

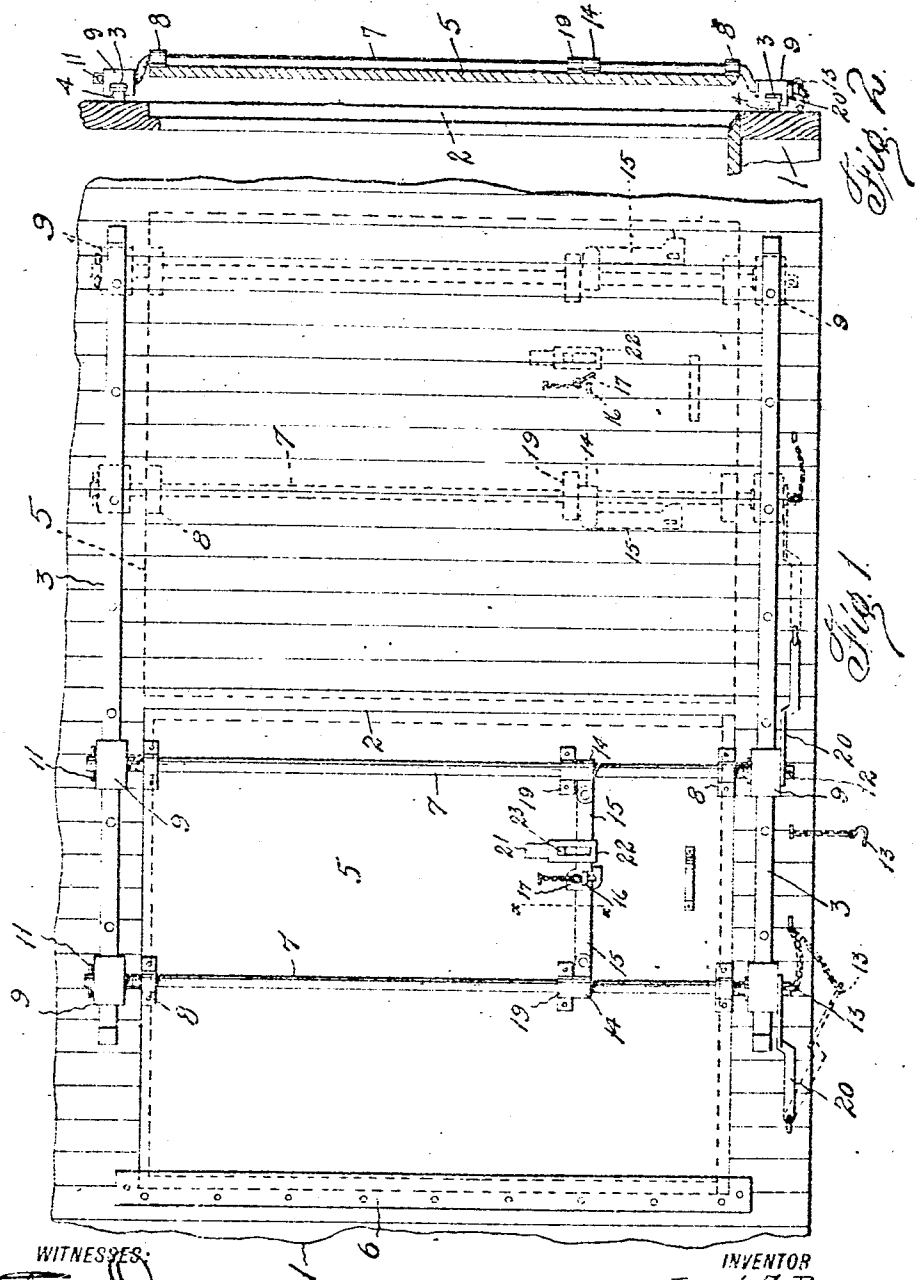
J. E. PEARCE.
CAR DOOR.

APPLICATION FILED JUNE 13, 1909.

949,777.

