May 5, 1925. 1,536,110

G. Q. LEWIS

DOORLATCH

Filed July 9, 1923

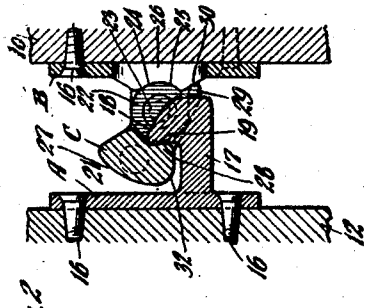


Fig. 2

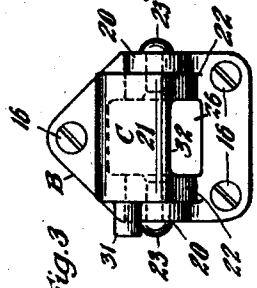


Fig. 3



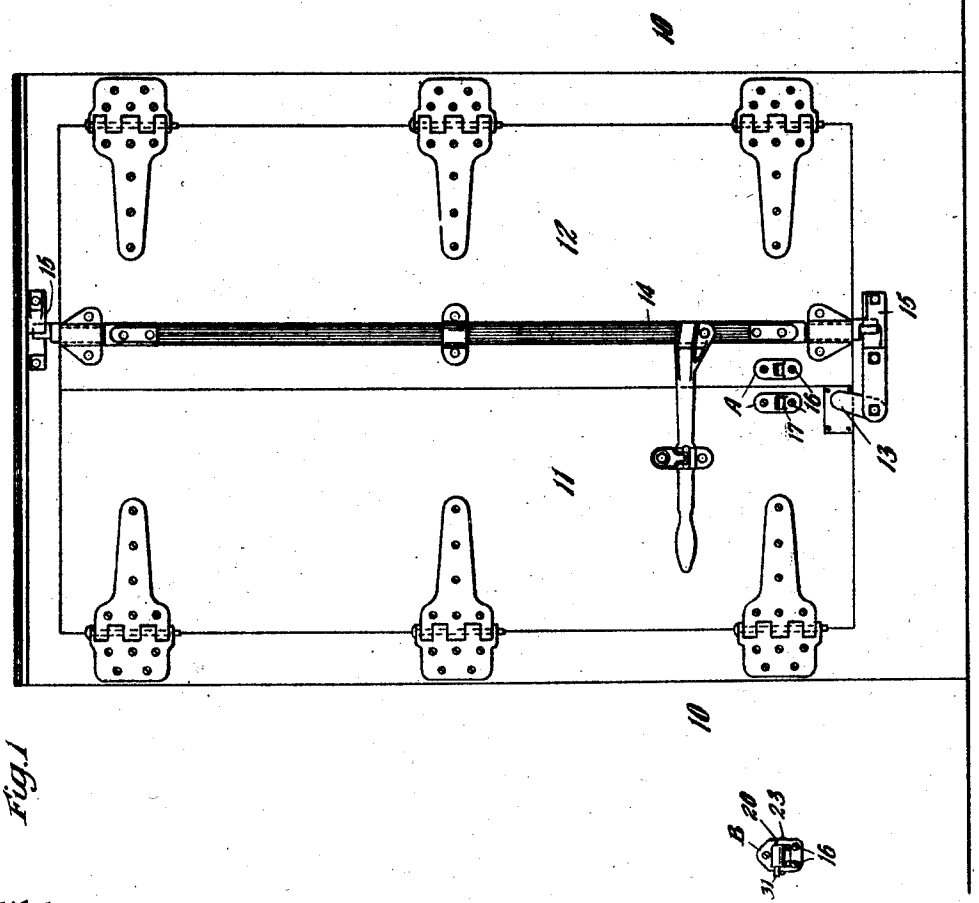


Fig. 1

Witnesses

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UNITED STATES PATENT OFFICE.

GOODRICH Q. LEWIS, OF WHEATON, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO W. H. MINER, INC., A CORPORATION OF DELAWARE.

DOORLATCH.

Application filed July 9, 1923. Serial No. 650,335.

To all whom it may concern:

Be it known that I, GOODRICH Q. LEWIS, a citizen of the United States, residing at Wheaton, in the county of Du Page and State of Illinois, have invented a certain new and useful Improvement in Doorlatches, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in doorlatches.

One object of the invention is to provide an automatically operating latch for a swinging door to retain the latter in open position and, more particularly, such a latch designed for use with heavy refrigerator car doors.

More specifically, an object of the invention is to provide a latch capable of withstanding rough usage without injury to the pivotal connection for the automatically operating dog employed in the construction.

In the drawing forming a part of this specification, Figure 1 is a side elevational view of a portion of a refrigerator car showing my improvements employed in connection therewith. Figure 2 is a vertical, sectional view through the improved latch, upon an enlarged scale, showing the position of the parts when the door is in its opened and retained position. And Figure 3 is a front elevational view of one of the latch members.

In said drawing, the side wall of the car is indicated at 10, the same having usual side door opening for a pair of pivotally hung doors 11 and 12, the latter swinging about vertical axes in the usual manner. The door 11 is closed first and retained in closed position by a pivoted latch 13. The other door 12 is swung to closed position last and is held in closed position by any suitable mechanism as, for instance, the shaft 14 and brackets 15.

