(No Model.)

2 Sheets—Sheet 1.

# H. H. SMITH.

## CAR COUPLING.

No. 318,665.

Patented May 26, 1885.

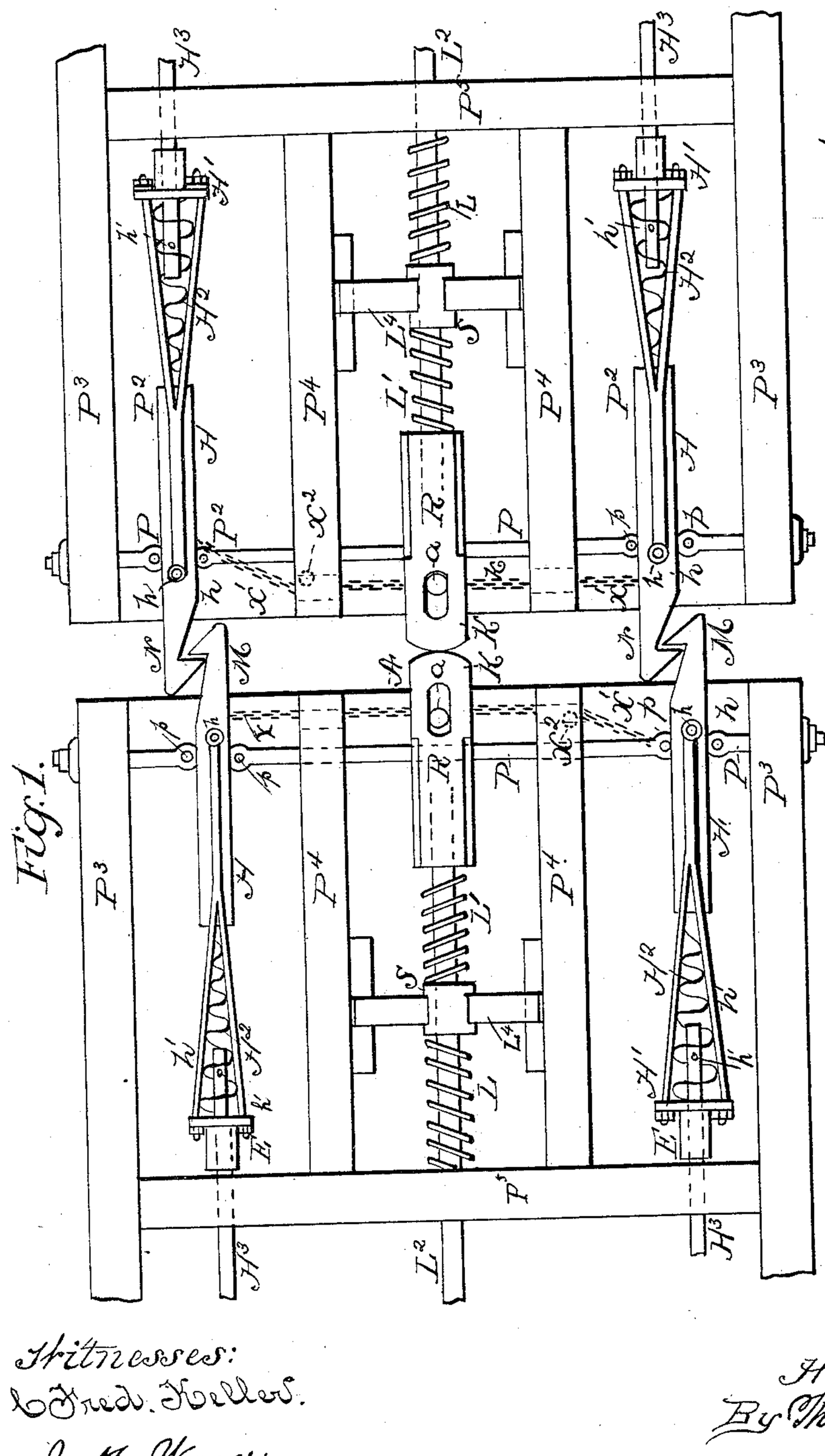

Fig. 1.