Patented Feb. 22, 1910

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

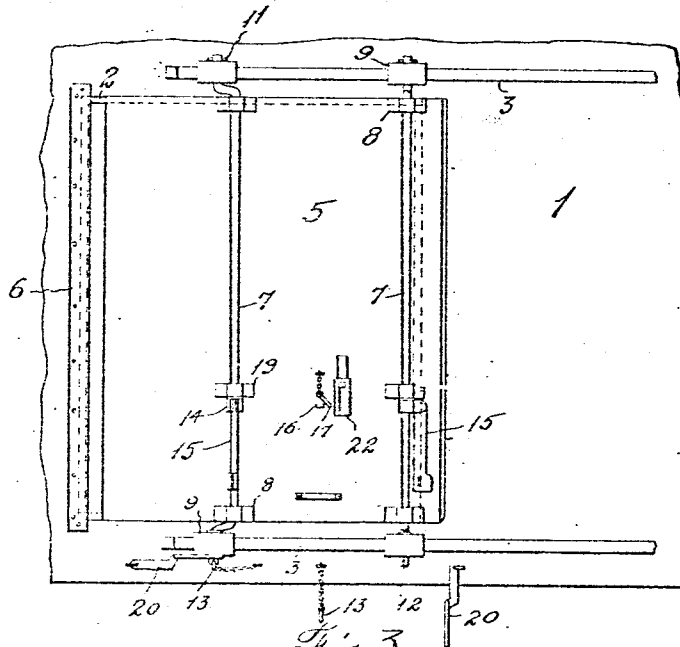


Fig. 3



Fig. 4

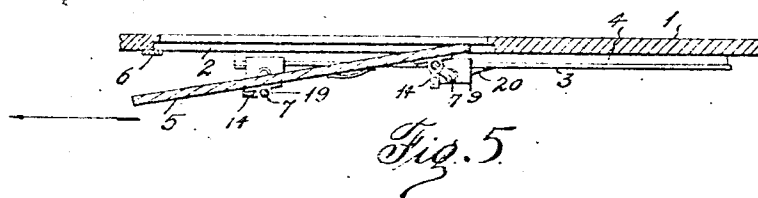


Fig. 5

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3 SHEETS—SHEET 3.

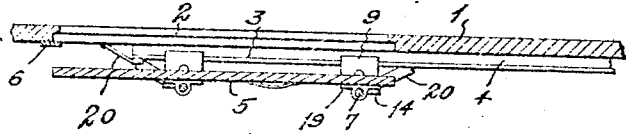


Fig. 6

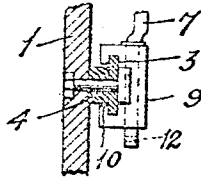


Fig. 7

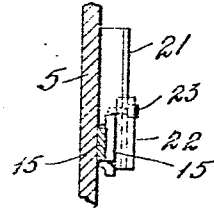


Fig. 8

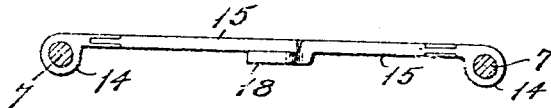


Fig. 9

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CAR-DOOR.

949,777.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed June 14, 1909. Serial No. 502,016.

To all whom it may concern:

Be it known that I, JOSEPH E. PEARCE, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented a new and useful Improvement in Car-Doors, of which the following is a specification.

My invention relates to new and useful improvements in car doors and more particularly to means for supporting and fastening the door in place.

The object of the invention is to provide means whereby the door may be fastened flush with the outer surface of the car or moved to various positions and fastened in place for the purpose of either closing the doorway or leaving the same partially open whereby ventilation is obtained.

Another object is the arrangement and construction whereby one vertical side of the door may be swung outward, while the other is projected into the doorway; the door thus standing at an angle to the side of the car and acting as a deflector to divert the air into the car as the same moves.

Among other features, are a guard strip under which the edge of the door is engaged and prevented from being forced outward by the load; fastening means associated with the lower ends of the crank rods; and a gravity latch for fastening the crank arms when the door is closed.

