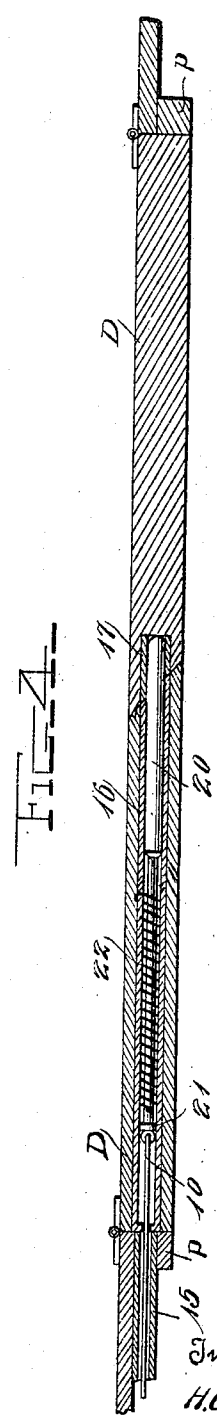
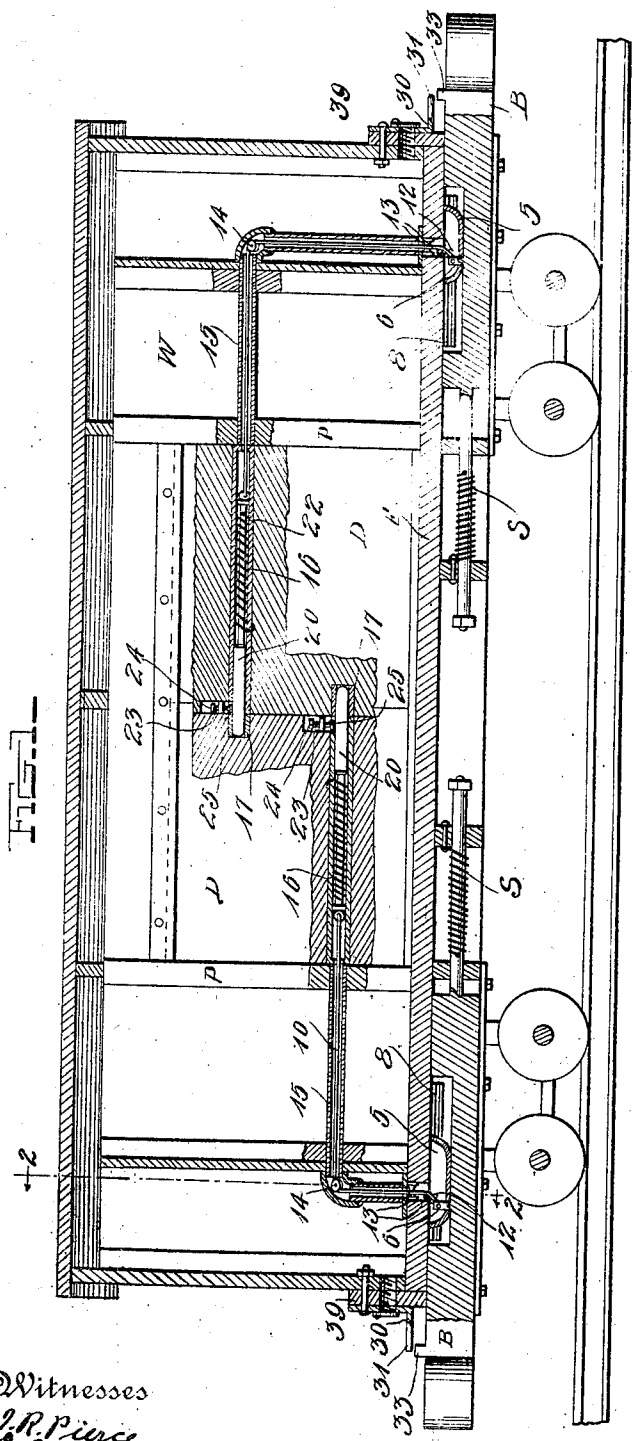


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H. GORDON.
 CAR DOOR LOCKING SYSTEM.
 APPLICATION FILED JUNE 15, 1911.

