an unlocking movement of the air-actuated locking mechanism is prevented when the supply of compressed air is cut off; means located exteriorly of the car, and accessible to manual operation, for removing such detent from the path of the air-actuated mechanism while such mechanism is maintained at the limit of its air-actuated movement; whereby the interlocking members may be unlocked when the compressed air is cut off.

5. In a lock of the class described, the combination with interlockable members accessible exteriorly of the car, one of such members being provided with a stem rotatively mounted in suitable bearings; of inaccessible locking mechanism adapted to be actuated by compressed air, comprising a rock-lever fixed upon, and projecting from, such stem; an air-engine having a piston-rod pivotally connected at its outer end with a link, which link is loosely and pivotally connected with the rock-lever intermediately of its ends; an oscillatory detent movable into and out of the path of the rock-lever; means for automatically oscillating the detent, whereby the rock-lever is retained by the detent in a position to maintain the interlocking members in a locking position when the air-supply has been cut off from the air-engine.

6. In a lock of the class described, the combination with interlockable members accessible exteriorly of the car, one of such members being provided with a stem rotatively mounted in suitable bearings; of a rock-lever fixed upon, and projecting from, such stem; inaccessible locking mechanism comprising an air-engine having a reciprocatory piston-rod, a link pivotally connected at one end with the piston-rod, a loose pivotal connection between the link and rock-lever intermediately of their ends, respectively; a stop on the upper oscillatory end of the link adapted to engage with a coacting-stop on the oscillatory end of the rock-lever; an oscillatory detent normally located in the path of the rock-lever, and adapted to engage the oscillatory end of the lever and maintain the

same in a locking position when the compressed-air supply is cut off; means for bringing the stop on the oscillatory end of the link into engagement with the stop on the oscillatory end of the rock-lever when the air-supply is cut off, thereby preventing the rock-lever from being oscillated by means of the exteriorly projecting portion of the interlockable member upon which the lever is fixed.

7. In a lock of the class described, the combination with interlockable members accessible exteriorly of the car, one of such members being provided with a stem rotatively mounted in suitable bearings; of a rock-lever fixed upon, and projecting from, such stem provided on its oscillatory end with locking stops; an air-engine having a reciprocatory projecting piston-rod; a link pivotally connected at one end with the projecting end of the piston-rod; a loose pivotal connection between the link and rock-lever intermediately of their ends, respectively, whereby, when the air-engine is energized by the admission of compressed air, the rock-lever is oscillated to change the interlockable members from an unlocked to a locked position, and when the compressed air is cut off from the engine, the rock-lever oscillates toward, and engages with, the detent, and the piston-rod and link drop by gravity until the stop on the link engages with the stop on the oscillatory end of the rock-lever and locks the link, rock-lever and detent, each in an immovably fixed position until the air-engine is again energized.

8. In a lock of the class described, the combination with interlockable members accessible exteriorly of the car, one of such members being provided with a stem rotatively mounted in suitable bearings; of a rock-lever fixed upon, and projecting from, such stem provided on its oscillatory end with locking stops; an air-engine having a reciprocatory projecting piston-rod; a link pivotally connected at one end with the projecting end of the piston-rod; a loose pivotal connection between the link and rock-lever intermediately of their ends, respectively, whereby, when the air-engine is energized by the admission of compressed air, the rock-lever is oscillated to change the interlockable members from an unlocked to a locked position, and when the compressed air is cut off from the engine, the rock-lever oscillates toward, and engages with, the detent, and

the piston-rod and link drop by gravity until the stop on the link engages with the stop on the oscillatory end of the rock-lever and locks the link, rock-lever and detent, each in an immovably fixed position until the air-engine is again energized; an outwardly projecting handle on the oscillatory detent accessible exteriorly of the car, whereby the detent may be thrown out of the path of the rock-lever while the air-engine is energized and before the rock-lever has fallen into locking engagement with the detent.

9. In a lock of the class described, the combination with interlockable members accessible exteriorly of the car, one of such members being provided with a stem rotatively mounted in suitable bearings; of a rock-lever fixed upon, and projecting from, such stem provided on its oscillatory end with locking stops; an air-engine having a reciprocatory projecting piston-rod; a link pivotally connected at one end with the projecting end of the piston-rod; a loose pivotal connection between the link and rock-lever intermediately of their ends, respectively; an oscillatory detent normally located in the path of the rock-lever; means whereby the rock-lever can be operated by hand through the exteriorly located portion of the interlocking member connected therewith, consisting of a supporting stop located on the piston-rod link; a link-stop pivoted at its upper end upon the rock-lever intermediately of its ends, and provided at its lower end with a supporting stop adapted to engage the stop on the piston-rod link, and support such link in fixed relation to the rock-lever; a stationary trip for disengaging the link-stop from the stop on the piston-rod link when the rock-lever has been oscillated upward by hand to a position adapted to engage with the detent, whereupon the piston-rod and piston-rod link fall by gravity until the stop on the upper end of such link engages with the stop on the oscillatory end of the rock-lever to lock the link, rock-lever and detent, each in a position to maintain the interlocking members in locked position.

In testimony whereof, I have hereunto set my hand this 29th day of January, 1909.

LELAND WADSWORTH.

Witnesses:

FRANK C. CURTIS,
LILLIAN C. KENNEDY.