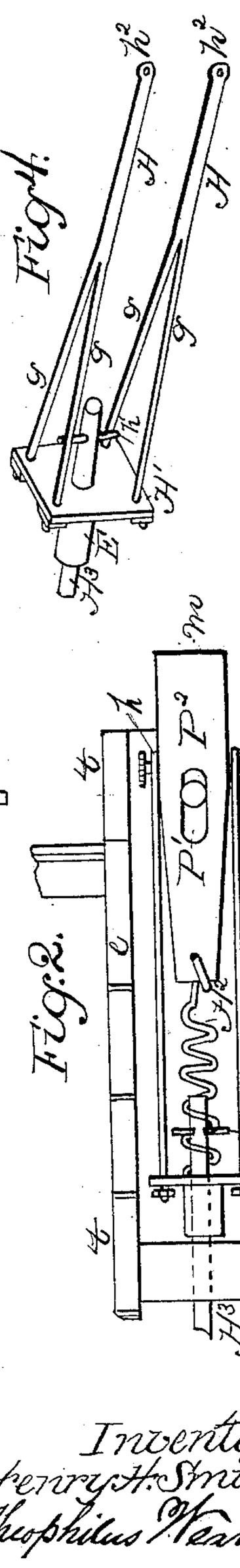

Fig. 4.



Fig. 2.

Witnesses:
Fred. Keller.
J. H. Weaver.

Inventor.
Henry H. Smith
By Theophilus Weaver
Atty.

(No Model.) 2 Sheets—Sheet 2.

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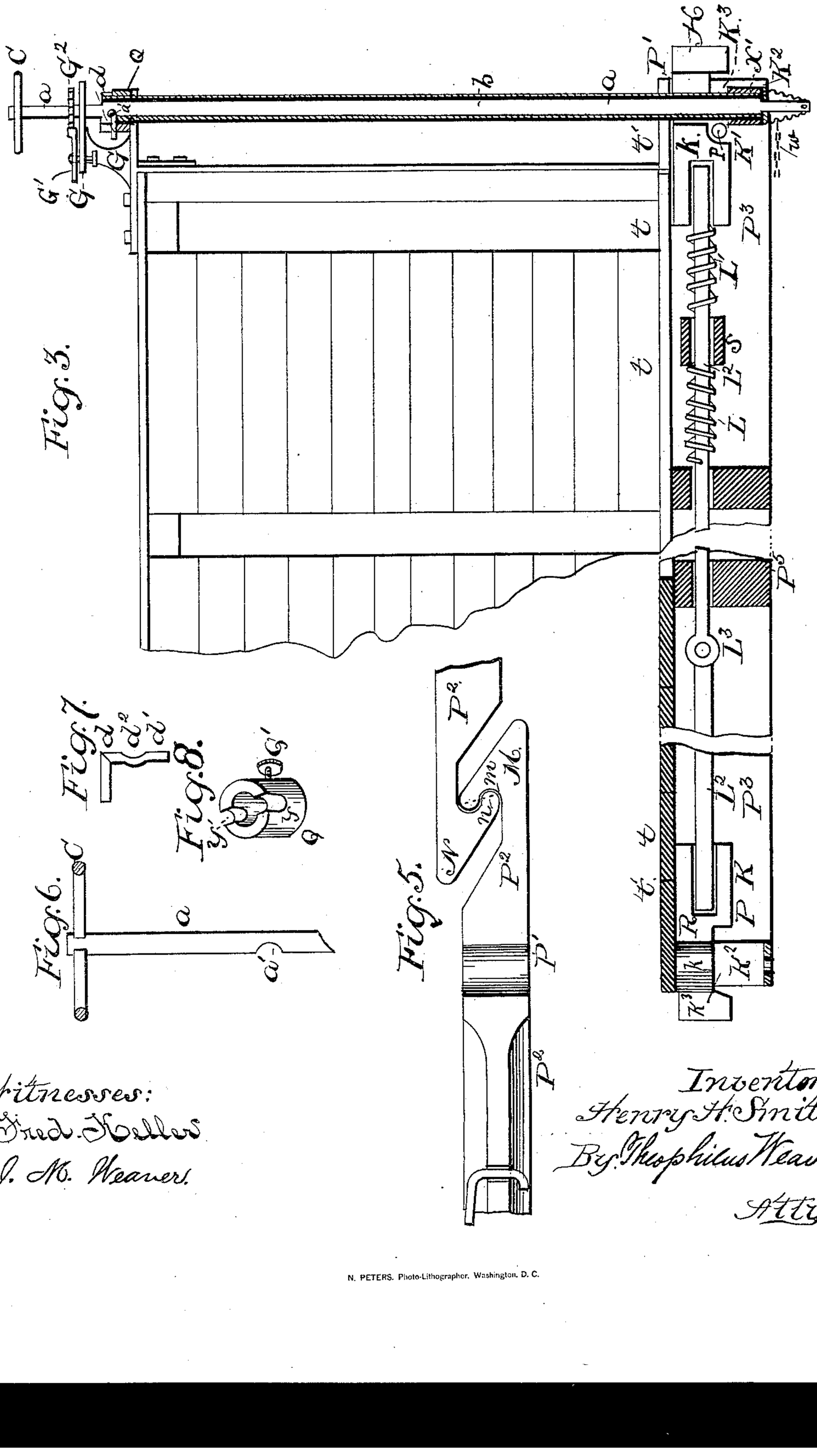


Fig. 5.