Patented Aug. 6, 1912.
 3 SHEETS—SHEET 1.



Witnesses
 J. R. Pierce
 C. O. Heillon

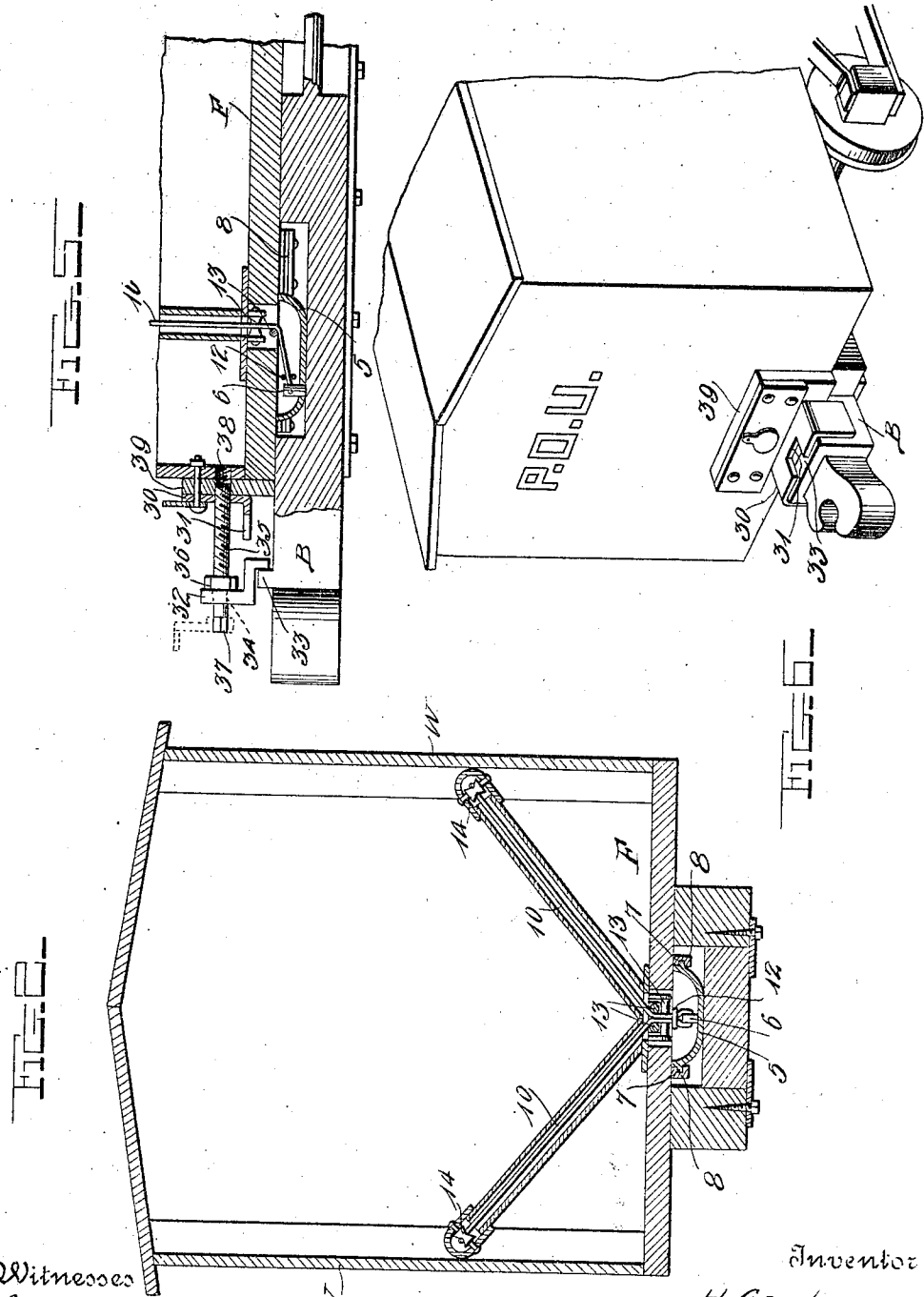
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3 SHEETS—SHEET 2.



