

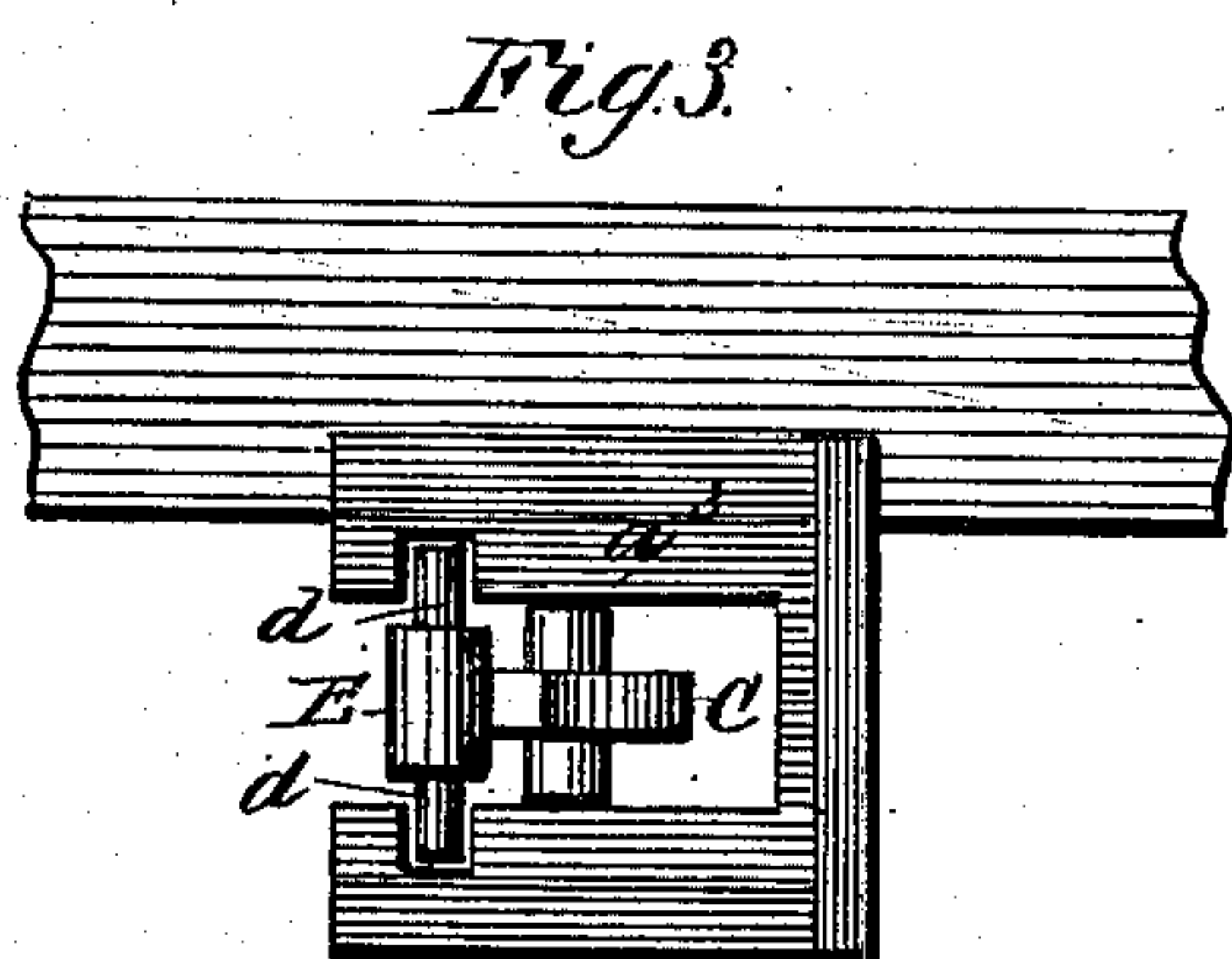
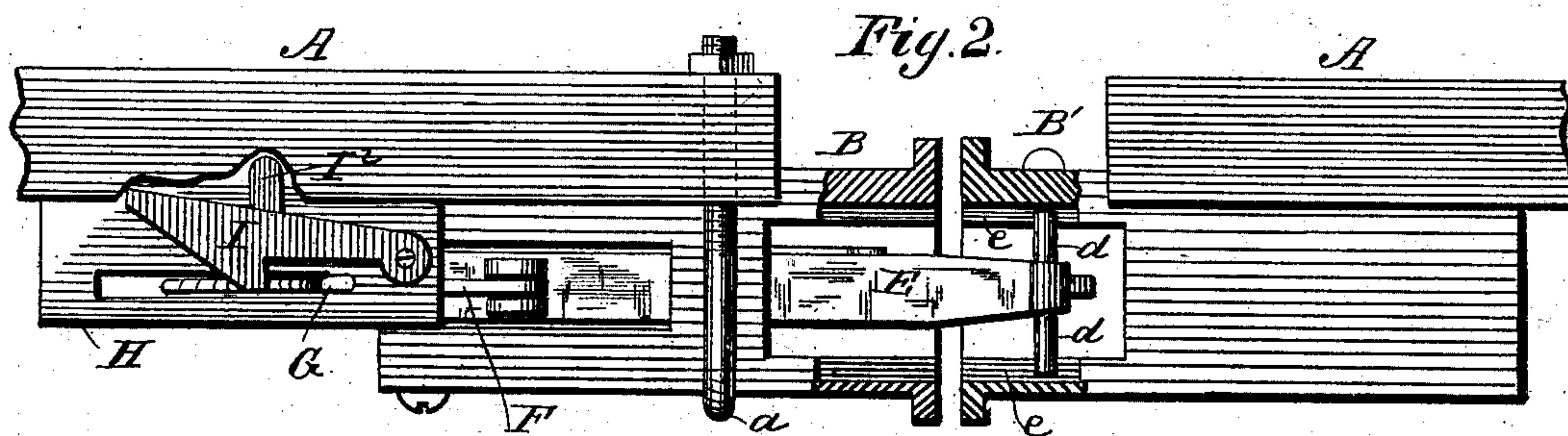
