

(No Model.)

P. J. PAYN.
CAR COUPLING.

No. 312,156.

Patented Feb. 10, 1885.

Fig. 1.

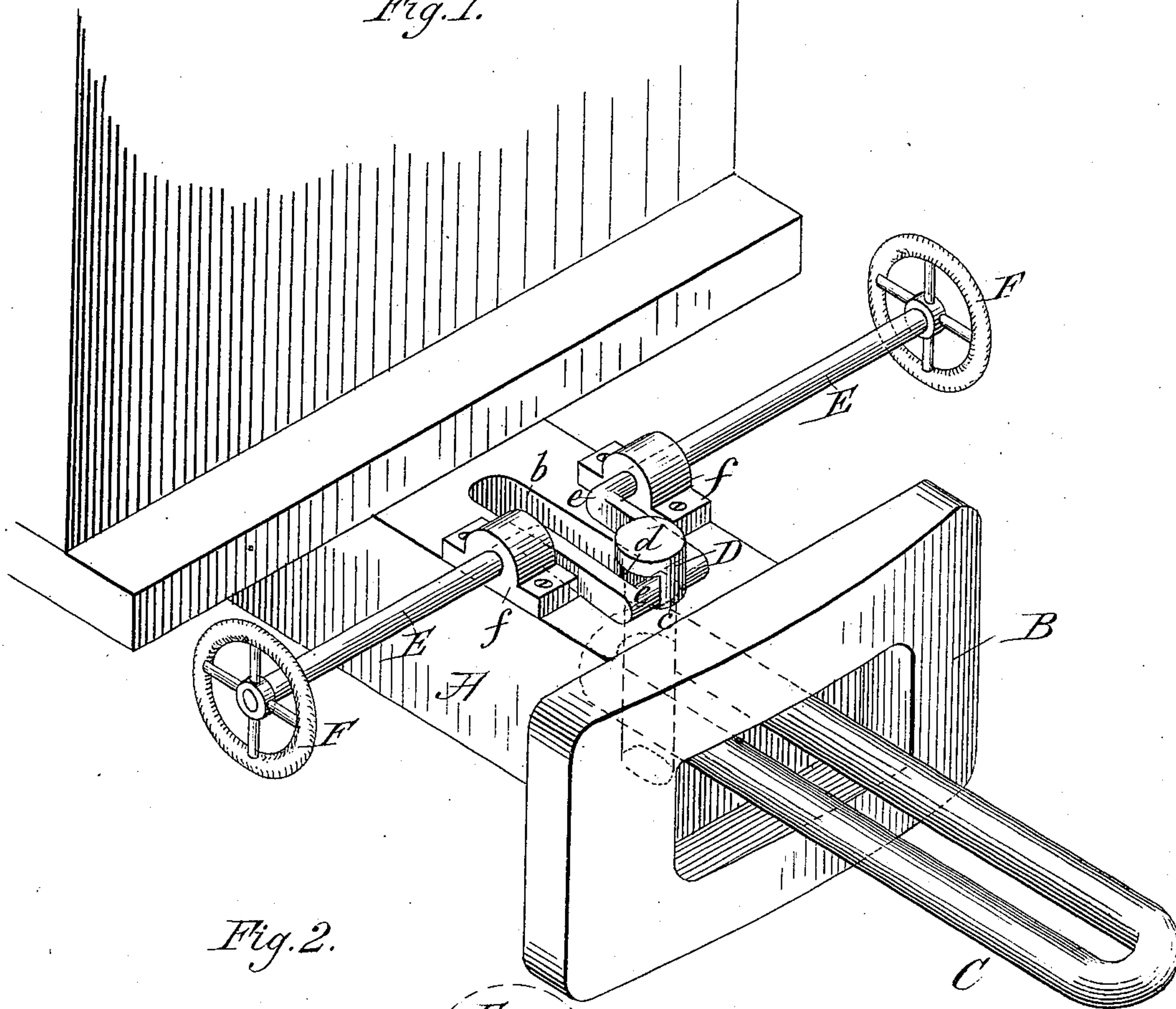


Fig. 2.

