

(No Model.)

3 Sheets—Sheet 1.

B. J. TEGETHOFF.  
SAFETY EXPRESS CAR.

No. 525,634.

Patented Sept. 4, 1894.

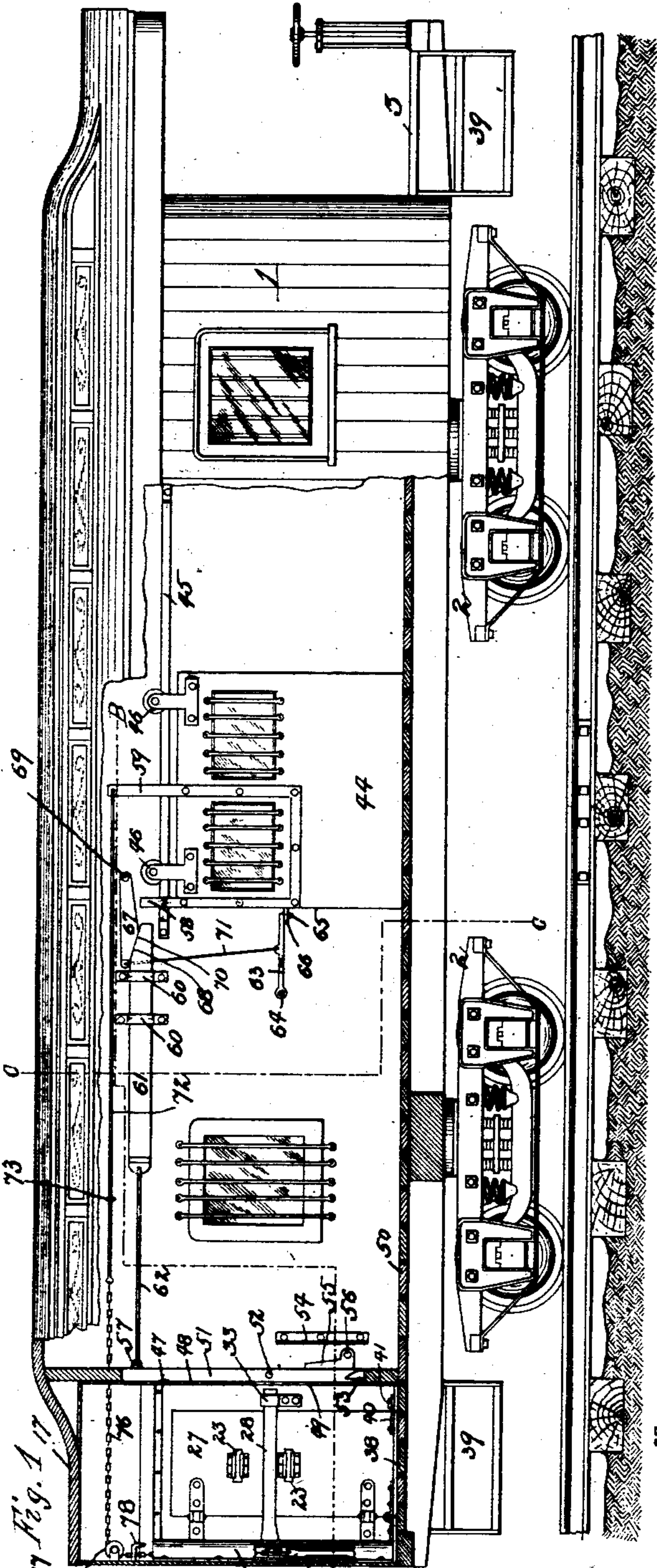


