(No Model.) 2 Sheets—Sheet 1.

J. T. RAILSBACK.

CAR COUPLING.

No. 475,796. Patented May 31, 1892.

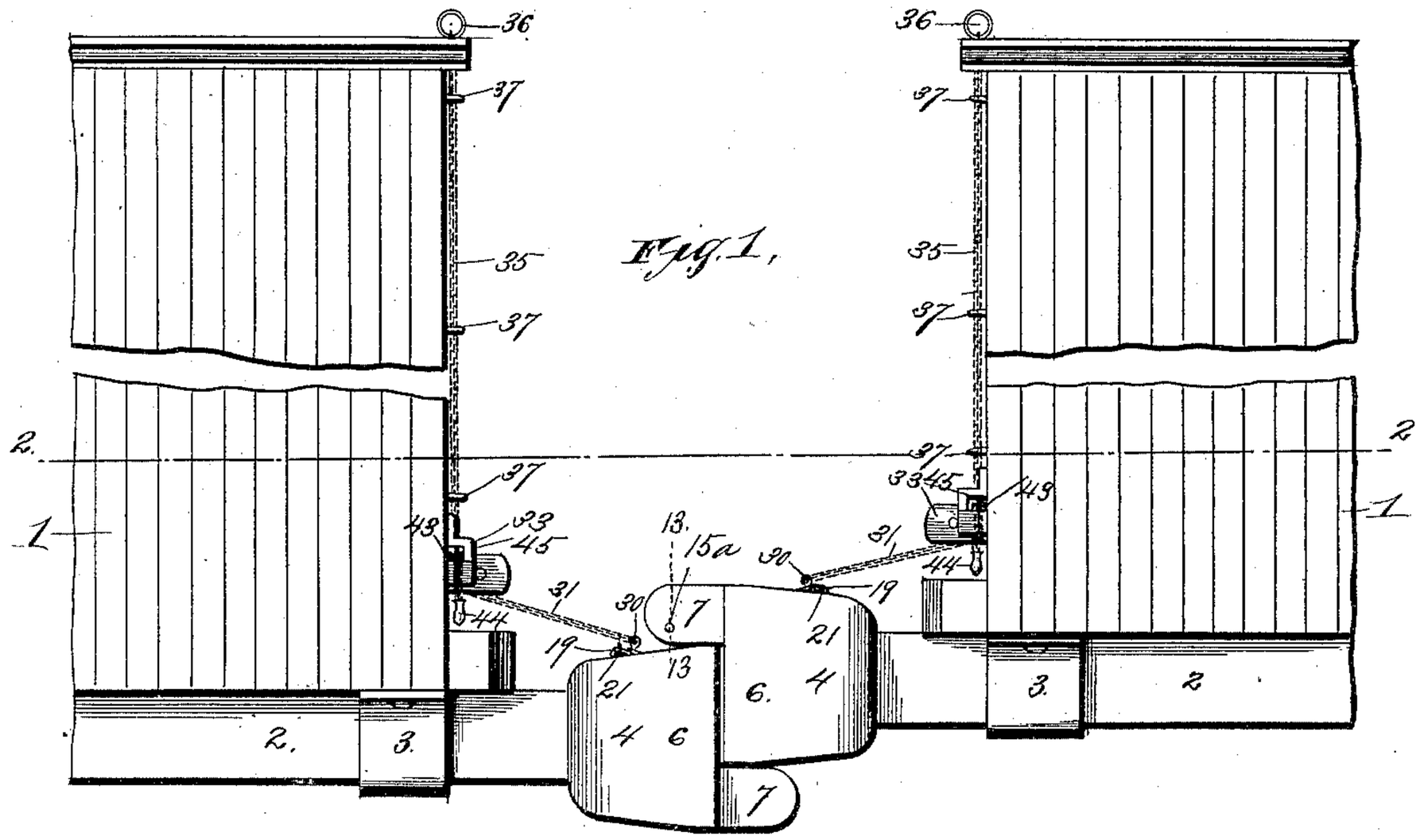

Fig. 1.

