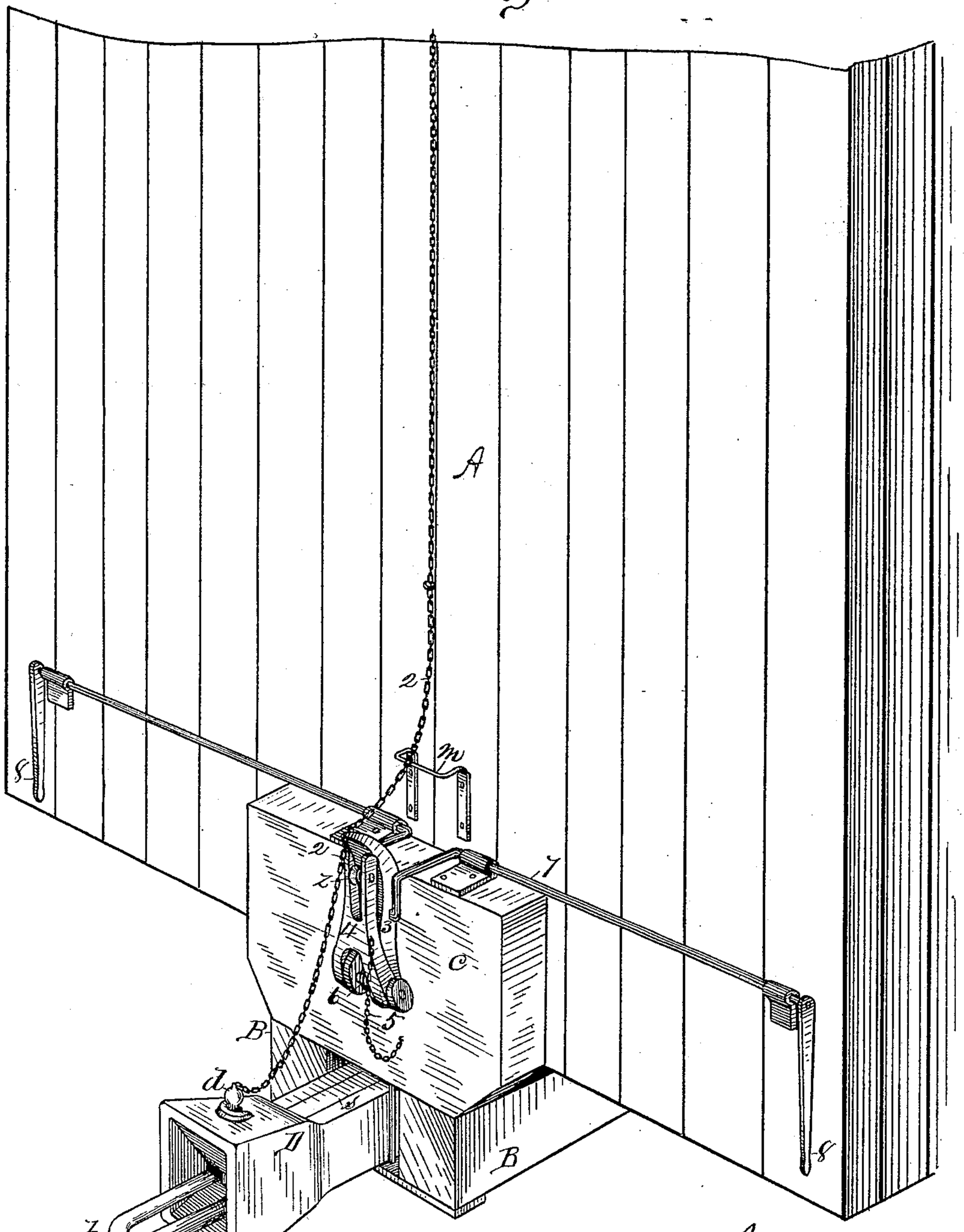
(No Model.) 2 Sheets—Sheet 1.

