J. C. FRITTS.

LOCK FOR SLIDING DOORS.

APPLICATION FILED SEPT. 6, 1921.

1,422,846. Patented July 18, 1922.

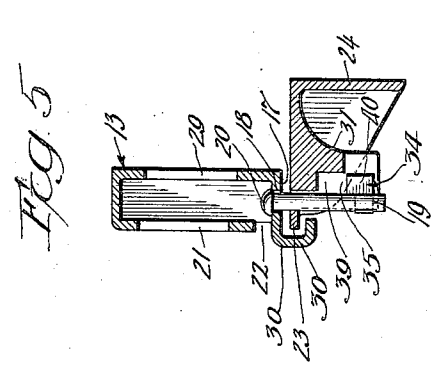


Fig. 5

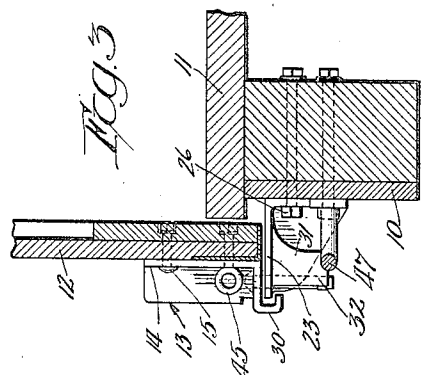


Fig. 3

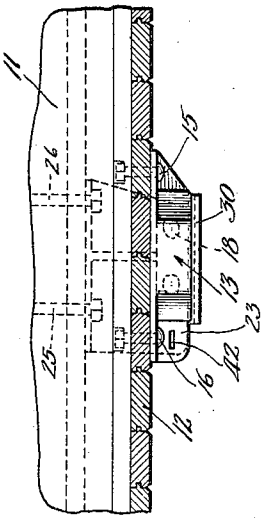


Fig. 6

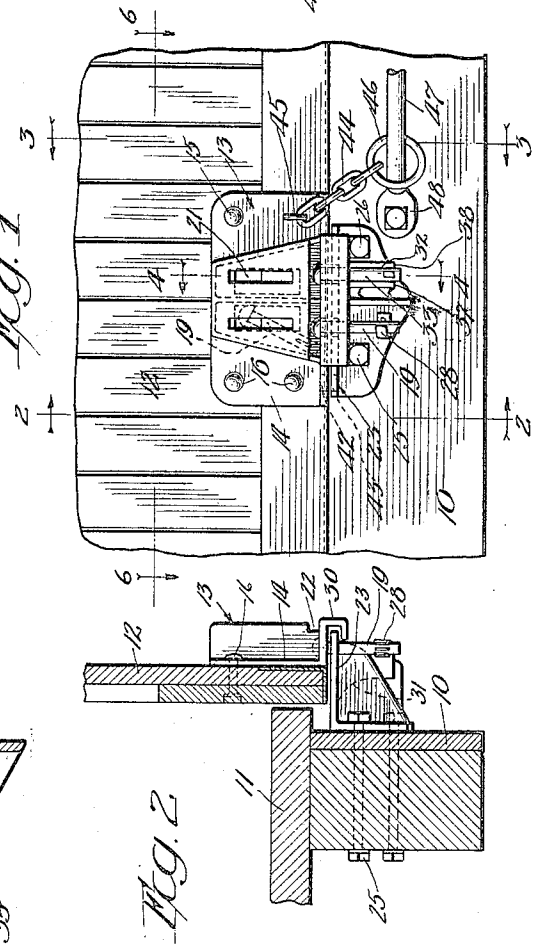


Fig. 1

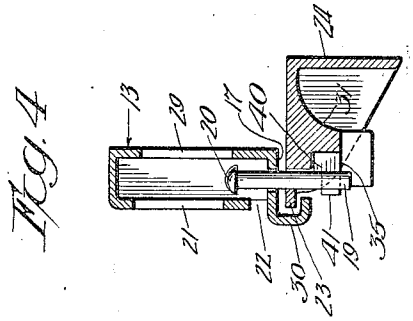


Fig. 4

Fig. 2

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LOCK FOR SLIDING DOORS.

1,422,846. Specification of Letters Patent. Patented July 18, 1922.

Application filed September 6, 1921. Serial No. 498,617.

To all whom it may concern:

Be it known that I, JAMES C. FRITTS, a citizen of the United States of America, and resident of Scranton, county of Lackawanna, and State of Pennsylvania, have invented certain new and useful Improvements in Locks for Sliding Doors, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to a lock especially adapted for use on the sliding doors of box cars; its object being to provide a lock which cannot be released without such difficulty that it will effectually prevent pilfering from cars to which it is applied, and it consists of a structure such as is hereinafter described.

This application is a continuation in part of my former application Serial No. 475,331, filed June 6, 1921, and is a substitute therefor.

