J. B. DRISCOLL.

CAR DOOR LOCK.

APPLICATION FILED JAN. 25, 1913.

1,065,788.

Patented June 24, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

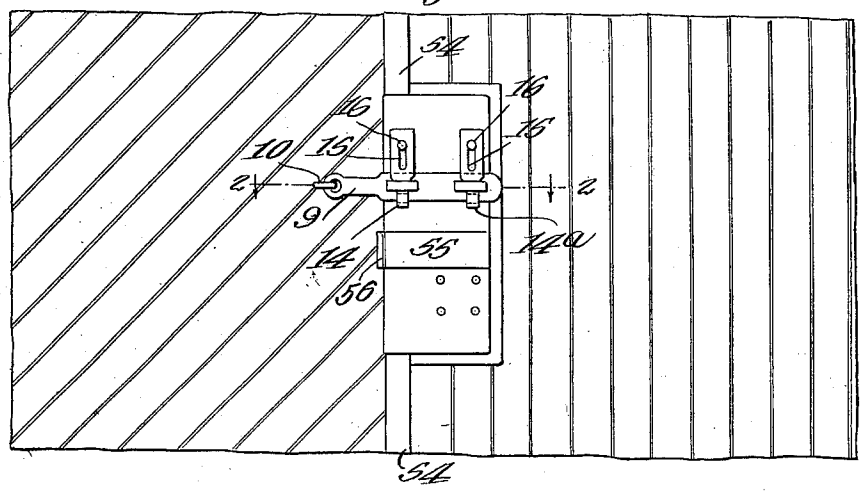


Fig. 2.

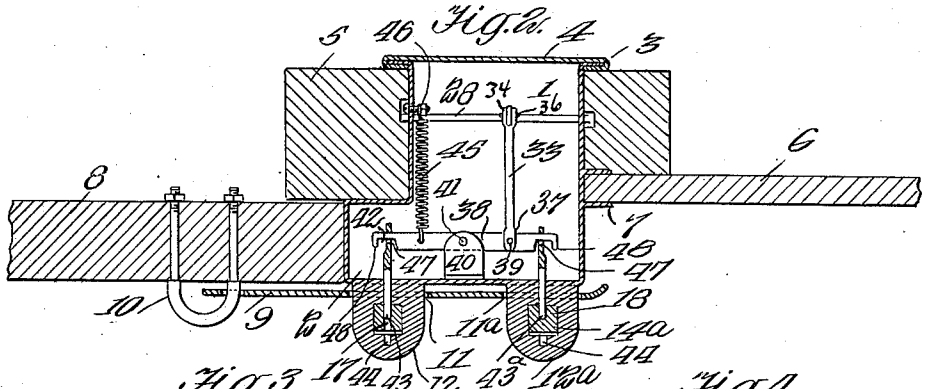


Fig. 3.

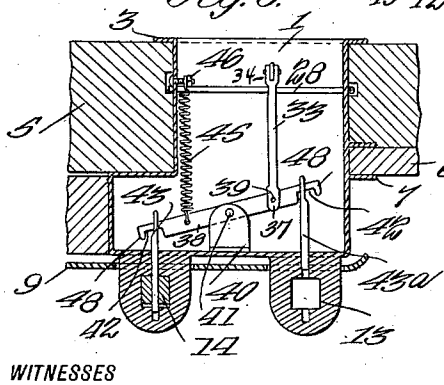
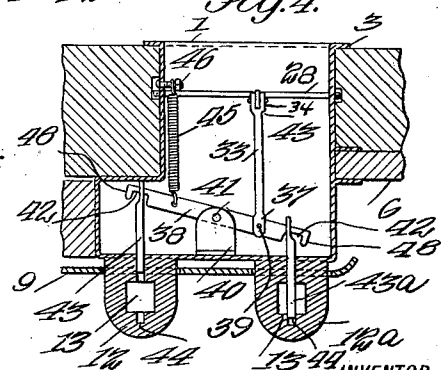


Fig. 4.



