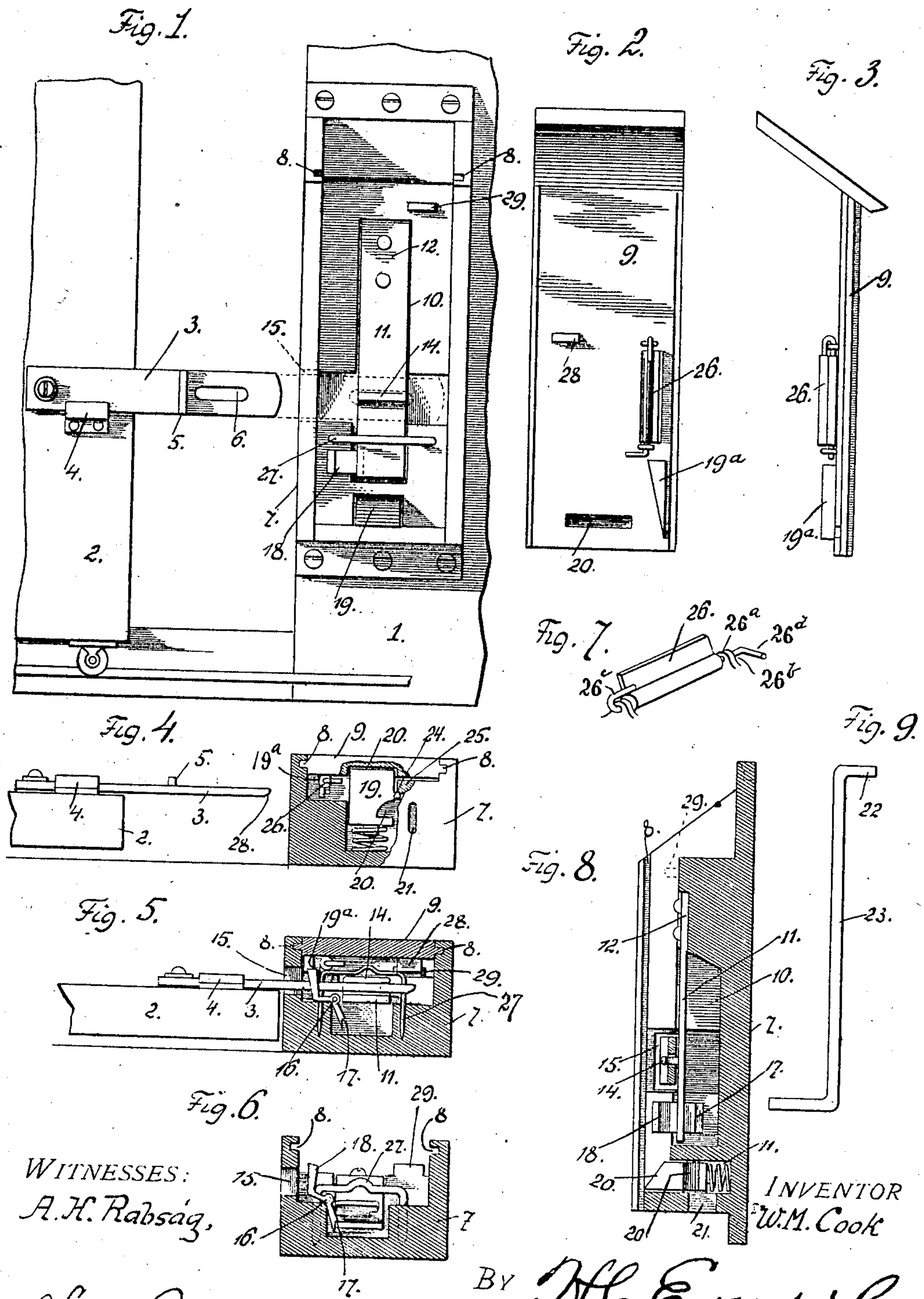


No. 872,110.

PATENTED NOV. 26, 1907.

W. M. COOK.  
SLIDING DOOR LOCK.  
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WITNESSES:  
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# UNITED STATES PATENT OFFICE.

WILLIAM M. COOK, OF WARREN, OHIO.

## SLIDING-DOOR LOCK.

No. 872,110.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed April 13, 1907. Serial No. 367,923.

*To all whom it may concern:*

Be it known that I, WILLIAM M. COOK, a citizen of the United States of America, residing at Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Sliding-Door Locks, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to sliding door locks, and the invention has for its object to provide a lock particularly designed for freight cars, to dispense with the ordinary detachable seal, commonly used for locking the doors of freight cars.

15 My invention aims to provide a car with a novel and automatically operated lock, which will firmly hold the door in a closed position, and prevent the same from being surreptitiously opened, unless the party is provided with the proper key for opening the door.

20 My invention contemplates the combination of certain structural elements which will produce a positive and reliable lock for doors, the lock being of that type commonly known as a spring lock, for locking a door when the same is closed, without the use of a key.

30 The detail construction of the structural elements will be hereinafter more fully described and then specifically pointed out in the appended claims.

