

N. E. LEAMAN.

Car Coupling.

No. 103,207.

Patented May 17, 1870.

Fig. 1.

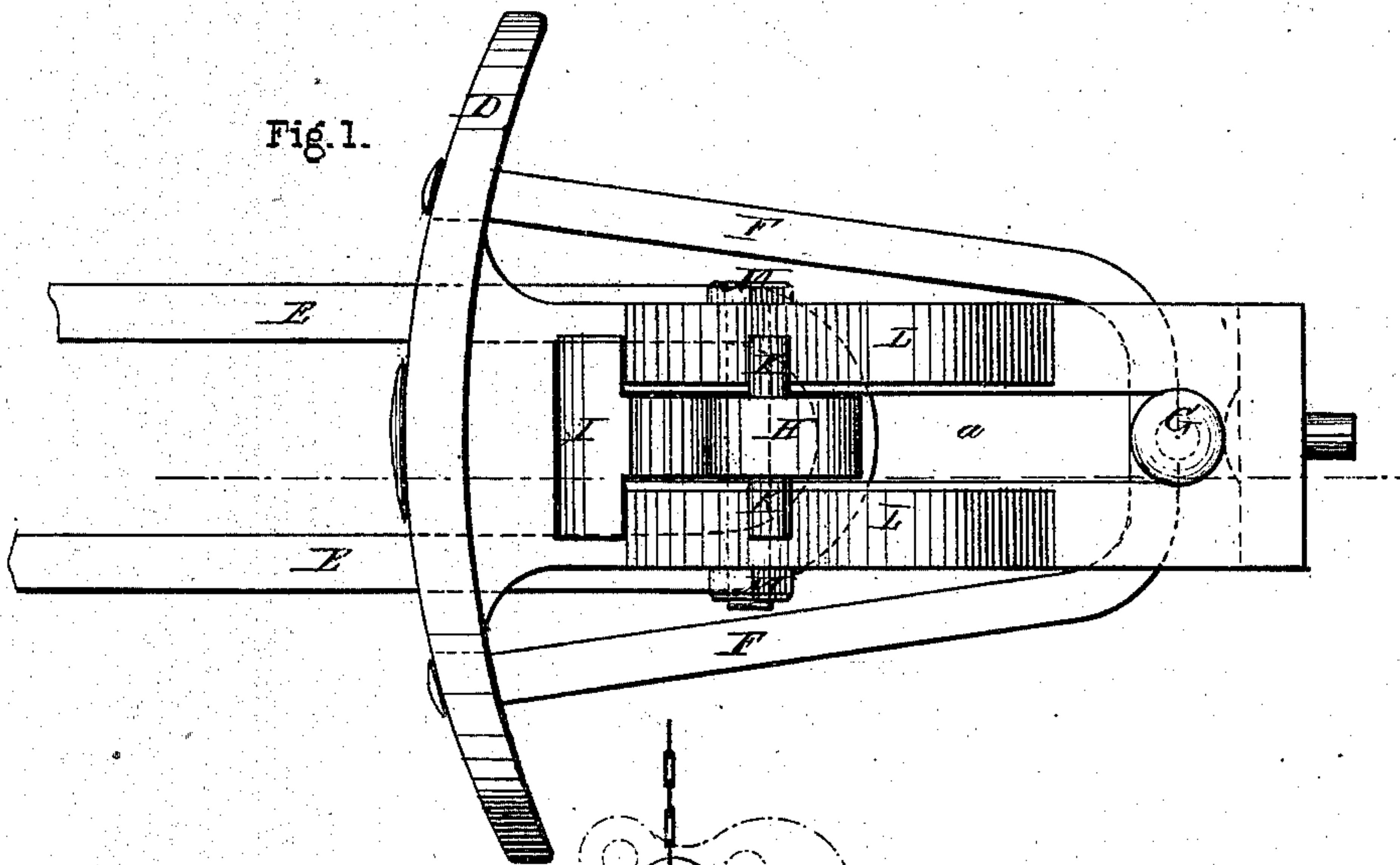


Fig. 2.

