(No Model.)

P. H. MURPHY.

CAR DOOR FASTENING.

No. 401,574. Patented Apr. 16, 1889.

Fig. I.

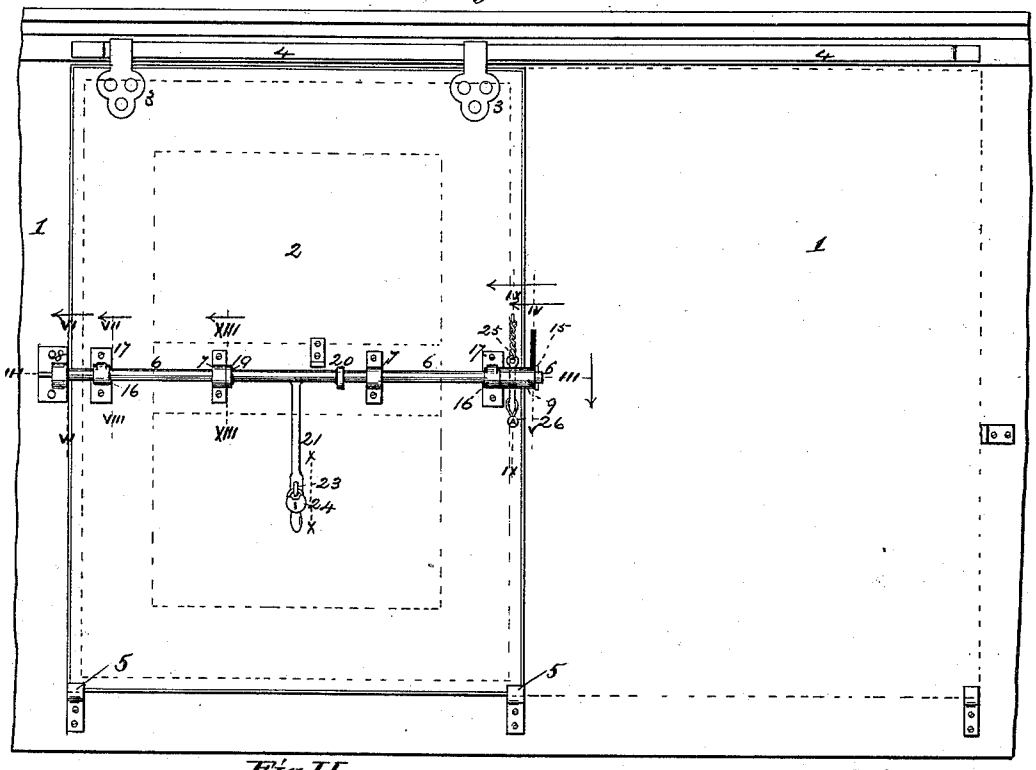


Fig. II.

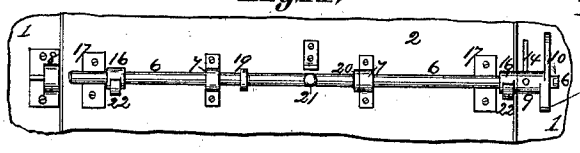


Fig. III.

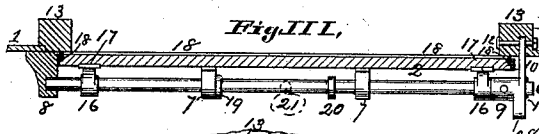


Fig. IV.

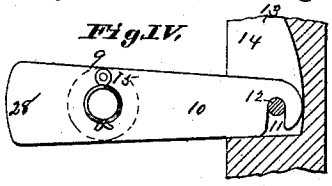


Fig. X.

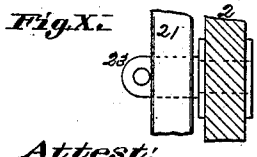


Fig. V.

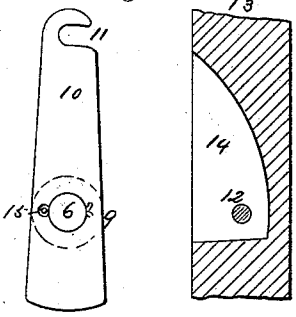


Fig. VI.

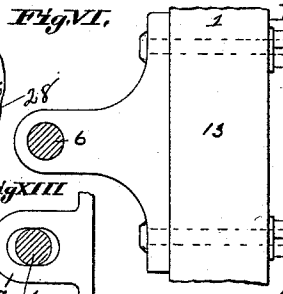


Fig. XIII.

Fig. IX.

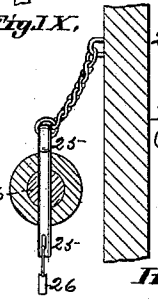


Fig. VII.

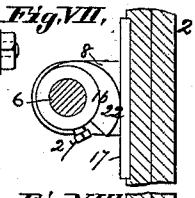


Fig. VIII.

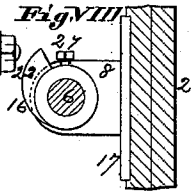


Fig. XI.

