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LATCH MECHANISM

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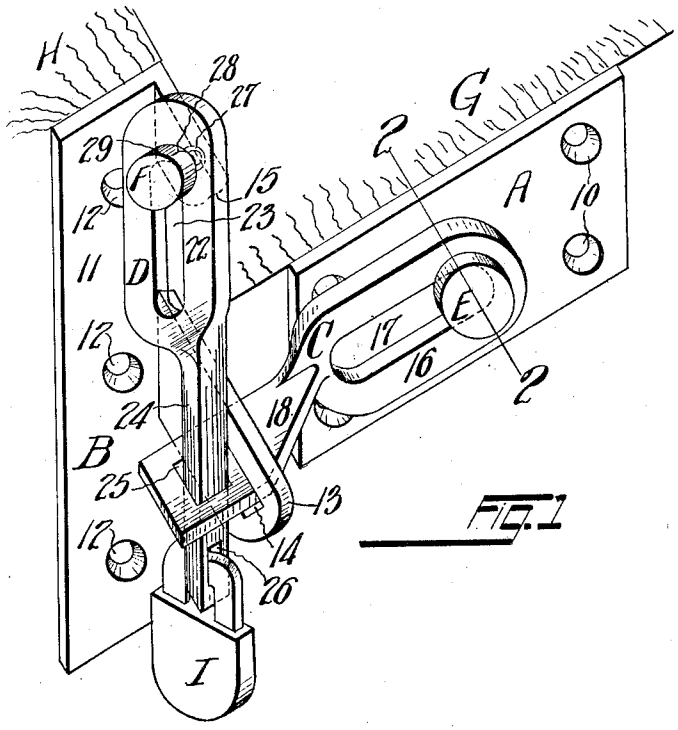


FIG. 1

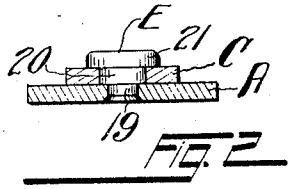


FIG. 2

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LATCH MECHANISM.

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My invention relates to means for locking objects to each other by means of a latch mechanism.

One object of my invention is a simple and efficient latch mechanism.

Another object of my invention is a simple and efficient latch mechanism having a double lock and a seal means.

Another object of my invention is a latch mechanism which remains locked even when the final seal is not present.

Another object of my invention is a latch mechanism which remains locked when the lockable members are shaken or vibrated or rattled.

In many instances two members are to be locked to each other and one or both of these members shake or vibrate or rattle in such a manner that the latch mechanism unlocks itself. Latch mechanisms for such members, as previously made, had no means for preventing the unlocking of the latch mechanism by the rattling or otherwise moving of the members.

The present invention aims to prevent such rattling or other movement of the members from unlocking the latch mechanism.

My invention is sufficiently illustrated in the accompanying drawing in which my invention is shown as embodied in a latch mechanism for a freight car door and in which:—

Fig. 1 is a general perspective view of a certain latch mechanism applied to the sliding door of a freight car; all members are shown in locked position.

Fig. 2 is a section taken on a plane indicated by the line 2—2 in Fig. 1 and shows the manner of attaching the bolt to the plate.

Similar reference characters refer to similar parts throughout the views.

The latch mechanism shown in the accompanying drawing comprises, principally, the plate A, the bracket B, the bolt C, the bolt D, the stud E, and the stud F.

The plate A is secured to the sliding door G by means of the bolts 10.

The bracket B has the body portion 11 secured to the frame H of the opening for the door G by means of the bolts 12. The ear 13 extends upward from the body 11 and has the opening 14 therethrough. The ear 15 extends upward from the body 11, adjacent to the ear 13.

The body portion 16 of the bolt C slides on the plate A and has the slot 17 therethrough and the nose 18 of the bolt C extends through the opening 14 of the ear 13 when the bolt C is in locking position.

The stud E has the reduced end 19 (Fig. 2) riveted to the plate A and also has the round middle portion 20 adapted to the slot 17 and also has the head 21 to retain the bolt C on the plate A and to permit the bolt C to slide longitudinally on the plate A.

The body portion 22 of the bolt D slides on the ear 15 and has the slot 23 therethrough and the nose 24 of the bolt D extends through the opening 25 in the nose 18 of the bolt C when the bolts C and D are in locking position.

The nose 24 has the opening 26 therethrough near the outer end thereof through which is inserted a seal or final lock means as the padlock I shown for instance.

The stud F is similar to the stud E shown sectionally in Fig. 2 and has the reduced end 27 riveted to the ear 15 and also has the round middle portion 28 adapted to the slot 23 and also has the head 29 to retain the bolt D on the ear 15 and to permit the bolt D to slide longitudinally on the ear 15.

As to operation:—

As previously mentioned, the drawing shows the latch mechanism in locked position.

To unlock the lock mechanism:—Remove the seal I from the nose 24 and slide the bolt D longitudinally upward until the nose 24 is out of the opening 25 of the nose 18. Then slide the bolt C longitudinally backward until the nose 18 is out of the opening 14 of the ear 13. The latch mechanism is now completely unlocked and the door G can be opened by sliding the same backward in the usual manner.

