

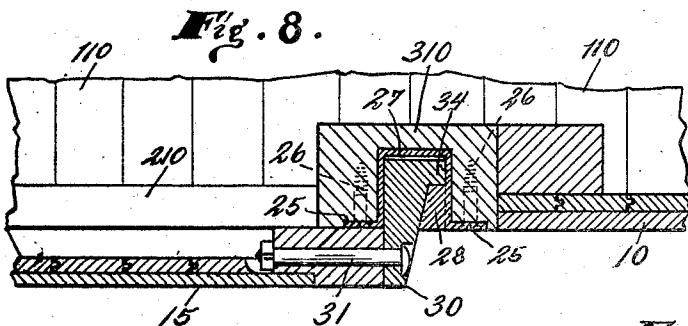
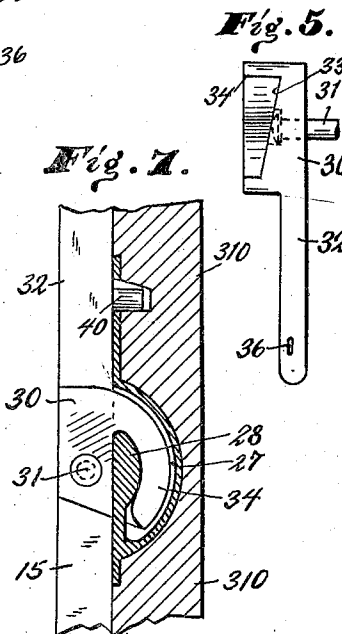
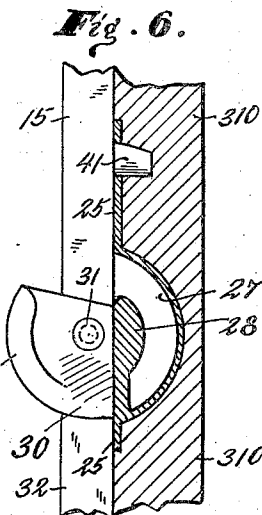
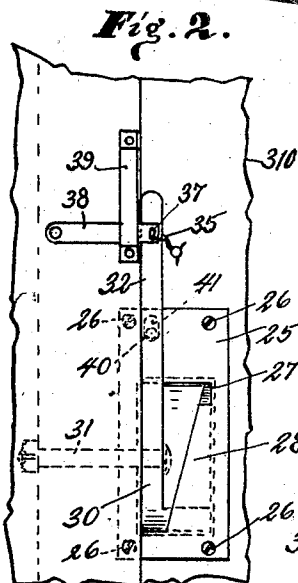
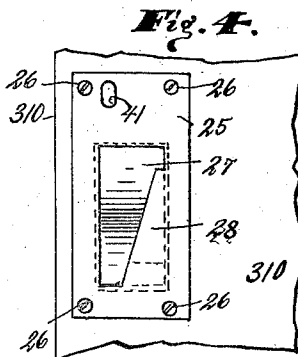
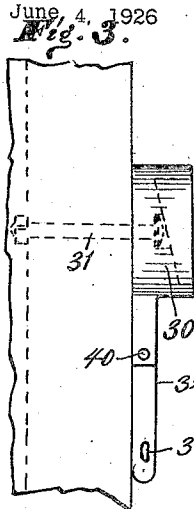
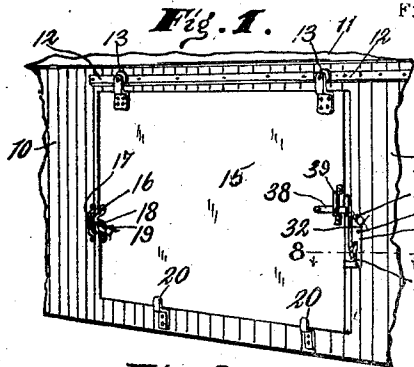
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CAR DOOR FASTENER

Filed June 4, 1926



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UNITED STATES PATENT OFFICE.

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CAR-DOOR FASTENER.

Application filed June 4, 1926. Serial No. 113,692.

The object of this invention is to securely hold freight car doors closed. With the door closing fasteners heretofore employed on freight car doors, a large number of them have come loose and swing out at the bottom, striking oppositely moving cars or other obstructions, and are thus destroyed. The tendency towards the lower part of the door to move outward is increased by centrifugal force while rounding a curve at speed and also often by the contents of the car tending to force the door outward.

