(No Model.)

3 Sheets—Sheet 1.

S. D. LOCKE.

CAR COUPLING.

No. 351,385. Patented Oct. 26, 1886.

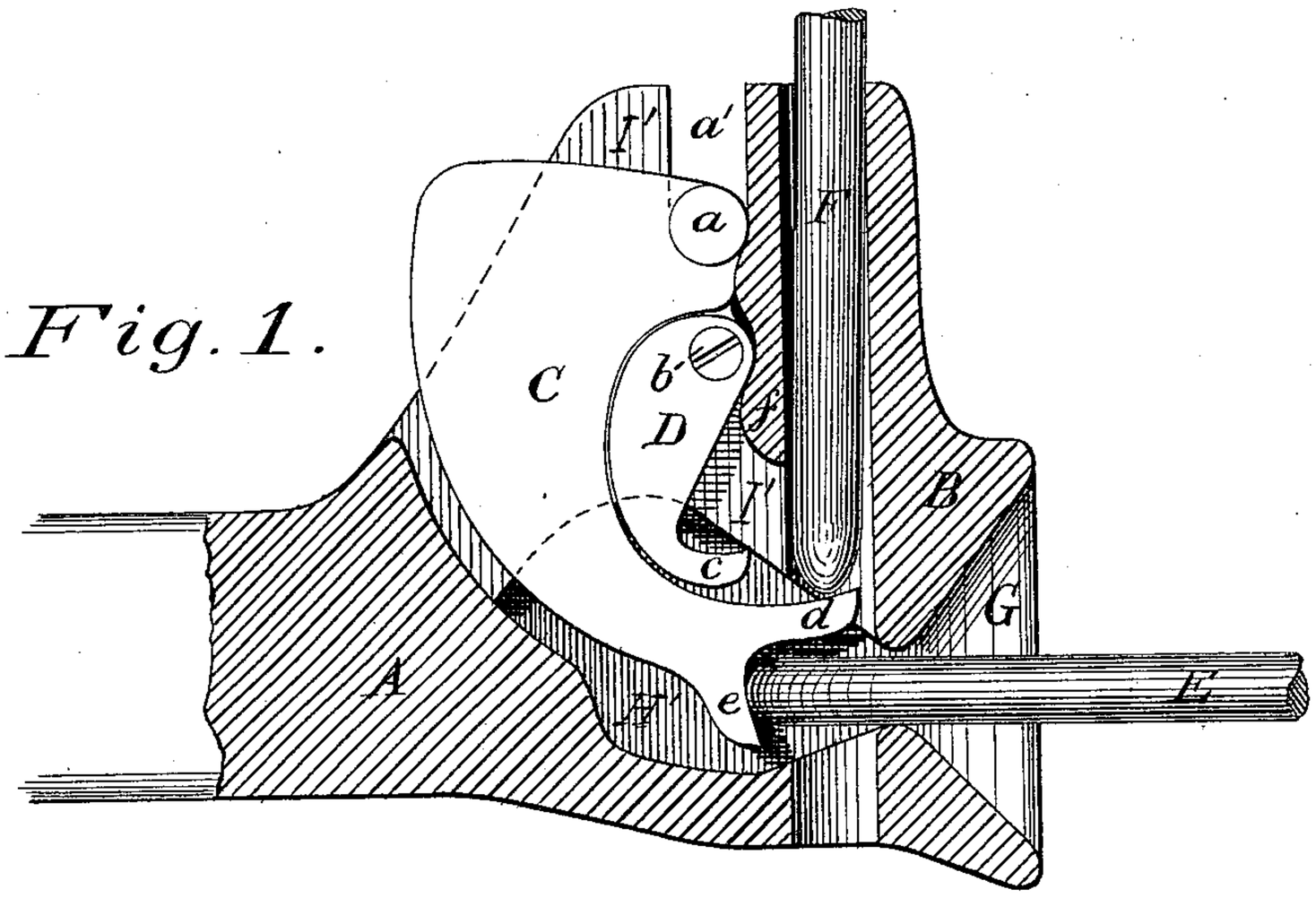

Fig. 1.

