(Model.)

R. D. CLEVELAND.

CAR DOOR FASTENING.

No. 423,404. Patented Mar. 11, 1890.

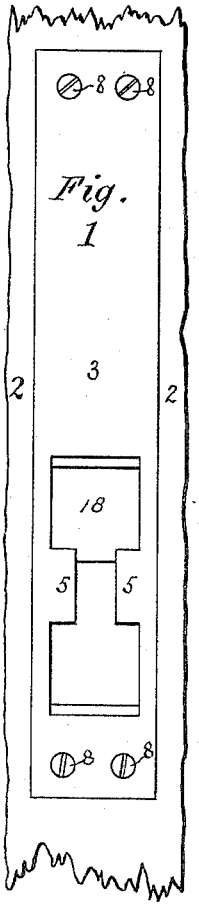

Fig. 1

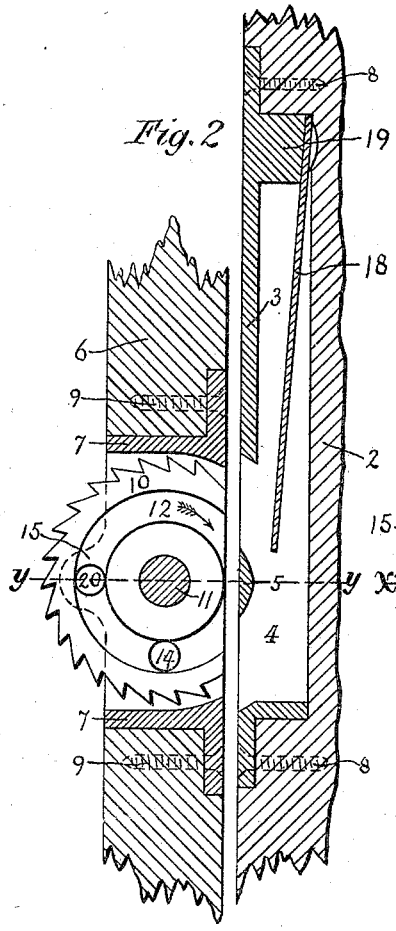

Fig. 2

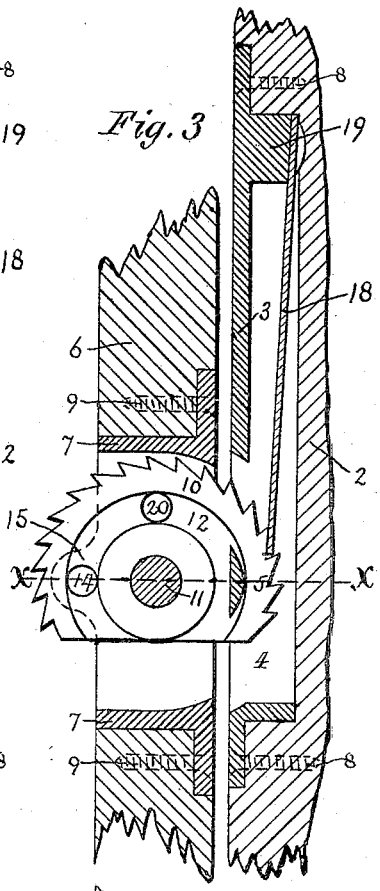

Fig. 3

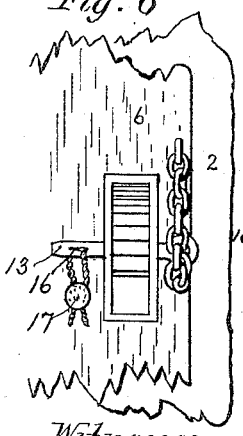

Fig. 6

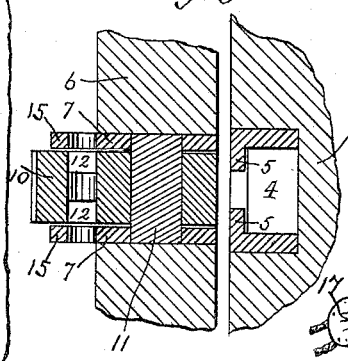

Fig. 5

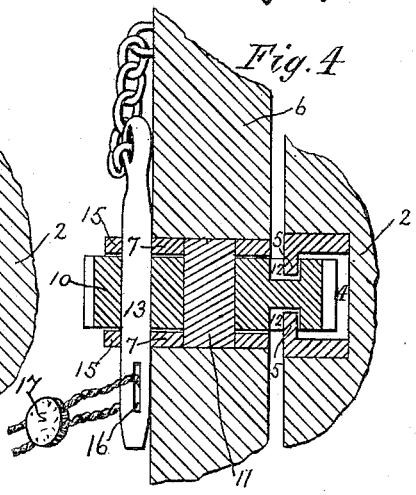

Fig. 4

Witnesses.
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UNITED STATES PATENT OFFICE.