H. L. ROBERTSON.

CAR COUPLING.

No. 246,559. Patented Aug. 30, 1881.

Fig 1



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(No Model.) 2 Sheets—Sheet 2.

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Fig 2

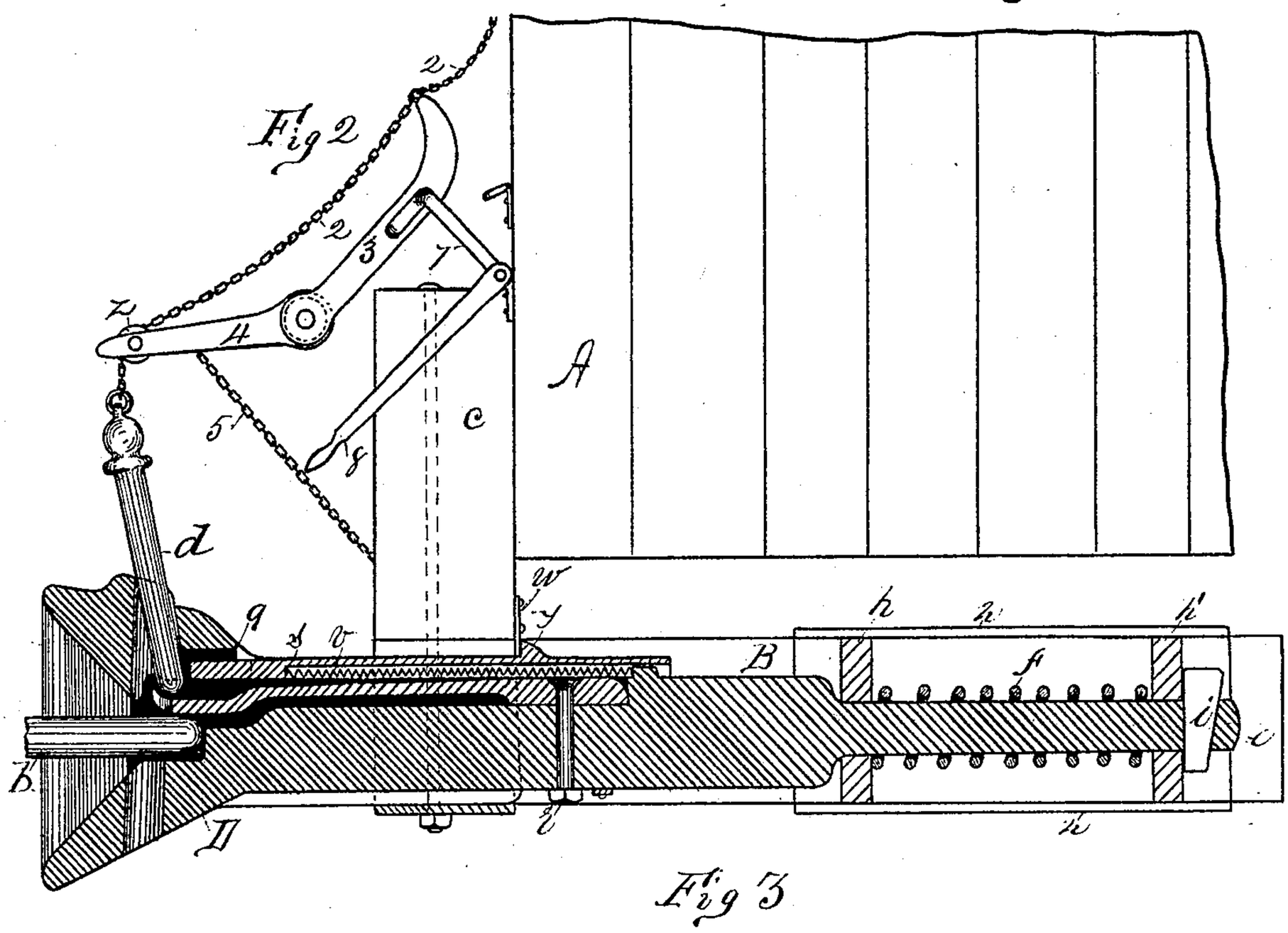


Fig 3

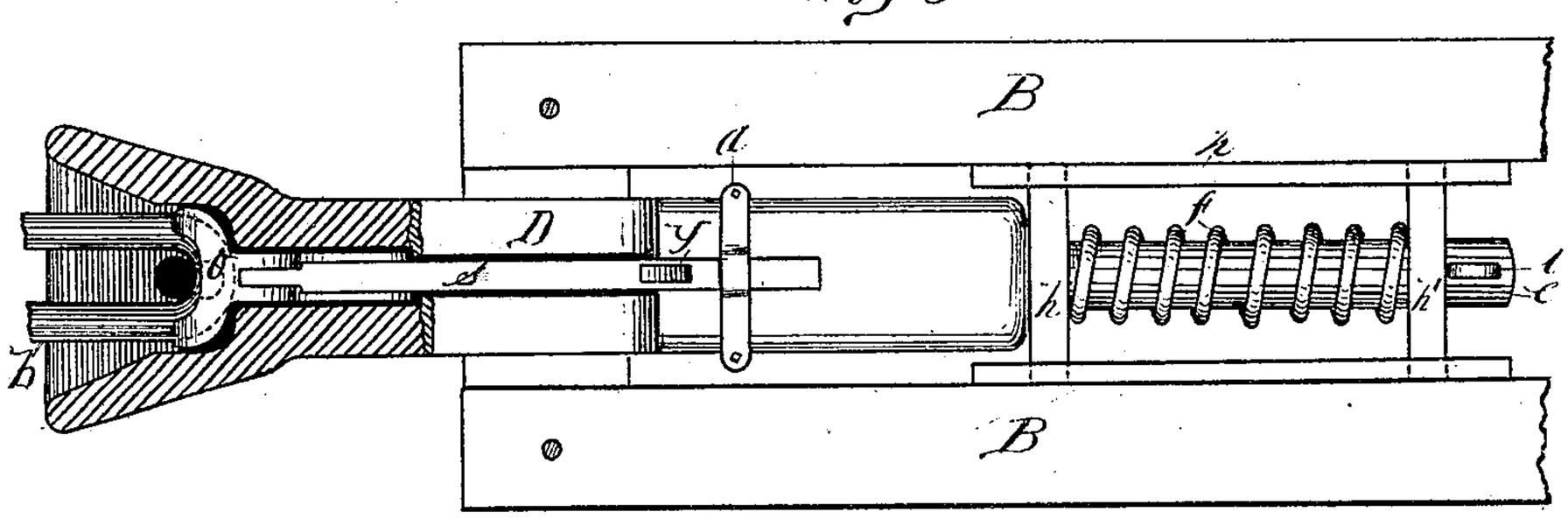


Fig 4

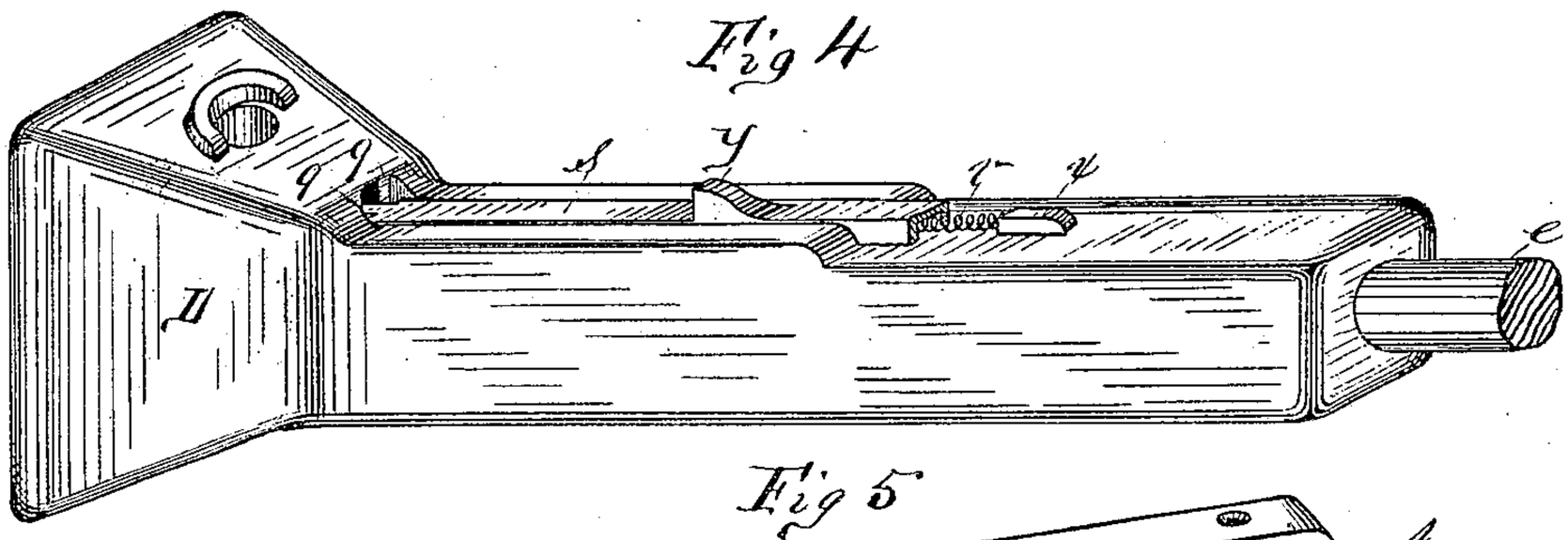
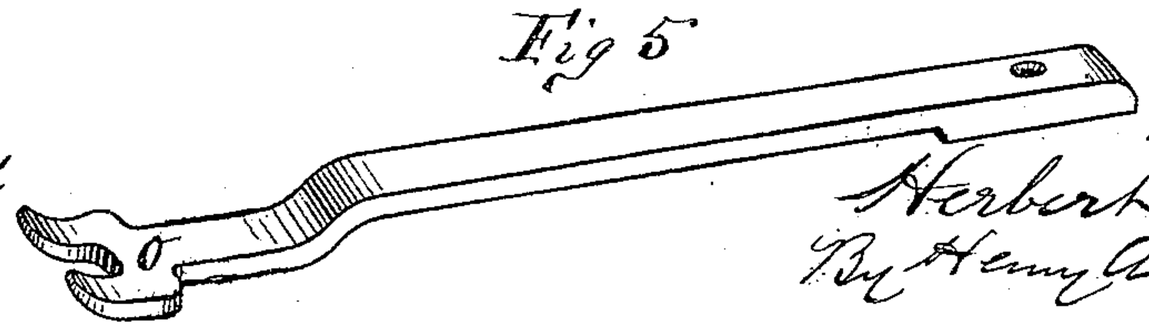


Fig 5



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UNITED STATES PATENT OFFICE.

HERBERT L. ROBERTSON, OF BROOKFIELD, ASSIGNOR OF ONE-HALF TO LEVI W. ROBINSON, OF WARE, MASSACHUSETTS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 246,559, dated August 30, 1881.

Application filed June 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, HERBERT L. ROBERTSON, a citizen of the United States, residing at Brookfield, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

This invention relates to car-couplings adapted to be connected by the ordinary link and pin, and provided with devices to catch and hold a link in a horizontal position, and to lift and retain the pin in the coupling-head, the object being to provide a link-and-pin coupling which will operate automatically to connect two couplings by dropping the pin through the link when the ends of the couplings run together in the ordinary way, and to provide convenient and effective devices for lifting the pin from the coupling without going between the cars for that purpose.