WITNESSES

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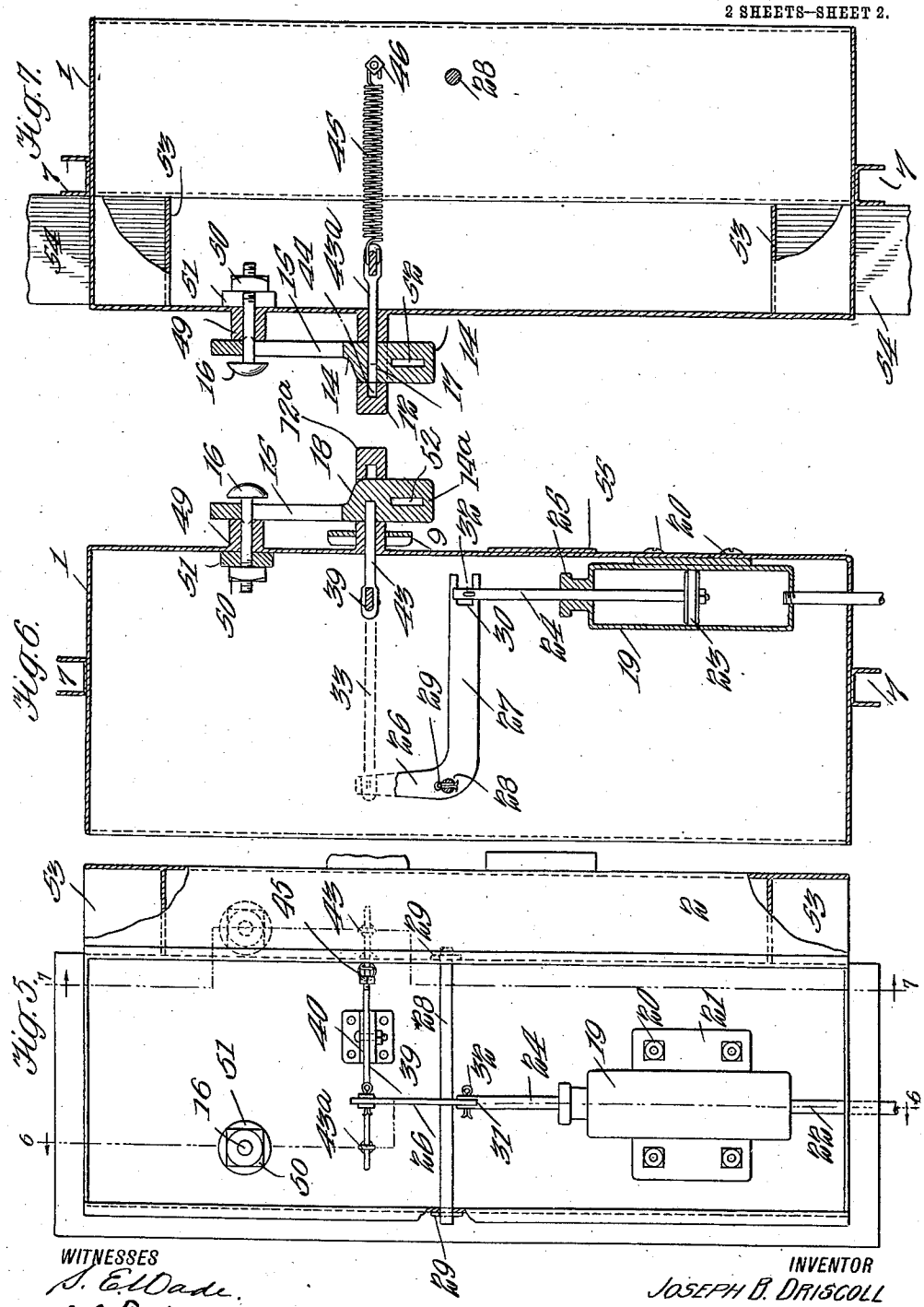
2 SHEETS—SHEET 2.



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CAR-DOOR LOCK.

1,065,788. Specification of Letters Patent. Patented June 24, 1913.

Application filed January 25, 1913. Serial No. 744,136.

To all whom it may concern:

Be it known that I, JOSEPH B. DRISCOLL, a citizen of the United States, and a resident of Clifton Forge, in the county of Alleghany and State of Virginia, have made a new and useful Improvement in Car-Door Locks, of which the following is a specification.

My invention is an improvement in car door locks, and has for its object the provision of a lock of the character specified, especially adapted for use with car doors, wherein a double locking means is provided, operated by pressure from the air brake system, so arranged that when the car is set out on the siding, the lock belonging thereto is so arranged that the contents of the car cannot be tampered with without breaking the lock and wherein while the car is in the train, the lock may be operated to release the door by the authorized persons.

