B. W. SMITH.

AUTOMATIC LOCKING DEVICE.

APPLICATION FILED APR. 11, 1911.

1,037,803.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 1.

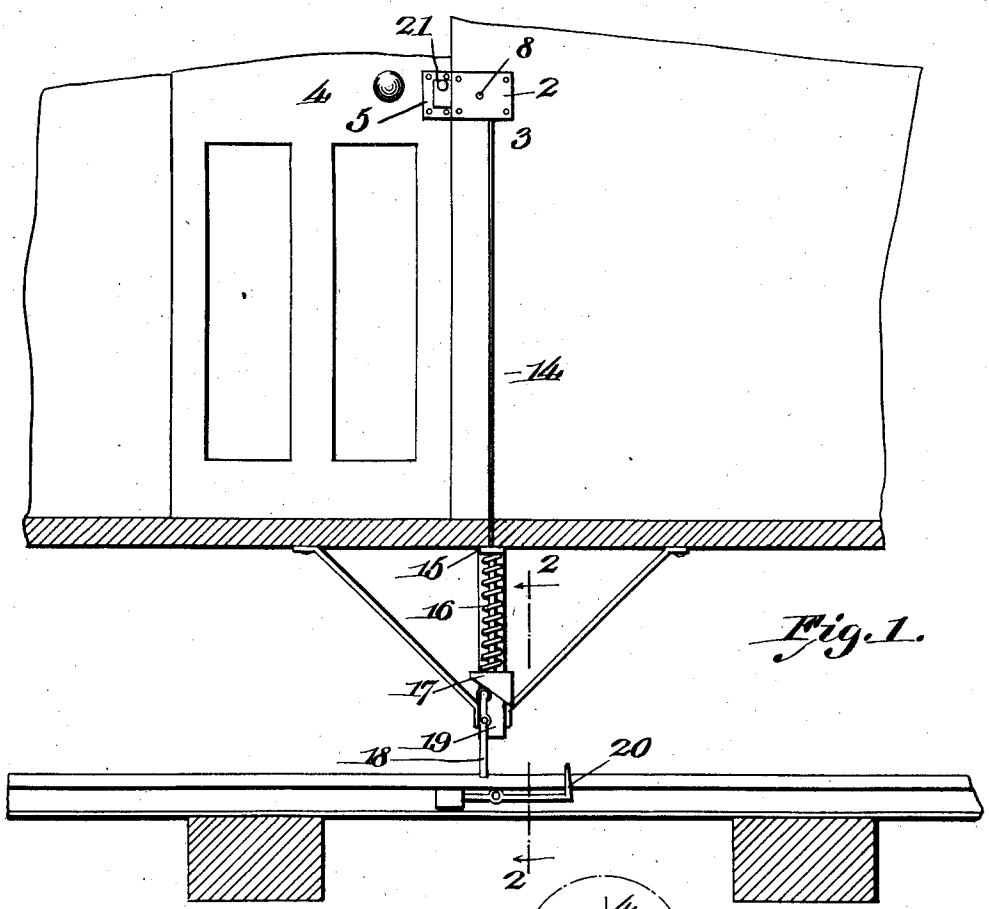

Fig. 1.

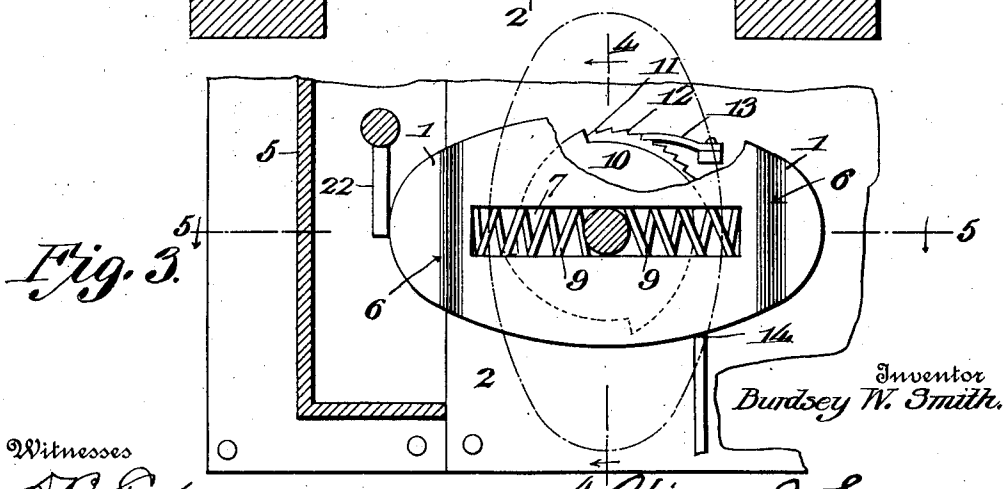

Fig. 3.