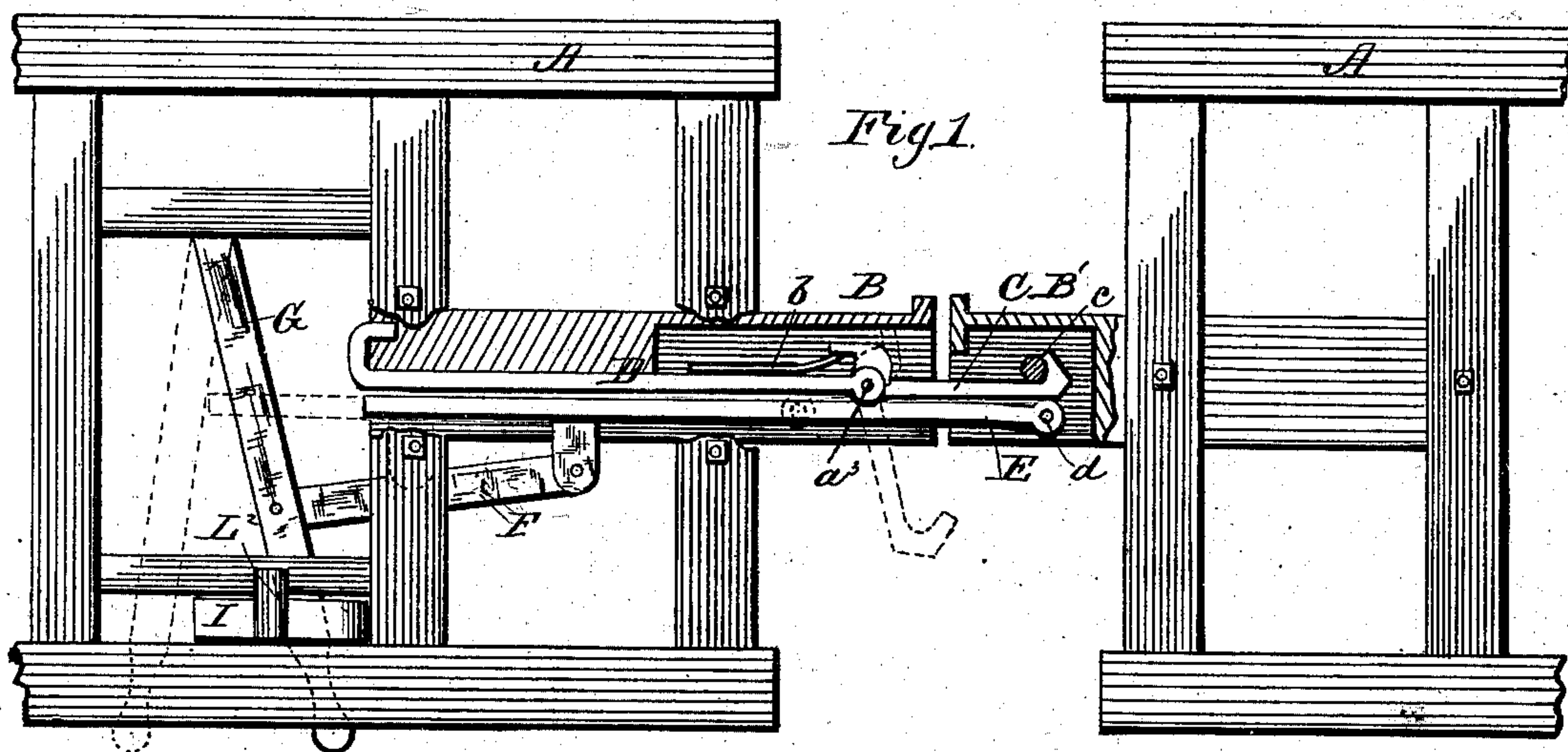
(No Model.)