In the drawings:—Figure 1 is a view of a portion of a car provided with the improved lock, Fig. 2 is a section on the line 2—2 of Fig. 1, showing the parts in one position, Fig. 3 is a similar view showing the parts in another position, Fig. 4 is a view similar to Fig. 2 showing the parts in a third position, Fig. 5 is a rear view of the lock, and Figs. 6 and 7 are sections on the lines 6—6 and 7—7 respectively of Fig. 5.

The present embodiment of the invention consists of a casing 1, having at its front a lateral extension 2, and the rear or inner face of the casing is open as shown, the sides of the casing being flanged laterally as shown at 3, and a cover 4 is provided, the said cover having guideways for engagement by the flanges 3 and being mounted to slide on the said flanges to close the casing. The casing is designed to be arranged at the side of the door opening of the car, with the frame 5 of the door fitting behind the lateral extension 2 against the adjacent side of the casing. The sheathing 6 of the side of the car is received between a pair of spaced ribs 7, at one side and the ends of the casing, the casing being thus held with a portion thereof inside the car, and a portion outside. The door 8 of the car fits against the outer edge of the lateral extension 2, and a hasp 9 is connected to the door by a staple 10. The hasp is provided with two longitudinal slots 11 and 11^a respectively, and the casing is provided on its outer face at the hasp with a pair of laterally extending lugs 12 and 12^a, for engaging the slots 11 and 11^a respectively. Each of the said lugs is provided with a vertical opening 13, the said opening being square as shown, and locking bolts 14 and 14^a are mounted to slide on the outer face of the casing, each bolt having a squared portion for engaging the opening of the adjacent lug. Each of the said bolts 14 and 14^a is provided with a longitudinally extending slot 15 at its upper end, and each slot is engaged by a headed pin 16, extending outwardly from the casing for permitting a limited sliding movement of the bolt. Each bolt is also provided with a transverse opening of cylindrical form, the opening 17 of the bolt 14 extending entirely through the bolt as shown in Figs. 2 and 3, while the opening 18 of the bolt 14^a extends only approximately half the thickness of the bolt.

A cylinder 19 is secured to the front face of the casing by means of screw bolts 20 or the like, which pass through the wall of the casing and through openings in laterally extending flanges 21 on the casing. A pipe 22 is threaded into the lower end of the cylinder, the said pipe extending through the lower end of the casing and being connected with the air brake system of the car in any suitable manner. A piston 23 is mounted to slide in the cylinder, and a rod 24 is connected with the piston and extends through a stuffing box 25 in the upper end of the said cylinder. An elbow lever is arranged within the casing, the said elbow lever consisting of arms 26 and 27, arranged at approximately a right-angle to each other, and the elbow lever is pivoted on a shaft 28 extending transversely of the casing and having its ends passed through openings in the side walls thereof. Cotter pins 29 are passed through the ends of the shaft to hold it in place, and the free end of the arm 27 is recessed as shown at 30, and extends through a longitudinal slot 31 in the end of the rod 24. A cotter pin 32 is passed through the end of the rod and through the recess 30 of the arm 27 to pivotally connect the rod 24 and the arm 27. The other arm 26 of the elbow lever is pivotally connected to one end of a link 33, the

said link having a fork 34, whose arms fit on opposite sides of the free end of the arm 26 and a cotter pin 36 is passed through the said arm and the arms of the fork. The opposite end of the link 33 is forked as shown at 37, and a lever 38 fits between the arms of the fork and is connected thereto by means of a cotter pin 39. The lever is pivoted at approximately its center between a pair of lugs 40 secured to the inner face of the front wall of the casing, by means of pins 41, and each end of the lever is notched or recessed in the forward edge thereof as shown at 42.

Locking pins 43 and 43ª are provided, the said pins being mounted to slide in the lugs 12 and 12ª respectively, in openings 44, each of the said openings 44 extending from the inner face of the front of the casing to near the outer end of the lug and intersecting the opening 13 of the lug. The inner end of each of the locking pins 43 and 43ª is provided with a longitudinal slot 47, through which the adjacent end of the lever 38 is passed. The slots are of such length, that the lever may move freely with respect to the pin as indicated in Figs. 3 and 4, and the lug 48 formed at the end of the lever by the recess 42 prevents disengagement of the locking pin from the lever.

