

(No Model.)

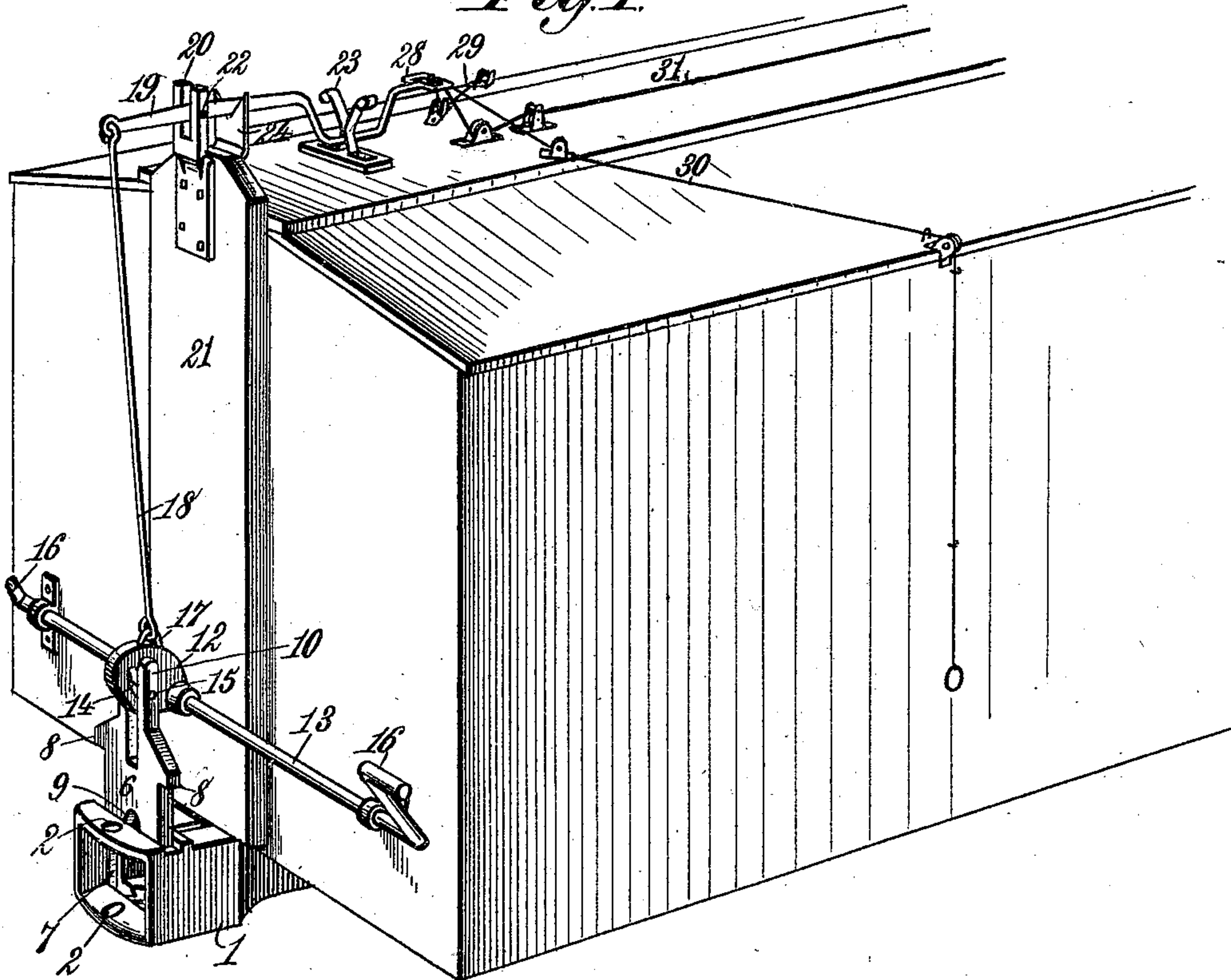
2 Sheets—Sheet 1.