2 Sheets—Sheet 1.

C. E. MACARTHY.
Car Coupling.

No. 242,949.

Patented June 14, 1881.



WITNESSES:
Fred G. Dieterich
Edw. W. Byrn

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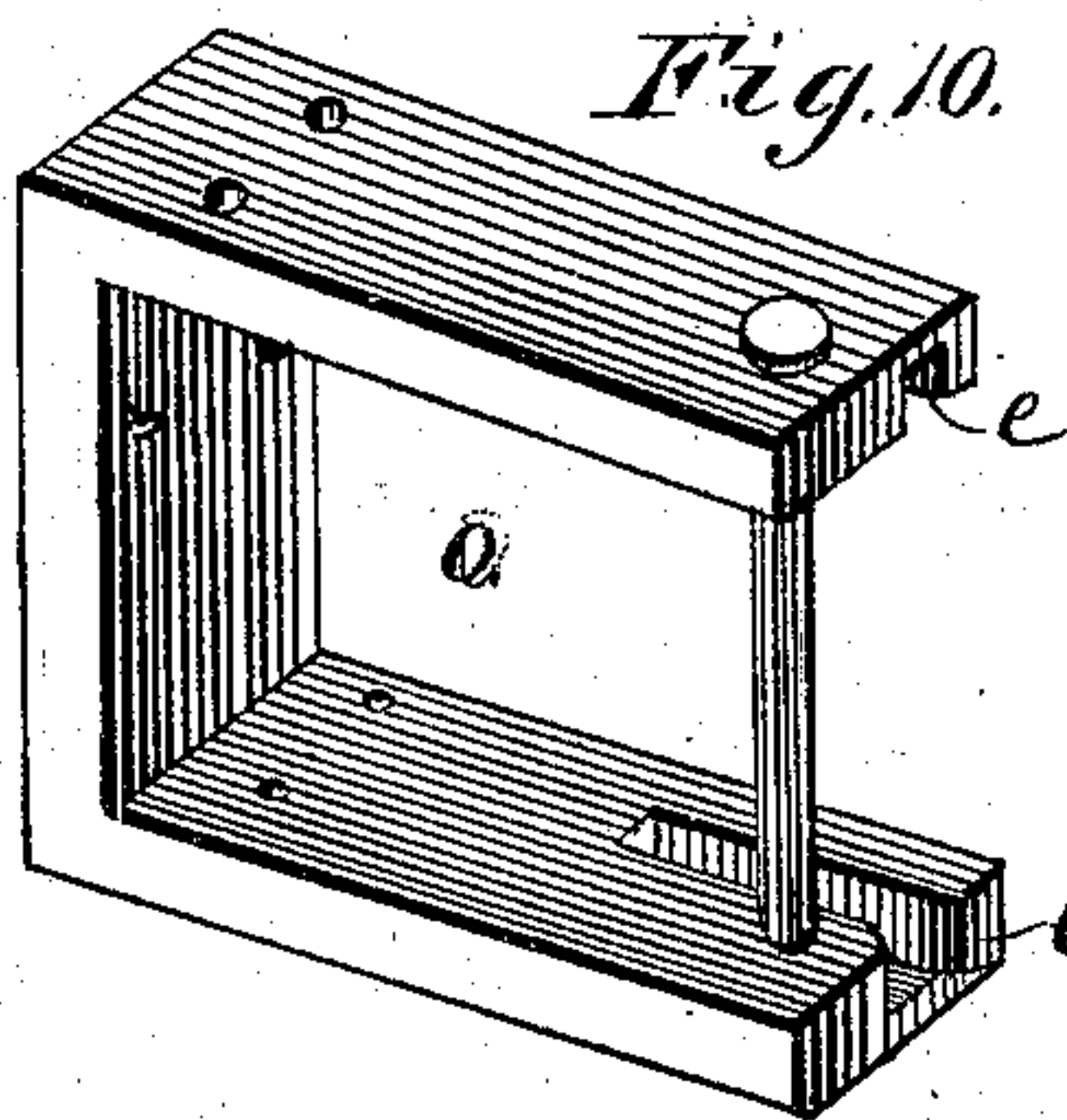
