

(No Model.)

W. F. DENNEY.

CAR COUPLING.

No. 316,128.

Patented Apr. 21, 1885.

Fig. 1.

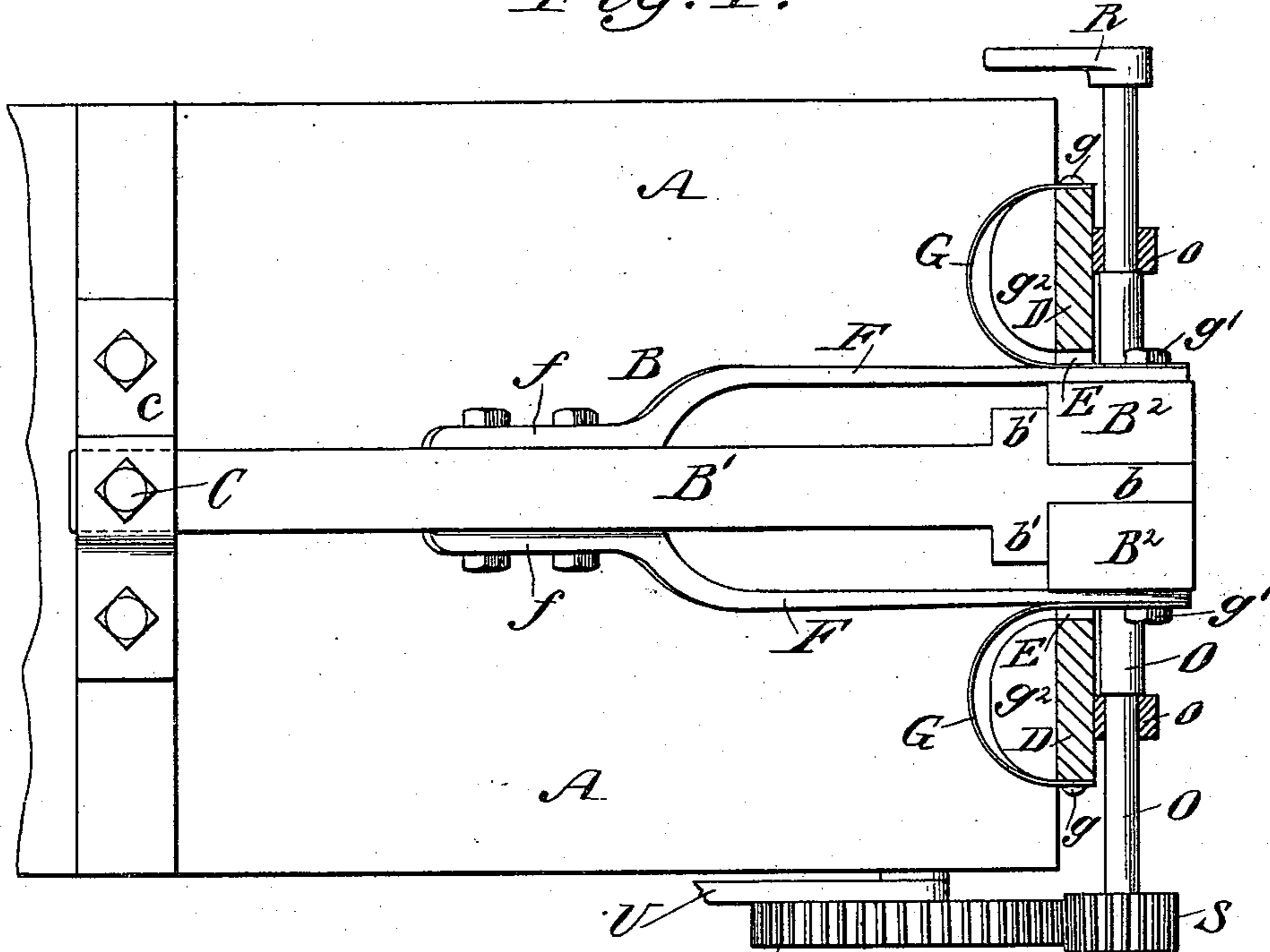


Fig. 2.