J. W. COLBERT.  
CAR COUPLING.

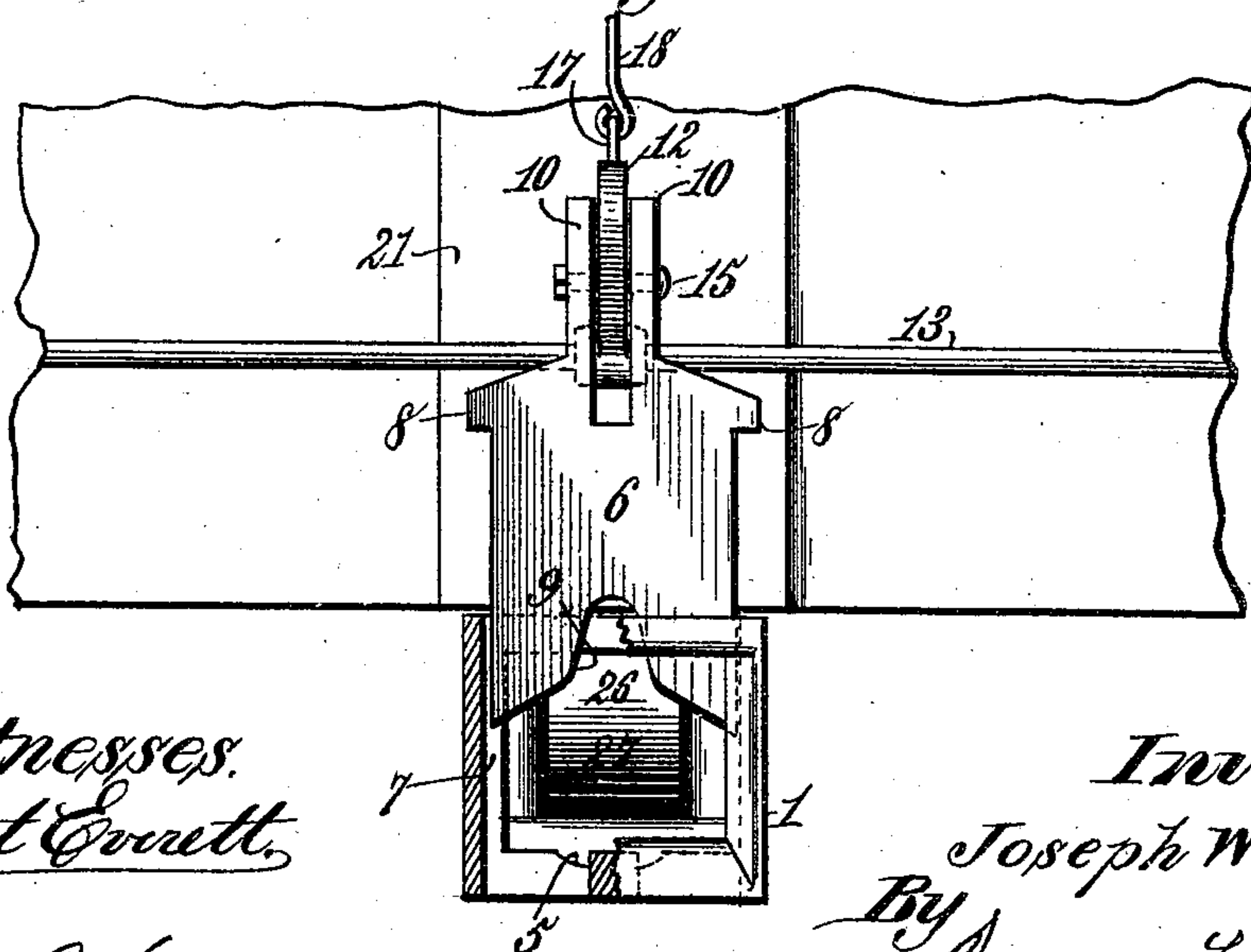
No. 555,430.

Patented Feb. 25, 1896.

*Fig. 1.*



*Fig. 2.*



Witnesses.  
*Robert Everett.*

*Thos. A. Green*

Inventor.