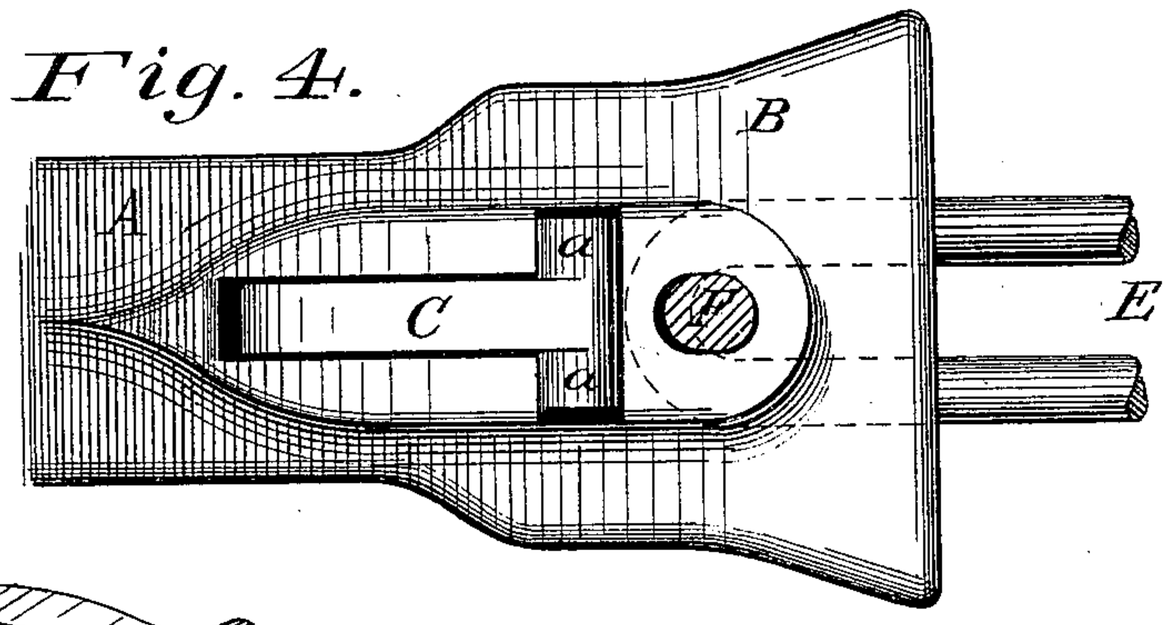

Fig. 4.

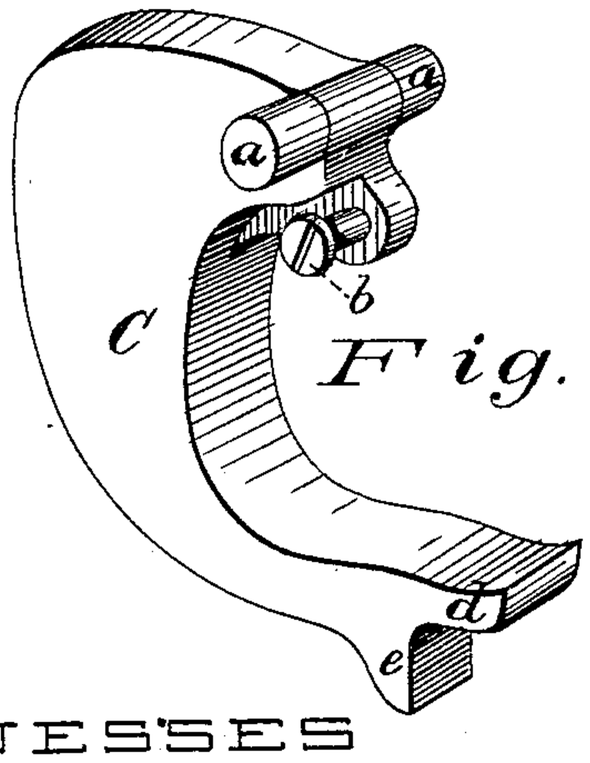

Fig. 5.