Finally the object of the invention is to provide means of the character described that will be strong, durable, efficient, and easy of operation, simple and comparatively inexpensive to construct, and also in which the several parts will not be likely to get out of working order.

With the above and other objects in view, the invention has relation to certain novel features of construction and operation, an example of which is described in this specification and illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevation of a portion of a freight car showing my invention applied thereto, the door being shown closed in full lines and open in dotted lines. Fig. 2 is a transverse vertical section of the same. Fig. 3 is an elevation showing the door in position for ventilating the car. Fig. 4 is a horizontal section of the same. Fig. 5 is a horizontal section of the same with the position of the door reversed. Fig. 6 is a horizontal section of the same with the

door swung parallel to the side of the car in front of the door-way, Fig. 7 is a detail in section of one of the tracks and the sliding hanger, Fig. 8 is a vertical section on the line *x-x* of Fig. 1, and showing the gravity latch in position, and Fig. 9 is a plan view of the crank arms.

In the drawings, the numeral 1, designates the side of an ordinary freight car and 2, the usual door-way. Above and below the door-way, tracks 3 preferably of flat metal bars, extend longitudinally to one side of the door-way. By referring to Figs. 2 and 7 it will be noted that these tracks are supported from the side of the car by sills 4 preferably of wood, and suitably fastened to the car. The sills extend substantially the entire length of the metal bars, which project above and below each sill, so that the tracks each present a T-shape in cross section. This construction is more desirable than T-irons or angle irons, as it is less expensive, lighter and more durable.

The door-way is rabbeted so as to receive the door 5 and hold the outer face of the same substantially flush with the side of the car. Along one vertical side of the door-way, which we will call and refer to throughout this specification, as the left side, a vertical guard strip 6 is suitably fastened so as to project a short distance over the door-way or door opening. The left end of the door is adapted to engage under this strip and the door is thus braced against outward displacement.

The means for supporting and operating the door comprises vertical crank rods 7 passing through boxes 8 secured to the door near its upper and lower edges. One of the crank rods is placed near the right hand end of the door, while the other is positioned near the center. This disposition of the crank rods in connection with the guard strip so thoroughly braces the door, that outward displacement after the door has been fastened is practically impossible.

The upper and lower ends of the rods 7 are off-set or bent to form cranks which extend inward in line with the rods when the door is in its closed position. These cranks project through hangers 9 provided with recesses 10, in their inner faces of such shape as to receive the tracks 3 and to be held against transverse displacement thereon, although permitting a free longitudinal sliding movement there along. At their upper

ends, the crank rods are held in the hangers by pins 11; while the lower ends of the rods project below the lower hangers, at which point each is provided with a hole 12 adapted to receive a key 13 suitably supported from the car, for the purpose hereinafter described.

Nearer the bottom of the door crank arms are secured to the crank rods 7. Each arm consists of a collar 14 rigidly attached to its respective rod and having pivotal connection with a link 15, the links adapted to engage at their outer ends a staple 16 projecting from the door and on which they are fastened, when the door is closed, by an eye-pin 17 suitably supported from the door. One of the links is off-set as indicated at 18 in Fig. 9, so as to lap over the end of the other link and permit the inner sides of the links to rest substantially flat against the door.

Immediately above the collars 14, a box 19 for each rod 7 is secured to the door. It is to be understood that the crank rods may be freely rotated in the boxes 8 and 19, and by positioning the boxes 19 over the rigidly attached collars, the door is substantially supported thereon, thus relieving the lower crank rod boxes 8, from the friction which would result if the door was supported thereby.

It is to be understood that in order to open the door or move the latter out of the doorway, it is necessary to rotate the crank rods 7 which is accomplished by swinging the crank arms outward after the eye-pin 17 has been withdrawn from the staple 16. It is necessary to swing the arms outward a short distance, swinging the right hand crank a little farther than the left so as to draw the right hand end of the door out of the door way and also move the door a sufficient distance to the right to disengage its left hand end from under the guard strip 6, before the door can be fully opened. After the door has been swung to its outward position, it may be slid along the track to the right as indicated in dotted lines in Fig. 1.