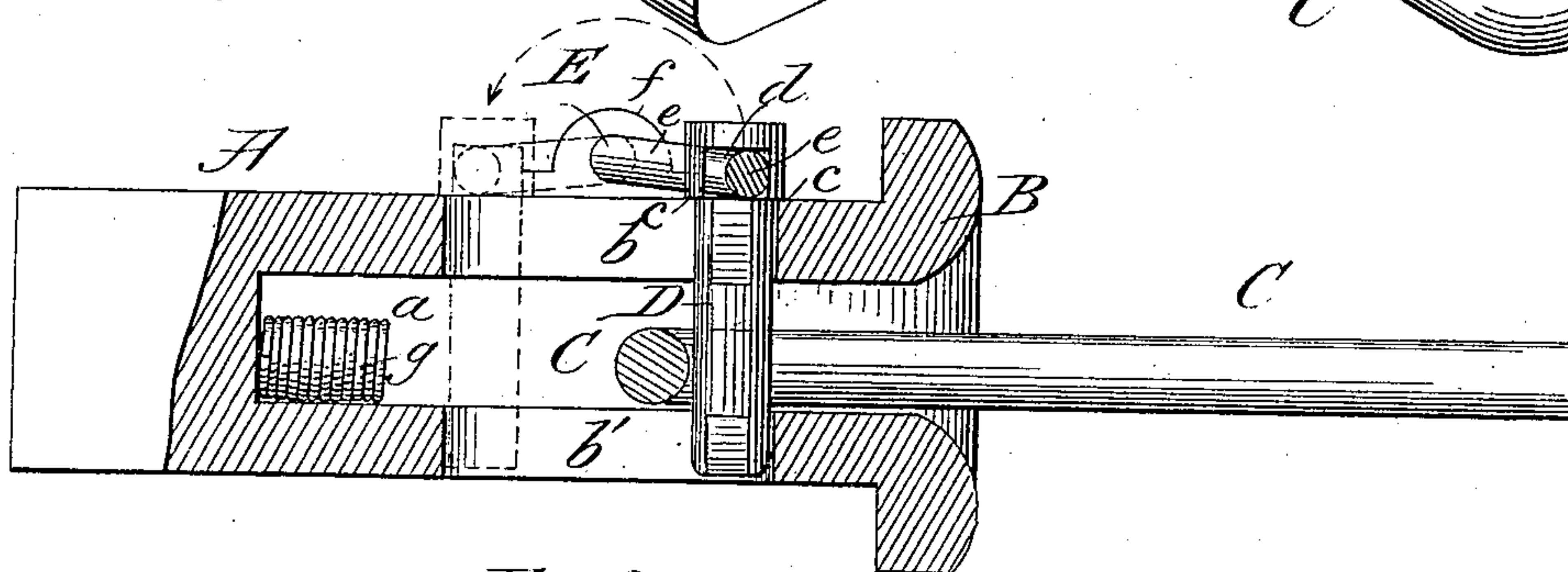
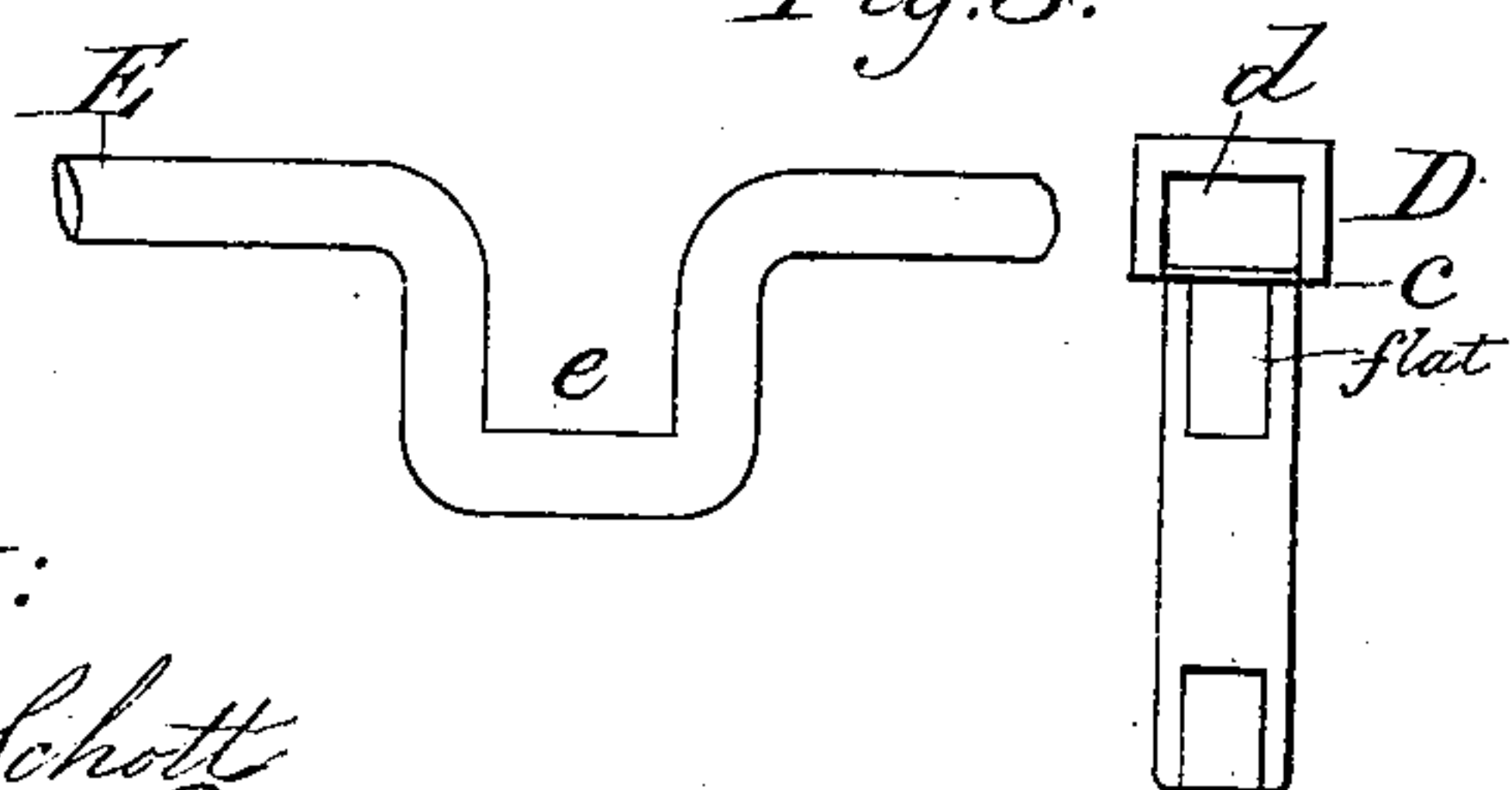