In carrying out my invention, I employ two plates for each door, either plate being adapted for attachment to either the door or to the wall of the car or other fixed member to which the door is attached. Said two plates of each complete latch are designated respectively by the reference characters A and B and, in the instance shown, the plate A is attached to the door and the plate B to the side wall of the car by any suitable means, such as the screws 16—16. The plate A, preferably near its lower end, is provided with a rigid projection 17 extending outwardly from the body of the plate at right angles thereto. Said projection 17 has an enlargement at its outer free end, the upper surface of the enlargement providing a cam face 18 inclined from the horizontal. On the rear side of said enlarged end of the projection, that is, the side nearest the body of the plate A, a locking shoulder 19 is formed, the face of which is preferably inclined upwardly and toward the body of the plate slightly, as best shown in Figure 2.

The other plate, B, is provided with two horizontally spaced ears 20—20 projecting perpendicularly outward from the body of the plate B. Between said ears 20 is pivotally mounted a dog C, the latter having a heavy main section 21 extending horizontally and from which project two ears 22—22 disposed on the inner sides of the respective ears 20. Rivets 23—23 are preferably employed and extended through alined openings in the sets of ears 20 and 22 to thereby pivotally mount the dog with respect to the plate B. Directly in line with the ears 22, which are rounded to provide bearing surfaces 24 concentric with the pivotal axis, the plate B is provided with corresponding arcuate bearing surfaces 25—25, for the purpose hereinafter described. Intermediate the bearing surfaces 25, the plate A is preferably cut away as indicated at 26.

The heavy section 21 of the dog C has an outer curved face 27 located adjacent the body of the plate A when the door is in open position as shown in Figure 2. On its inner side, the heavy section 21 of the dog C is provided with a shoulder 28 adapted to co-operate with the shoulder 19 carried by the plate A. Preferably, the dog C is formed with tail pieces 29—29 on its bottom side, adapted to engage corresponding shoulders 30 on the plate B to limit the downward swing of the dog C and to assure of the latter always being in position to co-operate with the fixed projection of the plate A. For convenience, a finger piece 31 is formed integral with the dog C to facilitate disengaging the parts when it is desired to swing the door back to closed position.

In the operation of my improvements, when the door is swung open, the cam sur-

face 18 on the fixed projection 17 of the plate A will engage the lower corresponding cam surface 32 of the dog C and elevate it until it drops over and engages with the shoulder 19 of the said fixed projection. Furthermore, I so proportion the parts that, in case of excessive throw of the door in an opening direction, the movement of the door will be limited by the engagement of the plate A with the outer end 27 of the dog C and, by reason of the co-operating bearing surfaces 24 and 25 of the dog and plate B, respectively, it is evident that the blow will be transmitted directly from the dog C to the plate B without any excessive strain on the pivotal connection of the dog. This is of importance where the latch is subjected to rough usage, particularly in the case of the heavy refrigerator car doors which are often swung open with considerable force.

From the preceding description, it will be seen that the device which I have provided consists of few parts; is automatically operable to effect latching of the door when the latter is swung open; the parts are of substantial and rugged construction; and by reason of the special mounting of the dog, danger of injury to the parts is minimized.

I have herein shown and described what I now consider the preferred manner of carrying out the invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a latch for a swinging door, two plates, one of which is adapted to be secured to the door and the other to the fixed member on which the door is mounted, one of said plates having a rigid shouldered projection, the other plate having a co-operable shouldered dog pivotally mounted thereon, the free end of the dog adapted to engage said plate having the rigid shouldered projection to positively limit the swinging movement of the door in an opening direction.

2. In a latch of the character described, the combination with a plate having a rigid shouldered projection; of a second plate having a co-operable shouldered dog pivotally mounted thereon, said dog and plate on which it is mounted having co-operable abutment surfaces to positively limit the pivotal movement of the dog and whereby the free end of the dog is adapted to engage the other plate in case of excess opening movement of the door, to transmit the thrust through said abutment surface, to thereby relieve the pivotal connection of excessive strain.

3. In a latch for a swinging door member mounted on a relatively fixed body member, the combination with a plate adapted to be secured to one of said members, said plate having a shouldered projection, the projection having also a cam surface; of a second plate adapted to be secured to the other of said members; and a gravity actuated dog pivotally mounted on the second of said plates, said dog having a shoulder cooperable with the shoulder of said rigid projection and a cam surface co-operable with said first named cam surface, said dog and plate to which it is secured having co-operable bearing surfaces concentric with the pivotal axis of the dog, and also having co-acting abutment means to positively limit the pivotal movement of the dog, the free end of said dog being adapted to engage the plate having the rigid projection to limit the opening movement of the door, so as to transmit the thrust through said abutment means, whereby the pivotal connection of the dog is relieved of excessive strain.

4. In a latch for a swinging door member mounted on a relatively fixed body member, the combination with a plate adapted to be secured to one of said members; of a second plate adapted to be secured to the other of said members; and a gravity-actuated dog pivotally mounted on said last-named plate and having a shoulder thereon cooperable with a projection on said first-named plate to latch said members together, said dog provided with abutment means coacting with the plate upon which said dog is mounted, so as to limit pivotal movement of the dog in one direction and arranged in said coacting relation before and after said members are latched, whereby the free end of the dog is adapted to engage the other plate in case of excess opening movement of the door, so as to transmit the thrust through said abutment means to relieve the pivotal connection of excessive strain.

In witness that I claim the foregoing I have hereunto subscribed my name this 5th day of July 1923.

GOODRICH Q. LEWIS.

Witnesses:
FRANCES SAVAGE,
HARRIETTE M. DEAMER.