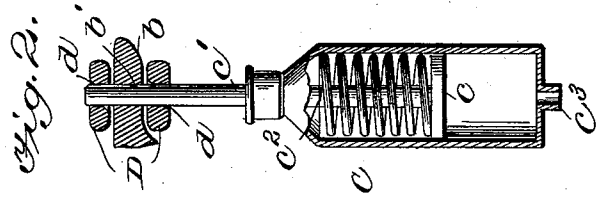
(No Model.)

F. C. CONRAD & C. W. GOODSPEED.

PNEUMATIC CAR LOCK.

No. 564,304. Patented July 21, 1896.

Fig. 2.



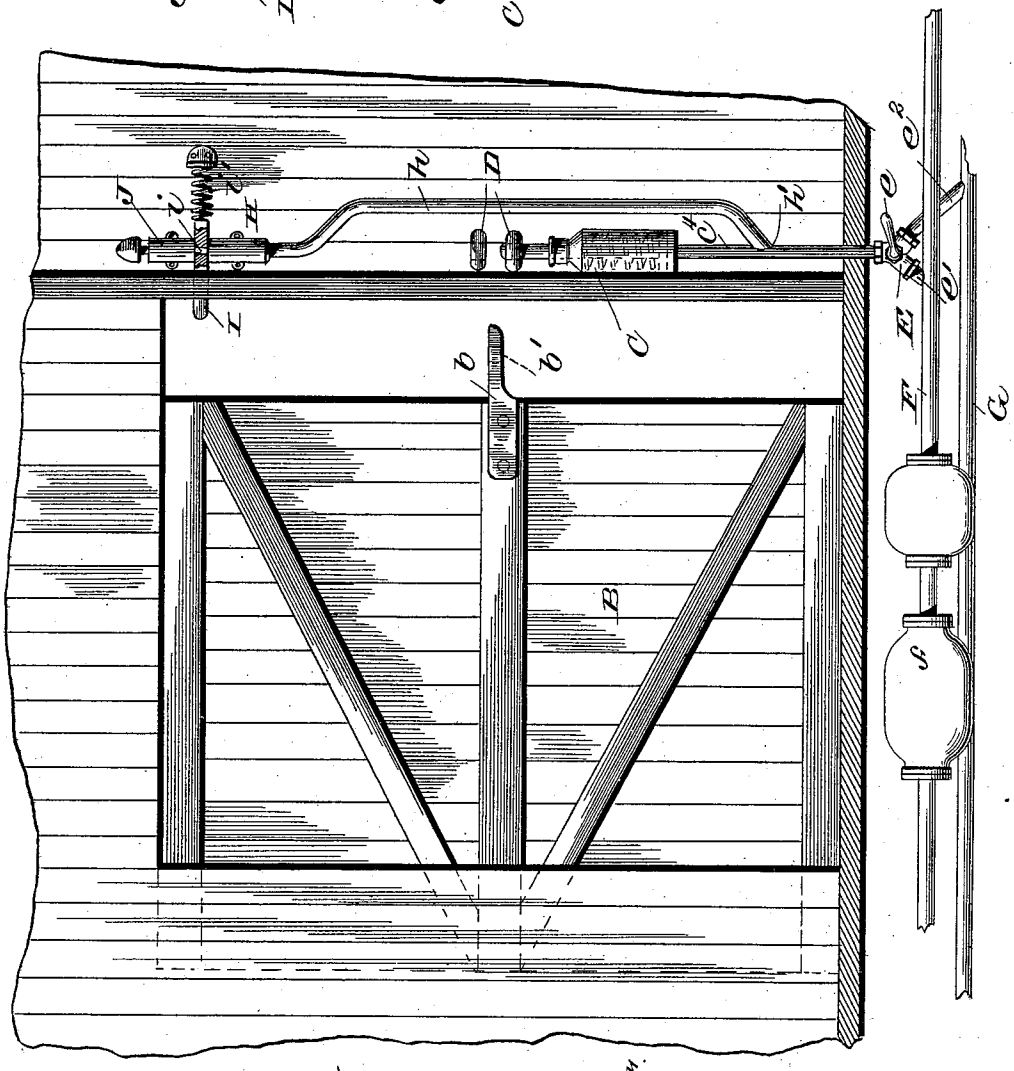


Fig. 1.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FREDRICK C. CONRAD AND CHARLES W. GOODSPEED, OF ELYRIA, OHIO.

PNEUMATIC CAR-LOCK.

SPECIFICATION forming part of Letters Patent No. 564,304, dated July 21, 1896.

Application filed September 18, 1895. Serial No. 562,832. (No model.)