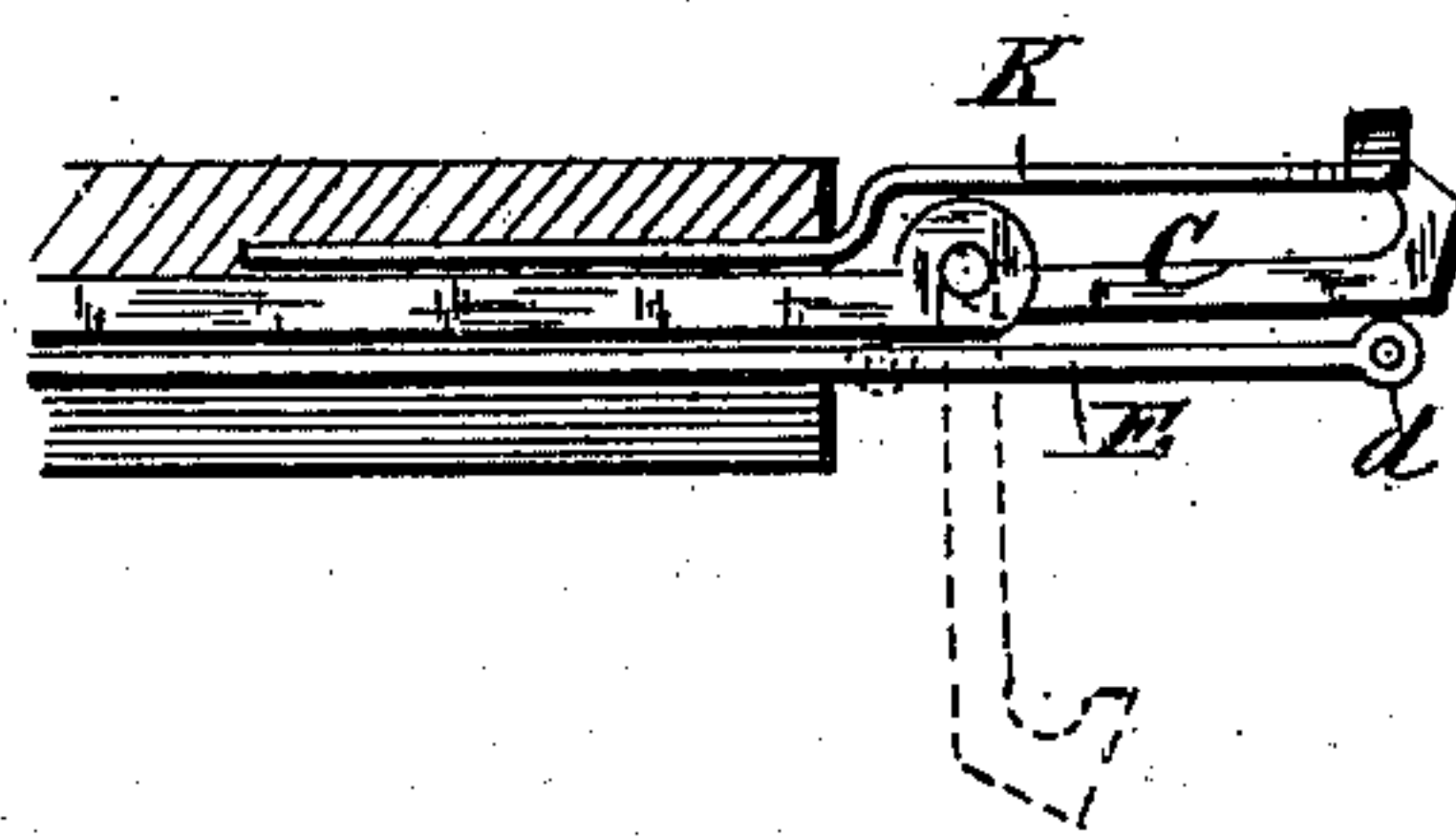
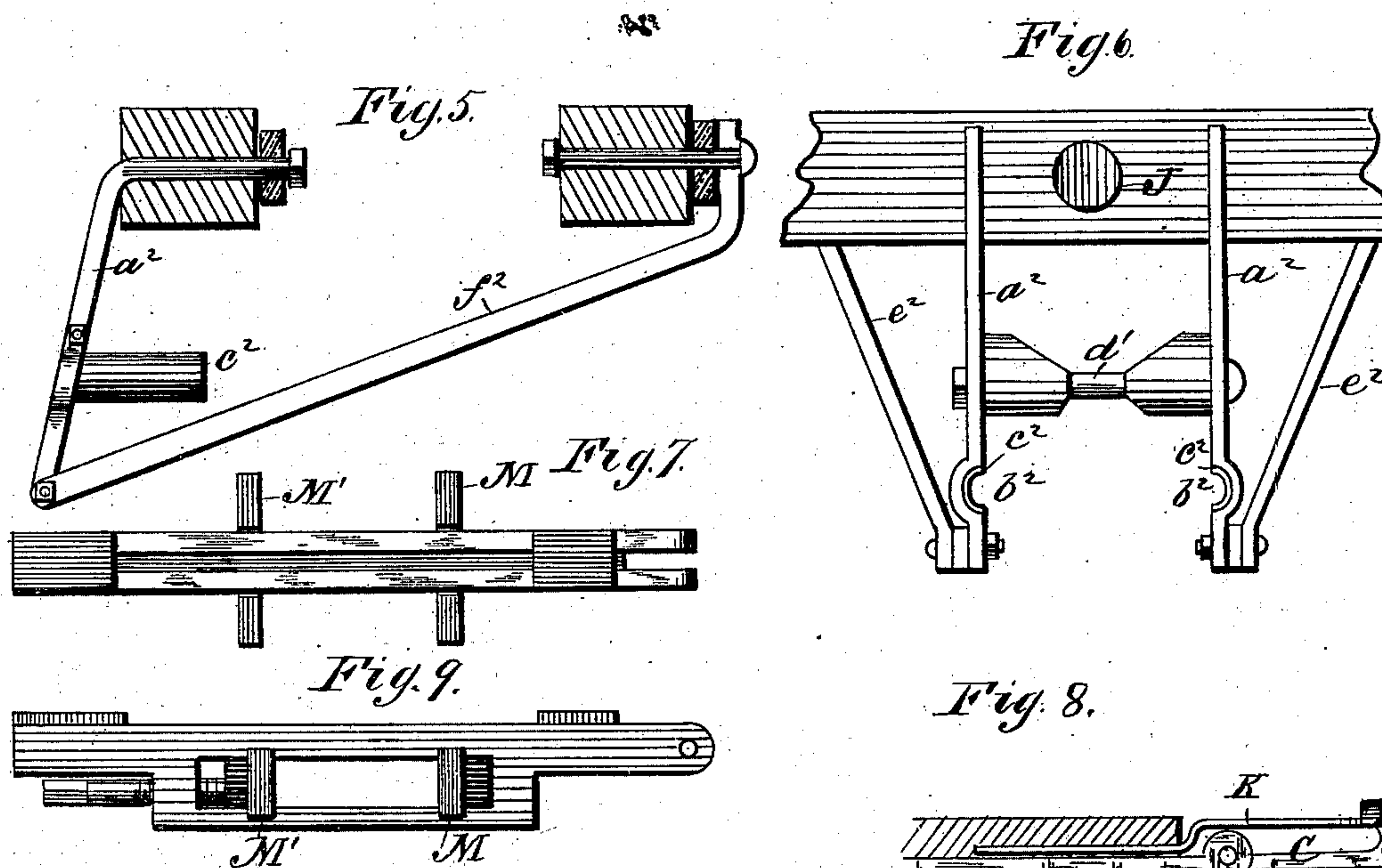
