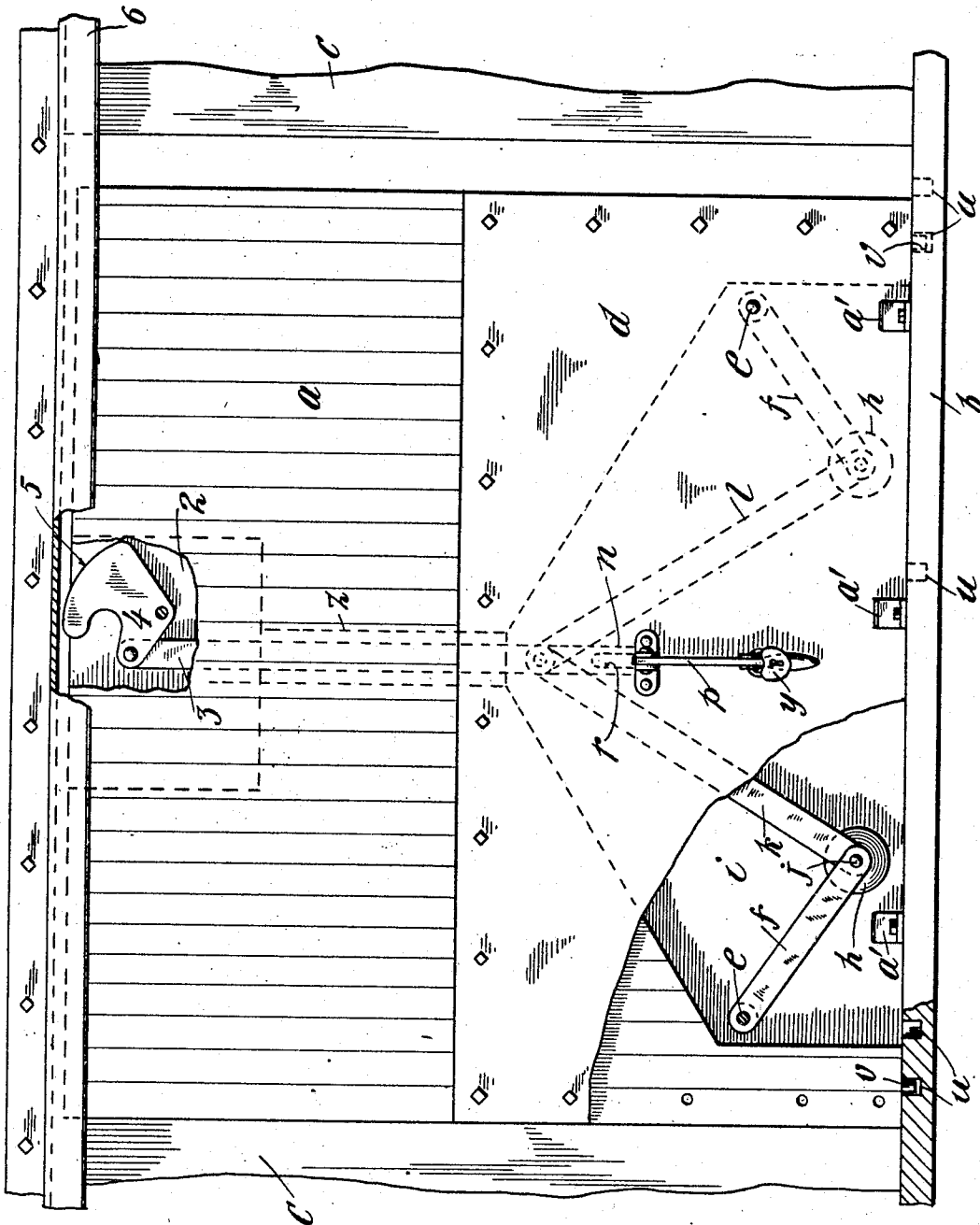


1,027,504.

Patented May 28, 1912.

2 SHEETS—SHEET 1.



WITNESSES:

Gene Moore
Clat

Fig. 1.