In order to lock the mechanism:—Reverse the unlocking operation described.

In the mechanism shown and described, a double lock of the latch mechanism is effected which does not unlock easily. The bolt C is locked by the transversely disposed bolt D which is locked by the seal I.

Freight or similar cars are usually provided with sliding doors movable longitudinally of the car. When coupling such cars or when stopping or starting such cars, a certain momentum is created in the door tending to move the door longitudinally; the latch mechanism is provided to prevent the

door from being opened either by the momentum mentioned or by other means or for various reasons.

Even when the seal I is not inserted into the latch mechanism, the nose of the bolt D remains through the nose of the bolt C due to its own gravity and thereby prevents the bolt C from disengaging the bracket B even when the door is shaken violently or when a longitudinal momentum is set up in the door.

In previous latch mechanisms, the shaking or the longitudinal momentum of the door permits the bolt to disengage the bracket when the seal is not present whereas, with the present invention, the door remains locked irrespective of whether the seal is present or not.

The bolt C need not slide or swivel on the plate A as shown and described but may be rigidly secured to the door although the door may be locked more conveniently when the bolt C does so slide and swivel. This sliding and swiveling feature of the bolt C also prevents the same from striking the bracket when the door is being closed and probably break the bracket or the bolt.

I claim:—

1. In a latch mechanism, two interlockable bolts individually mounted, one of said bolts having a portion thereof extendible longitudinally through the other and confined therein in all lateral directions, each of said bolts supported on a pivot pin to permit of adjustment of the engaging portions thereof independent of said individual mountings thereof.

2. In a latch mechanism, two interlockable bolts, one of said bolts having a portion thereof extendible longitudinally through a portion of the other one of said bolts and confined therein in all lateral directions, each of said bolts supported on a pivot pin to permit of adjustment of the engaging portions of said bolts and movable longitudinally thereon to permit the engagement and the disengagement of said bolts.

3. In a latch mechanism, two interlockable bolts individually mounted, one of said bolts having a portion thereof extendible longitudinally through a portion of the other one of said bolts and confined therein in all lateral directions, each of said bolts supported on a pivot pin positioned in said individual mountings thereof and pivotable thereon to permit of adjustment of the engaging portions of said bolts and movable longitudinally thereon to permit the engagement and the disengagement of said bolts.

4. In a latch mechanism, two interlockable bolts each slidable longitudinally and at an angle to the other, one of said bolts having a hole through the same, and the other one of said bolts having a nose extendible through said hole and confined therein in all lateral directions by the walls thereof.

5. In a latch mechanism, two interlockable bolts at an angle with each other, one of said bolts having a hole through the same, and the other one of said bolts having a nose extendible through said hole and confined therein in all lateral directions by the walls thereof; each of said bolts being supported on an individually mounted pivot pin and pivotable thereon to permit of adjustment of said nose and of said hole and movable longitudinally thereon to permit the engagement and the disengagement of said bolts.

6. In a latch mechanism, two interlockable bolts, each of said bolts having a nose and a hole through the same, one of said bolts mounted to be moved longitudinally to move said hole in the nose thereof into position to receive said nose of the other one of said bolts, the other one of said bolts mounted to be moved longitudinally to extend the nose thereof through and out of said hole in said one bolt, said nose of said other bolt being confined in all lateral directions by the walls of said hole through the nose of said one bolt, and said hole in said other bolt adapted to receive a seal means.

7. In a latch mechanism, a bracket having an ear and a hole through the ear, a bolt having a nose extendible through and out of said hole longitudinally and confined therein laterally in all directions by the walls thereof and having a hole through the nose, and a bolt having a nose extendible through and out of said hole through the nose of the first mentioned bolt and adjacent to said ear and having a hole through the nose thereof to receive a seal.

8. In a latch mechanism, a pair of brackets mountable on members movable in relation to each other, one of said brackets having an ear and a hole through the ear, a bolt movably supported on the other one of said brackets and having a nose extendible through and out of said hole in the ear and having a hole through the nose, said nose being confined in all lateral directions by the walls of said hole in the ear, a bolt movably supported on said one bracket and having a nose extendible through and out of said hole in the nose of the first mentioned bolt adjacent to said ear and having a hole through the nose thereof to receive a seal, and said nose of the second mentioned bolt confined in all lateral directions by the walls of said hole through the nose of the first mentioned bolt.

9. In a latch mechanism, a pair of brackets mountable on members movable in relation to each other and each having a pivot pin, one of said brackets having an ear and a hole through the ear, a bolt supported on said pivot pin in the other one of said

brackets and pivotable and longitudinally movable thereon and having a nose extendible through and out of said hole in the ear and having a hole through the nose thereof, said nose being confined in all lateral directions by the walls of said hole in the ear, a bolt supported on said pivot pin in said bracket with the ear and having a nose extendible through and out of said hole in the nose of the first mentioned bolt adjacent to said ear and having a hole through the nose thereof to receive a seal, and said nose of the second mentioned bolt confined in all lateral directions by the walls of said hole through the nose of the first mentioned bolt.

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