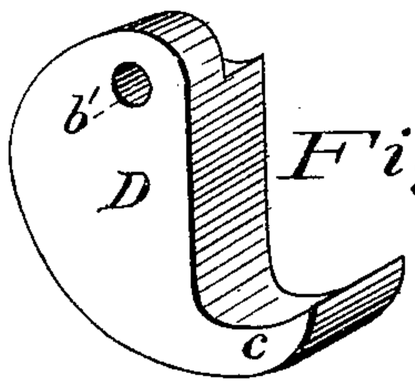

Fig. 6.

WITNESSES

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3 Sheets—Sheet 2.

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Fig. 3.

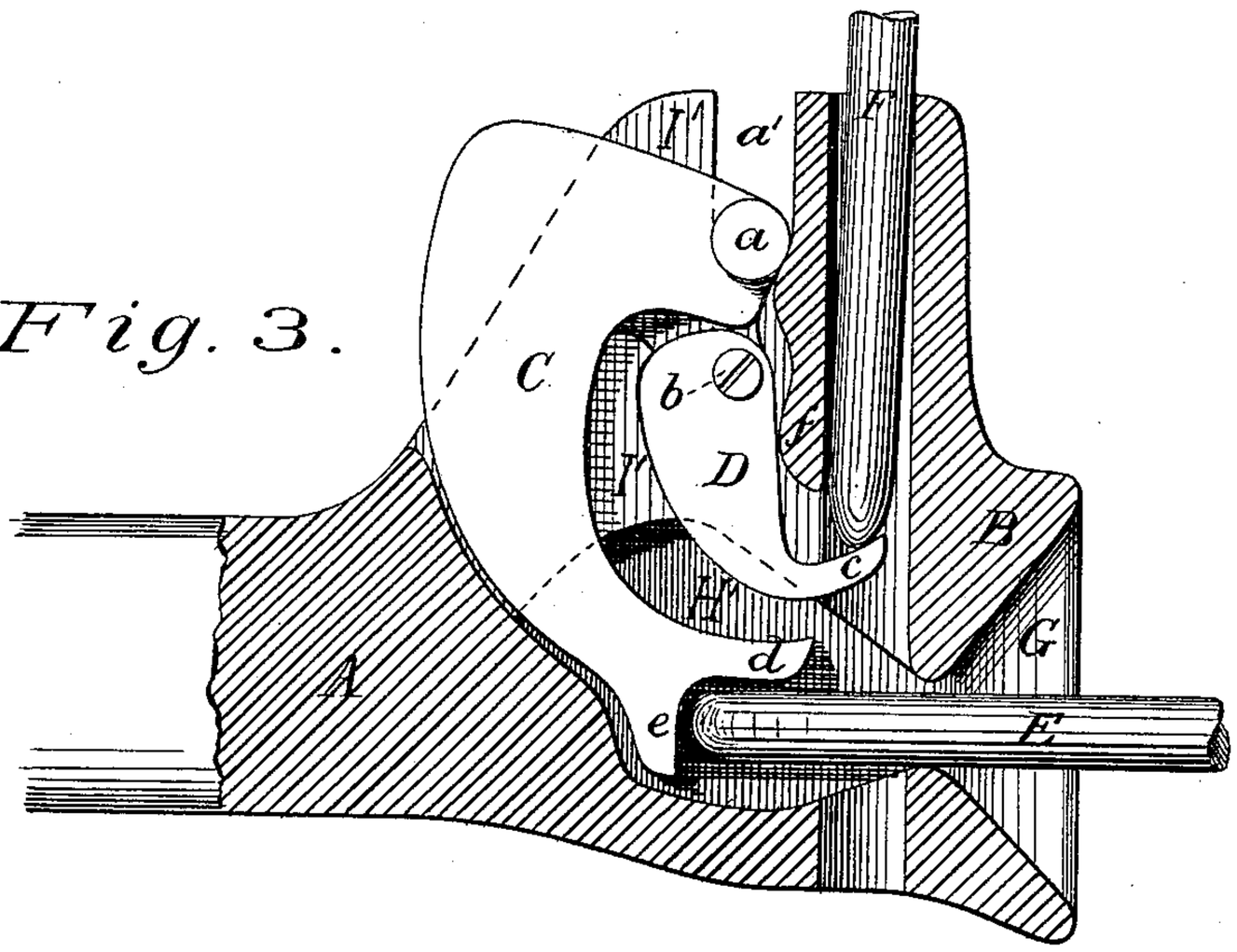
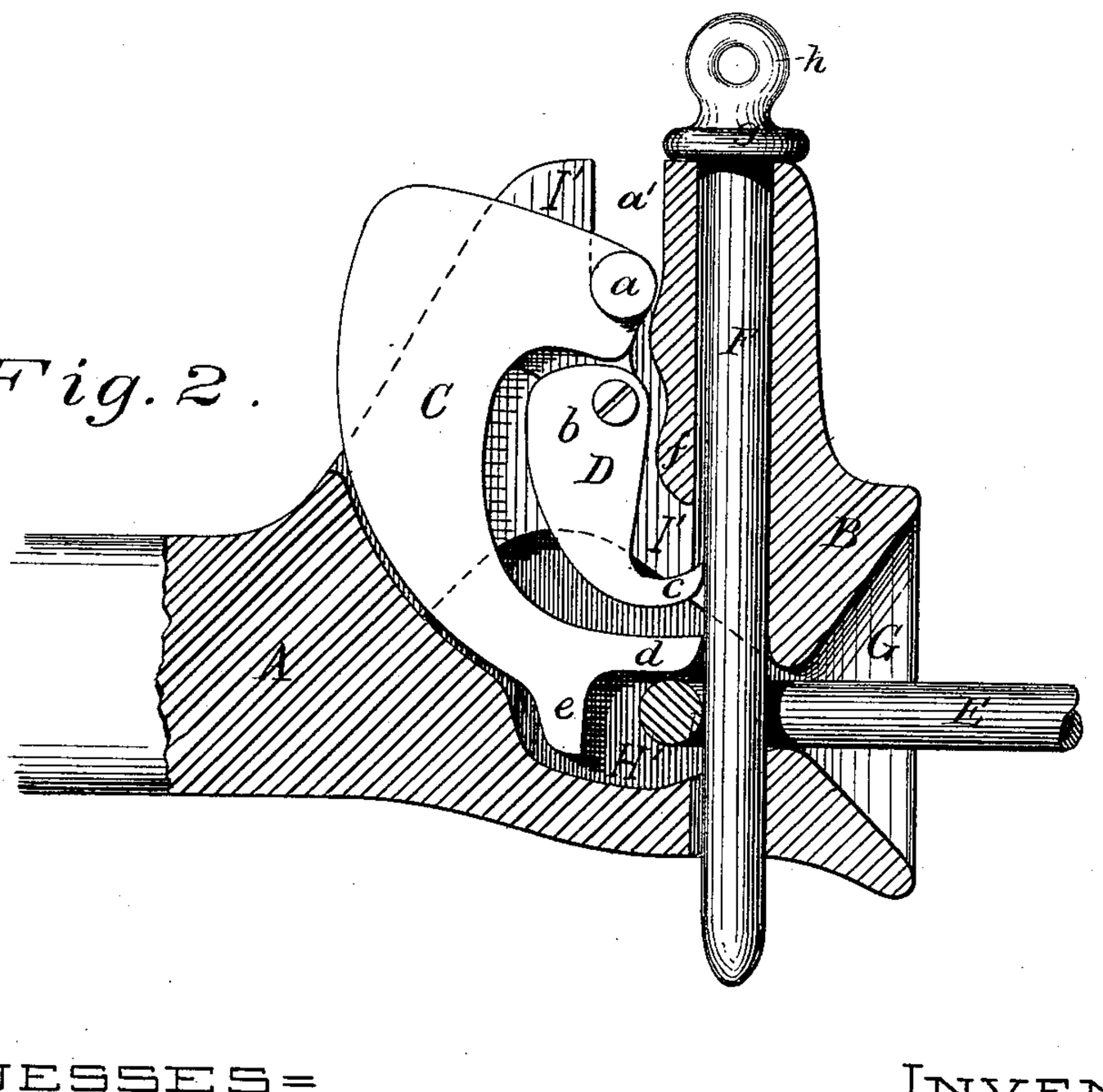