Witnesses

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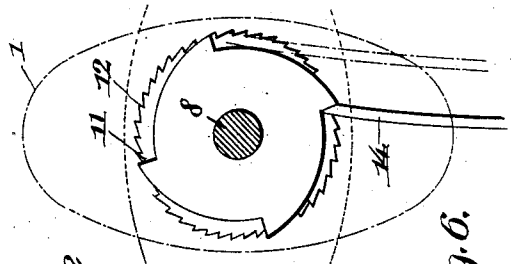

Fig. 6.

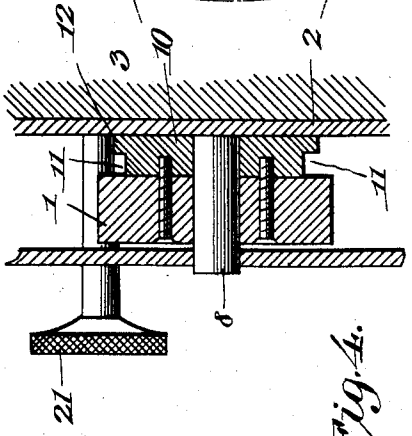

Fig. 4.

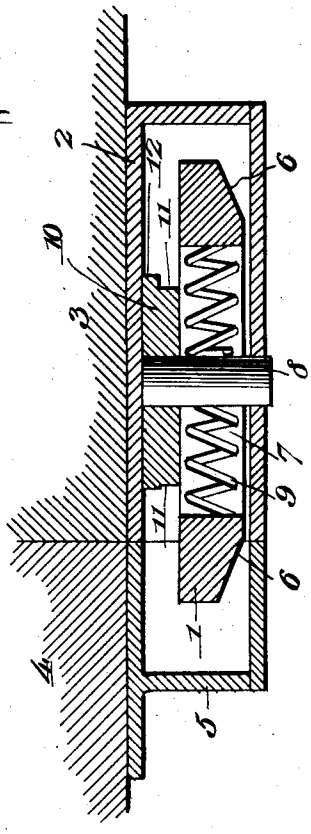

Fig. 5.

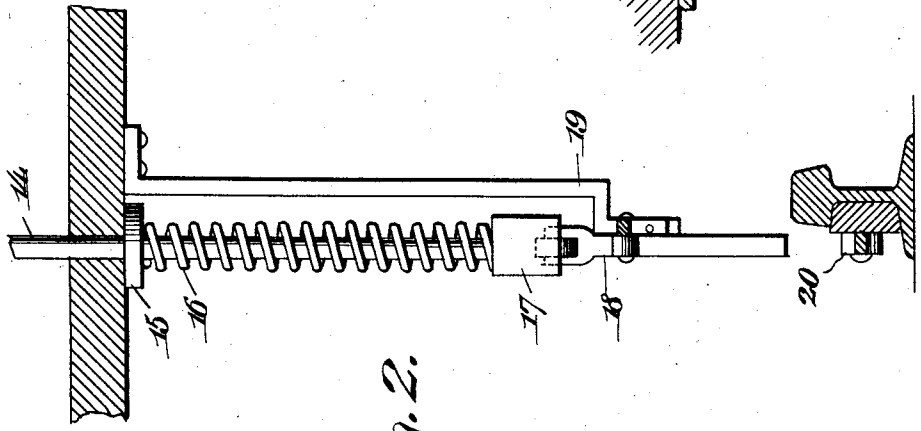

Fig. 2.

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UNITED STATES PATENT OFFICE.

BURDSEY W. SMITH, OF OROVILLE, CALIFORNIA.

AUTOMATIC LOCKING DEVICE.

1,037,803. Specification of Letters Patent. Patented Sept. 3, 1912.

Application filed April 11, 1911. Serial No. 620,314.

To all whom it may concern:

Be it known that I, BURDSEY W. SMITH, a citizen of the United States, residing at Oroville, in the county of Butte and State of California, have invented new and useful Improvements in Automatic Locking Devices, of which the following is a specification.

This invention relates to automatic locking devices for securing the doors of toilets in railroad cars.

It is customary to lock the doors of the toilets in railroad cars when trains approach cities and towns where stops are to be made and to again unlock the doors after the trains have started subsequent to such stops.

The present invention has for its object to provide a simple and effective device whereby such locking and unlocking shall be automatically performed, thereby insuring certainty of operation and saving the time of the employees who have heretofore been required to perform such service.

A further object of the invention is to construct a simple and efficient automatic locking device which, when automatically locked, may be manually unlocked by suitable means provided for the purpose.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a sectional elevation showing a portion of a railroad car and a door equipped with the improved automatic locking device, showing also a section of a track equipped with a trip mechanism for actuating the locking device. Fig. 2 is a sectional detail view taken on the line 2—2 in Fig. 1. Fig. 3 is a sectional elevation, enlarged, of the locking device proper. Fig. 4 is a sectional detail view taken on the line 4—4 in Fig. 3. Fig. 5 is a sectional detail view taken on the line 5—5 in Fig. 3. Fig. 6 is a detail view in elevation of the notched and toothed disk, showing also a portion of the push bar whereby the same is actuated and indicating also different positions of the bolt member.

Corresponding parts in the several figures are denoted by like characters of reference.