Witnesses
J. P. King
L. O. Kelton

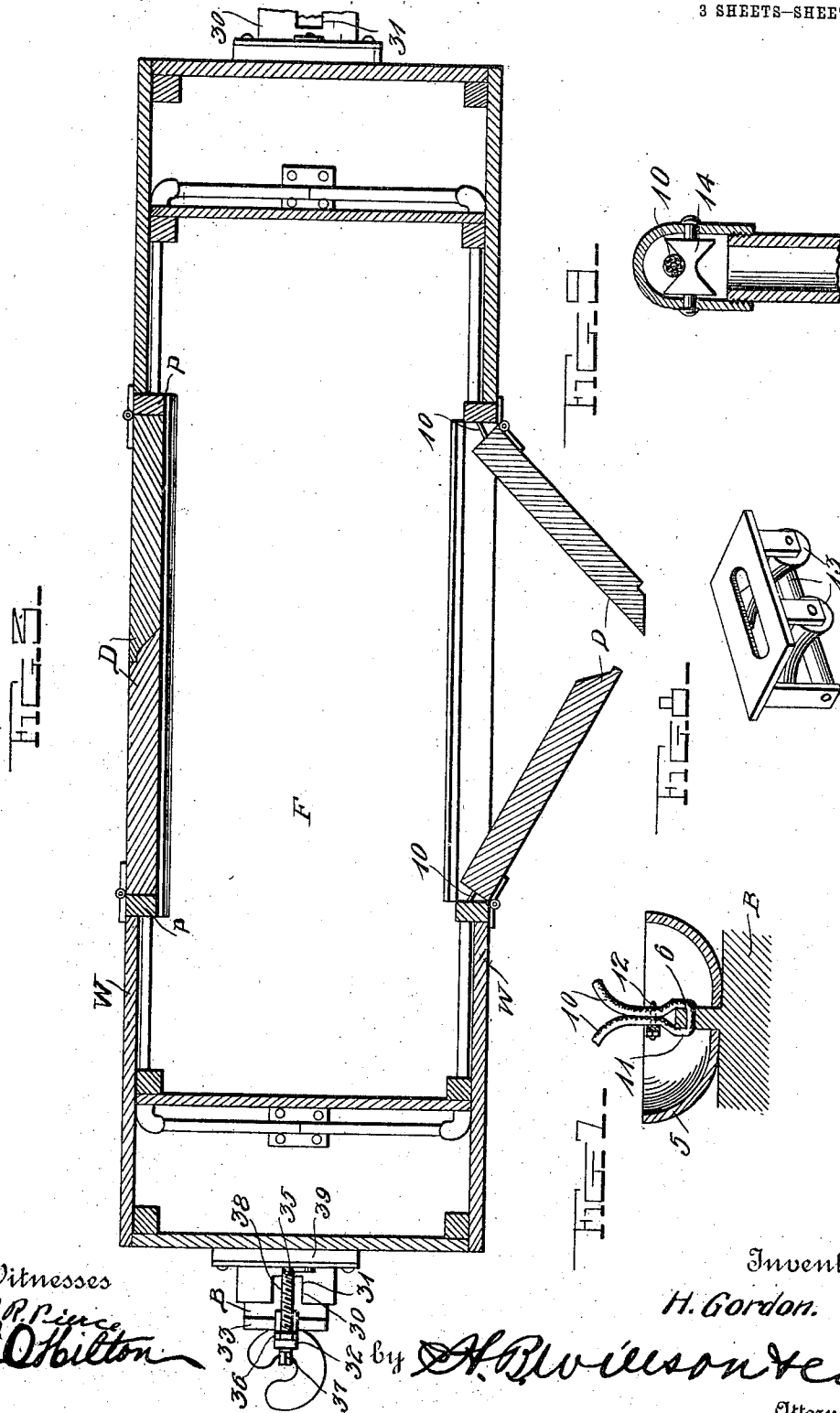
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3 SHEETS—SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

HARRY GORDON, OF BOISE, IDAHO.

CAR-DOOR-LOCKING SYSTEM.

1,034,615.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed June 15, 1911. Serial No. 633,341.