RALPH D. CLEVELAND, OF MINNEAPOLIS, MINNESOTA.

CAR-DOOR FASTENING.

SPECIFICATION forming part of Letters Patent No. 423,404, dated March 11, 1890.

Application filed August 26, 1889. Serial No. 322,055. (Model.)

To all whom it may concern:

Be it known that I, RALPH D. CLEVELAND, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new Improvements in Freight-Car-Door Fastenings, of which the following is a specification.

My invention relates to improvements in the fastening of railway-car doors, its object being to provide a fastening to be sealed, and which when released or opened will make a noise to serve as an alarm in case it is unlawfully tampered with; and it consists in pivoting in the car-door a segmental ratchet, which may be set to allow the door to slide along the side of the car, or when the door is shut may be turned into a socket in the side of the car, in which a spring-dog is arranged to engage the teeth of the ratchet. The ratchet is then secured by means of a pin passed through its web and the side walls of its supporting-frame, the pin being secured in place by means of a seal passed through a slot in its pointed end in the ordinary manner. The door can be opened only by breaking the seal, removing the pin, and turning the ratchet forward until all its teeth have passed the dog, bringing the cut-away side of the ratchet adjacent to the side of the car and out of engagement with it, so as to allow the car-door to be moved laterally. As the ratchet is turned, the dog springs back from each tooth successively, and, striking the next, produces a sharp metallic noise which can be heard a long distance, and which will effectually prevent any unlawful opening of the car without giving an alarm.

In the accompanying drawings, forming a part of this specification, Figure 1 is a front elevation of the socket or eye-plate through which the ratchet passes. Fig. 2 is a vertical cross-section of my device as attached to a car, showing the ratchet set for opening the door. Fig. 3 is a similar sectional view showing the ratchet set to lock the door and in position to be sealed. Fig. 4 is a horizontal cross-section of the same on line $x\ x$ of Fig. 3, showing the device sealed. Fig. 5 is a similar sectional view on line $y\ y$ of Fig. 2, and Fig. 6 is a front elevation of a car-door locked and sealed with my device.

In the drawings, 2 represents the side of the car-body; 3, an eye-plate arranged to fit into and partly over the socket 4, and having the lugs 5 on either side of the eye, which are engaged by the rim of the ratchet, as hereinafter described.

6 represents a portion of the car-door, into which is mortised, preferably near its rear edge, the ratchet frame or box 7, in such position that when the door is shut the opening of the ratchet-box will register with the eye of the plate 3.

The eye-plate 3 is secured to the car by means of suitable screws 8 and the box 7 in its mortise by means of the screws 9. Journaled in the box 7 by means of its axle 11 is the segmental ratchet 10, having a concentric annular groove 12 in each face, into which the lugs 5 enter as the ratchet is turned into the eye of the plate 3. The ratchet is of larger diameter than the thickness of the door, so that it projects beyond each face of the door when in the position shown in Fig. 3, a segment of sufficient size, however, being cut off, so that when the ratchet is turned in the position shown in Fig. 2 the section-line will be flush with the inner face of the door, and thus allow the door to be moved freely alongside the car-body. The lugs 5, engaging the ratchet, serve to hold the door from being sprung outward so as to withdraw the ratchet from the socket, and the ratchet, bearing against the side walls of the eye of the plate 3, prevents lateral movement of the door. The ratchet, being turned to the position shown in Fig. 3, is locked by means of the pin 13, which is passed through the hole 14 in the web of the ratchet and holes in the ears 15 of the box 7, with which the hole 14 registers. A seal 17 is then passed through the eye 16 of the pin 13, which cannot then be withdrawn so as to release the ratchet without breaking the seal.

A ratchet is used instead of a wheel with a smooth periphery for the fastening of the door, in order to provide means for giving an alarm in case an attempt be made to unlawfully open the car-door when sealed.

A stiff spring-pawl 18, rigidly secured to the post 19 of the plate 3, extends downward in the socket 4 in such position that when the ratchet is turned through the socket the end of the spring will engage the teeth of the ratchet successively, rendering it necessary

to turn the ratchet forward in a complete revolution in order to free it from the spring-catch. As the spring slips from each tooth successively it strikes upon the next, making a loud noise, which, increased by resonance of the car-body, can be heard a long distance, and would serve to rouse a watchman or attendant in the vicinity of the car, and thus frustrate any unlawful attempt to break into the car. Instead of the spring catch or pawl, which itself produces the noise, if preferred the ratchet may be arranged to strike a gong or bell to give an alarm. When the ratchet has been turned into the position shown in Fig. 2, so as to allow the door to be opened, it is preferably temporarily secured in that position by means of the pin 13, passed through the hole 20 of the ratchet and the corresponding holes in the ears 15 of the box 7, which prevents the ratchet becoming partially turned so as to catch upon the car-body.