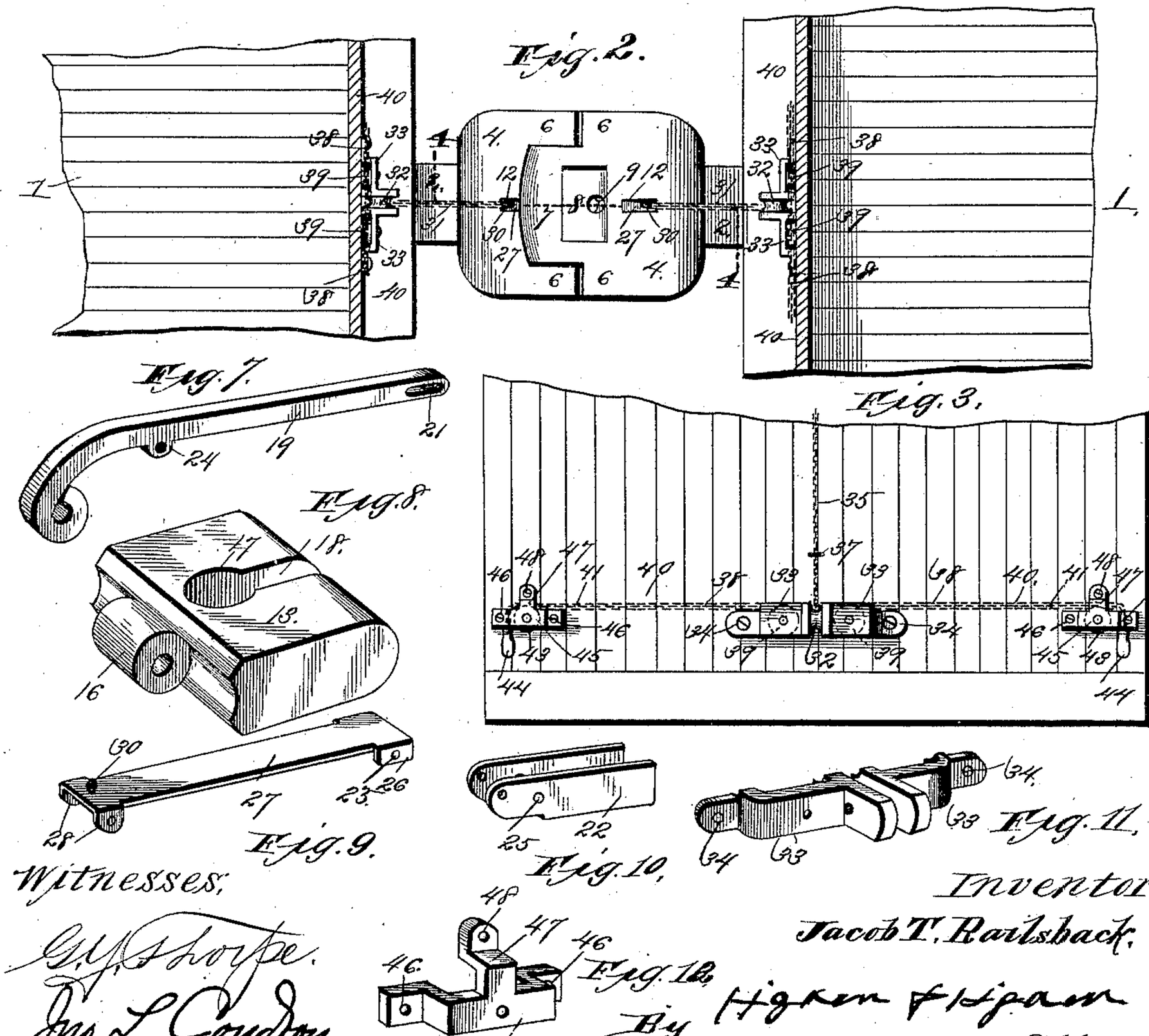

Fig. 2.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 3.

Fig. 10.

Fig. 11.

Fig. 12.

Witnesses:

G. H. Sharpe.

Jno. L. Condon

Inventor,

Jacob T. Railsback.

By Higdon & Higdon

Atty's.

(No Model.) 2 Sheets—Sheet 2.

J. T. RAILSBACK.

CAR COUPLING.

No. 475,796. Patented May 31, 1892.