Fig. 3.



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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 312,156, dated February 10, 1885.

Application filed December 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, PHILIP J. PAYN, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Car-Couplings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to a car-coupling in which the coupling-pin is suspended loosely from a crank-shaft that is journaled upon the top of a slotted draw-head or buffer in such a manner that when the crank-shaft is turned to bring the pin to the forward end of the slots through which it passes the cars can be automatically coupled and the draft brought directly upon the draw-head without straining the crank-shaft from which the pin is suspended, while uncoupling is effected by simply rotating the crank-shaft backward so as to carry the coupling-pin to the rear end of the slots, where its lower end has sufficient forward play to enable the link to be withdrawn from beneath.

The invention further relates to certain details of construction, as hereinafter more fully set forth.

In the annexed drawings, Figure 1 is a perspective view of my improved car-coupling. Fig. 2 is a longitudinal section of the same; and Fig. 3 represents detail views.

The draw-head or buffer A is provided with a flaring mouth, B, and is recessed longitudinally at *a* for a sufficient distance backward to allow for the necessary end-play or endwise movement of the coupling-link C, so as to avoid strain upon the coupling-pins, should either of said coupling-pins be out of its proper position when the cars are brought together. The recessed or socketed interior of the buffer should also be of such width as may be required to allow for the lateral play of the link in turning curves.

In the top and bottom of the draw-head or

buffer A are formed longitudinal slots *b b'* for the passage of the coupling-pin D, as shown in Fig. 2. It will be observed that the head of the coupling-pin D is enlarged, so as to form a shoulder at *c*, that is adapted to rest on the draw-head at the edge of the slot *b* when the pin is lowered, a firm seat for the pin being thus afforded. The head of the pin D has an eye, *d*, for connection with the central cranked portion, *e*, of a transverse shaft, E, that is journaled in bearings *f f* on the top of the draw-head, the aperture or eye *d* in the head of the pin being of greater diameter than the crank *e*, or enlarged from front to rear, as shown in Fig. 2, partly for the purpose of giving the coupling-pin sufficient play in turning on its pivot, but more particularly to avoid all strain on the crank *e* when the cars are coupled. The shank or body of the pin is preferably flattened on its sides at those points that rest within the slotted portion of the draw-head. This construction prevents the pin from turning in the slots, and consequently obviates all liability of wear or strain on the crank *e*. I prefer to make the sides of the pin flat at top and bottom, although it is obvious that such construction may be confined to either point or extended the entire length of the pin with like effect. A spring, *g*, may be placed in the socket *a* to cushion the link, if desired. The crank-shaft E may extend out at each end on a line with the sides of the car-body, as shown in Fig. 1, and each end of this shaft is provided with a hand-wheel, F, by which the shaft can be turned forward or back, so as to actuate the coupling-pin without the ordinary necessity of passing between the cars. It is obvious that the crank *e* that carries the coupling-pin can be readily actuated from the top of the car, if desired, by means of any suitable mechanism. It will be seen that when the shaft E is semi-rotated, so as to carry its cranked portion *e* forward, the coupling-pin D is thereby lowered into the forward ends of the slots *b b'*, where it rests with the shoulder *c* on the edge of the upper slot, and with the shank of the pin bearing on its front side, close against the body of the buffer. While in this position the lower end of the pin D is