Fig. 2.



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3 Sheets—Sheet 3.

S. D. LOCKE.

CAR COUPLING.

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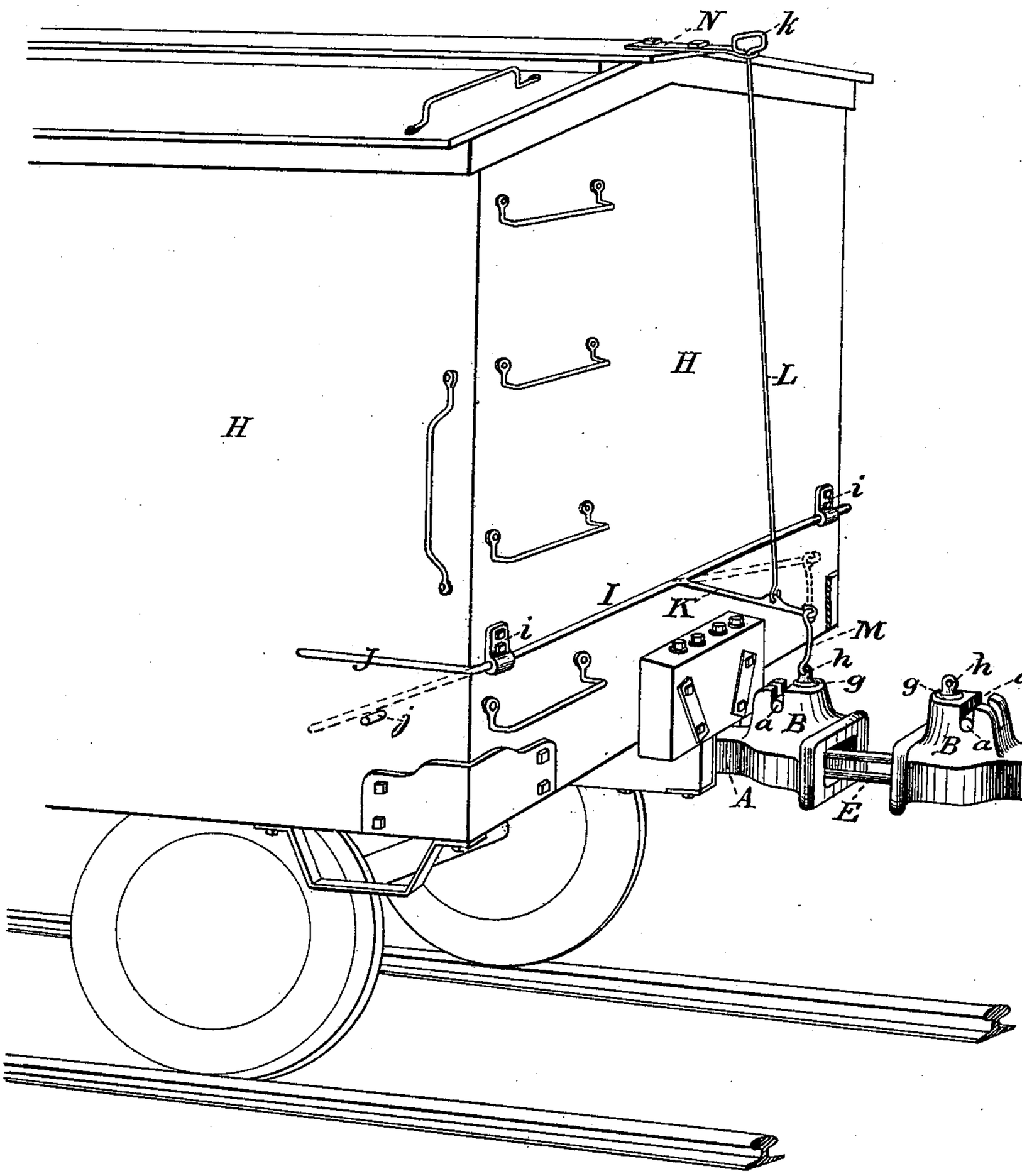