*Joseph W. Colbert.*

By *James L. Norris.*

*Atty.*

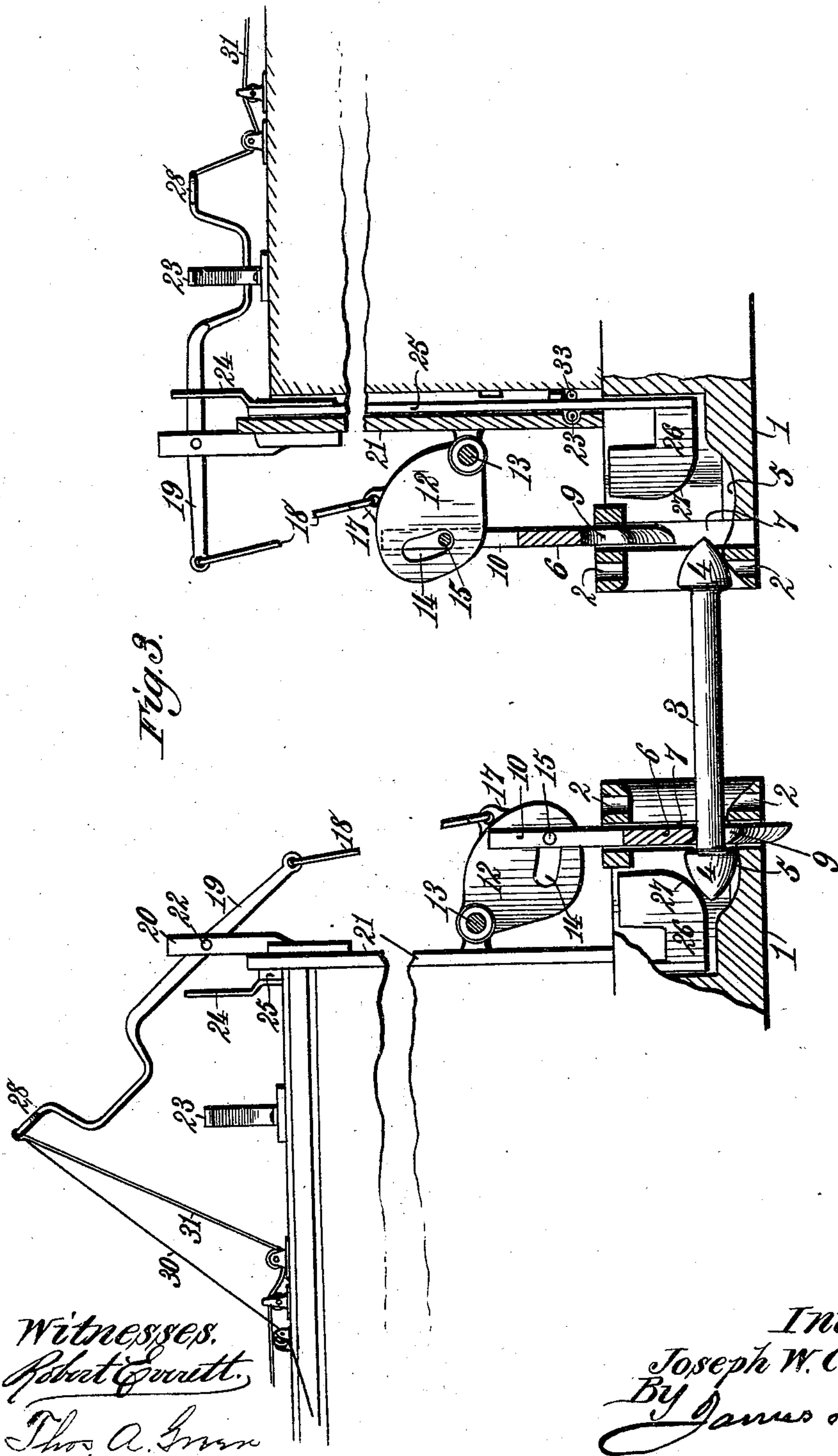
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2 Sheets—Sheet 2

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ANDREW B. GRAHAM. PHOTO-LITHO. WASHINGTON. D. C.



# UNITED STATES PATENT OFFICE.

JOSEPH W. COLBERT, OF FREDERICKSBURG, VIRGINIA, ASSIGNOR TO  
BETTIE ANN COLBERT, OF SAME PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 555,430, dated February 25, 1896.