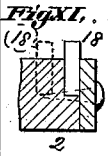
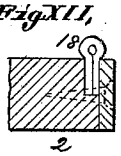


Fig. XII.



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Peter H. Murphy.
By Knight Bros.
Attys.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

PETER H. MURPHY, OF EAST ST. LOUIS, ILLINOIS.

CAR-DOOR FASTENING.

SPECIFICATION forming part of Letters Patent No. 401,574, dated April 16, 1889.

Application filed September 26, 1888. Serial No. 286,412. (No model.)

To all whom it may concern:

Be it known that I, PETER H. MURPHY, of East St. Louis, in the county of St. Clair and State of Illinois, have invented a certain new and useful Improvement in Car-Door Fastenings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This is a device for locking the door to the car in such manner as to form a hermetic joint at the sides of the door, and also to give means for the application of a car-seal. The device has a cam-shaft turning in bearings on the side of the car and with cams adapted to press against the outer side of the door, which latter is made to slide, carrying the cam-shaft with it, said shaft being supported on bearings attached to the door.

Figure I is a side elevation of a car-door and part of the side of a box-car having the fastening upon them, the parts being shown in locked position. Fig. II is a similar view of the locking device, except that it is shown unlocked. Fig. III is a horizontal section at III III, Fig. I. Figs. IV and V are enlarged detail vertical sections at IV V, showing the bearing-catch respectively engaged and disengaged. Fig. VI is an enlarged detail section at VI VI, Fig. I. Figs. VII and VIII are enlarged detail sections at VII VIII, Fig. I, showing the cam in different positions. Fig. IX is an enlarged detail section at IX IX, Fig. I, showing the sealing device. Fig. X is an enlarged detail section at X X, Fig. I. Figs. XI and XII are enlarged detail sections showing the weather-strips. Fig. XIII is an enlarged detail section at XIII XIII, Fig. I.

At 1 is seen part of the side of a "box" car.

2 is a door supported on hangers 3, which work on a hanger-rail, 4. The hangers embrace the rail loosely, so as to allow the door a certain movement to and from the side of the car. The lower edge of the door is held by guide-cleats 5.

6 is a rock shaft or bar having bearing in boxes 7, attached to the door, the bearing being elongated horizontally, as seen in Fig. XIII, so as to allow of the described movement of the door to and from the side of the car without springing the shaft 6. When the door is closed, as seen in Figs. I and III, the shaft 6 has bearing in boxes 8 and 9. The box 8 is permanently fixed to the side of the car, while the box 9 is only attached when the door is closed. This box 9 has a projection, 10, with a hook, 11, adapted to engage over a pin, 12, which is inserted in the jamb 13 of the door, a recess, 14, being made in the side of the car to allow the movement of the projection 10 in its engagement and disengagement with and from the pin 12. The box 9 may be held on the shaft 6 by a split key, 15, as shown, or by any other suitable means. Upon the shaft 6 are eccentric-cams 16, which bear against projecting plates 17, secured to the door, when the shaft is in the position shown in Figs. I, III, and VII. In this case the cams force the door hard against the side of the car. In order to make a hermetic joint between the door and the side of the car, weather-strips 18, of rubber, are let into the door at the edges. When it is desired to make the joint tight against rain or sparks, it may be sufficient to provide the strips 18 for the vertical sides of the door only, as the upper edge is close to the roof, and neither rain nor sparks could enter at the bottom of the door.

When the improvement is used on refrigerator-cars, the strip is carried all around to prevent the passage of air.

The shaft 6 has two collars, 19 and 20, which are between the boxes 7 and limit the endwise movement of the shaft, as will be readily seen by comparing Figs. II and III. When the shaft is in the position shown in Fig. II, the cams 16 are out of line with the bearing-plates 17, and the shaft may be turned to either position without the cams acting on the door.

21 is a handle projecting at right angles from the shaft, and which is used to turn the shaft about one-fourth of a rotation. The relative position of the handles and the cams 16 upon the shaft is such that when the handle is hanging downward the salient parts 22 of the cams are in contact with the bearing-plates 17, and the door is pressed tightly against the side of the car. In order to lock the handle in this position it is slotted for the passage of a lug, 23, projecting from the face of the door, said lug having an orifice for the engagement of a padlock, 24. (See Fig. I.) The parts may also be held in this position by a pin, 25, which passes through a diametrical

orifice, traversing the box 9 and the shaft 6, and which has at the lower end an orifice for the passage of the wire of an ordinary car-seal, 26. (See Figs. I and IX.) The cams 16 are secured to the shaft by set-screws 27 or equivalent device, allowing their adjustment upon the shaft to accommodate doors of various thicknesses.

The weather-strips are shown to be confined by strips of metal, which form the edges of the door; but this is not an essential manner of construction, for the metal strips may be dispensed with and the weather strip may be inserted in grooves made in the inner face of the door, as indicated by broken lines in Fig. XI.

In order to hold the shaft 6 in the position shown in Fig. II the box 9 may have a projection, 28, on the opposite side to the hooked projection 10 and of greater weight than the latter. It will be understood that in the absence of the pin 25 the box 9 is loose upon the shaft 6.