Fig. 1

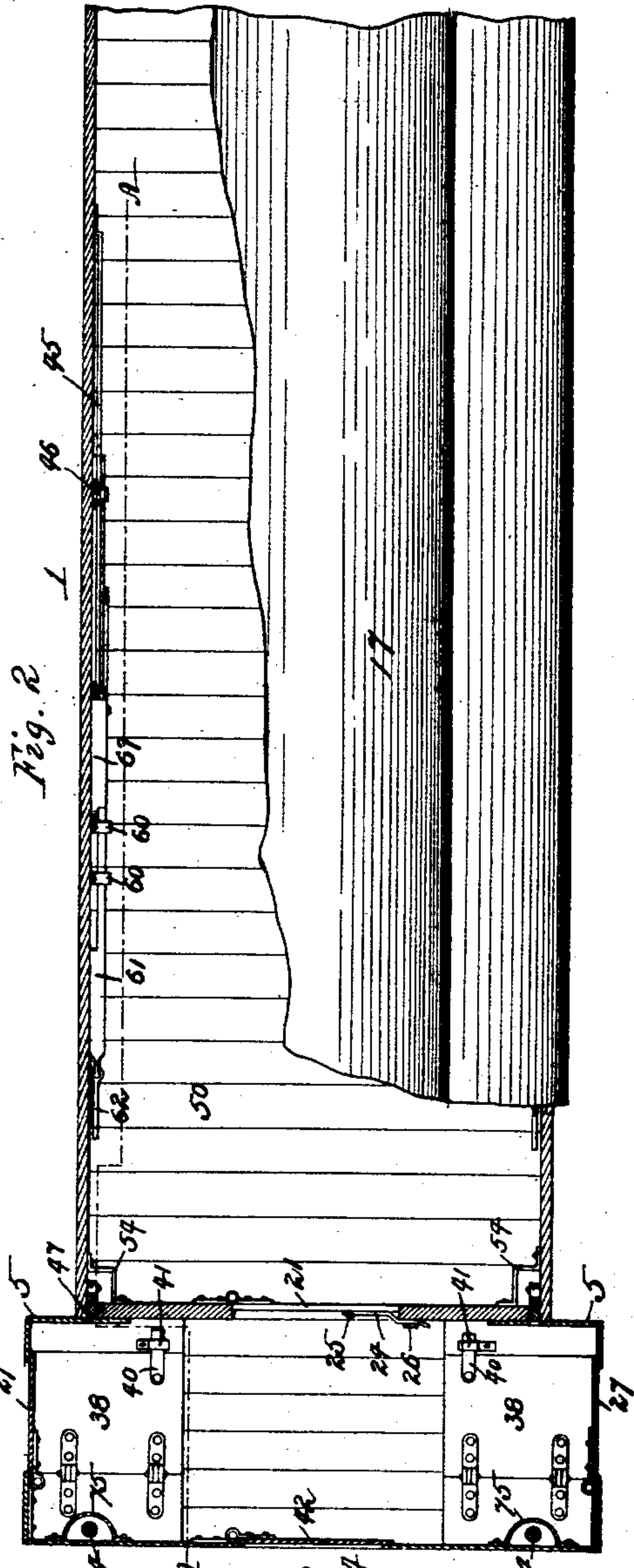


Fig. 2

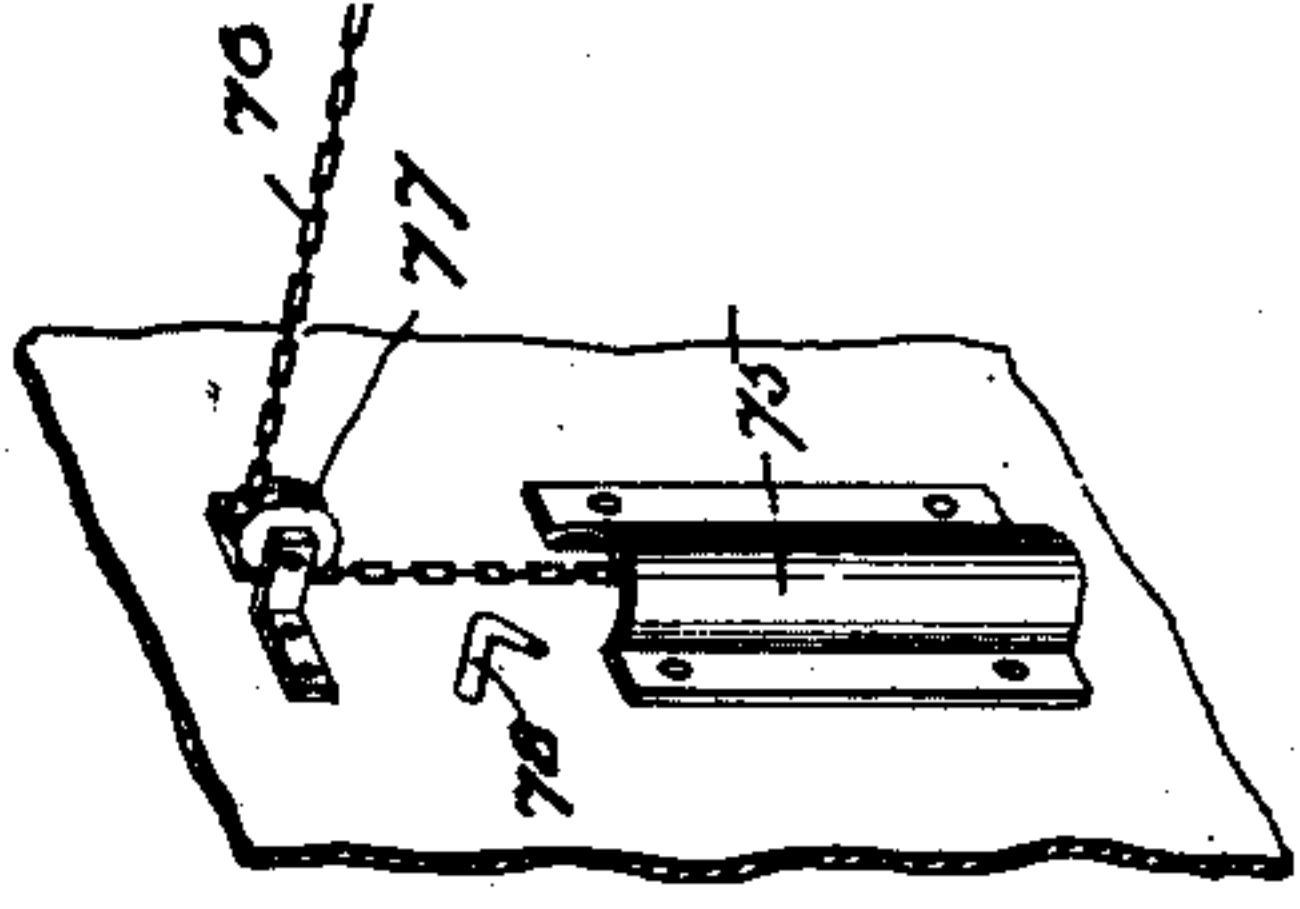


Fig. 3

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