INVENTOR

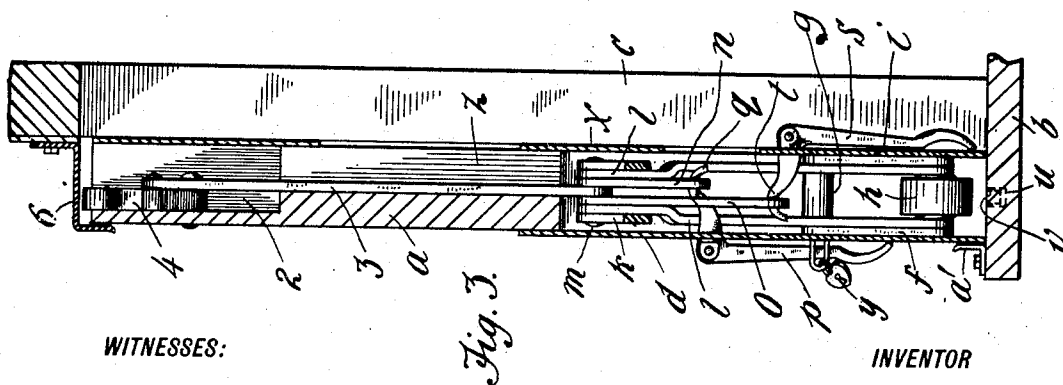
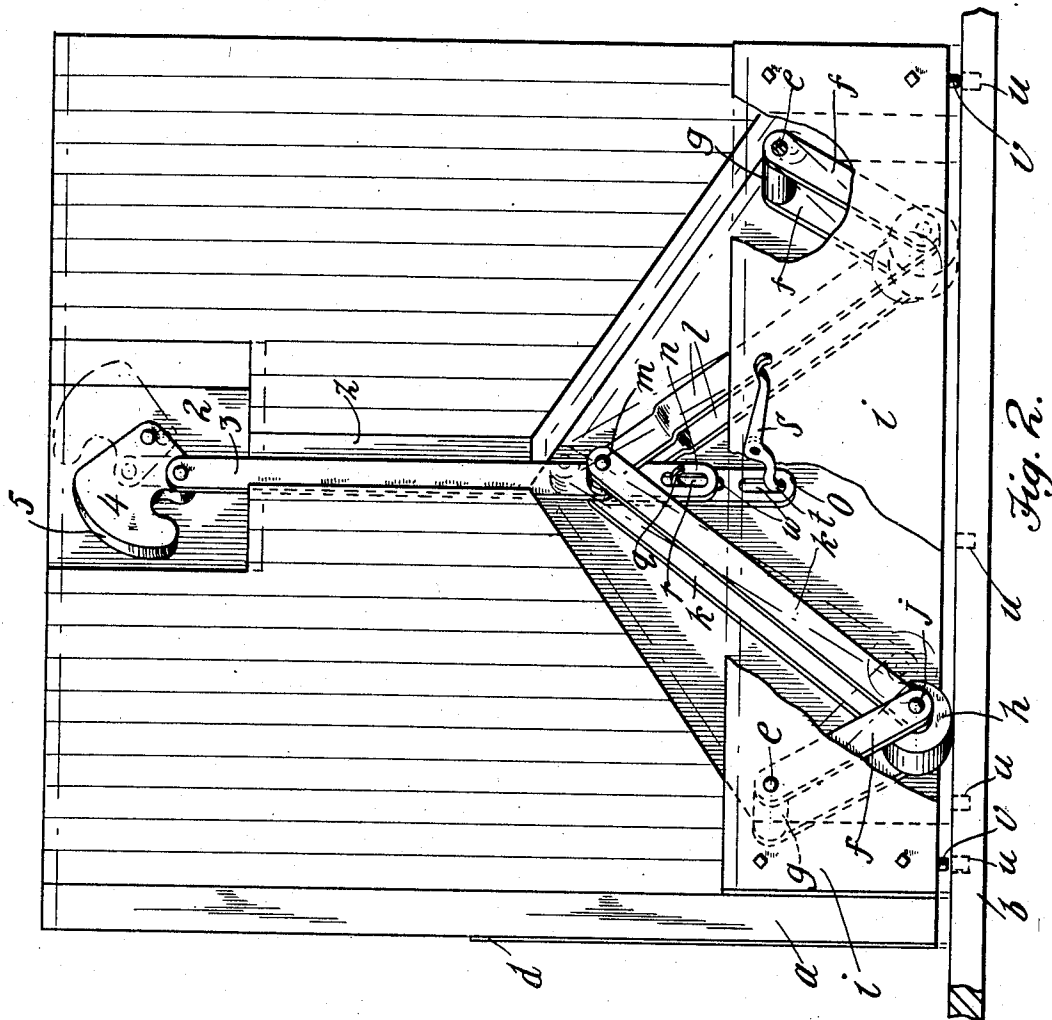
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 ATTORNEY

1,027,504.

2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN L. RIFER, OF PORTLAND, OREGON.

RELEASING DOOR-HANGER.

1,027,504.

Specification of Letters Patent.

Patented May 28, 1912.

Application filed February 14, 1912. Serial No. 677,620.

To all whom it may concern:

Be it known that I, JOHN L. RIFER, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Releasing Door-Hangers, of which the following is a specification.