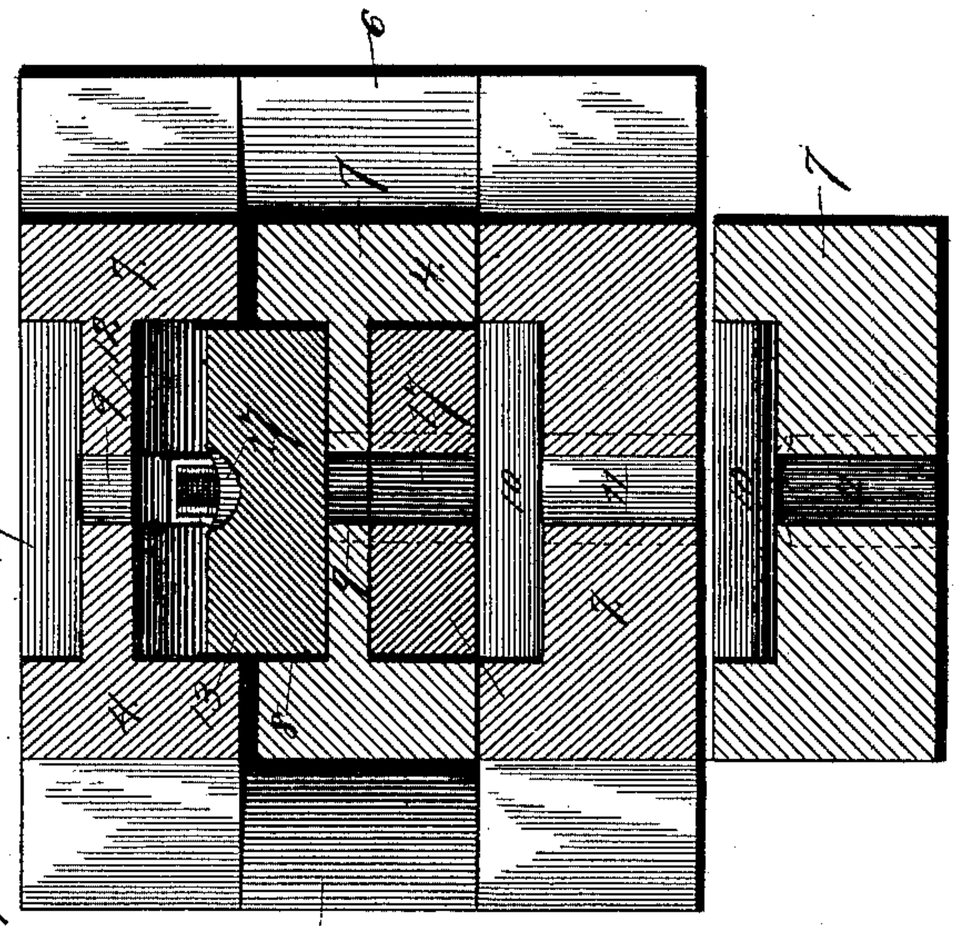

Fig. 5.