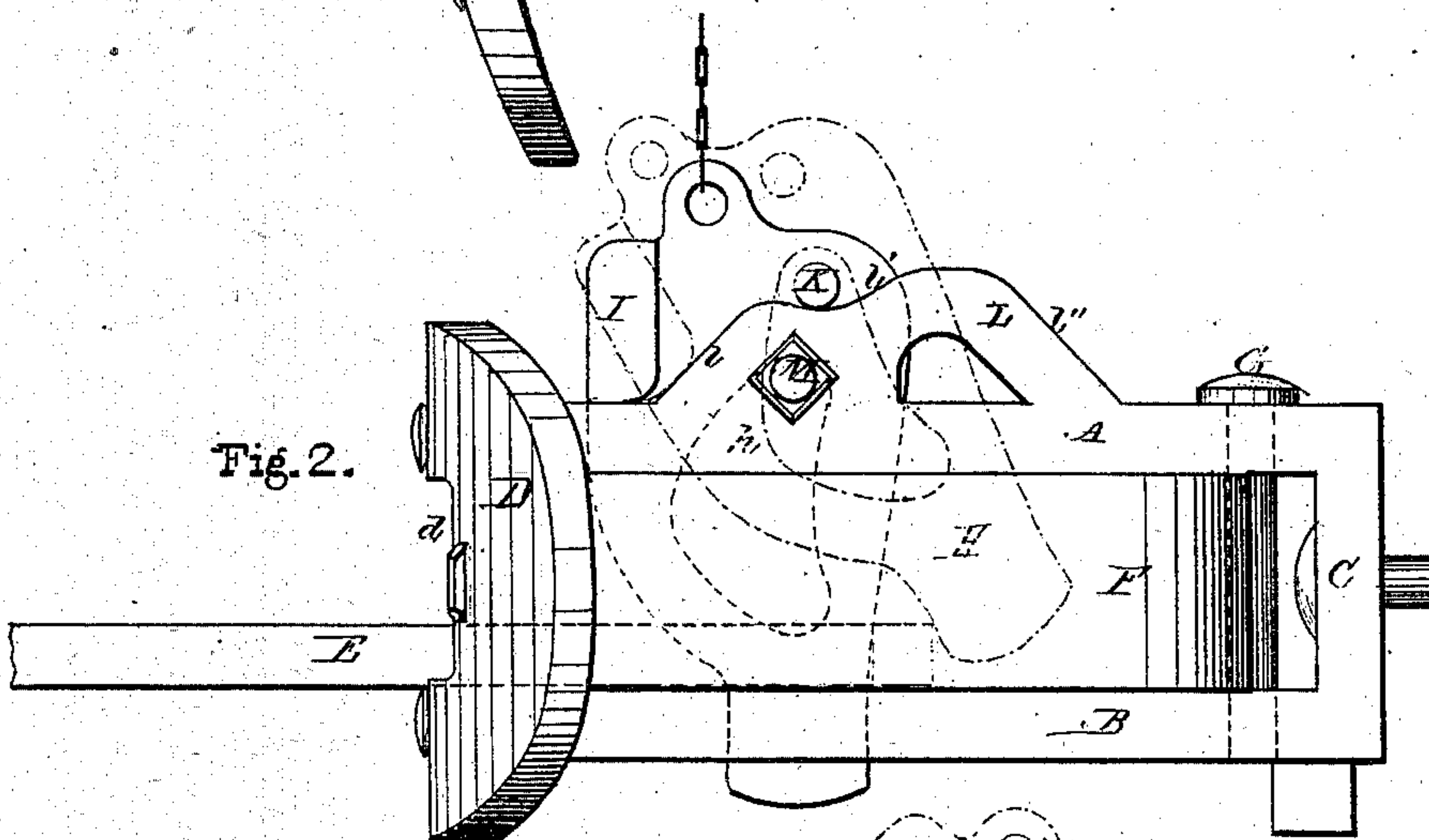