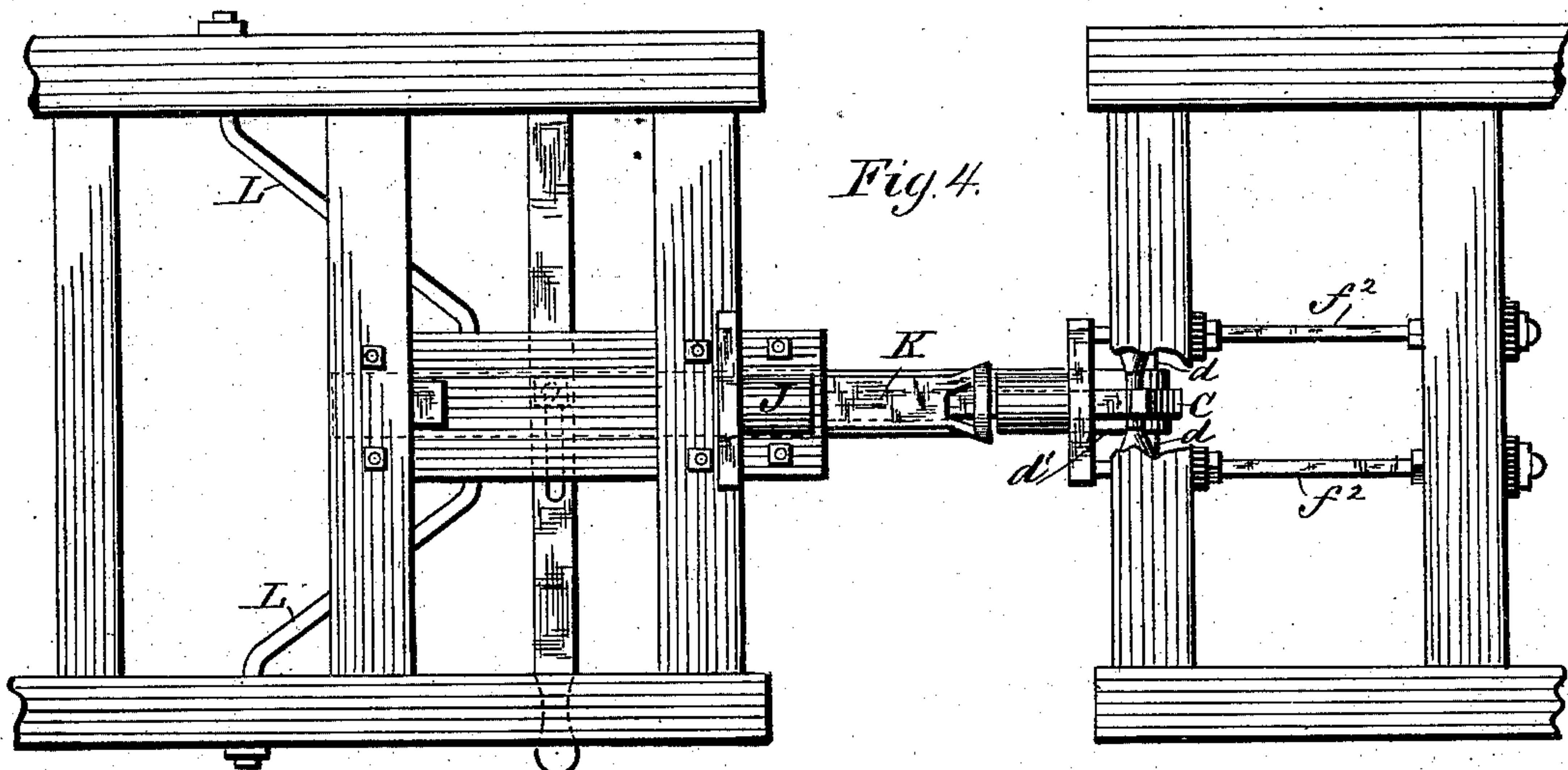
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2 Sheets—Sheet 2.