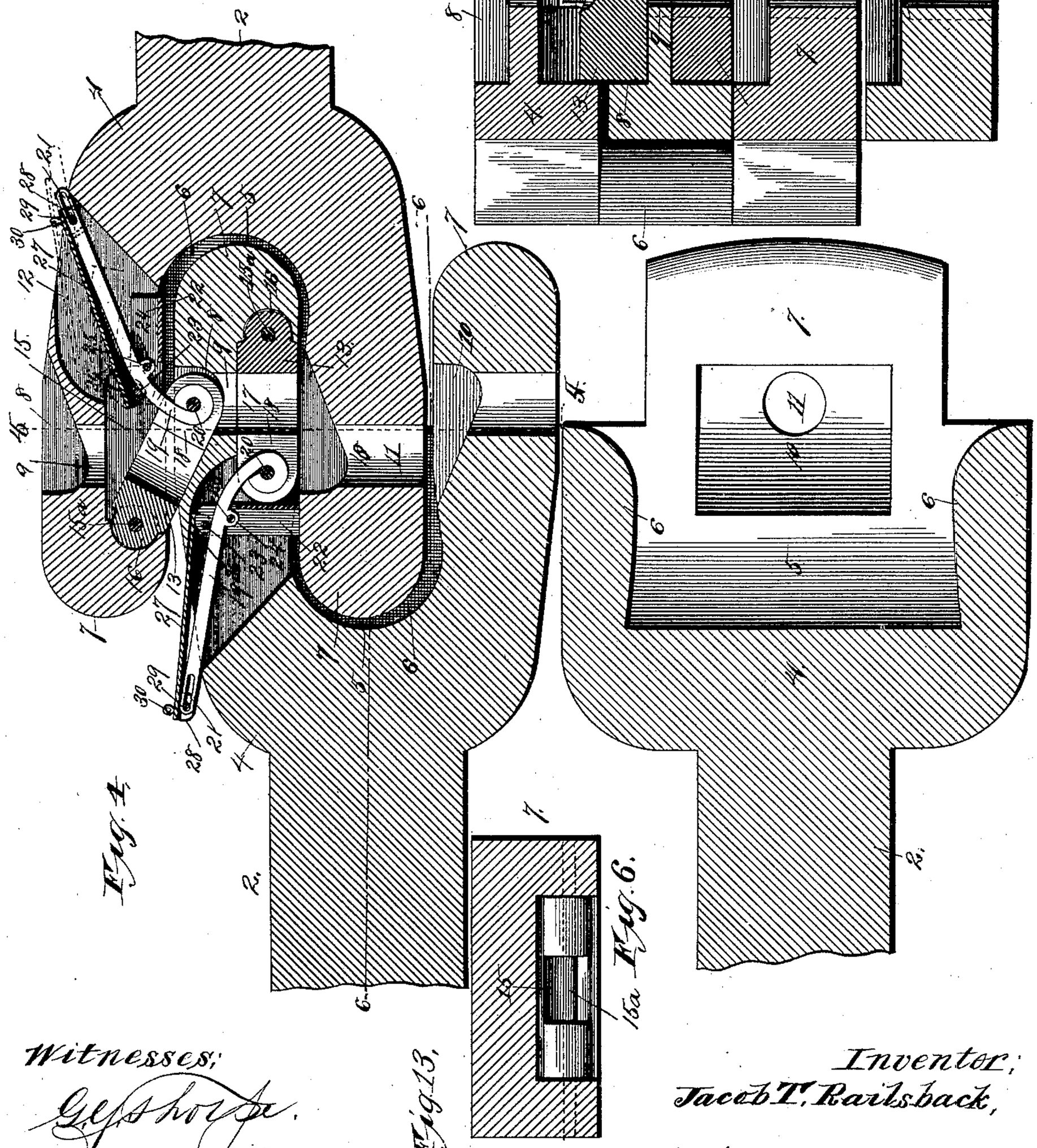

Fig. 4.

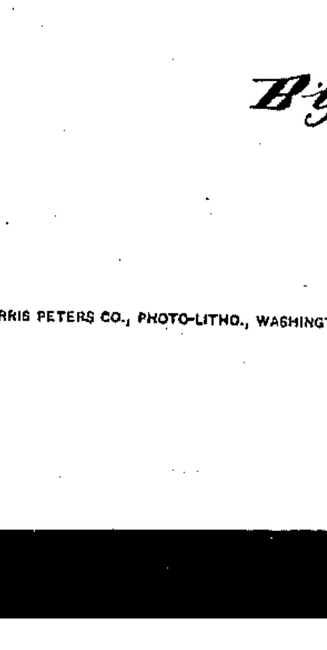

Fig. 6.

Witnesses;
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Fig. 13.

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UNITED STATES PATENT OFFICE.

JACOB T. RAILSBACK, OF KANSAS CITY, KANSAS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 475,796, dated May 31, 1892.

Application filed February 19, 1892. Serial No. 422,074. (No model.)

To all whom it may concern:

Be it known that I, JACOB T. RAILSBACK, of Kansas City, Wyandotte county, Kansas, have invented certain new and useful Improvements in Automatic Car-Couplings, 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 couplings for connecting railway-cars together to form trains, for connecting railway locomotive-engines to such cars or trains, and for connecting various types of railway-vehicles together.