Application filed January 8, 1896. Serial No. 574,686. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH WILLIAM COLBERT, a citizen of the United States, residing at Fredericksburg, in the county of Spottsylvania and State of Virginia, have invented new and useful Improvements in Automatic Car-Couplings, of which the following is a specification.

This invention relates to that class of car-couplings having vertically-sliding gates for engaging conoidal or hemispherical heads on the ends of coupling-pins in such manner that the cars automatically couple and are uncoupled by raising the gates through the medium of suitable levers.

The object of the present invention is to improve the prior construction of this class of car-couplings, and to provide a novel car-coupling and means for operating the same, whereby the cars will automatically couple and can be uncoupled by the engineer in the cab, or by the brakeman in the cars, or upon the tops thereof, or by a person standing on the ground at either side of the cars.

To accomplish this object my invention consists in the features of construction and the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a car provided with my improved coupling. Fig. 2 is a detail front elevation showing the draw-head in section, and Fig. 3 is a detail longitudinal sectional view of portions of two couplings embodying my invention and showing the position of the parts when two cars are about to come together.

In order to enable those skilled in the art to make and use my invention I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a draw-head, which may be of any ordinary or other construction suitable for the purpose and be provided, if desired, at its mouth with ordinary coupling-pin holes 2 for rendering the draw-head susceptible of use in connection with ordinary car-coupling links.

The coupling-pin 3 employed by me is con-

structed at each end with a conoidal, hemispherical or other similar-shaped head, which, when engaged with the draw-heads, rests in depressions 5 formed in the bottom walls of the draw-heads, as will be understood by reference to Fig. 3.

The device for engaging and releasing the head of the coupling-pin to couple and uncouple the cars is composed of a vertically-slidable gate 6, approximately rectangular in outline and having its vertical edges arranged in and guided by vertical grooves 7 formed in the opposite sides of the draw-head. The upper end of the gate is constructed with lateral shoulders 8, adapted to rest on top of the draw-head when the gate is lowered, and the lower end of the gate is constructed with an approximately V-shaped notch, the edges 9 of which slightly diverge for a portion of their length and then abruptly and widely diverge at a greater angle of inclination to the vertical edges of the gate, as will be best seen by reference to Fig. 2, the construction being such that when the gate is in its closed or lowered position the body of the coupling-pin will lie in the top portion of the approximately V-shaped notch, and the edges 9 of this notch will engage behind the base of the pin-head, thereby making a positive connection between the coupling-pin and the draw-head, which it is impossible to separate unless the gate 6 be intentionally raised by the brakeman or other person.

The upper end of the gate 6 is slotted to form two parallel ears or lugs 10, between which is arranged a cam-shaped head 12, pivotally mounted on the car-body through the medium of a shaft 13. The cam-shaped head 12 is constructed with a cam-shaped slot 14, through which passes a bolt or pin 15, which is secured to the ears or lugs 10 and extends from one to the other, thereby providing a pin-and-slot connection between the cam-shaped head and the gate for the purpose of enabling the latter to be raised whenever it is desired to uncouple the cars or to set the gate for the automatic coupling of the cars. The shaft 13 is mounted in suitable bearings secured to the end of the car-body, and the ends of this shaft are provided with cranks 16 or any other suit-



ably-shaped handles which are susceptible of being operated by a brakeman or other person standing on the ground at either side of the car.