C. E. MACARTHY.
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WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES E. MACARTHY, OF FORSYTH, GEORGIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 242,949, dated June 14, 1881.

Application filed April 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. MACARTHY, of Forsyth, in the county of Monroe and State of Georgia, have invented a new and Improved Car-Coupling; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a plan view of my improved car-coupling, showing two ends of a car coupled, with the draw-bars broken out or in section. Fig. 2 is a side view of the same, with the two draw-bars in section. Fig. 3 is an end view of the draw-bar carrying the hook. Fig. 4 is a plan view of a modification of Fig. 1, showing the hook operating in a vertical plane. Fig. 5 is an enlarged side, and Fig. 6 an end, view of the frame-work carried by one of the cars, and to which the vertically-working hook of the opposite car is coupled. Fig. 8 is a vertical section of that draw-bar shown in Fig. 4, which carries the vertically-working hook. Figs. 7 and 9 show views of a modified form of the draw-bar for carrying the vertically-working hook. This form of draw-bar is the one which is all made of iron, and in this view it is shown detached, Fig. 7 showing a bottom view, and Fig. 9 a side view turned upside down. Fig. 10 is a perspective view of a device for adapting my coupling to cars of different heights.

My invention relates to an improved car-coupling, designed to couple the cars easily and securely by a lever under the car, and projecting at the side of the same, whereby all danger involved in going between the cars is avoided.

My invention consists in pivoting a hook in the draw-bar, and constructing the latter with one of its sides open or cut away at its front end, so as to give room for the hook when thrown back to uncouple, and then combining with this hook a spring which tends to throw the hook back, and a sliding bar arranged at the back side of the hook, which, when thrown forward by a lever under the car, presses the hook around a bar or coupling-pin on the other car, the said hook being arranged to oscillate

either in a horizontal or vertical plane, as will 50 be hereinafter more fully described.

In the drawings, A represents the floor-timbers of a railroad-car, and B is one of the draw-bars. As shown, this draw-bar is attached to the floor-timbers by loops or stirrups *a*. It may, however, be attached in any other way, and its connection to the car is preferably made yielding through the agency of springs, so that the front of the draw-bar shall yield to the impact of the other car, and shall also draw with an elastic connection. Springs for this purpose are already in use, and they may be used in connection with my coupling in any manner that the structure of the car or the convenience of application may render desirable. This draw-bar is provided with a hook, C, arranged, as shown in Figs. 1, 2, 3, upon a vertical axis, *a*³, and adapted to be thrown into the open side of the draw-bar from the tension of a spring, *b*. This hook, when arranged in a wooden draw-bar, will have its axis in a longitudinal metal bar, D, running down the center of the wooden draw-bar, and having a bearing against the rear end of said wooden draw-bar; or, when a metal draw-bar is used, as hereinafter described, this hook will be pivoted upon a bolt in the draw-bar itself.

Just at the back of the hook C is a sliding bar, E, running longitudinally at the open side of the draw-bar, and connected by a link, F, with a lever, G, which is arranged transversely to the car, and projects to the side of the same. Through this link and lever the bar E may be drawn back in rear of the hook, to allow the spring to force the hook back; or said bar may be projected to the front end of the hook, to force the hook into its coupling position. The draw-bar B', with which this hook couples, is likewise made with its end cut away on one side, (see Fig. 1,) to allow the lateral introduction of the hook, and has a strong vertical bolt, *c*, around which the hook is projected to couple the cars. To hold the hook to this position against accidental disengagement the sliding bar E is, at its outer end, provided with a vertical cross-pin, *d*, and in the opposite draw-bar are formed, in line with these pins, grooves or channels *e e*, adapted to re-

ceive said pin. Now, when the cars approach each other to be coupled, at the moment of contact between their draw-bars B and B' the sliding bar E is moved quickly forward, and the end of the hook, which is thrown back from the action of the spring, is struck by the sliding bar E, which, acting like a cam, throws the hook around the coupling-bolt *c* of the other car. At the same time, also, the cross-pins *d d* of the sliding bar enter the grooves *e e* of the opposite draw-bar and hold the hook locked around the coupling-bolt, so that it cannot become accidentally uncoupled from the motion of the car or the turning of curves. In the draw-bar carrying the sliding bar E are also formed grooves or channels, which receive the cross-pins *d* when drawn back, as shown in Fig. 3.

Instead of using the cross-pins *d* and the grooves *e* for holding the hook to the coupling-bolt *c*, I may arrange on the end of bar E a stout leaf-spring for this purpose.