The improved locking device includes a bolt member 1 of elliptical shape which is mounted in a casing 2, the latter being secured upon some stationary part, such as the jamb 3 of a door frame. The door 4 carries a casing or keeper 5 adapted to engage the projecting end of the bolt member 1 which may be beveled, as shown at 6. The bolt member 1, as stated, is of oblong or elliptical shape, and it has a longitudinally extending slot 7 through which extends a pin or stud 8 which is associated with the casing 2 and which constitutes a pivot about which the bolt member may turn. Springs 9 are arranged between the ends of the slots 7 and the pin 8, said springs serving to maintain the elliptical bolt member in position to permit said bolt member to be moved longitudinally, as will be readily understood. The bolt member is of such dimensions that one end thereof may project through the casing 2 to be engaged by the swinging door 4, as will be readily understood, while by imparting a quarter turn to the bolt member it will be moved to a non-engaging position with reference to the door, as indicated in dotted lines in Fig. 3.

Associated with the elliptical bolt member 1 is a circular disk 10 having angular notches 11 formed at intervals of 90 degrees. Said disk may also be formed with ratchet teeth 12 engaged by a spring pawl 13 to prevent the rotation of said disk and of the bolt member in reverse direction. Suitably guided through the floor of the car is a push rod or bar 14, the upper end of which is adapted to engage the notches 11 in the disk 10 for the purpose of imparting to the latter a one-quarter revolution by each upward movement of the push bar 14. The movement in the latter in an upward direction is limited by a collar 15, and a suitably arranged spring 16 serves to normally retract said bush bar to keep the lower end thereof, which is provided with a cam 17, in the path of a lever 18 which is fulcrumed upon supporting members or braces 19 that extend downwardly from the floor of the

car. The lower end of the lever 18 is adapted to be engaged by a trip member 20 which is suitably disposed in proximity to one of the track rails, said trip member being flush with or extending slightly above the face of the rail. It will be seen that moving in one direction, the lever 18 may be rocked by the trip member without affecting the position of the push bar, while moving in the opposite direction, the rocking of the lever will force the push bar in an upward direction to effect a one-quarter rotation of the disk associated with the bolt member 1.

It will be evident from the foregoing description, taken in connection with the drawings hereto annexed, that trip members may be arranged alongside the track at suitable distances from a station to be engaged by the push bars connected with the cars of a train approaching and leaving such station. When the train approaches the station the bolt member will receive a quarter turn, being thereby moved into obstructing position with reference to the door; upon leaving the station, the quarter turn will be sufficient to move the bolt member to a non-obstructing position.

The casing member 5 may be provided with a pivoted handle member 21 operable from the inside and having associated therewith an arm 22 adapted to engage the projecting end of the bolt member 1 when the latter is in obstructing position for the purpose of pushing it back against the tension of the spring 9 to permit the door to be opened. A suitable key may also be provided to enable the door to be opened from the outside by those in authority to do so.

It will be readily understood that it is not essential to the successful operation of this device that the bolt member 1 be of perfect elliptical shape provided that it is of elongated form and that it is resiliently supported so that one end thereof may be projected to an obstructing position. It will also be understood that the angular notches 11 may be formed directly upon the bolt member, and that other minor structural changes may be made within the scope of the invention.

Having thus described the invention, what is claimed as new, is:—

1. In a lock, a keeper, and a bolt slidably mounted for movement into and out of engagement with the keeper, said bolt being also pivotally mounted for movement into and out of engagement with the keeper independently of the sliding movement.

2. In a locking device, a keeper, an elongated bolt supported slidably with reference to and for engagement with the keeper, and pivotal supporting means whereby said bolt is supported intermediate the ends thereof to permit said bolt to be moved into and out of engagement with the keeper by a rotary movement about the pivotal axis independently of the sliding movement of said bolt.

3. In a locking device, a keeper, a bolt supported slidably with reference to the keeper for engagement therewith, pivotal supporting means for the bolt to enable the latter to be moved out of the path of the keeper independently of the sliding movement of the bolt.

4. In a locking device, a keeper, a bolt slidably supported for engagement therewith and a pivot member engaging the bolt, the axis of said pivot member being positioned substantially at right angles to the direction of movement of the bolt to enable the latter to move into and out of engagement with the keeper independently of the sliding movement of said bolt.

5. In a locking device, a slidably supported elongated bolt member having a longitudinal slot, a pivot member extending through the longitudinal slot and supporting the bolt member, springs interposed between the pivot member and the ends of the slot, means for turning the bolt member about the pivot member to the extent of one-quarter revolution at suitable intervals, and means for obstructing the reverse rotation of the bolt member.

6. A casing mounted upon a stationary support, a pivot member in said casing, an elongated bolt member having a longitudinal slot engaging the pivot member, springs interposed between the pivot member and the ends of the slot, angular shoulders associated with the bolt member at intervals of 90 degrees, a spring retracted push bar engaging said shoulders, and means for projecting the push bar at predetermined intervals to rotate the bolt member.

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

BURDSEY W. SMITH.

Witnesses:
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GEO. C. TRYON.

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