In the drawings, forming part of this specifiation, Figure 1 illustrates a car-coupling embodying my improvements applied to the end of a car. Fig. 2 is a side elevation, partly in section, of a portion of a car and a car-coupling, partly in section, embodying my improvements. Fig. 3 is a plan view of the draw-bar timbers of a car and a portion of the coupling, partly in section. Fig. 4 is a view of a portion of the coupling detached from the car. Fig. 5 is a view of the link-spring detached from the coupling.

In the drawings, A represents the car to which the coupling is attached. B B are the draw-bar timbers, secured under the car. *c* is the "dead-wood," secured on the end of the car. D is the case. *e* is the draw-bar. *f* is a spring on bar *e*. *h h'* are draw-bar blocks. *i* is a key. *n n* are guide-strips on timbers B. *o* is a forked link-spring. *s* is a sliding pin-tripper. *v* is a spring under tripper *s*. *y* is a stop-block on said tripper. *x* is a spring-stop on case D. *a* is a strap. *b* is the link. *d* is the pin. 2 is a pin-lifting chain. 3 4 is a jointed pin-lifter. 5 is a stop-chain. 6 is a spring on the joint-bolt of pin-lifter 3 4. 7 is an uncoupling-shaft, hung across the end of the car and having on each end the handles 8. 9 9 are shoulders at the rear of the head to case D.

Like letters refer to like parts in the various figures.

I construct the case D of my car coupling in the same manner as an ordinary one, except that it is adapted to receive within it the link-spring *o*, and upon its upper face the sliding pin-tripper *s*, and its open end is made quite wide vertically to adapt it to receive the end of an approaching link, which may be carried considerably above or below the center thereof and guide it properly to the base of the link-socket.

The draw-bar *e* is attached to case D in the ordinary way, and passes through the blocks *h h'*, between which, on said bar, is placed the spiral spring *f*. Said blocks *h h'* are adapted to slide between the timbers B, guided by the strips *n n* in the ordinary way and against the usual vertical stops secured on the inner faces of said timbers.

The rear part of the head of case D is chambered out, and its upper side grooved to receive the link-spring *o* and the pin-tripper *s*. Said spring is made rather stiff between its forked end and its heel, and is secured within case D, in the position shown in Figs. 2 and 3, by the bolt *r*, and reaches quite over the end of the link *b* when the latter is in place in case D, as in Figs. 2 and 3, and, with the lower side of the cavity in the head of said case, forms a space of less thickness than that of the end of link *b*. On the sides of the passage leading out from the said cavity in the head to case D are formed two shoulders, 9 9, Figs. 2 and 4. The link-tripper *s* lies upon the top of case D in a groove, as aforesaid, its rear end held down by strap *a*, and its narrower forward end entering the top part of the said cavity in the head of case D over spring *o*. Said pin-tripper *s* has two shoulders formed on its sides, near its front end, as shown, and is grooved on its under side to receive the spiral spring *v*, one end of which butts against a stop, *x*, on case D, and the other against the end of said groove. Said tripper *s* has also a stop-block, *y*, on its upper side.

The case D, constructed as above described, and with said directly-connected parts, is suspended between the timbers B, under the end of the car A, in the usual manner. Behind the dead-wood *c*, and attached thereto, is a vertical plate, *w*, which reaches down near to the tripper *s* and forward of the stop *y* thereon.

When it is deemed more desirable to lift pin *d* partly out of case D and rest it in the position shown in Fig. 2, without passing between the cars for that purpose, the following devices are employed: A chain, 2, is secured to pin *d*, leading from thence to the top of the car. A shaft, 7, having a crank-like bend about midway of its length, and a handle, 8, on each end, is hung across the end of car A, and upon said crank-like bend is secured rigidly the piece 3 of the jointed pin-lifter 3 4. The piece 4 has a bifurcated end, in which, upon a proper bolt, is placed a friction-roller, *z*, and its opposite end is jointed to the piece 3 by a transverse bolt, as shown, upon which is coiled a spring, 6, one end of which engages with said piece 4, and when the said parts are at rest, as in Fig. 1, throws its upper end against piece 3. A stop-chain is secured to said piece 4 and to the dead-wood *c*, and the upper end of said piece 3 is attached to the aforesaid chain 2. A stop-frame, *m*, is secured on car A in the rear of said crank on shaft 7, which stops the movement of said crank when the parts 3 and 4 have attained a proper elevation.