To all whom it may concern:

Be it known that we, FREDRICK C. CONRAD and CHARLES W. GOODSPEED, citizens of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented a new and useful Pneumatic Car-Lock, of which the following is a specification.

Our invention relates to improvements in locks for securing the doors of freight-cars; and the object of our invention is to provide such a lock as will give an alarm when the door is not properly closed and locked, and also set the brakes to the train, so the cars cannot be moved until all the car-doors in the train are properly secured, and also such a lock as will give an alarm and set the brakes on the train in case a car-door is opened during transit, and the alarm also indicate the door that is not properly secured. We attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view showing the application of our invention to one door and the broken section of a freight-car. Fig. 2 is a longitudinal sectional view of the air-cylinder and piston.

Similar letters refer to similar parts throughout both the views.

The part of the car shown is marked A, and the door of the car B. The air-pipe or train-pipe is marked G, and the auxiliary air-chamber and connections are marked F. These parts may be of the usual or other construction used and provided for cars using any style of air-brakes.

C represents a small cylinder connected with the air-pipes or other supply of compressed air by means of a connecting-pipe c^4 and e' or e^2. Through this pipe c^4 air is admitted into the outer or lower end of the cylinder. This cylinder is properly fitted with a piston *c* and piston-rod *c'*, which are both actuated or pushed forward when air of sufficient force is admitted to the cylinder through the opening c^3. A spiral or other spring c^2 may be in front of the piston for the purpose of forcing it back when the air-pressure is removed from behind the cylinder, or a weight may be attached for said purpose.

b is an iron tongue or other fastening secured by one end to the car-door and the other end provided with a hole *b'*, so formed that when the door is properly closed the hole *b'* will admit the free passage of the piston-rod *c'*.

D represents iron eyebolts or stays provided with holes so adjusted as to allow the tongue *b* to freely pass between them, and also admit of the free passage of the piston-rod *c'* up through the holes when the door is locked. Their sole purpose is to take the side strain of the piston-rod off the cylinder when the door is locked.

H is a valve with a spring-stem I so constructed that when the car-door is closed the valve will be closed by the door pushing back the stem I, and when the car-door is open the valve will be opened by the spring *i'*. The construction may be as shown in the drawings or any other suitable construction. The upper or outer end J of this valve is provided with a whistle or alarm so attached that when the valve is open the escaping compressed air will sound an alarm. Any other form of alarm may be used. The valve H is connected with the air-supply by means of the connecting-pipe *h*.

e is a three-way valve connecting the pipe c^4, e', and e^2, by means of which air may be admitted to pipe c^4 from the train-pipe G or auxiliary-chamber pipe F, as desired. When one supply is cut in, the other supply is cut out.

The operation of our invention is as follows: When a train is made up and the car-door closed, the admission of the air into the train-pipe and auxiliary air-chamber passes into the pipe e' and e^2 and through the pipe c^4 into the cylinder C, and forces the piston *c* up, and the piston-rod *c'* through the hole *b'* in the tongue *b*, and thereby securely fastens the door. In case the door should not be closed, the valve H would be left open and the air would escape through the same and sound the whistle and the brakes of the car would also remain set. In case the door was forced open in transit from any cause, or the pipes e', e^2, or c^4 cut or so injured as to allow the escape of air, the brakes of the train would be set and the train would be unable to proceed until the pipes were restored and the door was in proper position. In case it is desired to leave the door of the car open

for ventilation or other cause, the valve-stem I can be closed by nailing a cleat over the end of the same.

Having fully described our invention and its operations, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In combination with a sliding door of a car, having a perforated tongue secured thereto, the eyebolts or stays attached to the car-wall, between which stays said tongue projects when the door is closed, the cylinder having a piston with a piston-rod in position to pass through said stays and the tongue on the door, and the air-pipe having pneumatic connection to said cylinder, whereby the piston may be operated by air-pressure to retain the bolt and car-door in locked position, all combined substantially as described.

2. The combination with the train-pipe of a railway-car, of a cylinder operatively connected thereto, a piston in said cylinder, and the piston-rod thereof engaging attachments to the door and car to lock the door in closed position, and means for controlling the air-pressure in the train-pipe, and an alarm indicating the unlocked position, all combined substantiatly as described.

3. The combination with the train-pipe and a branch leading therefrom, of a valve in the branch pipe in the line of movement of the door, so that said valve is closed when the door is closed, and means for opening the valve and thereby sounding the alarm when the door is opened, all combined substantially as described.

4. The combination with the train-pipe extending along the car, of a cylinder connected to said pipe, a piston in said cylinder and having a piston-rod, the door having a perforated tongue, and stays on the car-wall between which said tongue passes, and the alarm having a valve which is held closed by the closed door, but opens automatically with the opening of said door, all substantially as described.

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