The objects of my invention are to produce a car-coupling which shall be simple, strong, durable, and comparatively inexpensive in construction and adapted for application to both passenger and freight cars of all kinds and to all kinds of locomotives, and which shall automatically secure the cars in coupled condition and be readily operated to uncouple such cars when desired. Furthermore, to produce a railway car-coupling which shall be so constructed that it cannot be accidentally uncoupled by derailment of the cars or other vehicles.

To the above purposes my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a side elevation of two railway-cars provided with my automatic couplings. Fig. 2 is a horizontal section of the same on the line 2 2 of Fig. 1. Fig. 3 is an end elevation of one of the cars, the coupling being removed and showing the operative connections for the coupling. Fig. 4 is a vertical longitudinal section of the couplings on the line 4 4 of Fig. 2. Fig. 5 is a transverse vertical section of one of the coupling-heads on the line 5 5 of Fig. 4. Fig. 6 is a horizontal section of one of the coupling-heads on the line 6 6 of Fig. 4. Figs. 7, 8, 9, 10, 11, and 12 are detached perspective views of certain details of construction hereinafter described. Fig. 13 is a transverse vertical section of the same on the line 13 13 of Fig. 1, the gravity-catch being removed.

Previous to my present invention railway-car couplings have been principally defective in being of what is known as the "vertical" type, the construction being such that in case of derailment the two coupling-heads can glide vertically past each other and be thus uncoupled or disconnected from each other. As will be seen from the ensuing description, I have produced a coupling which may be termed a "horizontal" type of coupling, and which is so constructed that the coupling-heads cannot possibly pass each other vertically in case of derailment or other accident. It will be further seen that I have produced an automatic coupling mechanism which operates entirely by gravity and the weight of the operative parts of which tends to retain the couplings in connected position and which cannot be easily disordered or otherwise destructively tampered with.

Referring to the drawings, 1 designates the bodies of two railway-cars, said cars being shown as of the "box" type; but it is to be understood that the cars may be of the passenger, baggage, or of any type of freight-cars without departing from the essential spirit of my invention.

2 designates the draw-bars of the cars, the said draw-bars being of the usual or any preferred type and being shown as supported beneath the ends of the cars by suitable brackets 3. The outer end of each draw-bar 2 is formed or otherwise provided with a coupling-head 4, the said coupling-head being in the form of a single metal casting, as shown. Each of these coupling-heads is formed with a horizontal cavity or mouth 5, the inner wall of which is preferably of concave form, as shown. At each side this cavity is closed by a vertical wall 6 and at its top and bottom the head is formed with two horizontal outwardly-projecting jaws 7. The upper side of the upper jaw is formed with a depression or cavity 8, through the center of which extends a vertical channel 9 for the reception of an ordinary coupling-pin, the bottom of the cavity extending obliquely downward and outward and the said channel communicating at its lower end with the cavity or mouth of the draw-head. The upper side of the lower jaw 7 is formed with a cavity 10, the bottom of which extends obliquely downward and out-

ward and from the middle of which leads a vertical channel 11, which passes through the said lower jaw and which serves to receive the lower part of the usual coupling-pin. Through the upper jaw of the coupling-head is also formed an opening 12, which is located back of the channel 9 and recess 8, above described, and the purpose of which opening will be hereinafter explained.

13 designates a catch, which is shown as of approximately-rectangular form and which at its front end is pivoted in the front part of the recess 15, which is formed in the upper side of the upper jaw of the draw-head by a pivot-pin 15, which passes transversely through the said jaw and also through an extension 16 of the said catch. This catch is also formed about midway of its length with a vertical channel to receive the usual coupling-pin, and from this channel opens forwardly a second channel 18. In this channel is pivoted a lifting-bar 19, the front end of which embraces a transverse pivot-pin 20, which passes horizontally through the rear end of the catch. This lifting-bar extends through the opening 12, and at its upper or rear end said bar is provided with a longitudinal slot 21, for a purpose to be hereinafter explained.