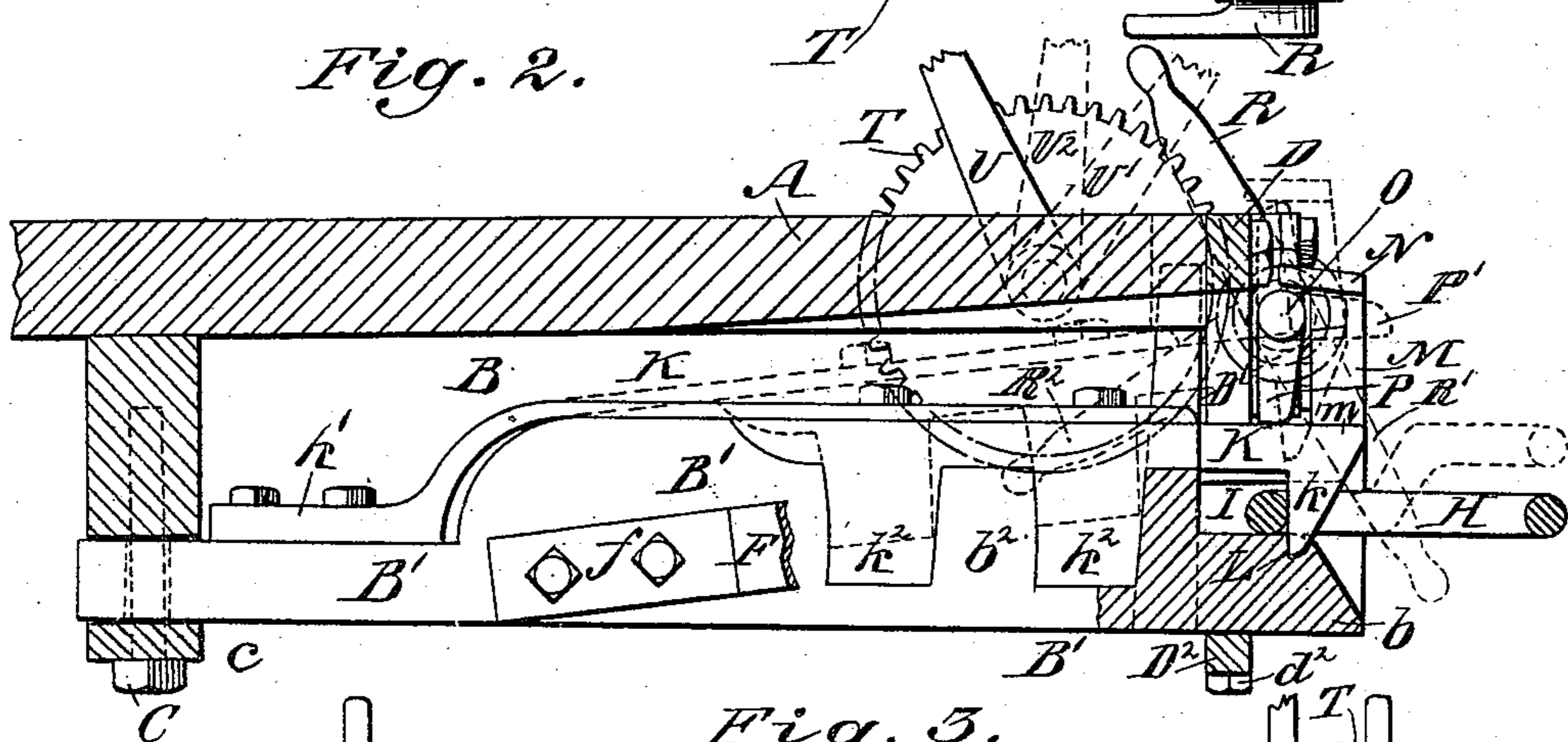