One of the features of this invention is the arrangement whereby the door may be swung for ventilating purposes, to positions intermediate of the full closed and opened positions thereof. By referring to Figs. 3 and 4, it will be seen that by giving the right hand crank rod substantially a half rotation and the left crank rod substantially a quarter rotation, the right hand end of the door will be projected beyond the side of the car, while the left hand end remains in the door way a short distance from the guard strip; the door thus standing at an angle and acting as a deflector to catch the air and divert it into the car through the door way, provided the car is traveling to the right. If

the car should be traveling to the left the position of the door is reversed and is accomplished by swinging both cranks a half revolution and then swinging the right hand crank back until the right hand end of the door is carried into the door way, as shown in Fig. 5. Where the cranks are each given a half revolution, the door is caused to stand in front of the door way and parallel with the side of the car as shown in Fig. 6, thus admitting air to the car either way the same travels. It will be noted that in any of these positions the door way of the car is not exposed and the door is substantially closed so far as entrance by persons is concerned. It is apparent that very little good would be sustained in moving the door into any one of the three positions just referred to if some means for holding the door in these positions were not provided and one of the essential features of this invention resides in the means for fastening the door in position. In carrying out this part of my invention, I provide hasps 20 of the half twist style, each stapled to the side of the car at one end and apertured and adapted to fit over the lower projecting end of the adjacent crank rod at its free end, lying flat against the under side of the lower hanger and being held in engagement by the insertion of the key 13 in the hole 12. The hasps are so positioned, especially the right hand one, as to be swung either to the right or left and engage the crank rod. When the door is closed both hasps are engaged with the crank rods as shown in Fig. 1. It is obvious that while the door is in the door way, the crank rods cannot be rotated unless the boxes are permitted to slide, which they cannot do while the hasps are in engagement with the lower ends of the said rods. When the door is swung to its full open position, as shown in dotted lines in Fig. 1, the right hand hasp is swung to the right and engaged with the lower end of the left hand crank rod, as is also shown in dotted lines in Fig. 1, which holds the door in its open position and fastens it against sliding on the tracks.

When the door is in the position shown in Figs. 3 and 4, the left hand hasp is engaged with the left hand crank rod, the right hand hasp hanging free as it is necessary to slide the door a little to the right to effect the fastening thus sliding the right hand crank out of register with its hasp. When the door is moved to the position shown in Fig. 5, the right hand hasp is engaged with the lower end of the right hand crank rod, and when the door is in the position shown in Fig. 6 both hasps may be engaged with the crank rods. Although some movement of the parts is possible when the hasps are in engagement with the crank rods, the door is substantially fastened or held in position.

As an additional means for fastening the

crank arms when the door is locked, in case the staple and eye-pin should become inoperative, I provide a gravity latch as shown in detail in Fig. 8. This latch consists of a short vertical track 21 similar to the track 3 and placed above the horizontal position of the crank arms. A latch member 22 is mounted to slide on this track and is slotted so as to engage about a bolt 23 driven into the track and which bolt acts as a stop to limit the upward and downward movement of the latch member. When released the latch member will slide down the track and depend therefrom in front of the right hand link 15 which laps over the left hand link, thus preventing the links from being swung outward. The latch member is easily slid upward and out of the path of the crank arms when it is desired to open the door.

I wish to call attention to the fact that by pivoting the links 15 to the collars 14, the former will swing down against the crank rods when released, thus obviating an obstructive projection when the door is opened. I also desire to be noted that the hangers 9 engage around the tracks 3 at their upper and lower edges and therefore should the car sag, the hangers cannot become disengaged with the tracks as is often the case with hangers which only engage one edge of the track.

What I claim, is:

1. Means for supporting and fastening a car door comprising, tracks secured to the car adjacent the door-way, hangers mounted to slide on said tracks, crank rods adapted to be connected to the car door and having their ends engaging in the hangers, means for swinging the crank rods for opening and closing the door, and means cooperating with the lower hangers for holding the same against sliding on the track.