Att'ys



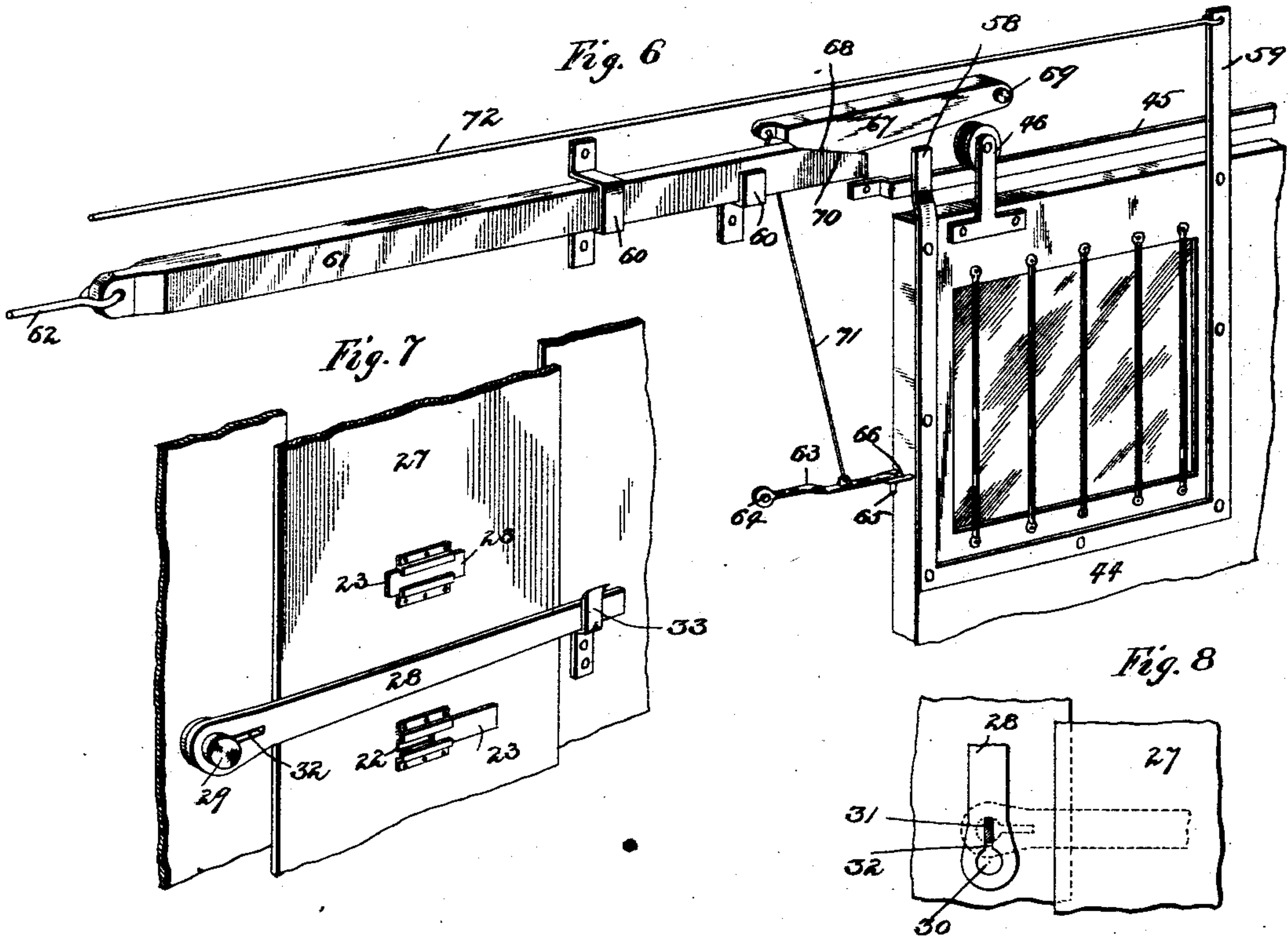
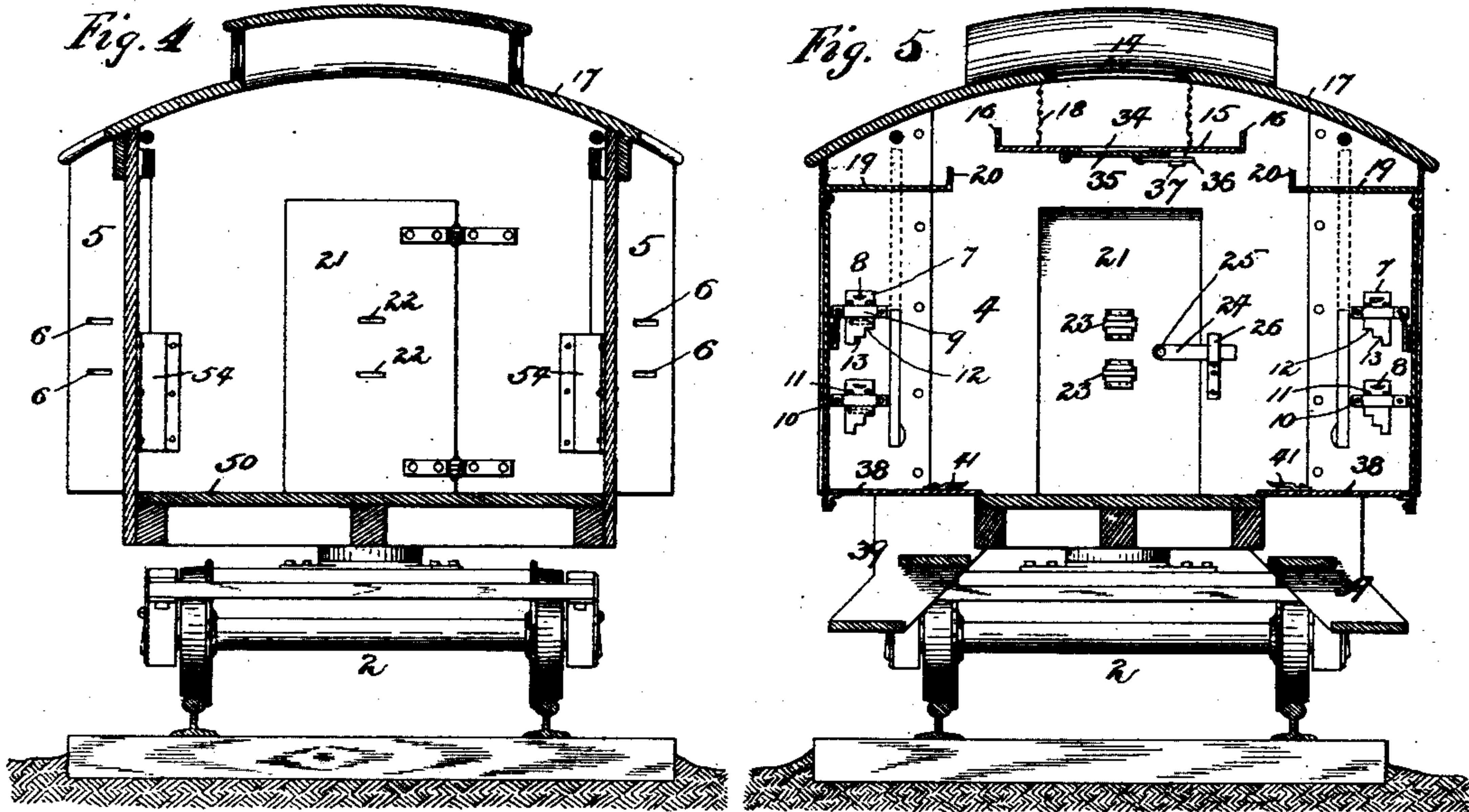
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