To all whom it may concern:

Be it known that I, HARRY GORDON, a citizen of the United States, residing at Boise, in the county of Ada and State of Idaho, have invented certain new and useful Improvements in Car-Door-Locking Systems; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to railway cars, and more particularly to freight cars such as those ordinarily used for refrigerator purposes; and the object of the same is to provide a locking system for the car doors, controlled by the movements of the drawheads. This object is attained by the construction described and claimed below, and shown in the drawings wherein:

Figure 1 is a central vertical longitudinal sectional view of a refrigerator car equipped with my locking system, parts being broken away and in section; Fig. 2 is a vertical transverse sectional view thereof on the line 2-2 of Fig. 1; Fig. 3 is a horizontal sectional view of the car showing parts of my system plan view; Fig. 4 is an enlarged horizontal section of two doors showing my invention applied thereto; Fig. 5 is an enlarged vertical sectional view showing the means for actuating the draw-bars for releasing the doors; Fig. 6 is a perspective view of one end of a car showing more particularly the guard over the protruding end of the draw bar; Fig. 7 is an enlarged vertical transverse section of the shield and the adjacent parts of my device; Fig. 8 is a perspective view of the anti-friction rollers and their bracket; Fig. 9 is an enlarged vertical sectional view of one of the pipe elbows employed, illustrating more particularly the pulley arranged therein.

In the drawings the letter F designates the floor of a freight car, more particularly those intended for carrying refrigerated meat, and W is the side wall thereof in which is hinged, in the present instance a pair of doors D which have interlocking edges if this be a refrigerator car and which may and preferably do have their individual locks on the outside as usual and in addition to my improved locking system.

The letters B designate the draw bars which are slidably mounted in suitable guides beneath the car body and on the run-

ning gear, and S are the springs for holding these draw bars against the draft of the locomotive which tends to draw them out or the brakes on the locomotive which tend to compress them; this much of the structure being illustrated only conventionally as it forms no part of my present invention.

It is well known that freight and refrigerator cars containing food products are often robbed by tramps and others, especially when the cars are standing on a siding where the vandals have easy access to the ordinary car door locks, and I have therefore devised this improved system for additionally locking the doors by means which are controlled by the movements of the draw bars. If the bolts in this system were retracted by the outward movements of both draw bars as when they were under tension, or if they were retracted by the compression of both draw bars as when the train is descending a hill and the engine brakes are applied, unauthorized persons riding between the cars or on the running gear might lock the draw bars in their then positions so that when a given car were later detached from the train and left on the siding it would be easy to rob it; and I therefore purposely construct my system in such manner that one draw bar or draw head must be drawn out and the other forced in simultaneously in order to retract the bolts. It will be rare indeed, if ever, that a car will be left on a siding alone or connected up with others in such way that its two draw heads stand in these respective positions; as it will be all but impossible that they will attain such positions while the car is coupled up in a train. Therefore to unlock the bolts controlled by my system and free the car doors, it will be necessary to follow instructions here indicated in Fig. 6 by initials and use a special form of key which is in the possession of an authorized person, as will be described below.

Upon each draw bar B is a cup-shaped shield 5 containing an eye 6 and having flanges 7 along its edges which move in suitable guides 8 carried by the car body. The eye 6 is an apertured lug formed on or secured to the draw bar so that the shield 5 partakes of the longitudinal movement of the draw bar B beneath the car body. A cable 10 of proper length and strength is looped in its center as at 11 and engaged with the eye 6 (which latter might be a pin,

stud, or hook to engage the loop), above which the two strands of the cable are connected by a clamp 12 preferably bolted tight upon the cable so as to injure the latter slightly and purposely so that it will break at that point rather than elsewhere if extra strain is thrown upon it. Above this clamp the two strands of the cable pass through a hole in the car floor F and between rollers or other anti-friction devices 13. Above the car floor the two strands diverge from each other and lead to opposite sides of the car, thence around pulleys 14 and through tubes 15 along the side walls W of the car to the hinge-posts P of the doors D; passing the hinge-line, the strands are continued through tubes or casings 16, let into the doors from their free edges, where said strands are attached to the bolts described below.