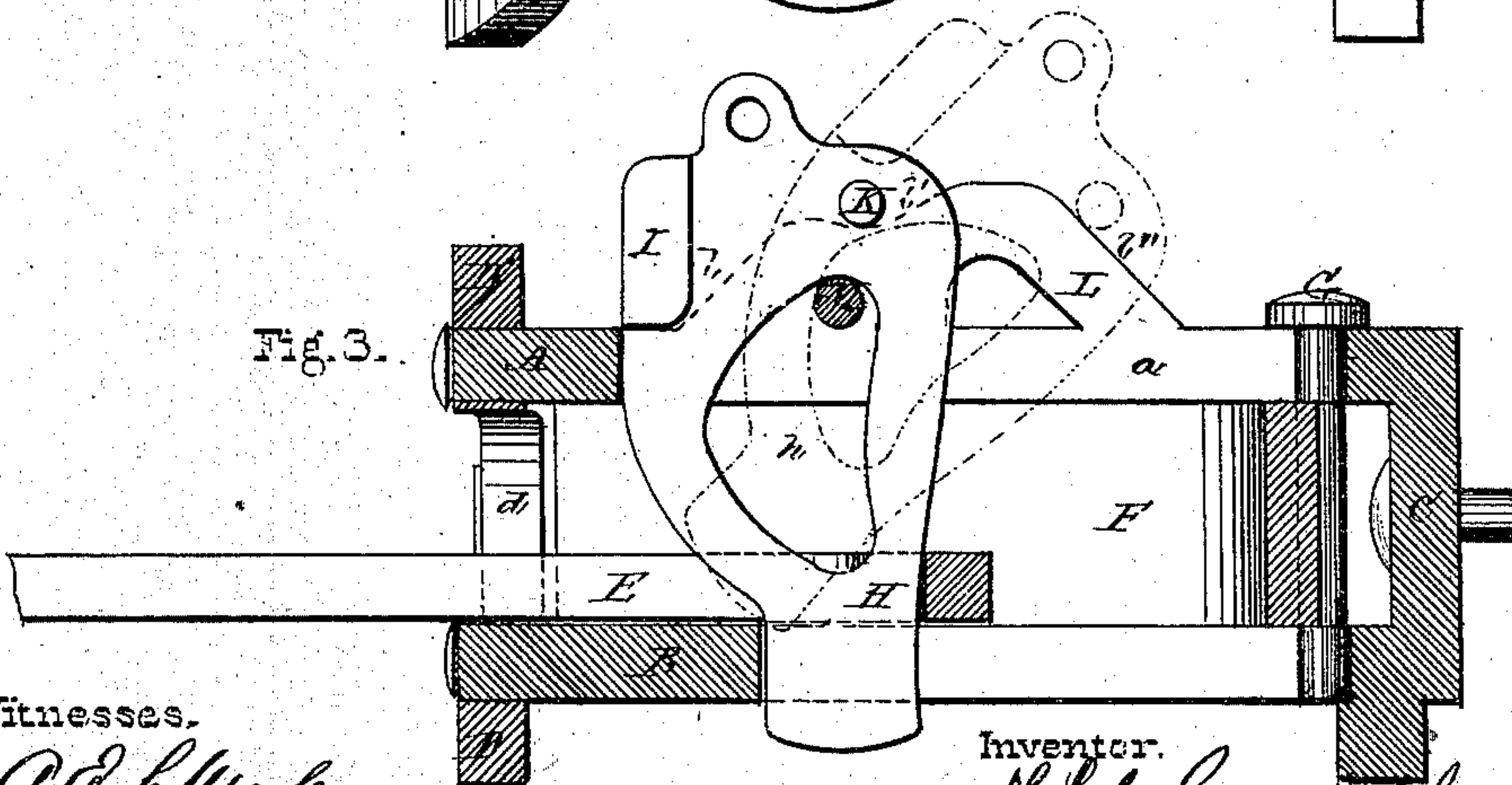