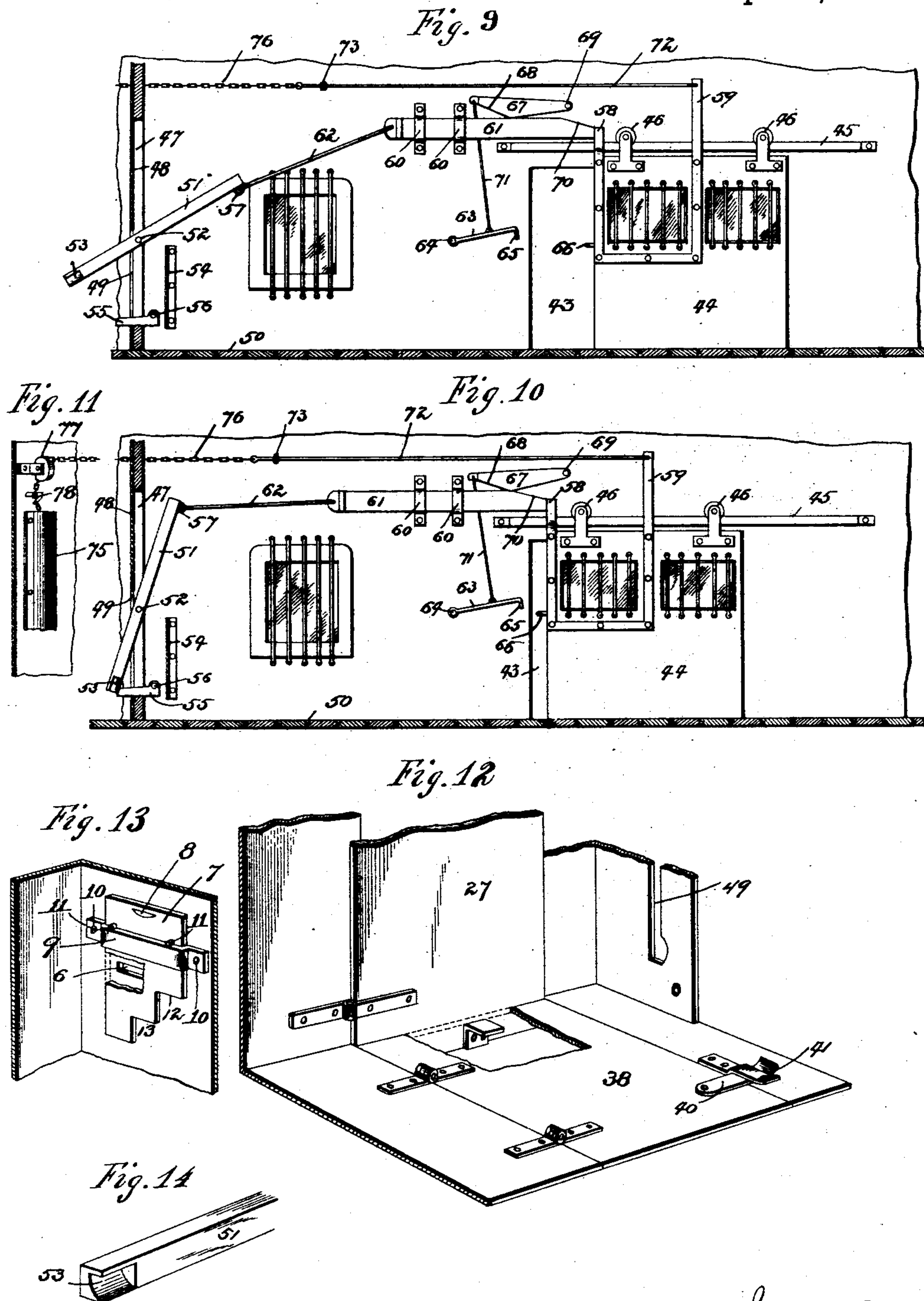
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# UNITED STATES PATENT OFFICE.