Each bolt 20 has a head 21 at its outer end adapted to strike against the end of the tube 16 when the bolt is drawn back or retracted as far as possible, so that if the draw head should be pulled forcibly out of the car through accident the cable would have to break and the bolt mechanism would not be injured, and as above described the breakage would probably occur opposite the clamp 12 so that its repair would be easy. The bolt-head 21 is connected with the casing 16 by a contractile spring 22 whose tendency is to project the end of the bolt beyond the free edge of the door D when the cable is slackened upon so that the bolt will engage a tubular keeper 17 in the companion door. I preferably mount within the casing 16 a set screw 23 having an angular head or thumb piece 24 at its upper end by means of which it may be turned, and a small head 25 at its lower end to prevent it from being wholly withdrawn from the casing. The purpose of this screw is to serve as a "dead latch" when this system of locking is not desired to be used, for by retracting the bolt against the tension of its spring 22 and screwing the set screw 23 downward its tip will be passed across the free end of the bolt and the latter cannot be projected by the spring. As best seen in Fig. 1, the bolts at the free edges of the two doors D are set a little out of alinement with each other so that when the cables are slackened each bolt can project across the meeting line between the two doors and engage the keeper in the opposite door.

As best seen in Fig. 5 I place a sheet-metal guard 30 over the draw head projecting from each end of the car so as to prevent unauthorized persons from blocking said head while it is withdrawn by the tension of the locomotive, and later gaining access to the car after it has been run off on a siding; but this guard is provided with a notch 31 of a size to admit a catch 32

whose foot may be engaged to either side of a lug 33 formed on the top of the draw head, and whose body above its foot contains an eye 34 adapted to loosely surround a screw-key 35 at either side of a shoulder 36 thereon. The outer end of this key may be squared as shown at 37 or may have a crank handle of its own, and the inner end is threaded as at 38 to engage a threaded socket which is something like a nut 39 secured to the end of the car above the draw head. Finally some number or initial may be marked upon the car, such as the letters "P. O. U." shown in Fig. 6 which means "pull out to unlock" and similar letters "P. I. U." on the other end of the car which means "push in to unlock," and which of course give notice to the attendant or freight agent at the siding what action is necessary to operate this locking system. However, it is quite obvious that the serial number of the car may be given him in a list and opposite it may be put the proper instructions without marking anything on the car itself.

This locking system having been installed upon a freight car, its operation is as follows: Assuming the car is filled with refrigerated meat and the doors closed and locked by the usual lock and seal, if the set screws 23 are raised the two bolts 20 at each side of the car will lock the two doors D together so that even if the ordinary outside lock and seal are broken the doors cannot be opened. When the draw bars of the car are under tension, as when the engine is drawing on the train both draw bars are drawn outward against the tension of their springs S; and on the other hand when the engine is holding back as by means of its brakes, both draw bars are pressed inward against the action of their springs S; and in neither case are all the bolts 20 of my system disengaged. This is achieved by setting the pins or eyes 6 in such relation to the holes in the car floor F that when the draw bar springs S stand at their normal points the loop 11 at one end of the car is pressed toward the center of the car and the loop at the other end is pressed toward the adjacent end of the car as best seen in Fig. 1. With the construction therein shown, when both draw heads are drawn outward the cables at the left end of the view will be tightened and their bolts retracted, but the cables at the right end of the view will be loosened and their bolts 20 will remain as they are. On the other hand, when both draw heads are pushed inward, the cables at the left of the view will be tightened and their bolts retracted, while the cables at the right of the view will still remain slack and their bolts will hold the doors D, locked. Thus it will be seen that in order to unlock the doors by my system

a condition must be assumed which will rarely if ever occur while the car is coupled up in a train or while it stands upon a siding. Assuming now that it has been run upon a siding and the attendant or freight agent desires to unlock the car, he first inspects the initials on the ends of the car or looks upon his private memorandum, and then brings into use a pair of the screw keys which are in his possession. Inserting the catch 32 into the notch 31 of the guard 30 and engaging it with the lug 33 of the draw head, he passes its eye over the shank of the key to the proper side of its shoulder 36 and inserts the threaded end 35 into the socket into the end of the car; and then by turning its squared ends 37 (or its handle if it have one) in the proper direction the body of the key is caused to move longitudinally. This movement is communicated to the draw head, and the latter either pushed in or drawn out as may be necessary to unlock the system. The movements of the two draw heads are communicated by the cables to the bolts 20 in the manner above described, and when all four bolts are retracted the four doors D are ready to be opened. Then unlocking the ordinary lock of the outside of these doors, he can readily gain access to the interior.