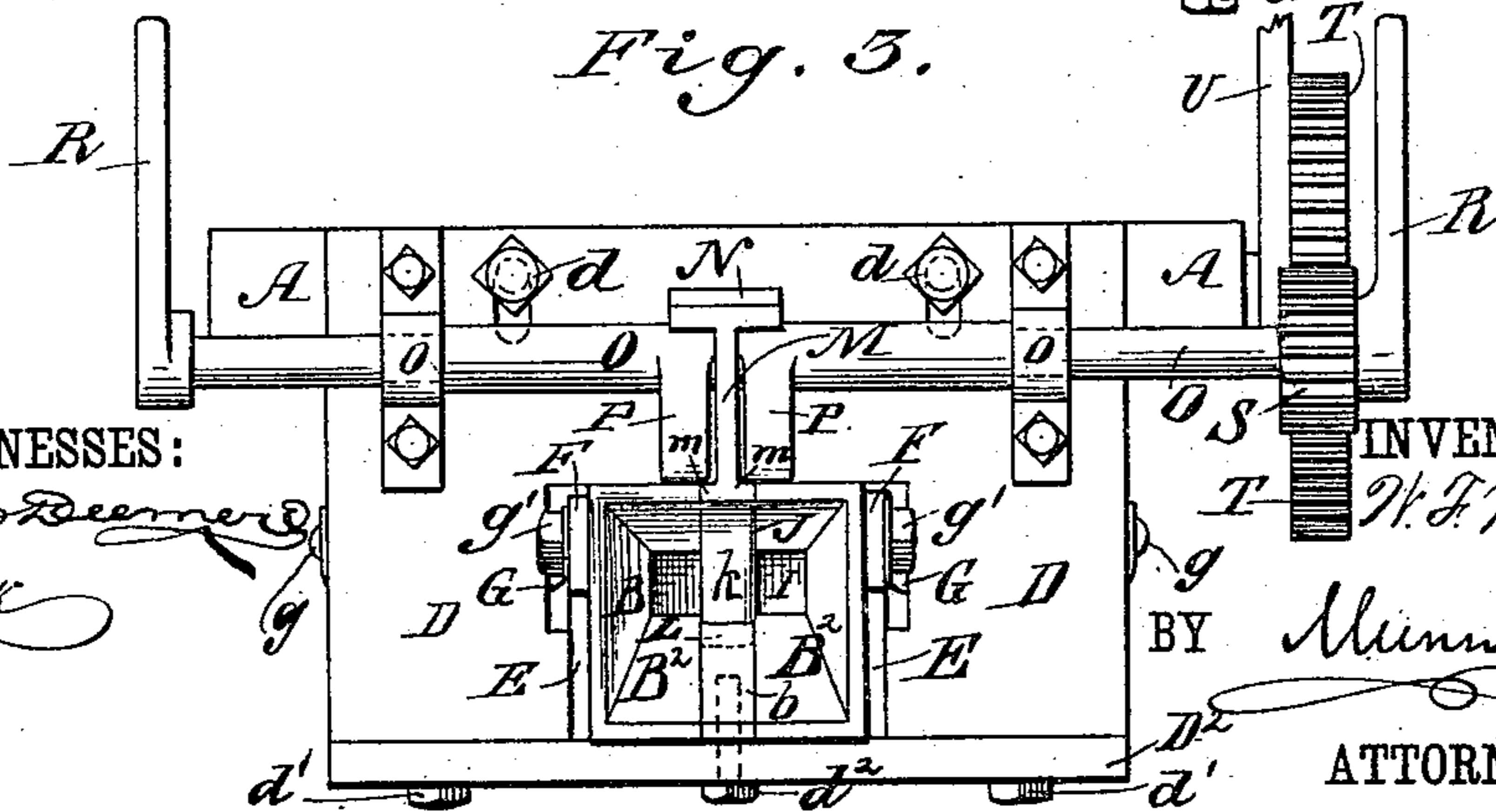