BERNARD J. TEGETHOFF, OF ST. LOUIS, MISSOURI.

## SAFETY EXPRESS-CAR.

SPECIFICATION forming part of Letters Patent No. 525,634, dated September 4, 1894.

Application filed May 15, 1893. Serial No. 474,240. (No model.)

*To all whom it may concern:*

Be it known that I, BERNARD J. TEGETHOFF, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Safety Express-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to safety express cars, and it consists in the novel construction, combination and arrangement of parts hereinafter specified and designated in the claims.

The object of my invention is to provide a novel construction in express cars, mail cars or other vehicles in which treasure or valuables are to be transported, whereby robbers and others may be effectually foiled in their intent to surreptitiously take and carry away the treasure or valuables contained in said cars or vehicles, and be punished by the authorized person or persons in charge of the same.

In the drawings: Figure 1 is a sectional side elevation of an express car constructed in accordance with my invention, the section being taken on the line A—A of Fig. 2. Fig. 2 is a sectional plan view of same with parts broken away, taken on the line B—B of Fig. 1. Fig. 3 is a detail view in perspective of a portion of the outer side wall of a metallic chamber, with a safety-device applied thereto. Fig. 4 is a sectional end elevation taken on the line C—C of Fig. 1, and looking at the door of the metallic chamber which opens upon the interior of the car. Fig. 5 is a similar view looking at the opposite side of said door. Fig. 6 is a detail view in perspective of mechanism for operating and locking the side doors of the car. Fig. 7 is a detail view in perspective of portions of one end of the metallic chamber, showing the locking devices upon the inner side thereof. Fig. 8 is a sectional detail elevation of the same with parts broken away. Fig. 9 is a sectional side elevation taken on the line A—A of Fig. 2, and showing the operation of the mechanism for opening and locking the side doors of the car, with parts broken away. Fig. 10 is a similar view with the parts in a different position. Fig. 11 is a continuation of Fig. 10. Fig. 12 is a detail view in perspective, showing portions of the interior of the metallic chamber.

Fig. 13 is a similar detail view showing the construction of the peep or loop-holes and the slides which cover them. Fig. 14 is a detail view in perspective, showing the hand-hold at the lower end of the rock-levers at the end of the car.

1 indicates the body of the car or other vehicle, which is provided with the usual running gear and trucks 2 and with the usual platform 3 at one end. The construction of this car or vehicle, aside from my improvements, is of the usual kind.

4 indicates a metallic compartment or a safety inclosure, which has its top, bottom and sides or walls constructed of heavy boiler plate or sheet metal. This metallic compartment is preferably located on the car or vehicle in the position usually occupied by one of the end platforms, although it may be located in any position upon the car or vehicle. The metallic compartment extends from the floor of the car upward to the roof thereof, but its horizontal length is preferably greatly in excess of its width with its body provided with extensions 5 which project a distance beyond the sides of the car, and the sides of said extensions which are adjacent the sides of the car are provided with one or more loop or peep-holes 6 which may be closed or opened at the pleasure of the operator from the interior only of said metallic compartment, by means of vertical slides 7 which are provided with a suitable hand-hold 8 and are supported in position over said loop or peep-holes by means of metallic straps 9 which embrace the inner side of said slides and have their ends secured to the inner wall of said extensions by means of rivets 10 or other fastening devices.