5 The cam-shaped head 12 is provided on its upper edge with an eye 17, to which is loosely attached the lower end of a link 18, connected at its upper end to one end of a lever 19, fulcrumed in the slotted upper end of a bracket  
10 20 and overhanging the top of the car, as will be best understood by reference to Fig. 1. The slotted bracket 20 is secured to the upper end of a vertical board 21, mounted on the end of the car-body, and the slotted part of  
15 the bracket is provided with a fulcrum-pin, as at 22. The lever 19 has its fulcrum upon the pin 22, and when the lever is approximately horizontal, which is the position it occupies when the gate 6 is elevated, or set in  
20 position to automatically couple, the long arm or end portion of the lever is engaged by a spring-catch 23 and rests in a fork 24, located at a point between the fulcrum-pin 22 and the  
25 the upper end of a vertically-movable lever-releasing slide 25, arranged behind and covered by the board 21 and having its lower end extending into the draw-head and constructed with an angular head 26, having a beveled  
30 front face 27, against which the conoidal, hemispherical, or similar shaped head 4 of the coupling-pin 3 acts when the head of the pin enters the draw-head for the purpose of causing the slide 25 to rise, and thereby force  
35 the long arm of the lever 19 out of engagement with the spring-catch 23, whereupon the gate 6 will automatically descend by reason of the fact that the slotted cam-shaped head 12 is unsupported in its elevated position, and  
40 the weight of the gate and cam-shaped head causes them to fall by gravity, thus automatically coupling the cars.

In order to permit a comparatively short spring-catch 23 to be employed, the long arm  
45 of the lever 19 is constructed with a downwardly-bent portion 28, and to enable the long arm of said lever to be pulled downward and for uncoupling the cars I connect the bent end portion 28 of the lever with cables  
50 or cords 29, 30, and 31. The cords 29 and 30 pass over suitable pulleys or other guides mounted on the car-body and extend down the sides thereof, so that they can be manipulated by a brakeman or other person stand-  
55 ing within the car for uncoupling the cars from the inside of the car. The cable or cord 31 is designed to extend along the top of the car to the end thereof or to the engineer's cab, so that the engineer can uncouple the  
60 cars while standing in the cab.

The cable or cords 29, 30, and 31 are only intended to represent devices typical of many forms of devices which can be employed for moving the long arm of the lever 19 in a  
65 downward direction for the purpose of engaging it with the catch 23.

It will be obvious that when the long arm of the lever 19 is moved downward the cam-shaped head 12 is swung upward, and the gate 6 is elevated to set it in position for auto-  
70 matic coupling of the cars. When the gate is raised or set for automatic coupling, the beveled face 27 of the angular head 26 on the lower end of the slide 25 lies considerably below the notched lower end of the gate, so that  
75 when the head of the coupling-pin enters the draw-head it will strike the beveled face 27 of the head 26 and force the slide 25 in an upward direction, thereby forcibly disengaging the bent portion 28 of the long arm of the lever  
80 19 from the spring-catch 23. In my construction the head of the coupling-pin is so interlocked with the draw-head and the gate that the pin cannot accidentally uncouple, even though it be swung upward, or downward, or  
85 laterally.

The slide 25 is guided in any suitable manner at the rear of the vertical board 21, and I preferably reduce friction, incident to the vertical movements of the slide, by arranging  
90 it to move in contact with antifriction-rollers, as at 33, which may be mounted on the board 21 or arranged in any other manner suitable for the purpose stated.

The coupling-pin is of such construction  
95 and dimensions that it will fall out of a draw-head if the gate engaging the pin at one end is raised and the other end of the pin is unsupported or is not engaged with the draw-head of an adjacent car.  
100

It will be observed that in my invention the lever 19, which serves to operate the gate from the top of the car, is in operative connection with the cam-shaped head 12, mounted on the shaft 13, which latter enables the gate  
105 6 to be raised from either side of the car by a brakeman or a person standing on the ground. By this means it is possible to couple and uncouple, under all circumstances, without the necessity of the brakeman entering between  
110 the cars.

The draw-head will, in practice, be supported and made spring yielding in any ordinary or suitable manner; but as spring-yielding draw-heads of various construction are  
115 well known I do not deem it necessary to illustrate any particular arrangement of springs for enabling the draw-heads to yield when two cars come together.

In the drawings I have shown the link 18  
120 pivoted to or loosely connected with one end of the lever 19; but I do not confine myself to such connection of the parts.

In Fig. 3 of the drawings the coupling-pin is shown engaged with the draw-head of one  
125 car and about to enter a draw-head having its gate raised and set for automatic coupling. When the head of the coupling-pin enters the draw-head, the pin-head strikes the beveled face of the angular head on the lower  
130 end of the vertically-movable slide, thereby forcing the latter upwardly, so that the fork



on the upper end of the slide raises the long end of the lever 19 from engagement with the spring-catch, whereupon the gate 6 falls by gravity and the two cars are automatically coupled.