Fig. 6.




Fig. 7.




Fig. 8.

Witnesses:
Fred. Keller
J. M. Weaver.

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Henry H. Smith.
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# UNITED STATES PATENT OFFICE.

HENRY H. SMITH, OF BAINBRIDGE, PENNSYLVANIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 318,665, dated May 26, 1885.

Application filed January 26, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY H. SMITH, a citizen of the United States, residing at Bainbridge, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the arts to which they appertain to make and use the same.

The main object of my said invention is to couple railway-cars exterior to the buffers by means of couplings peculiarly arranged and adapted to favor self-coupling, and convenient mechanism for uncoupling the same without hazard to train hands, and a centrally-arranged set of buffers, supported on the same transverse bars which support said couplings on either side of the same. The special features of the same will be described hereinafter, and set forth in the claims and in the accompanying drawings, in which—

Figure 1 represents a top view of my couplings coupled, with car-platforms in horizontal section. Fig. 2 represents a side elevation of one of my similar couplers with its connections and bearings. Fig. 3 represents a vertical longitudinal section of car-buffer and the coupler-operating mechanism. Fig. 4 represents a perspective view of back-rest for the stays and springs at rear of each coupler. Fig. 5 represents a horizontal section through middle of draw-heads. Figs. 6, 7 and 8 represent, respectively, brake-shaft, interlocking turn-button, and journal-box for said button.

Similar reference-letters denote like parts throughout the several views.

The jaws of my draw-heads, M N, are hook-form, having on their inner faces corresponding depressions, *m*, and protuberance *n* oppositely, that when coupled and drawing they shall work to keep properly hooked together, notwithstanding the vertical play of the car-platforms. The body $P^2$ of each coupler has in it a horizontal slot, P′, which forms its limited bearing on a transverse bar, P, inserted through said slot, and secured to or through the car-platform timbers $P^3$ $P^4$.

The branched stay-rods H H, one above and one below each coupler, are pivoted thereto at *h* in manner to allow the front end of the same to swing laterally on its support, P, or cant in the act of coupling, and to accommodate themselves to the lateral sway of cars. The limbs or rear ends, *g*, of said stays are loosely bolted to the back rest, H′, distinctly as shown, that they may brace or draw said rest squarely, yet yieldingly. Said rest is provided with the hub E or prolonged rear bearing, through which the stationary support $H^3$ is projected forward through said rest and supports thereon the spiral spring $H^2$, wound around said support, the latter having the pin *h′* inserted through it, and the spring-coils, as shown, forward from the rest H′, thus retaining said spring on said rest. The opposite end of said spring $H^2$ is attached to rear end of the coupler $P^2$ and retracts it when uncoupled, sliding it back on bar P to the limit of slot P′. The pin *h′* serves both to allow the rear end of coupler to bob laterally and vertically, although front end of spring is attached thereto. The pins or stops *p p* on bar P, adjacent to coupler, confine the same at its middle laterally, allowing it to tilt on said bar, move sidewise at its ends to compensate for sweeping curves, and for car-platforms carrying at different heights.

A pair of couplers, as described, are employed at each side of the centrally-arranged buffer K, and similarly adapted at each end of car. The buffer-head is sleeved on through bar $L^2$ and rides on the transverse bar P, being cut away at $K^3$ underneath, as shown. Said bar is jointed or spliced at $L^3$ and supported in bearings in transverse timbers $P^5$, and by sliding braces S, supported by plates on timbers $P^4$. Springs L′ and L before and in rear of brace S regulate the onset of buffer with buffer and the rebound as well.

The body of the buffer K is vertically slotted at *k* lengthwise sufficiently to afford longitudinal easement at the brake-shaft *a*, which is inserted through said slot *k*, being incased in sleeve *b*, which serves also as the lateral guide for said buffer.

The heads M N are uncoupled by means of said shaft *a*, which operates the car-brake either distinctly from the couplers or in conjunction therewith, at option, as follows: The buffer K being cut away on under side at $K^3$, is retained on bar P by the car-platform planks *t*, or irons on their under side, and is curbed laterally by the combined sleeve *b* and shaft *a*

distinct from the coupler and brake mechanisms, otherwise allowing the buffing to occur without interfering with braking and coupling the cars. The shaft *a*, having hand-wheel C on its top, may be extended to reach to top of car, just as is now sometimes the case, for operating the brake from top of car, the lower end of said shaft being provided with chain *w*, whereby it is connected to the brake mechanism in the usual manner.