My invention relates to means for controlling the operation of a sliding door, and has particular reference to the door of a railway box car.

Generally speaking my object is to provide a box car door of greater reliability and convenience of operation than the doors usually employed. To this end my aim is to provide a door with manually operated means for lifting the door clear of the track on which it slides, and in thus raising the door to interpose a plurality of anti-friction rollers between the door and said track.

A further object is to provide means for independently operating the door mechanism either from the outside or inside. And finally my aim is to provide means for locking the door in position, so that it can only be moved through the medium of said manually operated lifting mechanism.

The objects and features of my invention are clearly set forth in the following description and illustrated in the appended drawings, of which:

Figure 1 is an outside elevation of the body of a box car embodying my invention, Fig. 2 illustrates, in perspective, the inside surface of a box car door, and Fig. 3 is a cross-sectional view substantially through the center of the door-mechanism.

The door *a* rests on the sill of car platform *b*. It is mounted to slide along the outer surface of the car side-wall *c*, and is guided by suitable clips or rails *a'*, 6. The lower-center portion of the door is removed, and the opening or chamber thus created is on the outside closed by a sheet metal cover *d*. On this cover I mount a pair of studs *e*, and on each of these I journal a pair of arms *f*, the opposite ends of which support an anti-friction roller *h*. The inner ends of studs *e* are fixed in a supporting plate *i*, secured on the inner surface of the door. Spacers *g* may be employed to retain arms *f* in transverse alinement, or said sleeves and arms may be combined into a solid frame. On shafts *j* of the rollers I journal two sets of

links *k*, *l*, which extend upward, their upper ends being journaled on a common fulcrum rod *m*. Said rod serves as support for a pair of pendent frames, one short frame *n* and one longer frame *o*. On the outer surface of cover-plate *d* I fulcrum a hand-lever *p*, made with an arm *q*, which extends through said cover-plate and engages the lower extremity of a perforation *r* of pendent frame *n*. On supporting plate *i* I journal a second hand-lever *s*, made with an arm *t*, which projects through the plate and engages the lower end of pendent frame *o*.

Figs. 1 and 3 show the door resting on the car-sill, which is provided with a series of pockets *u* adapted to receive projections *v* of the door. Said pockets are spaced in any suitable manner to retain the door in a closed, partly opened or completely opened position. When desired to further open or close the door, from the outside, hand-lever *p* is raised, causing arm *q* to depress frame *n*, which in its turn acts upon fulcrum rod *m* and links *k*, *l* to swing roller frames *f* on studs *e*, whereby rollers *h* are caused to engage the car sill, and whereby the door is raised until projections *v* of the door clear pockets *u*. As pendent frame *o* is made with the elongated perforation *w*, the depression of the roller mechanism and consequent lifting of the door take place without disturbing the position of hand-lever *s*. In the same manner the door can be lifted and released from the sill from the inside of the car by raising hand-lever *s*, see Fig. 2, without disturbing the setting of hand-lever *p*, the perforation *r* of pendent frame *n* being also elongated so that said frame may descend without depressing arm *q* of said lever *p*. A plate *x* may be introduced to guide the mechanism mounted on rod *m* in the upper part of the door chamber, or said plate *x* may be combined with supporting plate *i* to form a complete cover corresponding to outside cover *d*.

From the foregoing description it is made clear to those versed in the art, that the anti-friction rollers are thrown into action by lifting the door either from the inside or the outside by means of either hand-lever, and how simultaneously the door is released from the sill of the car.

As indicated at *y*, Fig. 3, I may introduce a pad-lock or other suitable means for locking hand-lever *p* in place, so that it cannot

be operated by trespassers to move the door, and it is obvious that similar locking means may be used in connection with lever *s*.

A box-car door is usually sealed before leaving the place of shipment, but in cases of doors that do not thus become sealed, it is necessary to provide additional locking means, inasmuch as a trespassing party may lift the door bodily until projections *v* clear pockets *u*, and then slide it along on said projections. This I accomplish in the following manner. From the door chamber extends a perpendicular groove *z* terminating at the top in a smaller chamber 2. A link 3 journals on rod *m*, its upper end operatively connecting with a bell crank 4, and the latter is made with an eccentric cam portion registering with the bottom of upper guide-rail 6.

By referring to Fig. 2 it is readily seen, that the raising of hand-lever *s* to lift the door draws cam 5 away from rail 6, while said cam, when the door rests on the sill, stands so close to said rail that it is not possible to lift the door, bodily sufficiently to disengage projections *v* from pockets *u*.

In conclusion I wish to state that, while I principally aim at providing a door mechanism for a box car, my device can conveniently be used on other structures such as barns or store houses.