Within the opening 12 is located a gravity-dog 22, which is of elongated form and which is of approximately U shape in cross-section, the said dog having a central or body portion and two oppositely-disposed longitudinal flanges at its sides. Through the upper ends of these two flanges extends a longitudinal pivot-pin 23, which passes, also, transversely through the upper jaw of the coupling-head. Near its lower end the lifting-bar 19 is formed with an offset 24, through which extends a pivot-pin 25, said pin passing, also, transversely through the flanges of the dog 22 at a point near their pivot 23. This pin 25 passes to one side of and somewhat below the pivot-pin 23, before described, the arrangement being such that the weight of the lifting-lever shall constantly tend to depress the outer or free end of the dog 22. The pivot-pin 23 of the dog 22 passes, also, through two lugs 26, which are formed on opposite sides of the front end of a lifting-link 27. This link 27 is of elongated form, and its rear end is formed with two oppositely-disposed lugs 28, through which passes a transverse pin 29, which also passes through the slot 21 of the lifting-bar 19. To an eye 30 upon the rear end of the link 27 is connected one end of a chain 31 or other suitable flexible connection, which runs beneath a peripherally-grooved pulley 32 upon the front of the car-body. This pulley is journaled between the two outwardly-extending arms located at the inner ends of the two oppositely-disposed horizontal brackets 33, the said brackets being bolted or otherwise securely attached to the end of the car-body, as indicated at 34. The arms at the inner ends of the brackets 33 are preferably of such length as to extend beyond the periphery of the pulley 32, and thus protect said pulley against injury by contact with external objects. The chain or other flexible connection 31, after passing beneath the pulley 32, is extended upward along the end of the car-body, as shown at 35, and the upper end of this portion 35 reaches to the roof of the car, at which point it carries a ring 36 or other attachment, which can be readily grasped by the operator's hands, the said portion 35 preferably passing, also, through suitable eyebolts 37, which are secured to the end of the car-body. To the junction of the upper end of the flexible connection 31 with the lower end of the flexible connection 35 at a point just above the pulley 32 are connected the inner ends of two shorter chains or other suitable flexible connections 38, which pass over two peripherally-grooved pulleys 39, which are journaled in the lateral arms of the brackets 33, said flexible connections extending horizontally toward opposite sides of the end of the car-body. The outer ends of the flexible connections 38 are attached to the inner ends of two rods 40, which likewise extend outward toward the opposite sides of the end of the car-body. To the outer ends of the rods 40 are connected the inner ends of two short chains 41 or other suitable flexible connections 42, which pass over peripherally-grooved pulleys 43 at the front ends of the car-body near its sides, and each of which carries at its outer end a handle 44. The pulleys 43 are each journaled in a horizontal bracket 45, the body portion of which is of approximately U form, and which is bolted or otherwise suitably secured at its ends, as at 46, to the end of the car-body. Each of these brackets 45 is provided with an upwardly-extending arm 47, which is of approximately L form, and the upper end of which is bolted or otherwise suitably secured, as at 48, to the end of the car-body, said arm 47 serving to brace the brackets 45 from above. It is to be observed that while the sides of the pulleys 32 extend at right angles to the end of the car-body the sides of the pulleys 39 and 43 extend parallel with the ends of said car-body, or, in other words, at right angles to the pulleys 32, the several flexible connections being thus properly guided in their movements.

The operation of the above-described coupling is as follows: Normally when the coupling-heads are not connected the catches 13 are inclined obliquely downward and inward within the cavities of mouths of the coupling-heads, so that the lifting-bars 19 and lifting-links 27 are retained forwardly and downwardly within the openings 12 of the heads, the dogs 25 lying substantially horizontal. Now as the cars are brought together the upper jaw of one coupling-head enters the cavity or mouth of the opposite coupling-head, and this entering jaw is inclosed above and below by the upper and lower jaws of the companion coupling-head, and also at each side by the side walls 6 of said companion head, the

lower jaw of the last-named coupling-head being similarly surrounded by the jaws and side walls of the first-named coupling head. By virtue of this relative position of the parts, should one car be derailed the lowering of its coupling-head relative to the coupling-head of the succeeding car cannot possibly separate said heads, and the lateral swerving of the derailed car is also prevented by the side walls 6 from separating the two coupling-heads. The front or outer end of the entering upper jaw strikes the catch 13, tilting it inward and upward into approximately horizontal position and pushing the lifting-bars and links upward and rearward in their openings 12. The inner ends of the catches 13 drop into the cavities 8 and 10, and, owing to the fact that the bottoms of these cavities incline outward and downward, the inner ends of these catches rest automatically by gravity against the vertical shoulders which are located at the outer ends of the cavities, and said catches thus retain the heads 4 in connected or coupled condition.