Fig. 3.



Witnesses.

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Attys.



# UNITED STATES PATENT OFFICE.

N. EDWARD LEAMAN, OF DAYTON, OHIO.

## IMPROVED CAR-COUPLING.

Specification forming part of Letters Patent No. 103,207, dated May 17, 1870.

*To all whom it may concern:*

Be it known that I, Dr. N. EDWARD LEAMAN, of Dayton, in the county of Montgomery, and in the State of Ohio, have invented certain new and useful Improvements in Car-Couplings; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a plan view of the upper side of my improved coupling. Fig. 2 is a side elevation of the same, and Fig. 3 is a vertical longitudinal section on the line *xx* of Fig. 1.

Letters of like name and kind refer to like parts in each of the figures.

My invention has for its object the production of a self-adjusting car-coupling; and to this end it consists, principally, in the peculiar form of the coupling cam or pin, and, in connection therewith, of the supporting-pin and cross-bar.

It also consists in the form and application of the double-inclined ways, upon which said coupling pin or cam rests, and by means of which its positions are determined.

It finally consists in the general construction and arrangement of the frame, and in the employment therein of a guide-bar for directing the motion of the link as it enters the same, as is hereinafter fully set forth.

In the annexed drawing, A and B represent the upper and lower frame-bars, respectively, which are connected together at their rear ends by means of a block, C, while their front ends are attached to a curved plate, D, provided with a slot, *d*, corresponding in width to the distance between the bars A and B, and having a sufficient length to permit the link E to have the necessary lateral motion.

A U-shaped bar, F, corresponding in width to the space between the bars A and B, is secured at its front ends to the curved plate D, with its inner side flush with the ends of the slot, and from thence passes backward between said bars, where its rear end is secured in place laterally by means of a vertical groove cut therein, which embraces a pin, G, passing downward through the frame-bars A and B, the whole furnishing a guide for directing the link into its proper place laterally.

Passing downward through suitable longitudinal slots *a* in the bars A and B is a coupling cam or pin, H, the rear edge of which is nearly vertical when said pin is in position to engage with the link E, while its front edge, resting against the front ends of said slots, extends vertically upward through the bar B, and from thence curves forward and upward, in the form shown.

Secured to and forming a part of the coupling-pin H is a cross-bar, I, which extends laterally from either side at the front edge thereof, and, resting upon the bar A, furnishes a partial support for said coupling-pin. A further support is furnished by a pin, K, which, extending through the upper rear portion of the coupling-pin, rests upon or within slightly-concave places upon the upper sides of the ways L.

As seen in Figs. 2 and 3, the ways L incline upward and inward from their front ends at an angle of forty-five degrees, or thereabout, and then, after curving slightly downward, again extend upward and across, from whence they incline downward and rearward at an angle corresponding with that of the front ends.

As thus constructed, the cross-bar I and pin K are held in position at the bottom of the inclines *l* and *l'* by the weight of the coupling-pin, so that as both the natural inclination of and strain upon said pin are in the same direction and hold it in the same position, it will be impossible for it to become accidentally disengaged from the link. While thus immovable by a forward strain the lower end of the coupling-pin will swing easily to the rear, as shown by the dotted lines in Fig. 2, so as to permit the link to pass inward, after which it will automatically resume its former position and lock said link in place.

When desired the link may be released by an upward pull upon the coupling-pin; but, as is often the case, the cars may be at rest, or, if in motion, so pressed together as to prevent said link from drawing out, in which event it is necessary that some means be furnished for retaining said coupling-pin in such a position as to entirely free said link from engagement. This object is accomplished by throwing the upper end of the coupling-pin



rearward, with the pin K resting upon the rear inclines, *l''*, of the ways L, as shown by the dotted lines in Fig. 3, in which position the front end of said coupling-pin will readily raise or trip, so as to permit the withdrawal of the link, and upon the return of the latter the coupling-pin will be instantly thrown forward into its former position.

In order to prevent the accidental disengagement of the coupling-pin from the frame, a bolt, M, is secured in a horizontal position within the ways L, at a right angle with the line of draft, and, passing through an opening, *h*, within the coupling-pin H, attaches the latter to said frame without in the least interfering with its movements, the shape of the opening *h* being such as to cause said coupling-pin to bear lightly upon said bolt at all times.

It will readily be seen that, as constructed and arranged, the management of this device will not require the exposure of life or limb while coupling together or releasing cars, and that while possessing this great advantage it is simple in construction, durable, and perfectly certain in its action.

Having thus fully set forth the nature and merits of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The coupling pin or cam H, provided with the cross-bar I and pin K, substantially as and for the purpose specified.

2. Also, in combination with the coupling-pin H, cross-bar I, and pin K, the way L, provided with the inclines *l' l''*, substantially as and for the purpose herein set forth.

3. Also, in combination with the coupling-pin H, provided with the opening *h*, the safety-bolt M, substantially as shown, and for the purpose specified.

4. Also, the U-shaped guide-bar F, in combination with the bars A and B and curved plate D, substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of October, 1869.

DR. N. EDWD. LEAMAN.

Witnesses:

GEO. B. EWING,

THOS. D. MITCHELL.