The pockets *u* may be so spaced, that the door can be locked in place at any suitable point. The door may for example present a small opening for ventilation, as shown in Fig 1, and still be locked firmly in place.

I claim:

1. In a sliding door, the combination with a door-frame and means for guiding the door relative to said frame; of a plurality of anti-friction rollers pivotally mounted in a cavity of said door; manually operated means for independently actuating said rollers from either side of the door, whereby said rollers are depressed and caused to engage the sill of said door frame and whereby the door is simultaneously lifted clear of the door-sill; and means actuated by the lifting of the door for disengaging the door from the sill to permit of sliding motion and actuated by the lowering of the door for again locking the door against sliding motion on the sill.

2. In a sliding door, the combination with a door-frame and means for guiding the door relative to said frame; of a plurality of anti-friction rollers pivotally hung in a cavity of said door; manually operated means for independently actuating said rollers from either side of the door, whereby said rollers are depressed and caused to engage the sill of said door-frame and whereby the door is simultaneously lifted clear of the door-sill; means actuated by the lifting of the door for disengaging the door from

the sill to permit of sliding motion and actuated by the lowering of the door for again locking the door against sliding motion on the sill; and means for locking the door against vertical motion, said means actuated by and coöperating with said manually operated means.

3. In a sliding door, the combination with a door-frame and means for guiding the door relative to said frame; of a plurality of anti-friction rollers pivotally mounted in a cavity of the door; manually operated means for independently actuating said rollers from either side of the door, whereby said rollers are depressed and caused to engage the sill of said door frame and whereby the door is simultaneously lifted clear of the door sill; a pair of spaced studs rigidly fixed in the door; and a series of pockets of the door sill, said pockets arranged in pairs, each pair spaced to correspond with said studs, said studs actuated by the lifting of the door to clear the pockets and by the lowering of the door to engage a pair of pockets, all for the purpose of locking the door in any required position.

4. In a sliding door, the combination with a door-frame and means for guiding the door relative to said frame; a pair of rollers hung in frames pivotally mounted in a cavity of said door, link bars journaled on the axis of said rollers and extending to a common fulcrum rod, and a pair of perforated frames suspended from said fulcrum rod; a pair of hand-levers, one journaled on the outside and one on the inside of the door, said hand-levers made with arms extending into the cavity of the door and adapted to engage said perforated frames, whereby the swinging of either hand-lever causes said rollers to approach and ride on the sill of said door-frame and simultaneously to lift the door free of said sill; and means actuated by the lifting of the door for disengaging the door from the sill to permit of sliding motion and actuated by the lowering of the door for again locking the door against sliding motion on the sill.

5. In a sliding door, the combination with a door-frame and means for guiding the door relative to said frame; a pair of rollers hung in frames pivotally mounted in a cavity of said door, link bars journaled on the axis of said rollers and extending to a common fulcrum rod, and a pair of perforated frames suspended from said fulcrum rod; a pair of hand-levers, one journaled on the outside and one on the inside of the door, said hand-levers made with arms extending into the cavity of the door and adapted to engage said perforated frames, whereby the swinging of either hand-lever causes said rollers to approach and ride on the sill of said door-frame and simultaneously to lift the door free of said sill;

and means actuated by the lifting of the door for disengaging the door from the sill to permit of sliding motion and actuated by the lowering of the door for again locking the door against sliding motion on the sill; and means for locking the door against vertical motion, said means actuated by and co-operating with said manually operated means.

10 6. In a sliding door, the combination with a door-frame and means for guiding the door relative to said frame; a pair of rollers hung in frames pivotally mounted in a cavity of said door, link bars journaled on the axis of said rollers and extending to a common fulcrum rod, and a pair of perforated frames suspended from said fulcrum rod; a pair of hand-levers, one journaled on the outside and one on the inside of the door, said hand-levers made with arms extending into the cavity of the door and adapted to engage said perforated frames, whereby the swinging of either hand-lever causes said rollers to approach and ride on the sill of

said door-frame and simultaneously to lift the door free of said sill; means actuated by the lifting of the door for disengaging the door from the sill to permit of sliding motion and actuated by the lowering of the door for again locking the door against sliding motion on the sill; a bell-crank pivoted at the top of the door, a link operatively connecting said bell-crank with said common fulcrum rod, said bell-crank having an eccentric cam surface registering with a rail of the door-frame, and actuated by the operation of either of said hand-levers to cause said cam surface to withdraw from and approach said rail, thereby permitting and preventing vertical motion of the door.

In testimony whereof, I have hereunto affixed my signature in the presence of two witnesses.

JOHN L. RIFER.

Witnesses:

E. P. FARLEY,
C. W. HILLS.