A coil spring 45 has one of its ends engaged with an opening in the lever 38, on the opposite side of the lugs 40 from the link 33, and the other end of the spring is connected to a bolt 46, extending through the side of the casing. The spring 45 tends to hold the lever in the position shown in Fig. 4, and when the lever is in such position, the pin 43ª extends entirely across the opening 13.

The headed pin 16 before mentioned, is in the form of a bolt, and each pin is passed through a boss 49 on the casing, and is engaged inside the casing by a nut 50, a washer 51 being arranged on the bolt between the nut and the face of the casing. Each of the bolts 14 and 14ª is provided with a transverse opening 52, below the opening 17 or 18 as the case may be, the said opening or passage 52 being adapted for engagement by a seal. The upper and lower ends of the lateral extension 2 of the casing are provided with pockets 53 for receiving the ends of the framing 54 of the door, as shown in Figs. 5 and 7. A stop or guide plate 55 is arranged transversely of the front of the casing, and the free end thereof is curved outwardly as shown at 56 to act as a guide for swinging doors, to cause the said door to occupy its proper position with respect to the casing when the door is swung inwardly into place in the door opening.

In operation, when the car is in a train and in connection with the air brake system of the train, that is, connected with the train pipe, and whether the car is moving or standing, the parts occupy the position of Fig. 3, the locking pin 43ª being withdrawn and the locking pin 43 passing entirely through the locking bolt 14, while the locking bolt 14ª is free. When the cylinder 19 is cut off or disconnected from the train pipe as for instance when the car is set out from the train, the parts occupy the position of Fig. 2, both locking pins 43 and 43ª being engaged with their respective locking bolts 14 and 14ª. The spring 45 tends to move the lever 38 to project the locking pin 43ª outward. Since the opening in the locking bolt 14ª extends only partially through the same, the said locking pin cannot move to the position shown in Fig. 2, and both bolts 14 and 14ª are locked. When it is desired to open the car, the cylinder 19 is connected with the source of fluid under pressure, which acts upon the piston to force the said piston upward, to rock the upper end of the elbow lever 26—27 inward, that is, into the position of Fig. 3. The locking bolt 14ª is now removed, and the cylinder is disconnected from the source of fluid under pressure. The spring 45 now swings the lever 39 into the position shown in Fig. 4, the locking pin 43ª passing into the opening of the lug 12ª a sufficient distance to permit the locking pin 43 to be entirely withdrawn to release the locking bolt 14. When both bolts 14 and 14ª are released, the hasp 9 may be removed from the lugs 12 and 12ª and the door may be opened. The spring 45 is of such strength that a pressure of 35 pounds to the square inch on the piston will swing the lever 39 against the resistance of the spring. The air may be supplied from any auxiliary air plant, capable of making 35 pounds pressure to the square inch as for instance, a cylinder and an ordinary pump. The cylinder may be arranged for transportation, and may be filled by a hand pump.

I claim:—

1. A car door lock comprising a casing adapted to be connected to the body of a car at one side of the door opening, said casing having on the front thereof a pair of transversely alined perforated lugs for engaging the openings of a hasp on the door, a locking bolt mounted for sliding movement on the casing above each lug and having a reduced lower end for engaging the opening of the adjacent lug, a lever pivoted intermediate its ends within the casing between the lugs, a locking pin connected with each end of the lever, each lug having a longitudinal passage extending from within the casing and intersecting the perforation of the lug for receiving the locking pin, the reduced end of the locking bolt adjacent to the door opening having a transverse passage registering with the passage

of the lug and the reduced end of the locking bolt remote from the door opening having a recess on its inner face registering with the passage of the lug, the locking pins being of such length that when the pin remote from the door opening is seated in the recess of the bolt, the other pin will be in engagement with the other passage of the other bolt, a spring connected with the end of the lever adjacent to the door opening and normally acting to swing the said end of the lever away from the front of the casing, an elbow lever pivoted within the casing, a link connecting one arm of the elbow lever with the locking pin lever on the opposite side of its pivotal connection from the spring, a cylinder in the casing having means at its lower end for connecting the cylinder with the train pipe of the car, a piston in the cylinder, and a connection between the piston and the other arm of the elbow lever for swinging the said elbow lever to move the locking pin lever against the resistance of the spring when the piston is acted upon by the pressure of the train pipe.