In addition to said function said shaft *a* is adapted and connected to operate the couplers by providing it with sleeve *b*, in which it works. Said sleeve has its lower end provided with chains *x x'*, connecting it with the opposite draw-heads M N, the chain *x* working in front of bar P through timber $P^4$ directly, and the chain *x'* working across said bar P and over a pulley, $x^2$, in timber $P^4$ by reversed action, so that both draw-heads will be drawn away when said chains are wound by said sleeve, and therefore uncoupled. The bracket $K^2$ supports said sleeve on it below and said shaft *a* is journaled through it, as shown.

The bracket G supports the shaft *a* above, and on it is the pivoted pawl G', working in the ratchet-wheel $G^2$ in the usual manner for brake. When said sleeve *b* is not interlocked with shaft *a*, brake mechanism is distinct; but the turn-button *d*, arranged convenient to the foot of the operator, when turned connects the coupler mechanism to be worked by the brake-shaft *a*. While the latter operates the couplers, the brakes may still be unoperated, if the winds of the brake-chains are left quite slack at the moment the coupler-chains *x x'* are started to wind—that is, the latter may require a less number of turns of sleeve *b* to bring them taut than the chain *w* requires to be brought taut by shaft *a*. Said chains may be so operated by timing the interlocking by said turn-button *d* that either function may be performed first, or that both the braking and uncoupling may occur simultaneously; for if the brake-shaft is first turned to take up the slack of chain on it, before the turn-button *d* is set to key or interlock the coupler mechanism, all the chains will act simultaneously to perform the braking and uncoupling.

The said turn-button has journals *d d'*, and is notched at the intermediate part, $d^2$, where it crosses the shaft *a*, which latter is also partially cut away at the point *a'* of intersection with said turn-button. When, therefore, the notch $d^2$ of said turn-button is turned toward said shaft, the latter may revolve freely in sleeve *b;* but when the same is reversed said shaft is interlocked with said sleeve, because said button is mounted or kept firmly to duty in a box, Q, which is attached to sleeve *b*, as by set-screw Q', and is provided with journal-bearings *y y'* for said turn-button, which latter is simply laid transversely into the same, as shown.

I make my couplings to act conjointly with the brake, for the reasons that uncoupled cars need have brake on, and that one hand-wheel may answer for both.

I claim—

1. Two hook-form draw-heads provided with horizontal slots in the body of each, and supported on a fixed transverse bar inserted through said slots, in combination with two other corresponding hook-form draw-heads similarly supported on a transverse bar fixedly inserted through timbers of the opposite car-platform, with rear stays pivoted above and below to said draw-heads in front of said slots therein, said stays having their rear ends secured to fixed back rests, and with spiral springs supported upon guides projected from said back rests, and having the front end of each spring attached to the rear end of draw-head, and its opposite end attached to said back rest and guide thereon, substantially as and for the purposes set forth.

2. The combination of two couples of self-coupling hook-form draw-heads, M N, a couple arranged on each side of the centrally-arranged buffers K $L^2$, with the mechanism for uncoupling the same, composed of the sleeve *b*, provided with the chains *x x'*, the shaft *a*, inserted through said sleeve, the interlocking turn-button *d*, supported in journal-box Q, attached to the upper end of said sleeve, and the ratchet $G^2$, with its pivoted stop G', all adapted and co-operating substantially as and for the purposes set forth.

3. The combination of the hook-form draw-heads M N, their transverse supports P, springs $H^2$, stays H, rests E H', the latter's supports $H^3$, chains *x x'*, pulley $x^2$, and upright shaft *a*, provided with sleeve *b*, connected with said chains and thereby with the said draw-heads, the journal-box Q, and the button *d*, all adapted and connected for coupling automatically and uncoupling mechanically, substantially as set forth.

4. The combination of two pairs of couplers, M N, of two transverse supports, P, provided with limiting-stops *p p*, and secured to car-platforms, of spiral springs $H^2$, and stay-rods H H, at rear end of each coupler connected thereto, and adapted to allow the heads M N to bob, of chains *x x'*, sleeves *b*, shafts *a*, turn-buttons *d*, journal-box Q, and buffers K $L^2$, provided with springs L L' and supports S, all arranged and coacting substantially as and for the purposes set forth.

HENRY H. SMITH.

In presence of—
GEO. WINTERS,
THOMPSON MYERS.