Fig. 7.

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UNITED STATES PATENT OFFICE.

SYLVANUS D. LOCKE, OF HOOSICK FALLS, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 351,385, dated October 26, 1886.

Application filed August 9, 1886. Serial No. 210,385. (No model.)

To all whom it may concern:

Be it known that I, SYLVANUS D. LOCKE, a citizen of the United States, residing at Hoosick Falls, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

My invention relates to that class of car-couplers styled "self-couplers;" and it consists, first, in the employment of two hanging and swinging tables—one, the secondary table, for temporarily supporting or holding up the pin until the cars separate, and the other, the primary table, for holding it up after the cars separate and until they come together again, the former pivoted and swinging on the latter; second, in pivoting the primary table on the draw-head, so that the weight of the tables serves as a counterpoise to the link to hold it in a horizontal position to be properly presented to the draw-head of another car to couple and still allow the link to freely adjust itself to the different positions and swaying of the cars when coupled; third, in the arrangement, in connection with the pin, of a rock-shaft along the end of the car, having an arm joined by a connecting-rod to the pin, the shaft having at each end an elbow lever or handle with a stop to limit its movement, whereby the pin can be withdrawn from the link to uncouple the cars, but is held in proper position for recoupling, and is prevented from escaping from the draw-head; fourth, in the arrangement, with a rock-shaft having its handles and stops and its arm and connection with the pin, of a chain or rod, also attached to the arm and running to the top of the car, whereby the pin may be lifted and the cars uncoupled both by an operator standing on the ground at the sides of the car and by the brakeman on the top of the car; and, fifth, in certain other combinations and details of construction hereinafter set forth and claimed.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, reference being had to the accompanying drawings, making a part of this specification, in which like letters refer to like parts.

Figure 1 is a longitudinal section of a draw-head, showing my improvements attached, the pin resting on the primary table and the link entering the draw-head and on the point of driving back the table to allow the pin to drop and couple the cars. Fig. 2 is also a longitudinal section of the same, showing the table swung back by the link and the pin fallen within the link. Fig. 3 is also a longitudinal section of the same, showing the pin withdrawn from the link and resting on the table. Fig. 4 is a top view of the same. Fig. 5 is a perspective view in detail of the primary table. Fig. 6 is a perspective view in detail of the secondary table, and Fig. 7 is a perspective view of the end of a freight-car with my improvements attached.

A is the neck, B the head, and G the mouth, of the draw-head, while E is the link and F the pin in common ordinary use for coupling together freight-cars on railroads. In attaching my improvements thereto I make the mouth wide open and flaring and terminate it in a narrow throat, as shown, to readily and certainly guide the link into position with reference to the pin.

