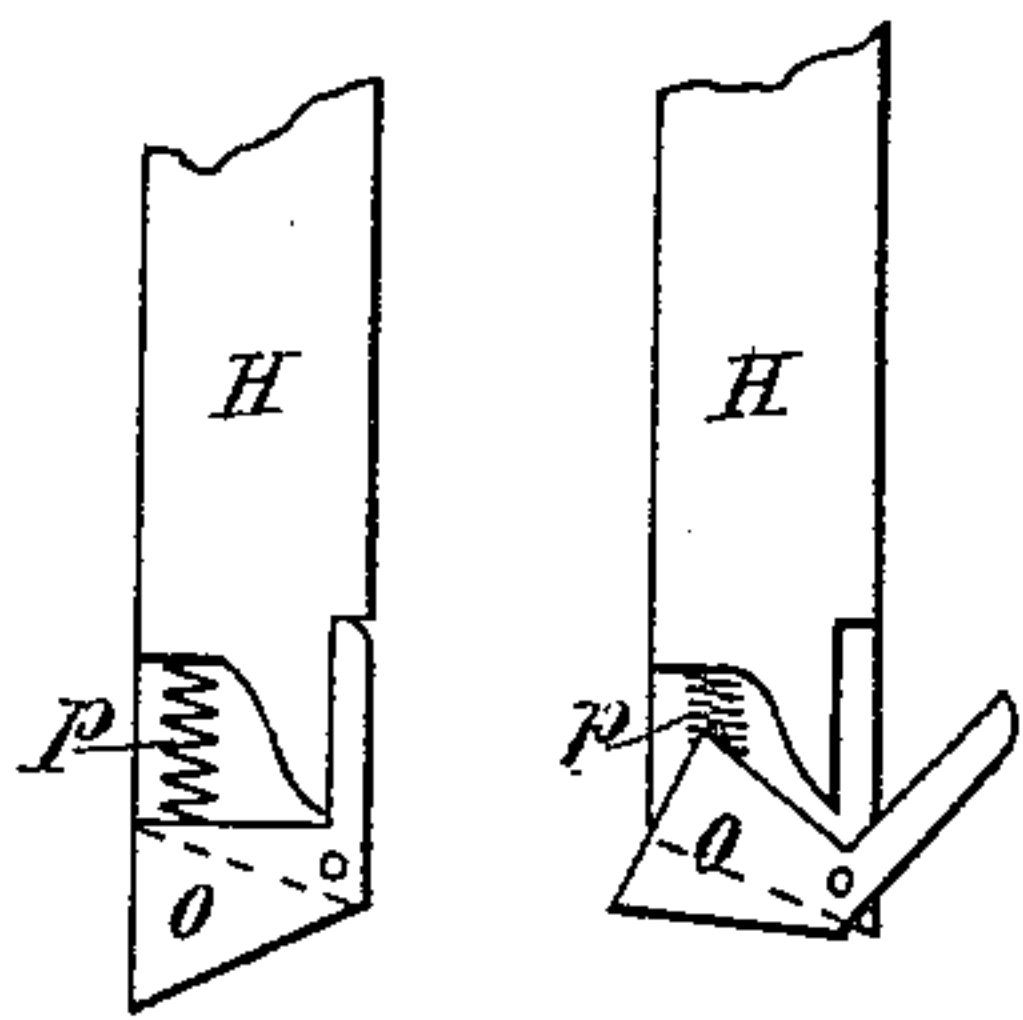
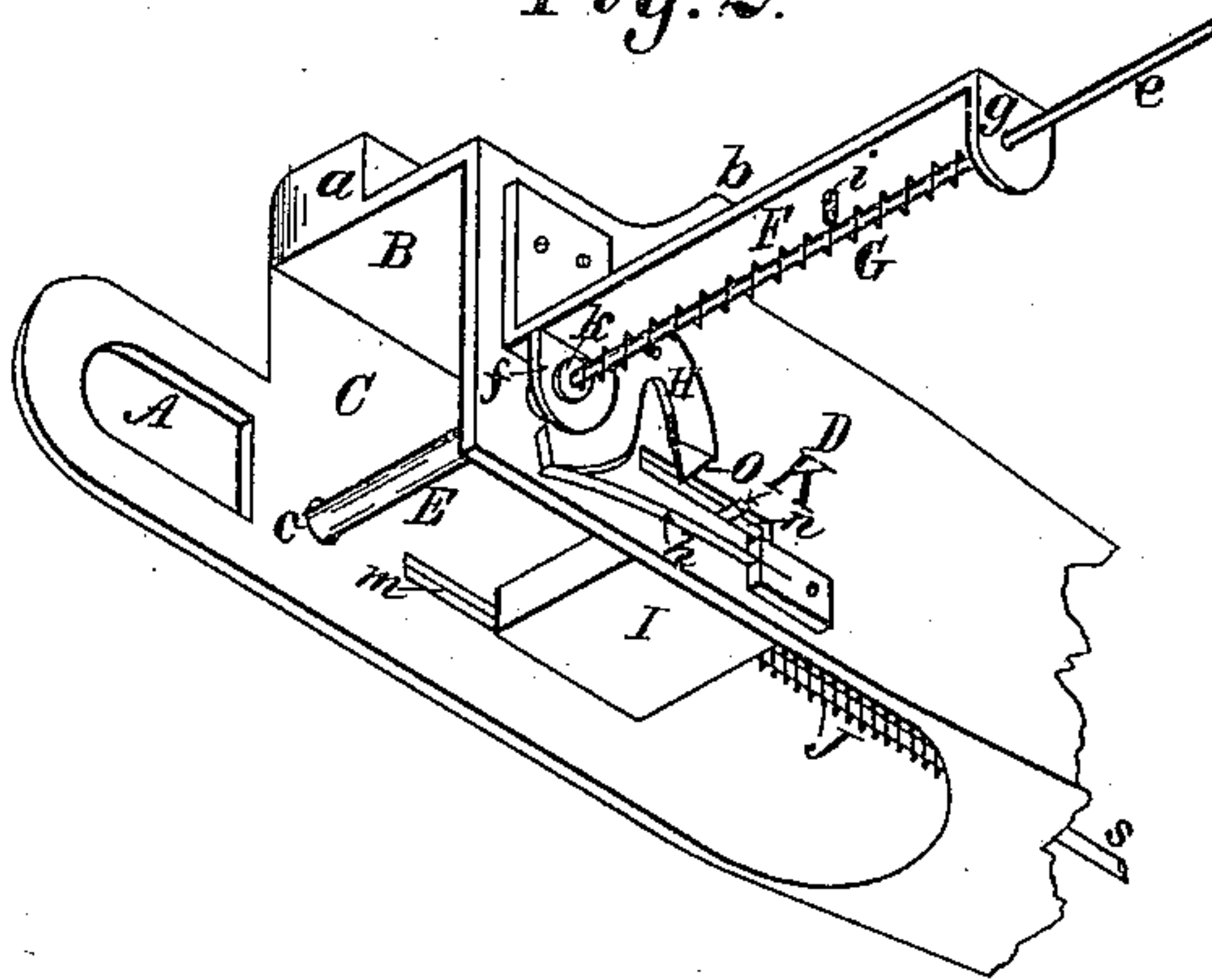