35 Reference will now be had to the drawing forming a part of this specification, wherein

40 Figure 1 is a front elevation of my improved lock, the front plate or lid thereof being removed to clearly illustrate the interior construction of the lock, Fig. 2 is a plan of the under side of the front plate or lid of the lock, Fig. 3 is a side elevation of the same, Fig. 4 is a horizontal section on the line 4—4 of Fig. 1, with the front plate of the lock in closed position, illustrating the door in open position, Fig. 5 is a similar view on the line 5—5 of Fig. 1 illustrating the door in a closed and locked position. Fig. 6 is a similar view on the same line, the front plate of the lock being removed, Fig. 50 7 is a detached detail perspective view of a safety shutter carried by the front plate or lid of the lock, Fig. 8 is a central vertical sectional view of the lock taken on the line 8—8 of Fig. 1, and Fig. 9 is an elevation of a key used in connection with the lock.

55 In the accompanying drawings, I have

illustrated the side 1 of an ordinary freight car, said car being provided with a sliding door 2, provided with a pivoted latch 3 adapted to rest in and be supported by a bracket 4, carried by the door 2. The outer end of the latch 3 is provided, near its outer end, with a transverse ridge 5 and is slotted as at 6, the object of which will be presently described. The latch 3 is pivoted whereby it can be swung upwardly when the door is not to be locked in a closed position.

The side 1 of the car is provided with a lock casing 7 having the inner faces of its side walls provided with vertical grooves 8 to receive a detachable front plate or lid 9, which is provided with a slanting end plate 10<sup>a</sup> adapted to close the upper end of the lock casing 7. The lock casing 7 is provided with a vertically-extending recess 10, and a transversely-extending recess 11, the recess 10 providing clearance for the movement of a spring locking-arm 11<sup>a</sup> secured in the lock casing as at 12. The spring locking-arm 11<sup>a</sup> is provided with an outwardly-extending lug 14 adapted to enter the slot 6 of the latch 3, when said latch protrudes into the casing through the slot 15 formed in the side of the casing 7 to receive said latch. The lower end of the spring locking-arm 11<sup>a</sup> is held normally depressed in the recess 10 by a pivoted bell crank lever 16 having a notch 17 formed in its inner end to engage the spring locking-arm 11<sup>a</sup>. To release the spring I provide the inner face of the plate or lid 9 with a beveled lug 19<sup>a</sup> adapted to enter between arm 18 of the lever and the side wall of the lock casing when the front plate or lid is closed and release the spring locking arm 11<sup>a</sup> whereby it will assume the position illustrated in Figs. 5 and 8 of the drawings.

To lock the front plate or lid 9 in a closed position I mount a spring pressed dog 19 within the recess 11 of the casing 7, said dog engaging in a notch or groove 20 formed in the under side of the plate or lid 9. To open the front plate or lid 9, I provide the dog 19 with a notch 20<sup>a</sup>, while the end of the lock casing is provided with a vertically disposed slot 21, to permit of the bent end 22 of a key 23 being inserted in the lock casing and partially rotated to engage same in the notch 20<sup>a</sup> to depress the dog 19 and release the plate or lid 9. The outward movement of the dog 19 within the lock casing is limited by a lug 24 carried by said dog and engaging a portion of the lock casing.



In order that the locking arm may not be depressed by the insertion of an instrument in slot 15 and the door thereby opened by unauthorized persons, I provide a guard 26 shown in detail in Fig. 7. This guard is carried on the inner face of the front plate 9, the latter having on said inner face, lugs 26<sup>a</sup> in which is mounted a pintle 26<sup>b</sup> which carries the guard 26. When the front plate 9 is elevated so as to give access to the interior of the lock, the guard is out of the way of the entering latch 3, and, as the front plate 9 is lowered to closed position, the guard 26 enters between the ridge 5 on the latch 3, and the adjacent side wall of the lock casing. The guard 26 is hung on the pintle 26<sup>b</sup> to swing flat against the inner face of front plate 9 in one direction only. This is accomplished by bending one end 26<sup>c</sup> of pintle 26<sup>b</sup> inwardly to overlie the guard, and bending the other end 26<sup>b</sup> of the pintle at right-angles as best seen in Figs. 2 and 7. The guard 26 is therefore permitted to swing outwardly until it engages with the inner face of front plate 9, but is limited in its inwardly-swinging movement to vertical position. Should an attempt be made to gain access to the locking-arm 10 by working the guard so as to move same outwardly, and insert an instrument through slot 15, the same would be frustrated by reason of the ridge 5 on latch 3 being in the direct path of insertion of the implement. Since the front plate 9 is elevated when the latch 3 is being entered or withdrawn, the guard 26 is out of the way of being engaged with the ridge 5 of the latch 3. The guard 26 is made so as to swing outwardly, so that if perchance, after the front plate 9 has been unlocked and the locking-arm depressed and locked in the depressed position, and the front plate 9 should drop, the latch 3 may still be withdrawn, the guard swinging outwardly to allow the ridge 5 to pass same. In the lock casing 7 adjacent to the pivoted bell crank lever 16 I locate a stirrup 27, which in conjunction with the key 23 is employed for placing the spring locking-arm 11<sup>a</sup> in an inoperative position.