I do not confine myself to the specific details of construction further than as hereinafter set forth, and obviously the sizes and proportions and materials of parts are unimportant.

What is claimed as new is:

1. A car door locking system comprising bolts for the doors, automatic means for projecting the bolts to hold the doors normally locked, and connections between said bolts and the draw bars of the car coupling for overcoming said automatic means and retracting the bolts by the movements of said draw bars.

2. A car door locking system comprising bolts for the doors, automatic means for projecting the bolts to hold the doors normally locked, and connections between said bolts and the draw bars of the car coupling for overcoming said automatic means and retracting the bolts by the movements of the draw bars, the connections being such that one draw bar must be drawn out and the other pushed in simultaneously to retract all the bolts.

3. A car door locking system comprising bolts for the doors, automatic means for projecting the bolts to hold the doors normally locked, and cables leading from said bolts over suitable guides to the draw bars of the car coupling whereby the movements of the latter in opposition to the tension of the draw-bar-springs will retract said bolts.

4. A car door locking system comprising bolts for the doors, springs projecting the

belts individually to lock the doors, and cables leading from said bolts over guides and through the car floor to the draw bars of the car coupling whereby the movements of the latter against the tension of the draw-bar-springs will retract said bolts.

5. A car door locking system comprising bolts for the doors, springs projecting the bolts individually to lock the doors, cables leading from said bolts over suitable guides and downward through holes in the car floor above the draw bars of the car coupling, and connections between the cables at one end of the car and the draw bar there at a point on the latter between said hole and the end of the car; and between the cables at the other end of the car and the draw bar there at a point between said hole and the center of the car.

6. A car door locking system comprising bolts for the doors, springs projecting the bolts individually to lock the doors, cables leading from said bolts over suitable guides and downward through holes in the car floor above the draw bars of the car coupling, cup shaped shields secured upon the draw bars beneath the car floor and longitudinally out of alinement with said holes, and connections between the cables at the ends of the car and the interiors of said shields.

7. A car door locking system comprising bolts for the doors, springs projecting the bolts individually to lock the doors, cables leading from said bolts over suitable guides and downward through holes in the car floor above the draw bars of the car coupling, shields carried by the draw bars, plates over said shields and beneath said holes in the car floor, guides in which said shields and plates are longitudinally movable, and connections between the cables at the ends of the car and the interiors of said shields.

8. A car door locking system comprising bolts for the doors, springs projecting the bolts individually to lock the doors, cables leading from said bolts over suitable guides and downward through holes in the car floor above the draw bars of the car coupling, plates movable in guides beneath the car floor and over said holes therein, eyes connected with the draw bars and with which said cables are respectively connected, and clamps engaging the cables just above said eyes.

9. In a car door locking system, the combination with the doors, spring-actuated bolts for locking them, the draw bars of the car coupling, and connections between said bolts and draw bars, of a lug on each draw bar, a catch adapted to removably engage said lug and having an eye through it, a screw-key adapted to pass loosely through said eye and having a collar on its body, and a nut in the end of the car with which the threaded end of said key engages.

10. In a car door locking system, the combination with the doors, spring-actuated bolts for locking them, the draw bars of the car coupling, and connections between said
5 bolts and draw bars; of a lug on each draw bar, a catch adapted to removably engage said lug and having an eye through it, a guard secured over said draw bar and having a notch through which said catch may
10 be projected, a screw-key adapted to pass

loosely through said eye and having a collar on its body, and a nut in the car with which the threaded end of said key engages.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 15

HARRY GORDON.

Witnesses:

GEO. A. ROBERTS,
RUDOLPH WETTER.