Fig. 3.



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## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 316,128, dated April 21, 1885.

Application filed September 8, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM F. DENNEY, of Millbrook, in the county of Mecosta and State of Michigan, have invented a new and Improved Car-Coupling, of which the following is a full, clear, and exact description.

The object of my invention is to provide a simple, inexpensive, and durable car-coupling so constructed as to be operated for coupling and uncoupling the cars without requiring the train-men to go between the cars, thus avoiding the dangers to life and limb incident to the common methods of coupling cars.

The invention consists in particular constructions and combinations of the parts of the coupling, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an under side view of the coupling with parts in horizontal section. Fig. 2 is a longitudinal sectional elevation of the coupling with different positions of the parts indicated in dotted lines, and Fig. 3 is a front elevation of the coupling.

The letter A indicates the floor or timber framing of a car to which the coupling is attached.

B is the draw head or bar which draws on a strong pin or bolt, C, passing through the back end of the draw-head, and through the cap-plate *c*, which is bolted to the cross-beam into which the bolt C enters. The back end of the draw-head has sufficient looseness in the cap-plate *c* and around the bolt C to permit the front plate, D, of the coupling to play up and down on the bolts *d d*, which pass through vertical slots in the plate into the car sill or timber, and thus support the forward end of the coupling and allow it to accommodate itself vertically to the entering links. The front plate, D, has an opening, E, through which the draw-head passes, and which is wider than the draw-head to allow the opposite side parts, B<sup>2</sup> B<sup>2</sup>, of the draw-head to have lateral play, and I show a cross-bar, D<sup>2</sup>, bolted at *d'* to the main body of the plate D, and crossing beneath the draw-head

as the support to it at the front; but the bar D<sup>2</sup> and the front plate, D, may be in one piece, if desired. The forward end of the center part or bar B' of the draw-head is formed with a tenon, *b*, which enters between the front side parts, B<sup>2</sup> B<sup>2</sup>, of the draw-head, and is held to the cross-bar D<sup>2</sup> by a bolt, *d*<sup>2</sup>. The parts B<sup>2</sup> B<sup>2</sup> of the draw-head are fastened to the bars or springs F F, which in turn are bolted at *f* to the center bar, B', and the back ends of parts B<sup>2</sup> B<sup>2</sup> abut against shoulders *b' b'*, back of the tenon *b*, as in Fig. 1. Springs G G, fastened to the plate D at *g*, and held to the parts B<sup>2</sup> by the bolts *g'*, which hold the parts B<sup>2</sup> to the bars F, act to hold the parts B<sup>2</sup> against the tenon *b*, and the blocks *g*<sup>2</sup> may be fastened to the plate D, within the curves of the springs G, to steady the springs, which allow parts B<sup>2</sup> B<sup>2</sup> to give way sidewise by any lateral pressure of the link H either way on them, as when the coupled cars are rounding curves, and will carry the link to a central position again on a straight track, thereby avoiding a sidewise breaking or crushing strain on the link, which rests in the socket I provided for it in the draw-head above the end part or tenon *b* of the center bar, B'. The upper inner portions of the parts B<sup>2</sup> B<sup>2</sup> of the draw-head are cut away to form a vertical recess, J, to receive the hook end *k* of the coupling-bar K, which is bolted to the top of the bar B' at *k'*, and is made of spring metal and so that the normal tendency of the lower end of the coupling-hook *k* is to spring downward into a notch or socket, L, made for it in the top of the tenon or end *b* of the part of the draw-bar and at the floor of the link-socket. The plate D is slotted at D', to allow the bar K to rise, as hereinafter described. I provide the opposing faces or parts of the bars K B' with tongues or projections *k*<sup>2</sup> *b*<sup>2</sup>, which are formed on vertical curves struck from the axis of motion of the coupling-bar K, and fit edge-wise against each other when the bar is down with the hook *k* in coupling position, and so that the meeting faces of the projections *k*<sup>2</sup> *b*<sup>2</sup> will take the strain of any end-thrusts which may by chance come upon the end of the coupling-bar, to prevent it from being broken from its fastenings *k'* at the back end.

To the top of the coupling-bar K, above its hook *k*, is fastened a standard, M, which is narrower than the hook, so as to form shoulders *m m* above the hook, and the standard M has a cross-head, N. (See Fig. 3.)