The loop or peep-holes 6 are preferably in the form of horizontal slots having a length considerably of a number of times in excess of their width, and the slides 7 are normally supported to cover said holes or slots and project a distance beyond both their ends and sides. The slides move vertically and they are limited in their downward movement by means of pins 11 or other projections upon their inner faces coming in contact with the upper edge of the metallic straps 9. These slides retain their normal position over the holes by the action of gravity. The upper



portion of each slide 7 is sufficiently wide to cover the slots or holes, but the lower portion is cut away or narrowed at 12 and still further narrowed at 13, so that the operator may  
 5 elevate the slide a certain distance and uncover a portion of a slot to form a small peep-hole, or he may elevate said slide still further and uncover a greater portion of a slot, or he  
 10 may elevate said slide still further and uncover all of a slot or hole, for a purpose hereinafter mentioned.

The metallic chamber is entirely devoid of windows with the exception of a skylight 14 formed in the top or roof, but this is not ab-  
 15 solutely essential, and in case it is made use of, I provide immediately beneath it a metallic platform 15 having vertical side flanges 16, the upper edges of which project a distance above the upper surface of said metallic platform. The upper edges of the flanges  
 20 16 are located so near to the roof 17 of the metallic compartment as to leave such a small space that it will be impossible for the body of a man to pass through said space.

18 indicates strong wire netting, or a netting made of metallic rods placed vertically upon each side of the skylight 14 beneath the same and connecting with the metallic platform 15 and with the roof of the car, so as to  
 25 prevent entrance of a robber by way of the skylight through the metallic compartment, and also to prevent the passage of bullets which may be discharged downward through said skylight by robbers climbing upon the  
 30 roof of the car. Even if bullets should pass through the netting 18 they would strike the vertical flanges 16 and be intercepted in most cases, but should they pass above said flanges they could not harm the occupant of the metallic compartment, because they would be  
 35 intercepted by horizontal metallic platforms 19 located one upon each side of said platform 15 at a slight distance below the plane thereof. The platforms 19 have their outer  
 40 edges secured to the ends of the compartment so that their inner edges are free. Vertical flanges 20 are formed upon the free inner edges of said platforms 19 and project a distance above the upper surface thereof, so  
 45 as to act as a shield in intercepting glancing bullets or missiles.

Communication between the interior of the car and the metallic chamber is had by way of a door 21, which is preferably made of  
 50 metal and provided with strong hinges upon the exterior of the said chamber, so as to open outward with relation to said chamber. Cut in this door are peep- or loop-holes 22 which are covered by slides 23 located upon the interior of said chamber. The door 21 is locked  
 55 or secured also upon the interior of said chamber, by means of a suitable bar or latch 24 pivoted at 25 to the door and engaging a keeper 26 upon the interior of said chamber.  
 60 The ends of said chamber are also provided with doors 27, constructed of metal or other bullet proof material, and which are provided

with strong hinges and arranged to open inward. The doors 27 are also provided with  
 70 peep or loop-holes 22 which are identical with the peep or loop-holes formed in the door 21.

The doors 27 are barricaded by means of peculiar bars 28, which are of such length as to extend entirely across said doors and permit their ends to project a distance beyond  
 75 the door openings. (See Figs. 7 and 8.) One end of the bars 28 is pivoted upon a headed bolt or stud 29. The perforation 30 in each bar engages the body of the bolt, but the size of this perforation will not permit it to pass  
 80 over the head of said bolt.

The body of the bolt is provided with a flattened portion 31 which is engaged by the aperture in the bar so as to permit the bar to be swung upward to a vertical position in the  
 85 manner shown in Fig. 8 when it is desired to open the door. For holding the bar elevated in this manner, it is provided with a slot 32 which extends longitudinally of the bar with one of its ends communicating with the aper-  
 90 ture 30 therein. The width of this slot is such that when the bar 28 is elevated to the position just described it will gravitate downward until the slot 32 is engaged by the flattened portion 31 of the bolt, and said bar will thereby  
 95 be held in such position.

When the doors 27 are to be closed and locked, the bars 28 are removed from the position indicated in Fig. 8 by elevating them a  
 100 slight distance until the flattened portions 31 of the bolts 29 are disengaged from said slots, when said bars 28 may be turned down and dropped behind a keeper 33 having a free upper end and secured upon the interior of the  
 105 metallic chamber upon the sides of the door openings which are opposite the headed bolts 29, thereby securely barricading the doors.

In some cases I find it is desirable that the occupant of the chamber make his escape therefrom secretly, and in such cases he may do so  
 110 by way of a door opening 34 formed in the metallic platform 15 in the top of the said chamber, whence he may pass out through the skylight. This door opening 34 is closed by a door 35 which is provided with hinges at one  
 115 edge and a latch or bolt 36 and a keeper 37 at the opposite edge, so as to open inward and be controlled from the interior of said chamber. In other cases, the occupant may  
 120 desire to make a secret exit by way of trap doors 38 made of metal and located one above each of the car-steps 39 beneath the metallic-chamber. The doors 38 also open inward and are provided with the usual hinges and latch  
 125 40 and keeper 41, upon the interior of the chamber.