Beyond the throat in the draw-head the chamber H′ for the link is deepened and widened out to allow the rear end of the link, if crowded therein, to freely play up and down and sidewise, to accommodate itself to the swaying, jolting, and springing of the cars. Above this wide chamber is a narrow and parallel-sided one, I′, that opens at the top of the draw-head into the outer air. The mouth of this upper chamber is made large, to readily receive the pin-holding device, and it should be closed with a cap to exclude the dirt. In this narrow chamber hangs the table C, swinging freely back and forth on its trunnions *a*, that take bearing in the deep cups *a′* at the top and on either side of the chamber. These trunnions are placed at the top and well forward on the table, and the latter is heavily weighted in the rear of its pivot, to cause it to gravitate as to its foot or ledge *d* strongly forward against or under the pin F. The depth of the cups *a′* is such that when the trunnions *a* rest in the bottom of the cups the foot *d* hangs just above the throat and well out of the way of the link when it enters the lower chamber through the throat. From the rear portion of the foot *d* a heel, *e*,

projects downwardly and squarely into the path of the link as it enters this chamber.

Pivoted at *b* on the primary table C, just below the trunnions, and freely swinging thereon, is a secondary table, D. This table is also weighted to gravitate forward against or under the pin, and has likewise a foot or ledge, *c*, lying normally just above the ledge *d* on the primary table. Below the pivot *b*, and just forward of this secondary table, is a stop, *f*, that, as the primary table swings its foot forward, forces the secondary table to swing its foot backward. When the link is in its proper position in the draw-head, the foot *d* rests on the rear end of the link, as shown in Fig. 2, so by its weight balancing the latter over the lower wall of the throat and holding its exterior end out horizontally from the draw-head in the position most favorable for shackling with another car. The construction and location of these tables or gravity-support and the throat and inner chamber are such that the weight of the tables is not always on the link except when the cars are uncoupled and the link is presented for coupling. When the tables gravitate so far as to present the link horizontally, the trunnions *a* reach and rest on the bottoms of the cups *a'*. The weight of the tables or gravity-support, therefore, can never tend to carry the inner end of the link below the horizontal line; but the link, when the cars are coupled, may swing on the throat of the draw-head as a pivot until its inner end is far below the tables, and so leave the latter entirely suspended on the trunnions in the bottom of the cups. This construction of the tables, whereby they are pivoted at their top in vertical cups, in which they are supported and guided, enables them, when the cars are coupled, to freely swing forward and back or to rise and fall to accommodate themselves, without danger of breaking, to the thrusting in or jerking out of the link, as well as its frequent sudden elevation or depression, incident to the rocking and swaying, the jumping, and bouncing of the cars when running on the ordinary railroad-track.

Across the end of the car H, Fig. 7, is a rock-shaft, I, secured in bearings *i*. This shaft has at each end, on both sides of the car, a lever, J, and at the middle an arm, K, that is attached or joined by the connecting-rod M to the top of the pin *h*. The rod L is also attached to the arm K, and is supported at the top of the car in a yoke, N, and terminates in a handle, *k*. To raise or withdraw the pin F to unshackle the link E, the operator is only required to turn the rock-shaft by pressing down on one of the levers J, or to pull up on the handle *k*. To avoid the danger of the pin being so far raised as to escape from its working position in the draw-head, I join its top to the end of the arm K by a stiff rod and limit the movement of the rock-shaft within the line of safety. This limit can be secured by a stop, either to the movement of the rod L of the shaft I or of the lever J, as by the pin *j*.