The operation is as follows: Supposing the door to be locked and sealed, as seen in Fig. I, and it is desired to open it. The seal is broken and the pin 25 drawn out, and the lock 24 is disengaged from the lug 23. Then the handle 21 is lifted up into an approximately-horizontal position, carrying the salient parts 22 of the cams away from the bearing-plates 17 and allowing the door to hang loosely from the car. The projection 10 of the box 9 is now disengaged from the pin 12 by turning the box backward on the shaft 6. The handle 21 is now pushed to the right. This first carries the collar 20 against the right-hand box 7, carrying the left-hand end of the shaft 6 from the box 8, and a continued pressure on the handle carries the door to the right and opens it. The movement of the shaft 6 to the right in its boxes 7 carries the cams out of line with the bearing-plates 17, so that the handle may now be dropped into a vertical position without bringing the cams in contact with the door, it being remembered that the bearing-plates project beyond the general face of the door. To lock and seal the door, the handle 21 is lifted into a practically-horizontal position and pushed to the left. This first carries the collar 19 to the left-hand box 7, and then the door is moved with the shaft to the left. The end of the shaft enters the fixed box 8, and when the door has reached its closed position the projection 10 of the box 9 is thrown over and the hook 11 engaged on the pin 12. Now the handle 21 is thrown down to a vertical position and the pin 25 passed through the box 9 and shaft 6 and the seal applied. The door is now tightly forced against the side of the car and the parts locked and sealed. As an additional precaution, the padlock 24 may be applied to hold the handle 21 down, or the padlock alone may be used to lock the parts in position. For the mere holding of the door in a closed position neither the pin 25 nor lock 24 are essential, as the weight of the handle 21 tends to keep the parts in this position, and there is no counter force sufficient to raise it.

The shaft 6 is shown and described with two cams, 16, adapted to press upon the door. A single cam would answer the same purpose, although less effectually, the principle being the same in either case.

I claim as my invention—

1. The combination, with a car-door, of a shaft having bearings at each side of the door and having a cam bearing against the door, for the purpose set forth.

2. The combination, with a car-door, of a shaft having a cam bearing against the door and supported in a fixed box, and a detachable box connected to the car-body at opposite sides of the door, for the purpose set forth.

3. The combination, with a car-door, of a shaft extending across the door having bearing in boxes attached to the car-body at opposite sides of the door, a cam on the shaft adapted to bear against the outer side of the door, and a box connecting the shaft to the door, substantially as set forth.

4. The combination, with a sliding car-door, of a shaft having bearing in boxes attached to the car-door and to the car-body each side of the door, and carrying a cam adapted to press the door inward by the rotary motion of the shaft, and a handle upon the shaft by which the shaft is turned and also held in position, substantially as set forth.

5. The combination, with a sliding car-door, of a cam-shaft extending across the door having cam bearing against the door and turning in boxes supported on the car-body at opposite sides of the door, substantially as and for the purpose set forth.

6. The combination, with a sliding car-door, of a cam-shaft having cam bearing against raised plates 17 upon the door and turning in boxes attached to the door and to the body of the car each side of the door, said shaft being capable of endwise motion upon the door to carry a cam, as 16, out of line with a bearing-plate, 17, substantially as and for the purpose set forth.

7. The combination, with a sliding car-door, of bearing-boxes fixed to the door and the car-body at one side of the door and a detachable box at the opposite side of the door, a cam-shaft turning in said boxes and having a cam bearing upon the outer side of the door in a given position of the shaft, the shaft and one of the boxes being traversed in such position by a perforation adapted to receive a locking-pin, substantially as and for the purpose set forth.

8. The combination, with a sliding car-door, of the cam-shaft having a cam bearing against the outer side of the door, boxes fixed to the door in which the shaft has rotary and endwise bearing, collars upon the shaft limiting its endwise movement on the door, a box fixed to the car-body at one side of the door adapted to receive the end of the shaft

in closing the door, and a box, as 9, turning freely on the shaft and having a projection adapted to engage the car-body, substantially as and for the purpose set forth.

9. The combination, with a sliding car-door, of a shaft having bearing in boxes fixed to the car-door and to the car-body at one side of the door, and a box at the other side of the door turning upon the shaft and attachable to the car-body, the shaft having endwise movement in the fixed boxes independently of the movement of the door, cams on the shaft adapted to bear upon plates projecting from the face of the door, the said plates, handle upon the shaft acting by gravity to hold the shaft in a locking position, and strips 18, forming a tight joint when the door is in locked position, substantially as and for the purpose set forth.

10. The combination, with a sliding car-door, of a shaft having bearing in boxes connected to the car-body at each side of the car-door, cams upon the shaft adapted to force the door inward against the car-body, a handle on the shaft, and a lug, 23, extending from the face of the door and passing through an orifice in the handle when the handle is depressed, substantially as and for the purpose set forth.

PETER H. MURPHY.

Witnesses:
SAML. KNIGHT,
EDW. S. KNIGHT.