The operation of my improved car-coupling in coupling and uncoupling cars is as follows: A coupling which may be standing with all its parts in the position shown in Fig. 1 has the position of said parts changed to that shown in Fig. 2 by grasping one of the handles 8 8 on shaft 7 and swinging it about to the angle there shown, whereby pin *d* is lifted out of case D and tilted forward, so as to cause its lower end to rest upon the end of spring *o*, just back of the slot therein. The stop-frame *m* prevents shaft 7 from being swung far enough to lift pin *d* quite out of the pin-hole in case D. In operating shaft 7 as aforesaid the pin-lifter pieces 3 and 4 assume the positions shown in Fig. 2, but with their jointed portions carried a little higher, when the bent portion of shaft 7 strikes the stop *m*. This causes piece 3, to which chain 2 is attached, to draw upon that portion of said chain running from said piece 3 to pin *d* and lift it up. While piece 3 has been operating as just described the upper end of piece 4 has been drawn against chain 2 by the restraining action of chain 5 upon said piece 4, whereby the upper end of said pin became tilted forward, as shown. Upon releasing said handle 8, shaft 7 and the parts 3 and 4 reassume the positions shown in Fig. 1, but leave pin *d* still standing, as in Fig. 2. The coupling is now ready to receive the end of an advancing link carried by an approaching car. When said link strikes the mouth of case D it enters it and takes the position shown in Fig. 1, and is crowded therein with sufficient force to compress spring *f* on bar *e* and slide case D backward. Said case moves thus but a little in advance of the pin-tripper *s*, which, for an instant, is held stationary against plate *w* by spring *v*, while case D slides under it and carries the lower end of pin *d* against the end of said pin-tripper, causing said pin to be knocked off from the end of spring *o*, and letting it drop between the forks thereof down through link *b* to the position shown in Fig. 1, thus completing the coupling of the cars.

To uncouple cars, one of handles 8 is swung to operate shaft 7 and lift out pin *d*, as just described. When case D has moved back, as aforesaid, far enough to cause pin *d* to drop, as just described, the shoulders 9 9 on case D strike corresponding shoulders on the pin-tripper *s*, and the latter then moves back with said case, and when the latter is again permitted to move forward the tripper *s* reassumes the position shown in Fig. 1.

When it is desired to provide a coupling with a link to be held for an approaching coupling in which there is no link, pin *d* is lifted and left in the position shown in Fig. 1, and a link is pressed between the end of spring *o* and the bottom of the cavity within case D, as in Fig. 1, and said spring will hold the link in a proper horizontal position therein, to cause it to enter the said approaching coupling, when pin *d* will drop, as aforesaid, and cause the coupling of the cars to be effected.

It will be seen from the foregoing description that this coupling may be used with those ordinarily adapted for use with a link and pin without inconvenience. Furthermore, the shaft 7 and the pin-lifting parts 3 and 4 and chain 5 may be dispensed with when it is not deemed desirable to stand away from between the cars to operate pin *d*. Chain 2, running to the top of the car, provides convenient means for withdrawing pin *d* from that position, and may be used or not, as may appear most desirable.

What I claim as my invention is—

1. In a car-coupling, the combination, with case D, spring *f*, and pin *d*, of the bifurcated link-spring *o*, the pin-tripper *s*, and spring *v*, substantially as set forth.

2. In combination with pin *d* and chain 2, the jointed pin-lifter 3 4, the stop-chain 5, and shaft 7, provided with one or more handles, 8, substantially as set forth.

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