In operation the position of the pin when the cars separate is on the foot *d* of the primary table C, as shown in Fig. 1. If at this time a link enters the lower chamber, as in coupling, its end strikes the heel *e* of the primary table, as shown also in Fig. 1, crowding it back, and so withdrawing the ledge *d* from underneath the pin, when the latter falls into the loop of the link, as shown in Fig. 2, and the parts are shackled. To uncouple, it is only necessary to lift the pin above both tables by pressing down on the lever J or pulling up the handle *k*, when, the link still holding back the lower or primary table, the upper or secondary table is free to gravitate and swings its foot *c* underneath the pin, as shown in Fig. 3. When the cars separate, the link is withdrawn and the heavier lower table swings forward, taking with it the pivot of the upper table, so driving the latter against the stop *f*, and swinging this table backward and withdrawing its foot *c* from underneath the pin. The swinging back of the upper table allows the pin to fall upon the foot of the primary table, and the parts are again in their first position, as shown in Fig. 1. It is evident that these tables may be partly or wholly operated by springs, and that the details of the construction of the several parts of the coupler may be varied without departing from my invention.

As ordinarily constructed, the draw-head has only a mouth and no throat or inner chamber, and consequently the link in its various deflections and depressions necessary to enable it to conform to the various alignments of the cars it couples pivots or swings on its extreme inner end in each draw-head. In this construction the link pivots in the throat of the draw-head, and it is therefore apparent that the use of the chamber H' enables a very narrow throat to be used, and as the throat is immediately in front of the pin the liability of breaking the pin is very much reduced. In the ordinary draw-head having a wide throat or throatless mouth and no inner chamber in which the end of the link can swing this liability of breaking the pin is very great.

What I claim is—

1. In a self-coupler, a table for temporarily supporting the pin when withdrawn from the link to uncouple, pivoted as to its upper end and swinging on a primary table that is pivoted or takes bearing in the draw-head, substantially as and for the purpose set forth.

2. In a self-coupler, a table for temporarily supporting the pin when withdrawn from the link to uncouple, pivoted on and combined with a primary table having a sliding pivot-bearing in the draw-head, substantially as and for the purpose set forth.

3. In a self-coupler, a primary table and a secondary table pivoted on the primary and

adapted to hold the pin, as described, combined with a draw-head and a link, the combination operating so that the weight of the tables shall hold the link in a horizontal position ready for coupling, substantially as set forth.

4. In a self-coupler, a table adapted to hold the pin while the cars are uncoupled and to present the link horizontally for coupling, pivoted as to its top in a vertically-sliding bearing in the draw-head, substantially as and for the purpose described.

5. In a self-coupler, a table or other gravity-support for the link, adapted to hold the link horizontally, pivoted as to its top in a vertically-sliding bearing in the draw-head, so as to swing freely back and forth on its pivot, and to rise and fall on the same to adjust itself to the movements of the link when coupled, substantially as described.

6. In combination, the draw-head A B, the tables C D, the link E, and the pin F, substantially as and for the purpose set forth.

7. In a self-coupler, a gravity-support for holding the link horizontally, having a ledge or foot for primarily supporting the pin rigidly attached to said support, and a secondary table pivoted thereto, substantially as and for the purpose described.

8. In combination, in a self-coupler, a draw-head having a link-coupling device, a gravity-support holding the link horizontally, a pin loosely tenoned in a vertical mortise through the draw-head for shackling the link thereto, levers for withdrawing the pin from the link, a primary table fixed on the gravity-support for holding the pin until the link enters the draw-head, and a secondary table pivoted to the gravity-support for temporarily holding the pin after the levers have withdrawn it from the link, substantially as described.

9. In combination, in a self-coupler, a draw-head having a link-coupling device, a gravity-support holding the link horizontally, a pin loosely tenoned in a vertical mortise through the draw-head for shackling the link thereto, levers for withdrawing the pin from the link, a stop to limit the movements of the lever, a primary table fixed on the gravity-support for holding the pin until the link enters the draw-head, and a secondary table pivoted to the gravity-support for temporarily holding the pin after the levers have withdrawn it from the link, substantially as described.

SYLVANUS D. LOCKE.

Witnesses:
E. J. LOCKE,
LILLA F. LOCKE.