It has been customary to secure sliding doors of freight cars by a sealed wire passing through loops or the like at one side of the door. That leaves the other side of the door insecure and liable to be forced outward so as to break the sealed fastening or to be engaged by something that will dislodge the door. To overcome this difficulty is the object of my invention.

I combine with the car, sliding door, and sealed fastening at one side of the door, releasable means for securing the other side of the door to the car so as to prevent both outward and lateral movement thereof. Another feature of my invention consists in the particular fastening herein set forth for preventing both lateral and outward movement of the door by means of an arcuate socket in the side of the car having in its side a cam-shaped lug, and pivoting on the side edge of the door a cam head with a handle, the head being shaped so as to enter the socket and having inclined cam surfaces, one to engage the curved surface of the cam lug in the socket and the other to engage the inclined side of said cam lug and thus wedge into the socket so as to prevent outward and lateral movement of the door.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings:

Figure 1 is a perspective view of a portion of the side of the freight car with the door secured, parts of the car being broken away; Fig. 2 is a front elevation of a portion of what is shown in Fig. 1 at the right hand end of the door with the door secured to the car, parts being broken away; Fig. 3 is an elevation of part of the right hand side of the door and the cam head secured thereto with the same in idle position when the door is open; Fig. 4 is an elevation of a

portion of the side of the car and of the socket secured therein, part of the car being broken away; Fig. 5 is a rear elevation of the cam head and handle shown in Fig. 3; Fig. 6 is a vertical transverse section through a portion of the side of the car at the right hand end of the door and an elevation of the door and the fastening means constituting the chief feature of this invention partly in elevation and partly in section and when the parts are not fastened together, the car and door being largely broken away; Fig. 7 is the same as Fig. 6 after the door has been secured to the car by the operation of the fastener; and Fig. 8 is a horizontal section through a portion of the car and door and fastener on the line 8-8 of Fig. 1.

The drawings herein presented for the purpose of illustrating the nature of this invention show in Fig. 1 the side of a freight car 10, having the usual floor 110, door opening 210 and door jamb 310, roof 11 and track 12 for the carriers 13 of a sliding door 15. At the left hand side of the door there is a loop 16 secured to the door and another loop 17 secured to the car and they are secured together by a wire 18 fastened through them secured by a seal 19. There may also be guide brackets 20 secured to the car below the door.

The foregoing shows a common freight car construction. But one trouble about such construction is that the door is not very effectively secured and held in its closed position so that it frequently gets away and becomes injured or broken. This often arises from the contents of the car pressing outward against the door, especially during jars and going around curves, but there are other reasons also for the door becoming loose.

To more effectively secure the door in its closed position a plate 25 is secured by the screws 26 to the outside surface of the jamb 310 of the freight car, usually near the right hand side of the door, and said plate has a socket 27 in it, that is arcuate in a vertical plane transverse of the car as seen in Figs. 6 and 7. This socket has a cam lug 28 on the right hand side thereof, as seen in Fig. 4 in front elevation and in Figs. 6 and 7 in vertical section and in Fig. 8 in horizontal section. The left hand side of said cam lug is inclined, as shown in Fig. 4, so that the lug tapers from the bottom to the top when

viewed in front elevation. In vertical section, as seen in Fig. 7, said lug 28 is curved or arcuate, almost parallel and concentric with the inner wall of the socket.

5 A cam head 30 is pivoted on the right hand side edge of the door by a bolt 31, as seen in Figs. 2 and 3. It has a handle 32 which extends downward when the door is open, as shown in Fig. 3, and upwardly
10 when the door is closed, as in Figs. 1 and 2. The cam head is in parts almost as wide as the socket 27 and its outer surface when in the position shown in Fig. 3 and its inner surface when the parts are in locked position
15 are curved with substantially the same curvature as the inner wall of the socket and substantially concentric with the pivot pin or bolt 31. The cam head has a recess at 33 in one side thereof, as seen in Fig. 5,
20 and, when the handle extends downwardly, the recess is wider at the top than at the bottom. But it is the reverse when the handle extends upward. This recess leaves or forms a curved finger or flange 34, as seen in Figs.
25 5, 6 and 7. The width of the recess 33 is substantially the same as the thickness of the lug 28 in the socket, and the thickness of the finger or flange 34 is such as to enable it to enter and yet substantially fill
30 the space between the inner wall of the socket and the lug 28, as seen in Fig. 7. The inner curvature of the finger 34, however, is drawn from a slightly different center from which the curvature of the lug 28
35 is drawn, so that when the cam head is being moved to locking position as seen in Fig. 7, the finger or flange 34 will wedge cam-like into tighter and tighter engagement with the lug 28 and the inclined surface
40 of the inner wall of the recess 33 will gradually and more tightly wedge into engagement with the inclined side of the lug 28. These two peculiarities of the locking engagement of the part of the door with
45 the part of the car will not only effectively hold the car door closed, but it will prevent both outward and lateral movement thereof.