The outer side of the metallic chamber is provided with a metallic door 42 which is provided with the usual hinged latch and  
 130 keeper, so as to open inward and be controlled from the interior of said chamber. The hinges and barricading devices upon this door may be identical with those located upon the door 21 or the doors 27. It will be



observed that the doors 21 and 42 are opposite, so that if necessary, while the train is running, a clear passage way may be provided from the platform of the next adjacent car through the metallic chamber and into the express car.

The car or vehicle is provided with the usual opposite door openings 43 in its sides which are closed by the sliding doors 44 suspended from a horizontal strap 45 by means of hangers 46.

By my invention I provide an improved mechanism whereby each of these doors may be opened and closed from the interior of the metallic chamber.

As the mechanism for operating each door is identical I will limit my description in a corresponding manner.

Formed in the end of the car on each side of the door 21 is a vertical slot 47, and formed in the inner side wall 48 of the metallic chamber on either side of the door 21 is a vertical slot 49, having a length considerably less than that of the slots 47. The slots 47 and 49 on each side of said door register or communicate.

The lower ends of the short slots 49 and the lower ends of the slots 47 terminate at a point some distance above the floor 50 of the car.

A vertical rock lever 51 is pivotally mounted at 52 intermediate of its length in the slot 47, so that when its upper end is thrown into the position shown in Figs. 9 and 10 its lower end will pass through the slot 49 and project within the metallic chamber. The lower portion of this lever is provided with a suitable hand hold 53, by means of which the operator may rock said lever during operation. The lower end of the lever 51 and the slot 49 are protected by means of a metallic casing 54 which is substantially L-shaped in cross section and is arranged with vertical flanges which are securely riveted or bolted to the side of the car and the end thereof. The walls of said casing 54 are separated a distance from the slot in the end of the car, so as to leave a space, and in this space a dog 55 is pivoted at 56 to the side of the car so as to automatically drop downward and retain the lever 51 in the position shown in Fig. 10, for a purpose hereinafter mentioned.

The upper portion of the lever 51 is provided with a strong eye or staple 57. Firmly secured upon the inner surface of the door 44 are two vertical bars 58 and 59, the bar 58 being preferably located adjacent the edge of the door which is nearest the metallic chamber. The upper end of the bar 58 projects a distance above the track 45, while the upper end of the bar 59 projects a distance above the end of the bar 58.

Loosely mounted upon the inner side of the car so as to slide in straps or brackets 60 is a stout horizontal bar 61, which is mounted above the plane of the door so that its inner end will be free and loosely engage the bar 58 at a point adjacent the upper end thereof.

The end of the horizontal bar which is next adjacent the metallic chamber is connected to the eye or staple 57 carried by the rock-bar 51, by means of a connecting-rod 62.

The door 44 is adapted to be locked and unlocked by means of a latch 63 pivoted at 64 to the side of the car and provided with a downwardly projecting end 65 which is adapted to engage an eye or staple 66 carried by the edge of the door.

67 indicates a bar having an inclined lower edge 68 and pivotally attached at 69 to the side of the car so that its free end will project above the bar 61, and engage an incline 70 formed upon the upper edge of said bar 61. The free end of the pivoted bar 67 is connected to the latch 63, at a point intermediate of the ends of said latch, by means of a connecting-rod 71. The normal position of these parts is that in which they are shown in Fig. 1.

For closing the door and locking same from the interior of the metallic chamber I have provided a horizontal rod 72, the inner end of which is connected to the upper portion of the long vertical bar 59 carried by the door, and this rod extends along the side of the car to a point adjacent the metallic chamber, being supported loosely by eyes or other suitable devices 73.

The door 44 is normally held closed by means of a counterbalance or weight 74 sliding loosely in a vertical metallic chamber 75 which is secured to the outer wall of the metallic safety inclosure or chamber 4. The chamber 75 in which the weight 74 is mounted, acts as a guide for said weight during the movement of the same. The upper end of the chamber 75 is open.

A chain, rope or cable 76 has one of its ends connected to the free end of the horizontal rod 72 and its opposite end connected to the weight 74, said chain, rope or cable passing over a pulley 77 or roller secured to the side of the safety chamber at a point directly above the open upper end of the guide-chamber for said weight.

Projecting from the wall of the metallic safety-chamber 4 just beneath the pulley or roller 77 is a hook or similar device 78, the purpose of which appears further on.