2. A car door lock comprising a casing adapted to be connected to the body of a car at one side of the door opening, said casing having on the front thereof a pair of transversely alined perforated lugs for engaging the openings of a hasp on the door, a locking bolt mounted for sliding movement on the casing above each lug and having a reduced lower end for engaging the perforation of the adjacent lug, a lever pivoted intermediate its ends within the casing between the lugs, a locking pin connected with each end of the lever, each lug having a longitudinal passage extending from within the casing and intersecting the perforation of the lug for receiving the locking pin, the reduced end of the locking bolt adjacent to the door opening having a transverse passage registering with the passage of the lug and the reduced end of the locking bolt remote from the door opening having a recess on its inner face registering with the passage of the lug, the locking pins being of such length that when the pin remote from the door opening is seated in the recess of the bolt, the other pin will be in engagement with the passage of the other bolt, a spring connected with the end of the lever adjacent to the door opening and normally acting to swing the said end of the lever away from the front of the casing, a piston in the casing adapted to be connected with the train pipe of the car, a piston in the cylinder, and a connection between the piston and the lever for swinging the lever against the resistance of the spring when the piston is acted on by the train pipe pressure.

3. A car door lock comprising a casing adapted to be connected to the body of a car at one side of the door opening, a pair of transversely alined perforated lugs on the outer face of the casing for engaging the openings of a hasp on the door, a locking bolt mounted for sliding movement above each lug for engaging the perforation thereof to lock the hasp in place, a lever pivoted in the casing between the lugs and intermediate the ends of the lever, a locking pin connected with each end of the lever, each lug having an opening for receiving the adjacent locking pin, each opening intersecting the perforation of the lug, one of the locking bolts having a transverse passage registering with the opening of the lug when the locking bolt is in engagement with the perforation thereof, the other bolt having a recess on its inner face for registering with the perforation of the lug, the locking pins being of a length to simultaneously engage the recess and the passage, fluid operated means adapted for connection with the air brake system of the car for swinging the lever to move the locking pin into the recess, and a spring acting on the lever to move it in the opposite direction.

4. A car door lock comprising a casing adapted to be connected to the body of a car at one side of the door opening, a pair of transversely alined perforated lugs on the outer face of the casing for engaging the openings of the hasp on the door, a locking bolt mounted for sliding movement above each lug for engaging the opening thereof to lock the hasp in place, a lever pivoted intermediate its ends in the casing between the lugs, a locking pin connected with each end of the lever, each lug having a longitudinal opening intersecting the perforation for receiving the adjacent locking pin, one of the locking pins having a passage registering with the perforation of the lug, and the other having a recess on its inner face registering with the perforation of the lug, said pins being of a length to simultaneously engage the recess and the passage, normally active means for swinging the lever in a direction to engage the locking pin with the recess, and fluid operated means acting to swing the lever in the opposite direction.

5. A car door lock, comprising a support having a pair of transversely alined perforated lugs, a locking bolt mounted to slide toward and from each lug for engaging the perforation thereof, a lever pivoted between the lugs, a locking pin at each end of the lever, each lug having a longitudinal opening intersecting the perforation for receiving the adjacent locking pin, one of the locking bolts having a transverse passage and the other a recess on its inner face for registering with the passage of the lug, normally active means for swinging the lever to en-

gage the locking pin with the recess, and fluid operating means connected with the lever for moving it in the opposite direction.

6. A car door lock comprising a support having a pair of perforated lugs, a locking bolt mounted to slide toward and from each lug for engaging the perforation, a lever pivoted between the lugs, a locking pin connected with each end of the lever for engaging the adjacent locking bolt, one of the bolts having a passage for the pin and the other a recess for receiving the pin, normally active means for swinging the lever to engage the locking pin with the recess, and fluid operated means connected with the lever for moving it in the opposite direction.

7. A car door lock comprising a support having a pair of perforated lugs, a locking bolt mounted to slide toward and from each lug for engaging the perforation, a lever pivoted between the lugs, a locking pin connected with each end of the lever for engaging the adjacent locking bolt, one of the bolts having a passage for the pin and the other a recess for receiving the pin, normally active means for swinging the lever to engage the locking pin with the recess, and means for moving the lever in the opposite direction.

JOSEPH B. DRISCOLL.

Witnesses:
E. B. LANDRUM,
R. J. WERNER.