In the accompanying drawings:

Fig. 1 is a detail side elevation of a car door and sill with the lock applied thereto;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1;

Figs. 4 and 5 are enlarged detail sections taken on the line 4—4 of Fig. 1, the locking bolt being shown in different positions in the two figures; and

Fig. 6 is a detail plan section on line 6—6 of Fig. 1.

A side sill of a car is represented at 10, the car floor at 11, and the car door at 12. The car door is of the usual sliding type and may be mounted and guided in accordance with present practice. As here shown a short chain 44 is fastened at one end to the lower part of the car door, as at 45, and at its other end to a ring 46 which slides on a rod 47 parallel to the side sill 10, and bolted thereto, as at 48. The chain and rod may be used instead of the customary lower guides.

The lock comprises a casing 13, preferably of cast metal and having a base flange 14 through which attaching bolts, as 15, 16, may be passed, and at its bottom being provided with an outstanding flange 17, which constitutes the face plate of the lock and is apertured at 18 to permit the projection of the bolt. Bolt 19 is housed loosely within the casing 13, and when not in service is entirely withdrawn thereinto and is tilted, as shown in Fig. 1, its lower end resting upon the flange 17 at one side of the aperture 18. This bolt is provided with a head 20 of greater size than the aperture 18. A slot may be formed in the front wall of the casing 13 to permit the insertion of the operator's finger, or some instrument, such as a small rod, for moving the bolt into vertical position and bringing its lower end in alignment with the aperture 18. As shown, there is a vertical slot 21 for this purpose, and also a slot 22 across the lower margin of the front face of the casing. The latter slot serves the additional purpose of permitting the escape of any dust or dirt which might accumulate within the casing.

The keeper comprises an outstanding flange 23, having a wall plate 24 which may be secured to the car sill, as by means of bolts 25, 26. The flange 23 is apertured, as indicated at 27, this aperture coming into alignment with the aperture 18 of the casing when the door is in locking position.

In order to lock the door the bolt 19 is straightened up to permit it to drop through the apertures 18 and 27. A key element 28 is then secured to the lower end of the bolt below the flange 23. As shown in Fig. 2, and at the left in Fig. 1, this key may be in the form of a heavy cotter which may be thrust through a suitable slot in the bolt and then bent around the shaft thereof, making an obstruction which is larger than the aperture 27.

In order to release the lock the key must be removed. By using a cotter or split key of the kind named removal is rendered difficult, not only because of the stiffness of the key but particularly because the bolt is loose within the casing and keeper apertures, and the use of a chisel for destroying the key is a laborious operation which cannot be performed readily without creating a great deal of noise.

In order to prevent the bolt 19 being cut with a hack saw, it is desirable to lap the flange 17 of the casing 13 over the edge of the outstanding flange 23 of the keeper, as at 30.

Preferably the casing 13 is made with two compartments, each housing a bolt, and the keeper is provided with corresponding bolt-receiving apertures. By shooting and securing both of the bolts the difficulties encountered in releasing them will, of course,

be doubled. A further advantage in having a keeper provided with a plurality of apertures is found in the fact that it permits of the locking of the door when not completely closed, thus providing a ventilating opening around the forward edge of the door which, nevertheless, is not of sufficient size to permit access to the interior of the car. The casing 13 may be provided with apertures in its rear wall, as indicated by dotted lines at 29, to permit the insertion of the bolts before the casing is applied to the door.

As it is possible that a cotter or split key may be removed with proper tools, the split key may be applied to one side only of the double casing and an added feature applied to the other side.

As shown at the right in Fig. 1 and in Figs. 3, 4 and 5, the outstanding flange 23 of the keeper is provided with a downwardly projecting lug 31, which may be an integral part of the casting of which the keeper plate is formed. The forward portion of this lug is directly below the aligned bolt apertures in the casing 13 and keeper plate 23, and a groove or recess 32 is cut into the front face of the lug to permit the projection of the bolt 33. This bolt is identical with the bolt 19 on the left, and is similarly slotted at its forward end for the reception of a solid key 34.

An L-shaped slot 35 is cut in the lug 31, the base 36 of the L extending completely through the bottom of the lug from front to rear, forming downwardly directed ears 37, 38, while the vertical slot portion 39 extends only part way into the lug. The key 34, just the thickness of the L-shaped slot, and having a head 40 larger than the aperture in the bolt, is thrust into the bolt aperture, a portion 41 thereof projecting beyond the same (see Fig. 4). Turning of the bolt is prevented by its head, which is held between the ears 37, 38. A limited vertical movement is permitted by reason of the slotted portion 39. The bolt is raised to the position shown in Fig. 4, its head 40 being so shaped as to exactly fit the slot 39, and to rest against the solid portion of the lug 31. The projecting end of the key may then be riveted with a hammer, the lug 31 serving as an anvil. The bolt is then dropped into lowered position. The key can only be removed by cutting away the riveted portion with hammer, chisel and drift.