capable of moving back under pressure of the link C, and will resume its vertical position at the forward ends of the slots *b b'* as soon as the end of the link passes into the draw-head.

5 When the pin and link are thus in position, the draft will come directly on the draw-head at the ends of the slots *b b'*, through the link and pin, without exerting the least strain on the crank *e*, which is protected by the space
10 afforded by the enlarged eye *d* of the coupling-pin.

The construction of the draw-head, as before mentioned, affords at the same time sufficient lateral and end play for the link, so as to avoid
15 jar and strain of the parts.

In order to uncouple the cars, a backward semi-rotation is imparted to the crank *e* and suspended pin, thereby bringing the pin into the position (indicated in dotted lines in Fig.
20 2) at the rear end of the slots *b b'*, in which position the lower end of the pin will be lifted upward and forward by traction on the link, so as to enable the link to pass outward. It will be understood, however, that in order to
25 again couple the cars the pin D must first be suspended in the forward ends of the slots by rotating the shaft E forward; but should the cars be inadvertently brought together while the pin D in one draw-head remains suspended
30 at the rear ends of the slots, in which position coupling cannot be effected, no damage will result from contact between the pin and the entering link, because the draw-head to which the link is attached affords sufficient
35 space back of the pin for the link to recede, if necessary, before the buffers come together.

It will be observed that the pin D has a firm and uniform bearing against the ends of the slots *b b'*, whether it is suspended at either
40 end of said slots, and it may also be remarked that by means of its shoulder or collar *c* it has a firm seat on the edge of the upper slot when it is lowered into position.

By making the socketed portion of the draw-head shallow, as shown in Fig. 2, the vertical
45 play of the link is limited, so that when attached to either draw-head alone it will always maintain a practically horizontal position and thereby facilitate engagement with the opposite draw-head in coupling. By this construction,
50 also, a shorter pin than ordinary is required.

In adapting draw-heads now in use to my

improved car-coupling, these advantages can be readily maintained by securing a metallic
55 plate or plates within the socket at top or bottom, if necessary, so as to reduce the vertical depth of the socket.

A further advantage of my invention resides in the fact that in case of the suspended pin
60 and its crank-shaft becoming disabled coupling can still be accomplished by means of an ordinary pin passed through the forward ends of the slots *b b'*.

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

1. In a car-coupling, the combination, with the socketed draw-head A, provided in its upper and lower faces with longitudinal slots *b b'*,
70 of a crank-shaft, E, journaled upon the draw-head, and having its centrally-cranked portion *e* arranged over the upper slot, the coupling-pin D, suspended from the crank *e*, and adapted to rest in either end of the slots *b b'*,
75 and a link, C, for engaging the pin when suspended in the forward end of the slots, and capable of becoming disengaged by rotating the crank *e* backward, so as to carry the pin to the rear end of the slots, substantially as
80 described.

2. The combination, with a draw-head having longitudinal slots *b b'* at top and bottom, of the shouldered coupling-pin D, suspended
85 loosely from the cranked portion of a shaft, E, that is journaled upon the draw-head, said pin being adapted to hang in either end of the slots and have a bearing against the end of the slots and upon the edge of the upper slot,
90 substantially as described.

3. The combination of the draw-head A, having longitudinal slots *b b'* and spring *g*, the cranked shaft E, and the coupling-pin D,
95 suspended loosely from the cranked portion of said shaft, and provided with flattened sides, and an enlarged head having an eye, *d*, of greater lateral diameter than the crank, whereby the crank-shaft is relieved of strain and the pin made capable of being moved to either
100 end of the slots *b b'*, substantially as described.

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

PHILIP J. PAYN.

Witnesses:

PHILIP MAURO,
FRED E. TASKER.