When the car door is open and unsecured the handle 32 of the cam head on the door
50 extends downwardly as shown in Fig. 3. When the door is moved to the left to closing position the cam head 30 will be in front of the socket 27 of the car. Then by grasping the lower end of the handle and revolving
55 it upward from the position shown in Fig. 3 to that shown in Fig. 2, the cam head 30 will enter the socket 27 and the flange 34 will move in behind the curved lug 28 in the socket and when the handle reaches the
60 vertical position beside the door the cam head will practically fill the socket and the flange 34 will be tightly wedged in behind the lug 28 and the body of the cam head wedged in against the inclined side of the
65 lug 28, as shown in Figs. 2, 7 and 8.

The handle is secured in locked position by a wire 35 being inserted through the loop 36 on the handle and the loop 37 on the latch bar 38 secured on the outside of the door and extending behind the vertical strap 39 which
70 is secured to the door, as seen in Figs. 1 and 2.

In order to more effectively cause the handle 32 and cam head to stay in position, there is a pin 40 in the handle which enters
75 an elongated hole 41 in the socket plate 25 when the handle is turned upwardly to its locking position.

It is thus seen that there is here provided the combination with the means for holding
80 the left hand side of the door in place, of means for securing the opposite and right hand side of the door of the car so that the door will have neither outward nor lateral
85 movement or play, and the parts are practically and readily cooperative for effecting this result in a satisfactory manner. The invention, however, is not limited to the particular side of the door to which the fastener
90 is composed of the cam head 30 and socket 27 is located.

I claim as my invention:

1. The combination with a freight car and the like having a side door opening, a
95 sliding door therefor, and means for securing one side of the door to the car, of releasable means for securing the opposite side of the door to the car so that the door will not have relatively outward and lateral
100 movement, said last-mentioned releasable means consisting of a socket in the side of the car with a cam-shaped lug in one side thereof, a cam head pivoted to the side of the door having a handle and also a laterally-curved flange arranged so that the cam
105 head will wedge in the socket and the curved flange thereon will overlap the cam lug in the socket, and means for fastening the lever to the door for holding the cam head from movement when in locking position.
110

2. Means for securing the side of a sliding door to a freight car and the like, consisting of a socket adapted to be secured in
115 the side of the car with a lug on one side wall thereof which has an inclined lateral surface, and a cam head adapted to be pivoted to the side of the door in position to be introduced into the socket when the door
120 is closed, said cam head having a handle for turning the same and having a recess in the side thereof forming a laterally extending flange adapted to enter the socket behind the cam lug and forming an inclined side
125 surface of the head adapted to wedge against the inclined side surface of the lug in the socket, and means for releasably securing the handle when the parts are in locked position substantially as set forth.

3. The construction set forth in claim 2, with the inner surface of the lug in the
130

socket being arcuate and the inner surface or flange of the cam head being likewise arcuate for engaging the curved surface of the lugs, the curvatures of said two engaging curved surfaces being drawn from different centers so that the flange of the cam head will wedge into the socket behind the lug, substantially as set forth.

4. The construction set forth in claim 2 with the inner surfaces of the socket and cam lug having substantially the same curvature, and the head having an internal curvature substantially the same as that of the socket, and the internal curvature of the flange from the cam head having a slightly different curvature so as to wedge into en-

gagement with the lug in the socket, substantially as set forth.

5. The construction set forth in claim 2, with means for securing the end of the handle of the cam head to prevent its displacement when the parts are in locked position, a pin extending from the handle, a plate integral with the socket and adapted to be secured to the side of the car and having a hole in it to receive said pin when the parts are in locked condition, substantially as set forth.

In witness whereof, I have hereunto affixed my signature.

FRANK S. HETRICK.