To prevent the bar E from jolting back and releasing the hook from its coupling-bar I lock the lever G in its forward position, and for this purpose its end is made to extend through a slotted bar, H, as a guide, and a pivoted catch, I, acting from gravity or from the tension of a spring, is made to pass over and hold the lever forward whenever the sliding bar has been projected to couple the cars. As shown, the catch I acts from gravity, and has a stop, I², to limit its downward movement.

As so far described I have only referred to that form of my invention in which the coupling-hook works horizontally. I may, however, without departing from the principle of my invention, arrange it to work in a vertical plane, as shown in Figs. 4 to 8. In this case my devices are shown applied to the under side of the floor-timbers beneath independent bumpers J. The same construction of hook C, Fig. 8, and its bar E, with cross-pins *d d*, is, however, preserved, and also the same principle of locking the hook up to the coupling-bolt. As, however, the hook, when in this position, drops down from gravity into the range of the sliding bar E, no spring is needed for the hook. I prefer, however, to arrange a stop, K, to limit the upward movement of the hook and close in the coupling-bolt when the hook is around the same. When using this modification of my invention the draw-bar B may be made of either wood or iron. When made of wood a groove is cut in its under side, and the longitudinal metal bar to which the hook is attached has a bearing against a spring at the rear end, while brace-bars L L run from the draw-bar to each side sill of the car, to distribute the draft on the floor-timbers of the car.

When made of iron the draw-bar will be constructed, as shown in Figs. 7 and 9, in a slotted form, with blocks M M', which are arranged in the slot with rubber springs in front of one and behind the other, which blocks M

are securely fastened to the timbers and brace-rods of the car. A set-screw may also be used to adjust the tension of the springs.

The horizontal coupling-bolt, for coupling with the vertically-working hook, is shown at *d'*. It is arranged in a metal frame-work depending from the car-floor, which frame-work is composed of bars *a*², which are connected to the front cross-bar of the floor-timbers, and pass through the same in horizontal direction, and have a nut and a rubber spring at the back of said bar. These bars *a*² hang down beneath the timbers, and carry between them the horizontal coupling-bolt *d'*, which has tapering and detachable hubs on each side of its middle to hold the hook in the center. These bars *a*² are then extended below this point and bent to form recesses *b*², that receive plates *c*², that contain the grooves that receive the cross-pin that holds the hook to the coupling-bolt. To the lower ends of these metal bars *a*² are arranged side braces, *e*², and braces *f*², which latter extend rearwardly to the second cross-bar of the floor-timbers and are fastened to a bolt therein, with a rubber spring in front of said brace for an elastic bearing.

I have thus far described two principal modifications, in one of which the hook works horizontally, and in the other of which the hook works vertically, but from a pendent position up to the coupling-bolt. As a modification of this latter plan, I may arrange the hook to work in a vertical plane from a standing position downwardly upon the coupling, and when so arranged the sliding bar back of the hook should be loosely connected to the hook, so that when the sliding bar is drawn back it raises the hook to its open position.

To adapt my invention to couple with different heights of cars, a detachable frame-work, O, Fig. 10, is bolted to the car-floor timbers, and this frame-work has a coupling-bolt long enough to connect with cars of extreme variation, and beside this coupling-bolt is arranged the grooves *e e*, to receive the cross-pin *d*, and to adapt the cross-pin *d* to the vertical variation it is designed to be held in the end of bar E adjustable by a set-screw, or otherwise.

Having thus described my invention, what I claim as new is—

1. A car-coupling consisting of a hook connected to the draw-bar, a coupling-bolt arranged upon the other draw-bar, a sliding bar arranged at the back of the hook, and means, substantially as described, for operating the sliding bar to throw the hook into a locking position, as described.

2. A car-coupling consisting of a hook connected to the draw-bar, a coupling-bolt arranged upon the other draw-bar, and a sliding bar arranged at the back of the hook and having cross-pins adapted to enter grooves or channels in the opposite draw-bar, to throw the hook into locking position and hold it there, as described.

3. A car-coupling consisting of a pair of

draw-bars open upon one side, and having a hook pivoted on one of them and a coupling-bolt fixed on the other, with grooves *e e*, combined with the sliding bar E, having pins *d d*,
5 and arranged at the back of the hook, substantially as and for the purpose described.

4. In a car-coupling, the combination, with a hook and a bar for throwing it into engage-

ment with a coupling-bolt, of a lever for operating said bar, and a locking device for holding said lever, substantially as described.

C. E. MACARTHY.

Witnesses:

EDWD. W. BYRN,
SOLON C. KEMON.