Aligned slots 42 and 43 in the flanges 17 and 23, respectively, may also be provided for the insertion of the customary seal (not shown).

It has been found exceedingly difficult to provide a secure lock for box cars, and it is well known that the loss of lading by thievery is very large. While the improved lock herein described is not intended to be invulnerable, it nevertheless interposes an obstacle to the opening of the door which can be surmounted only with so much difficulty that it provides a reliable and trustworthy safeguard.

While operative and preferred forms of construction are herein shown and described, various changes of detail may be made without departing from the scope of the invention.

I claim as my invention—

1. A lock for sliding doors comprising, in combination, a chambered casing having a bolt aperture in its face, a headed bolt loosely housed in the casing and adapted when withdrawn to have its forward end out of alignment with the aperture, a keeper having an outstanding apertured flange, the aperture being adapted to register with the casing aperture, and a key member for attachment to the free end of the bolt when advanced through the keeper.

2. A lock for sliding doors comprising, in combination, a chambered casing adapted for attachment to the side face of a door and having a bolt aperture in its face, and an opening in the front wall, a headed bolt loosely housed within the casing and adapted when withdrawn to rest on the inner surface of the face plate and out of alignment with the aperture therein, a keeper having an outstanding apertured flange, the aperture being adapted to be mounted in front of the face plate of the casing and having a bolt hole for registering with the bolt aperture therein, and a key adapted to be inserted through an aperture in the forward end of the bolt and one end riveted over.

3. A lock for sliding doors comprising, in combination, a chambered casing having a bolt aperture in its face, a headed bolt loosely housed in the casing and adapted when withdrawn to have its lower end out of alignment with the aperture, a keeper having an outstanding apertured flange, the aperture being adapted to register with the casing aperture, a lug secured to the flange below the aperture, its front face being grooved in alignment with said apertures, and having an L-shaped slot in its lower portion, a headed key adapted to be inserted through the base of the L and an aperture in the forward end of the bolt and its end upset.

4. A lock for sliding doors comprising, in combination, a chambered casing having a bolt aperture in its face, a headed bolt loosely housed in the casing and adapted when withdrawn to have its forward end out of alignment with the aperture, a keeper having an outstanding apertured flange, the aperture being adapted to register with the casing aperture, a lug secured to the flange below the apertures, its front face being

grooved in alignment with said apertures and having a vertical slot in rear of the groove, a pair of downwardly directed ears extending from the lower portion of the lug, a headed key adapted to be inserted between said ears and through an aperture in the end of the bolt and its end upset.

5. A lock for sliding doors comprising, in combination, a chambered casing adapted for attachment to the side face of a door, and having a bolt aperture in its face, a headed bolt loosely housed within the casing and adapted when withdrawn to rest on the inner surface of the face plate and out of alignment with the aperture therein, a keeper comprising an apertured plate adapted to be mounted in front of the face plate of the keeper and having a bolt hole for registering with the bolt aperture therein, a flange on the face plate adapted to overlap the keeper plate, and a key adapted to be inserted through an aperture in the forward end of the bolt and the projecting end of the key upset.

6. A lock for sliding doors comprising, in combination, a chambered casing adapted for attachment to the side face of a door, and having a bolt aperture in its face and an opening in the front wall, a headed bolt loosely housed within the casing and adapted when withdrawn to rest on the inner surface of the face plate and out of alignment with the aperture therein, a keeper having an outstanding apertured flange, the aperture being adapted to be mounted in front of the face plate of the casing and having a bolt hole for registering with the bolt aperture therein, a lug on the under side of said flange having a cut-away portion below and in rear of the bolt aperture, and a headed key adapted to be inserted through an aperture in the forward end of the bolt.

7. A lock for sliding doors comprising, in combination, a chambered casing adapted for attachment to the side face of a door, and having a bolt aperture in its face and an opening in the front wall, a headed bolt loosely housed within the casing and adapted when withdrawn to rest on the inner surface of the face plate and out of alignment with the aperture therein, a keeper having an outstanding apertured flange, the aperture being adapted to be mounted in front of the face plate of the casing and having a bolt hole for registering with the bolt aperture therein, a lug on the under side of said flange having a cut-away portion below and in rear of the bolt aperture, and a headed key adapted to be inserted through an aperture in the forward end of the bolt and its end upset, said lug serving as an anvil against which the head of the bolt rests.

8. A lock for sliding doors comprising, in combination, a chambered casing having a bolt aperture in its face, a headed bolt loosely housed in the casing and adapted when withdrawn to have its forward end out of alignment with the aperture, the aperture being adapted to register with the casing aperture, both said apertures being substantially greater in size than the diameter of the bolt, and a heavy cotter for attachment to the free end of the bolt when advanced through the keeper.

JAMES C. FRITTS.