For elevating the plate 9 to give access to the lock, I provide the same with a lug 28 extending beyond both faces of the plate 9. This lug is inserted in the plate 9 after the latter has been placed in the lock casing, and is so positioned, that in elevating the plate 9, the lug 28 will engage with a projection 29 carried by the lock casing, and thus limit the upward movement of the plate 9. These lugs are so placed that the plate 9 may have sufficient upward movement before being arrested by the lugs, to afford access being had to the lock mechanism.

Assuming that the plate or lid 9 is in a closed position, the bent end 22 of the key 23 is inserted in the vertically disposed slot 21 of the lock casing 7, the key 23 turned to the

left, until the bent end 22 engages in the notch 20<sup>a</sup> of the dog 19 so that the dog may be depressed out of engagement with notch 20 in plate 9, and the latter can then be elevated by lifting on lug 28, the upward movement of plate 9 being arrested by the inwardly projecting portion of the lug 28 engaging projection 29 within the lock casing. Assuming further that the latch 3 has been locked within the lock casing 7 by the spring locking-arm 11<sup>a</sup>, the spring locking-arm 11<sup>a</sup> is depressed, after the plate or lid 9 is opened, by placing the bent end 22 of the key 23 under the bridge 27 and pressing downwardly upon the key. When the lower end of the spring locking-arm 11<sup>a</sup> has been depressed the outer end or arm 18 of the bell crank lever 16 is moved by hand so as to engage the notched end 17 of said lever with the spring locking-arm 11<sup>a</sup> and hold the same in a depressed position. This operation has withdrawn lug 14 from the slot 6 of the latch 3 so that the door 2 of the car can then be opened.

When the plate or lid 9 is closed, the beveled lug 19<sup>a</sup> of said plate or lid strikes the arm 18 of the bell crank lever 16, releasing the notched end thereof and allowing the spring locking-arm 11<sup>a</sup> to assume its normal position. The lock casing 7 is now in condition to lock the door 2 when the same is closed.

In order that the latch 3 may be engaged by the lug 14 of the spring locking-arm 11<sup>a</sup>, I bevel the end of the latch 3, as at 28, whereby when said latch engages the lug 14, the spring locking-arm 11<sup>a</sup> will be forced rearwardly until the latch 3 rides over the lug 14 and correctly positions the slot 6 to receive the said lug.

In providing the plate or lid 9 with an inclined end plate 10<sup>a</sup>, rain and snow will be deflected from the lock casing and prevented from entering the same to corrode and injure the mechanism contained within the lock casing.

While I have herein described my improved lock and seal as particularly designed for car doors, it is obvious that the same can be readily used in connection with various types of doors, where it is desired to lock and seal the same in such a manner that the door cannot be easily opened by an ordinary key.

The various structural elements of my improved lock are constructed of strong and durable metal having sufficient wearing qualities to withstand the usage to which they are subjected.

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

1. In a sliding door lock, the combination with a door having a pivoted slotted latch, of a lock casing mounted adjacent to said door, a front plate slidably mounted upon said casing and having an inclined end plate, a spring pressed dog mounted in said casing



and adapted to lock said lid in a closed position, a spring locking-arm mounted in said casing, a lug carried by said locking-arm and adapted to engage in the slot of said door latch, a pivoted bell-crank lever mounted in said casing and adapted to hold said locking-arm out of engagement with said latch, means carried by said front plate for releasing said bell-crank lever, a guard carried by said front-plate for closing the latch opening formed in said casing, and a key for actuating said dog.

2. In a sliding door lock, the combination with a door having a pivoted slotted latch, of a lock casing slotted to receive said latch, a movable front plate carried by said casing, a spring pressed dog mounted in said casing for holding said front plate in a closed position, a spring locking arm mounted in said casing for engaging said slotted latch, a pivoted bell crank lever arranged in said casing for holding said spring out of engagement with said latch, a guard carried by said front plate for closing the latch slot of said casing, a key adapted to be inserted in said casing for actuating said dog, and means carried by said front plate for moving said bell crank lever.

3. In a sliding door lock, the combination with a slotted latch, of a lock casing adapted to receive said latch, a front plate movably

mounted upon said casing, a spring locking arm mounted in said casing for engaging said latch and holding the same therein, a pivoted bell crank lever arranged in said casing for holding said locking-arm out of engagement with said latch, means carried by said door for engaging said lever and releasing said locking-arm, means carried within said casing for locking said front plate in a closed position, and a key for actuating the last named means to release said front plate.

4. In a sliding door lock, the combination with a latch having a slot, of a lock casing slotted in one side to receive said latch, a spring locking-arm mounted in said casing and having a lug to engage in the slot of said latch, means within the lock casing for holding the locking-arm depressed whereby the lug thereof is held out of the path of travel of the latch, a vertically movable front plate for said lock casing, means carried by said plate for releasing the locking-arm holding-means, and means for securing the movable front plate in position.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM M. COOK.

Witnesses:

LUTHER LEWIS,  
M. J. TOBIN.