Operation: The ratchet being held in the position shown in Fig. 2 and the door being closed, the pin 13 is removed from the hole 20 and the ratchet turned forward in the direction indicated by the arrow, so that its rim passes into the upper part of the eye of the plate 3, the lugs 5 extending into the grooves 12, so as to prevent the withdrawing of the ratchet from the eye, and the spring 18 engaging with the teeth of the ratchet until the hole 14 registers with the holes in the ears 15 of the ratchet case or box 7. The pin 13 is then inserted through the holes and sealed in the ordinary manner. It is now impossible to open the car-door without breaking the seal and removing the pin and turning the ratchet until all of its teeth have passed the spring. If this is done unlawfully, the noise would most certainly arouse some one and frighten away the would-be burglar.

To unseal the car, as already stated, the seal is broken. The ratchet-wheel is turned after removing the pin by pressing upon the teeth of the ratchet until it has been turned to its original position, as shown in Fig. 2, when the pin is again inserted into the hole 20 and the ratchet thus held in that position until the door is again to be locked.

I claim—

1. The combination, with a railway-car, of a segmental ratchet pivoted in the car-door and adapted to be rotated in a vertical plane at right angles to the car-body, annular grooves arranged in the face of said ratchet, an eye-plate arranged in the car-body, adapted to receive the rim of the ratchet as rotated, and having lugs engaging the grooves of said ratchet, and a spring-pawl arranged underneath said eye-plate adapted to engage the teeth of said ratchet, substantially as described.

2. The combination, with a railway-car and the door thereof, of a ratchet journaled in one, its pawl secured to the other, and means for holding said pawl in engagement with said ratchet and the door secured in a closed position, substantially as and for the purposes set forth.

3. The combination, with a railway-car and its sliding door, of a segmental ratchet of greater diameter than the thickness of the door journaled in a suitable box or frame in said door, adapted to be turned in a vertical plane at right angles with the face of the door, an annular groove arranged concentrically of the ratchet in one side thereof, a socket in the car-body adapted to receive the projecting rim of the ratchet as rotated, having a lug engaging the groove of the ratchet and preventing its withdrawal from the socket, a spring-pawl arranged in said socket and engaging the teeth of said ratchet, whereby as said ratchet is rotated a loud noise is produced by the striking of the pawl upon the teeth of the ratchet, and means, substantially as described, for locking said ratchet and sealing the car, as and for the purpose set forth.

4. The combination, with a railway-car and the slidable door thereof, of a wheel journaled in said door and adapted when said door is closed to rotate into a socket in the car-body, and mechanism tripped by said wheel as rotated and sounding an alarm, substantially as described.

5. The combination, with a railway-car and the door thereof, of a wheel journaled in said door and entering said car-body when the door is closed, lugs engaging said wheel and holding the same in engagement with the said car-body, so as to prevent lateral movement of the door, an alarm attachment arranged in said car-body engaged and sounded by said wheel as rotated, a pin passing through said wheel and securing the same in a fixed position while in engagement with said car-body, and a seal securing said pin in said wheel, substantially as described.

6. The combination, with the car-body 2, having the socket 4, the eye-plate 3, arranged over said socket and having the oppositely-arranged lugs 5, the spring 18, arranged in said socket, the box 7, mortised in the car-door and having journaled in it the segmental ratchet 10, having the concentric grooves 12 arranged on either side thereof, and having the holes 14 and 20 passing through the web thereof, and adapted as said ratchet is turned to register with holes passing through the side walls of said box, and so arranged that when the hole 14 registers with those in the box 7 the ratchet will be in engagement with the lugs 5 and the spring 18, and that when the hole 20 registers with the holes in said box the segmental face of said ratchet aligns with the inner face of the door and allows it to be moved laterally, and the pin 13, adapted to be passed through the hole 14 or 20 and the holes in the box 7, whereby said ratchet is locked in either of said positions, substantially as described.

7. The combination, with the car-body 2 and the door 6, of the eye-plate 3, rigidly secured to the car-body and having the lugs 5

arranged on either side of the eye, the box or case 7, mortised in said door and registering with the eye of said plate 3, and having ears 15 with a hole through each registering with the other, a segmental ratchet 10, having the grooves 12 and the holes 14 and 20, the spring 18, arranged back of said plate 3 and adapted to engage the teeth of said ratchet, the pin 13, adapted to pass through said holes 14 and 20 and the openings in said ears 15 and to lock said ratchet, and the seal 17, securing said pin in said grooves, substantially as described.

In testimony whereof I have hereunto set my hand this 16th day of August, 1889.

RALPH D. CLEVELAND.

In presence of—
T. D. MERWIN,
A. M. GASKILL.