The operation is as follows: Premising that the vehicle is an express-car, should a robber's signal be given, the express-messenger will immediately retire to the metallic safety chamber 4, the parts being in normal position shown in Fig. 1. Then the messenger should bar the door 21, and all the doors leading into said chamber, in which case it is apparent that the messenger will be entirely safe from intrusion. Prior to entering the safety-chamber, however, the messenger should lock his safe, or remove the valuables therefrom to said safety-chamber. He may then open the side doors 44 of the car by taking hold of the hand-holds 53 of the levers 51 and pulling the lower ends of said levers



inward a short distance until the dogs 55 drop downward to the position shown in Fig. 10. The door will then be opened but a slight distance the horizontal bar 61 having been moved toward the door and its incline 70 has come in contact with the incline 68 of the pivoted bar 67 and has elevated the free end of said bar also the connecting rod 71 and the free end of the door latch 63 and has thereby disengaged the hook 65 of said latch from the eye or staple 66 of the door 44, thereby unlocking the door. And as the movement of said bar 61 has continued, its free end has come in contact with the projecting upper portion of the short vertical bar 28 on said door, and has pushed the door open to the position indicated in Fig. 10. The door may be locked in this position, so as not to be either closed or further opened by the robber or robbers upon the outside of the car, by twisting or securing the chain about the hook 78 in the safety-chamber, said hook preventing the door from being further opened, and the dog 55 preventing the door from being closed. The messenger, with door 44 in this partially opened position, may come out of the safety-chamber and peep or fire shots at the robbers through the partially opened door 44, and again return to the said safety-chamber. Or the messenger may again secure himself within the safety-chamber and by means of the hand holds 53 in the rock-bars 51, he may throw the doors 44, or either of them, further open as shown in Fig. 9, and thereby permit the robbers to enter the car, and then he may quickly close said door or doors 44 and capture the robbers in the car, by simply releasing the chain 76 from the hook 78, the weight 74 quickly drawing the door to the normal closed position and returning all the parts to normal positions, as shown in Fig. 1, and before the robbers have had time to destroy or release the fastenings of the door, the messenger may uncover the loop holes 22 in the door 21 and fire upon and kill the robbers contained within the car, if he so desires, or the messenger may capture the robbers alive by making his exit through any one of the doors 27, 35 or 38 and securing help for the purpose of making the capture alive.

From the above it will be readily perceived that the express messenger, when he retires to the safety-chamber 4, has full command of both the interior of the car and the exterior of the same, and by the secure construction of said safety chamber he is perfectly secure from being shot or otherwise molested by the robbers whether they be located without or within said car.

By means of the extensions 5 of the safety-chamber projecting outward beyond the sides of the car, the express messenger or other authorized party within the said chamber, may have perfect command of both sides of

the car, and may peep or fire through the loop-holes 6 in the walls of said extensions, and thereby kill or maim the robbers while they are yet upon the outside of the car.

What I claim is—

1. In combination with an express car, a rectangular inclosure located upon the platform of said car, and the length thereof in excess of the width of the car so as to form projections beyond the sides of the car, and that portion of the projections which extend at right angles with the sides of the car provided with a series of loopholes, a plate having a door therein connected to the lower edge of the inclosure adjacent each end thereof, which covers the space over the steps, and the door therein, in connection with the door in the adjacent end of the inclosure, allowing admittance to the inclosure when the car is at a station, and means for locking said doors when the car is on the road, substantially as set forth.

2. In a device for opening and automatically closing the side-doors of the burglar proof express car herein described, a bar connected to the inner side of each of said doors and projecting a distance above the upper end thereof, a rod 72 connected to the upper projecting end of said bar and extending toward and terminating a distance back from the end of the car upon which the inclosure is located, a chain 76 connected to the free end of said rod and extending through an aperture formed in the side of the car and across the inclosure adjacent the roof thereof, thence over a pulley 77, which is connected to the side of the inclosure, and thence downward into a metallic chamber 75, the lower end of said chain being constructed with a weight, a lever 51 fulcrumed at 52 in a vertical opening in the end of the car adjacent the inclosure, a rod 62 connected to the upper end of said lever and connected to a sliding-bar 61 which is mounted in suitable brackets 60 connected to the side of the car, a bar 67 pivoted at 69 having an incline 70, which is constructed to be engaged by the incline 68 of the bar 61, and a rod 71 connected to the free end of the bar 67 and connected to a hook 63 which is pivoted at 64 to the side of the car, said hook constructed to engage an eye 66 carried by the door for retaining said door in a closed position, all arranged to operate in the manner substantially as herein specified.

3. In combination with an express car having an opening in which a sky-light 14 is constructed in the hood thereof, a rectangular inclosure having an open side and doors in its ends and floor, a platform 19 connected to each of the ends and projecting inward therefrom in horizontal alignment with each other, a vertical projection 20 formed on the inner end of each of said platforms, a platform 15 having an opening 34 and vertical projections 16, located within the inclosure and trans-



versely thereof beneath the sky-light and  
above the horizontal plane of the platforms  
19, a door 35 hinged to the under side of said  
platform for closing the opening therein,  
5 means for retaining said door in a closed posi-  
tion, and wire-netting 18, one edge connected  
to the under side of the hood adjacent each  
side of the sky-light, and the lower edge con-

nected to the upper surface of the platform  
15, substantially as herein specified. 10

In testimony whereof I affix my signature in  
presence of two witnesses.

BERNARD J. TEGETHOFF.

Witnesses:

E. E. LONGAN,  
JNO. C. HIGDON.