The cars can be uncoupled by the engineer through the medium of the cable or cord 31, or by a brakeman standing on the top of a car, or by a brakeman standing inside of a car and operating either of the cables or cords 29 and 30, or by a person standing on the ground at either side of the car and operating the shaft 13.

It will be obvious of course that the cars can be uncoupled by directly manipulating the lever 19 without the employment of the cables or cords.

Having thus described my invention, what I claim is—

1. The combination with a draw-head provided with a pin-engaging device, of a lever mounted at the top of the car-body, connections between one arm of the lever and the pin-engaging device, a catch for engaging the other arm of the lever, and a vertically-movable slide operated by a coupling-pin entering the draw-head and acting to disengage the lever from the catch, substantially as described.

2. The combination with a draw-head having a pin-engaging device, of a lever mounted at the top part of the car-body, connections between the lever and the pin-engaging device, a catch mounted on the top of the car for engaging the lever, and a vertically-movable slide having its upper end engaged with the lever, and its lower end provided with a head extending into the draw-head and adapted to be operated by an entering coupling-pin for raising the slide and thereby disengaging the lever from the said catch, substantially as described.

3. The combination with a draw-head having a pin-engaging device, of a bracket secured to the top of the car, a lever pivotally mounted in the bracket and overhanging the top of the car-body, connections between the lever and the pin-engaging device, a spring-catch arranged on the top of the car-body for engaging the lever, and a device operated by a coupling-pin entering the draw-head for disengaging the lever from the spring-catch, substantially as described.

4. The combination with a draw-head having a pin-engaging device, of a movable head mounted on the end of the car-body and having a loose connection with the pin-engaging device, a lever supported at the top of the car-body and connected with said movable head, and a catch for engaging the lever to support the movable head, and the pin-engaging device in an elevated position for automatic coupling, substantially as described.

5. The combination with a draw-head having a pin-engaging device, of a swinging head pivotally mounted on the end of the car-body and having a pin-and-slot connection with the

pin-engaging device, a lever supported at the top of the car-body and having one end connected with the swinging head, and a spring-catch arranged on the top of the car-body for engaging the lever to support the swinging head and the pin-engaging device in an elevated position for automatic coupling, substantially as described.

6. The combination with a draw-head having a pin-engaging device, of a transverse rock-shaft mounted on the end of the car-body, a head secured to the rock-shaft and having a pin-and-slot connection with the pin-engaging device, a lever supported at the top of the car-body and having one end connected with the said head, and a spring-catch arranged on the top of the car-body for engaging the other end of the lever to support the swinging head and the pin-engaging device in an elevated position for automatic coupling, substantially as described.

7. The combination with a draw-head, of a vertically-movable gate arranged in the draw-head and having a notched lower end, a lever supported at the top of the car-body, connections between the lever and the said gate, a catch arranged on the top of the car-body for engaging the lever, and a vertically-movable slide operated by a coupling-pin entering the draw-head and acting to disengage the lever from the catch, substantially as described.

8. The combination with a draw-head, of a vertically-movable gate arranged in the draw-head and having a notched lower end, a swinging head pivotally mounted on the car-body and having a pin-and-slot connection with the said gate, a lever supported at the top of the car-body and having one end connected with said swinging head, a catch arranged on the top of the car-body for engaging the other end of the lever, and a vertically-movable slide having its upper end arranged to act on the lever and its lower end provided with an angular head arranged in the draw-head and adapted to be acted upon by an entering coupling-pin for disengaging the lever from the catch, substantially as described.

9. The combination with a draw-head having a pin-engaging device, of a lever supported at the top of the car-body, connections between one end of the lever and the pin-engaging device, a spring-catch for engaging the other end of the lever, a vertically-movable slide operated by a coupling-pin entering the draw-head and acting to disengage the lever from the catch, and cables or cords connected with one end of the lever for swinging such end downward into engagement with the catch, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

J. W. COLBERT.

Witnesses:

ALBERT H. NORRIS,  
THOS. A. GREEN.