When it is desired to uncouple the cars, the handles 44 are drawn down, or if the operator be upon the tops of the cars the rings 36 are drawn upward, thus lifting the bars 19 and links 27 upward and rearward in their openings 12, and consequently tilting the dogs 25 downward. In their downward movements the free ends of the dogs come into contact with the upper sides of the top and bottom jaws of the coupling-heads, and, owing to the fact that the pivotal connections of the lifting-bars 19 with the dogs 27 are eccentric to the pivotal connections of said dogs with the coupling-heads, the catches 13 will be raised out of the cavities 8 and 10, and the cars may be drawn apart.

It will be seen from the above description that I have produced an automatic car-coupling which is simple, durable, strong, and comparatively inexpensive in construction, which is adapted for application to railway-vehicles generally, which can be operated without requiring the entrance of the operator between the cars, and which absolutely prevents all possibility of accidental disconnection of the couplings in the event of derailment or similar accidents.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. An automatic car-coupling comprising a coupling-head having a horizontal lower jaw extending transversely of the head and projecting horizontally outward therefrom, and a horizontal upper jaw also extending transversely of the head and projecting horizontally outward therefrom, substantially as set forth.

2. An automatic car-coupling comprising a coupling-head having a horizontal lower jaw extending transversely of the head and projecting horizontally outward therefrom, a horizontal upper jaw also extending transversely of the head and projecting horizontally outward therefrom, and provided, further, with two vertical side walls, substantially as set forth.

3. An automatic car-coupling comprising a coupling-head, a catch pivotally secured in the upper part of the mouth or cavity of the head, and a lifting-bar pivotally connected to the said catch and extending upwardly and rearwardly through the coupling-head, substantially as set forth.

4. An automatic car-coupling comprising a coupling-head, a pivoted catch secured in the upper part of the mouth or cavity of said head, a lifting-bar secured pivotally to said catch and extending upwardly and rearwardly through the head, and a dog also pivoted within the upper part of the head and connected pivotally and eccentrically to the said lifting-bar, substantially as set forth.

5. An automatic car-coupling comprising a coupling-head, a catch pivoted in the upper part of the mouth or cavity of the head, a lifting-bar pivotally connected to said catch and extending upwardly and rearwardly through the head and also longitudinally slotted at its free end, a dog also pivoted within the upper part of the cavity or mouth of the coupling-head and connected pivotally and eccentrically to the lifting-bar, and a lifting-link also pivoted within the upper part of the mouth of the coupling-head and having at its free end a cross-pin extending through the slot of the lifting-bar, substantially as set forth.

6. An automatic car-coupling comprising a coupling-head having horizontal upper and lower jaws extending transversely of the head and provided on their upper sides with depressions or cavities, the bottoms of which are inclined downwardly and outwardly, substantially as set forth.

7. An automatic car-coupling comprising a coupling-head provided with horizontal upper and lower jaws extending transversely of the head and projecting outwardly therefrom and provided on their upper sides with cavities or depressions having forwardly and downwardly extending bottoms, and provided, also, with vertical channels leading from said cavities and through the jaws, substantially as set forth.

8. An automatic car-coupling comprising a coupling-head having horizontal upper and lower jaws extending transversely of the head and projecting outwardly therefrom, depressions or cavities formed in the upper sides of said jaws and having forwardly and downwardly inclined bottoms, vertical channels extending through said jaws, and a catch pivoted in the upper part of the mouth of the head, and having, also, an opening to register with said channels, substantially as set forth.

9. An automatic car-coupling comprising a coupling-head, a catch pivoted within said

head, a lifting-bar pivotally connected to said catch and extending upwardly and rearwardly through the head, brackets secured to the end of the car-body and carrying pulleys or wheels, and flexible connections leading from said lifting-bar over said pulleys and to the top and sides of the car, substantially as set forth.

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

JACOB T. RAILSBACK.

Witnesses;
H. E. PRICE,
JNO. L. CONDRON.