2. The combination with a car and the door-way and the door thereof, of longitudinal tracks supported from the car above and below the door-way, hangers mounted to slide on the tracks, crank rods engaging in the hangers, and having connection with the door, means for rotating the crank rods, and means for fastening the door in positions intermediate of its closed and open positions comprising, fastening means cooperating with the lower hangers for holding one of the same against sliding on the track.

3. The combination with a car and the door-way and door thereof, of longitudinal tracks supported from the car above and below the door-way, hangers mounted to slide on the tracks, crank rods supporting the door and engaging in the hangers, crank arms fixed to the crank rods for rotating the same, means for fastening the crank arms against movement, and means for fastening the door in positions intermediate of

its closed and open positions comprising, fastening means cooperating with the lower hangers for holding one of the same against sliding on the track.

4. The combination with a car, a sliding door, tracks mounted on the car, and hangers carrying the door and slidable upon the tracks, of means pivoted to the car and adapted to cooperate with the lowermost hangers for holding the said hangers against sliding on the track and fastening the door in position.

5. The combination with a car, and the door and door-way thereof, of longitudinal tracks mounted on the car above and below the door-way, hangers mounted on the tracks, crank rods supporting the door having their ends engaging the hangers and adapted to move the door into and out of the door-way, means for rotating the crank rods, and means for engaging the lower ends of the crank rods for holding the door against sliding with relation to the door-way.

6. In a sliding door for cars, tracks supported from the car, hangers slidable upon the tracks, door carrying crank rods engaging in the hangers, the lower ends of the crank rods projecting below the lower most hangers, and means adapted to engage the projecting ends of the crank rods for holding the door in adjusted positions.

7. In a sliding door for cars, tracks supported from the car, hangers slidable upon the tracks, door carrying crank rods engaging in the hangers, the lower ends of the crank rods projecting below the lower most hangers, and pivoted means adapted to engage the projecting ends of the crank rods for holding the door in adjusted positions.

8. The combination with a car, a track supported from the car, shoes slidably mounted on the track, and door carrying crank rods mounted in the shoes, of hasps secured to the car and engageable with the crank rods, and means for securing said hasps.

9. The combination with a car, of a track supported from the car, hangers slidably mounted on the track, door carrying crank rods mounted in the hangers, hasps secured to the car and engageable with the rods, means for securing said hasps in said engagement, and means for rotating the crank rods.

10. In combination with a car, a track, hangers slidably mounted on the track, door carrying crank rods mounted in the hangers, hasps secured to the car and engageable with the rods, means for securing said hasps in said engagement, means attached to the rods for rotating the same, and other means for locking the last named means against operation.

11. The combination with a car, of tracks

mounted thereon, hangers slidable upon the tracks, door carrying crank rods carried by the hangers, and a connection for securing the car door in positions intermediate of the open and closed position of the said door.

12. In a sliding door for cars, a track supported from the car, hangers slidable on the track, door carrying crank rods rotatable in the hangers, crank arms rigidly attached to the crank rods for rotating the same, each crank arm including a pivoted member, means for fastening the crank arms against operation, and means for fastening the door in various positions.

13. In a sliding door for cars, a track supported from the car, hangers slidable on the track, door carrying crank rods rotatable in the hangers, crank arms rigidly attached to the crank rods for rotating the same, each crank arm including a pivoted member,

means for holding the free ends of the pivoted members of the crank arms in engagement, and a hasp for fastening the door in various positions.

14. The combination with a car and the door and door-way thereof, of upper and lower tracks mounted on the car, hangers mounted on the tracks, crank rods having rotatable engagement with the door, means for rotating the rods, and means cooperating with the lower hangers for fastening either end of the door out of the door-way and the other end in the door-way, the door standing at an angle to the side of the car.

In testimony whereof I have signed my name in the presence of two witnesses.

JOSEPH E. PEARCE.

Witnesses:

ROBERT L. COLE,
JACK A. SCHLEY.