O is a shaft, which is journaled in any suitable bearings, *o o*, on the front plate, D, and has a couple of arms, P P, fixed to it so as to come at each side of the standard M, to act, when the shaft is turned, against the cross-head N and shoulders *m m*, to lock the coupling-hook in raised or lowered positions, respectively, as presently explained. The shaft O has levers or crank-arms R R fixed one at each end, so that it may be turned by an attendant standing on the ground at either side of the car for locking or setting the coupling-bar, and to provide for setting the coupling-bar from the top of the car I have placed on the shaft O a pinion, S, which meshes with a gear-wheel or segmental rack, T, journaled to the side of the car, and so that the slight vertical play of the shaft O that may result from the rise and fall of the front plate, D, on the bolts *d d* will not throw the wheels S T out of gear with each other. To the wheel or rack T is fixed a lever, U, which extends to the top of the car, to be worked by an attendant on the roof of the car, as will readily be understood. The link H may have the straight form, as in full lines in Fig. 2, to be used in coupling cars of equal height; or it may have the bent form shown in dotted lines for coupling cars whose draw-heads stand at unequal heights.

The operation is as follows: When the shaft O and its arms P P are in the positions shown in full lines in Figs. 2 and 3, the ends of the arms P rest on the shoulders *m* of the coupling-bar and lock the hook *k* into the notch L in front of the end bar of the link H to couple the cars. To uncouple the cars, either arm R must be turned half-way around backward to the position shown by the dotted lines R' in Fig. 2, or the lever U must be moved to the position shown by the dotted lines U', either of which movements will cause the arms P of shaft O to strike the cross-head N of the coupling-bar K and lift the hook *k* above the link-socket, as in dotted lines, to release the link, so that the cars may be drawn apart, and with the bar K held by the arms P in this position the cars may be shifted against each other without coupling, as often is required in making up trains or in shunting cars to a side track.

To set the coupling to couple the cars automatically as they come together, the arms R will be set in the intermediate position shown at R<sup>2</sup>, or the lever U set in intermediate position, as at U<sup>2</sup>, which will carry the arms P to the horizontal position shown at P' in Fig. 2, or just below and about parallel with the under face of the head N, which allows the coupling-hook *k* to enter the notch L for coupling,

and also allows the hook to rise above the link-socket, so that an approaching car carrying a coupling-link will force its link against the beveled outer face or end of the hook *k* and force the hook upward to allow the link to enter the socket I, whereupon the hook will spring down in front of the end of the link to couple on the car. The shaft O now may be turned to carry the ends of the arms P against the shoulders *m* to prevent a rise of the coupling-hook.

It will be understood that but one arm P and shoulder *m* may be provided to act with a cross-head, N, and the coupling-hook, as above described; but the construction shown is preferred.

I propose to make all parts of the coupling which are subjected to severe shocks or strains of some suitable metal, and, in fact, most of the coupling will be made of metal, so as to make it strong and durable.

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

1. The combination, in a car-coupling, of the draw-head B, consisting of the bar B', end parts, B<sup>2</sup> B<sup>2</sup>, supported to yield laterally and pressed toward each other by springs, and a spring-metal coupling-bar, K, provided with a hook, *k*, adapted to enter the link-socket, and said socket having a notch, L, to receive the end of the hook *k*, substantially as shown and described.

2. In car-couplings, the draw-head B, consisting of the bar B', end parts, B<sup>2</sup> B<sup>2</sup>, supported on bars F F so as to yield laterally, and pressed toward each other by springs, and a spring-metal coupling-bar, K, provided with a hook, *k*, adapted to enter the link-socket, and said draw-bar being supported at the front end in a plate, D, adapted to rise and fall with the draw-bar, substantially as shown and described.

3. The combination, with the draw-head, center bar, B, and coupling-bar K, of the tongues or projections *b<sup>2</sup> k<sup>2</sup>*, substantially as shown and described.

4. The combination, in a car-coupling and with the coupling-bar K, having a hook, *k*, shoulder *m*, standard M, and cross-head N, of the shaft O, provided with an arm, P, and end arms, R R, substantially as shown and described.

5. The combination, in a car-coupling and with the coupling-bar K, having a hook, *k*, shoulder *m*, standard M, and cross-head N, of the shaft O, pinion S, gear wheel or segment T, and lever U, substantially as shown and described.

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Witnesses:

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