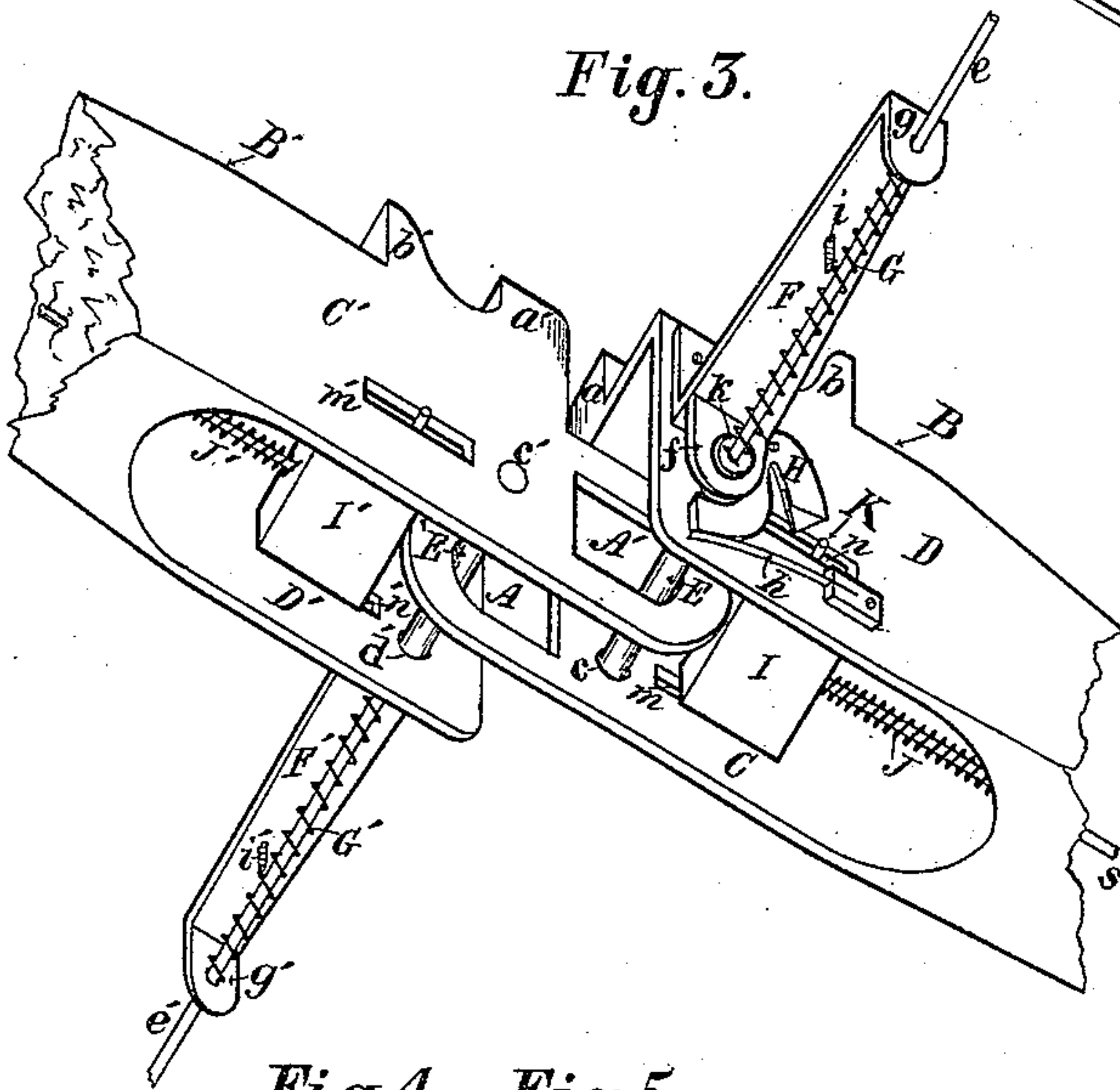
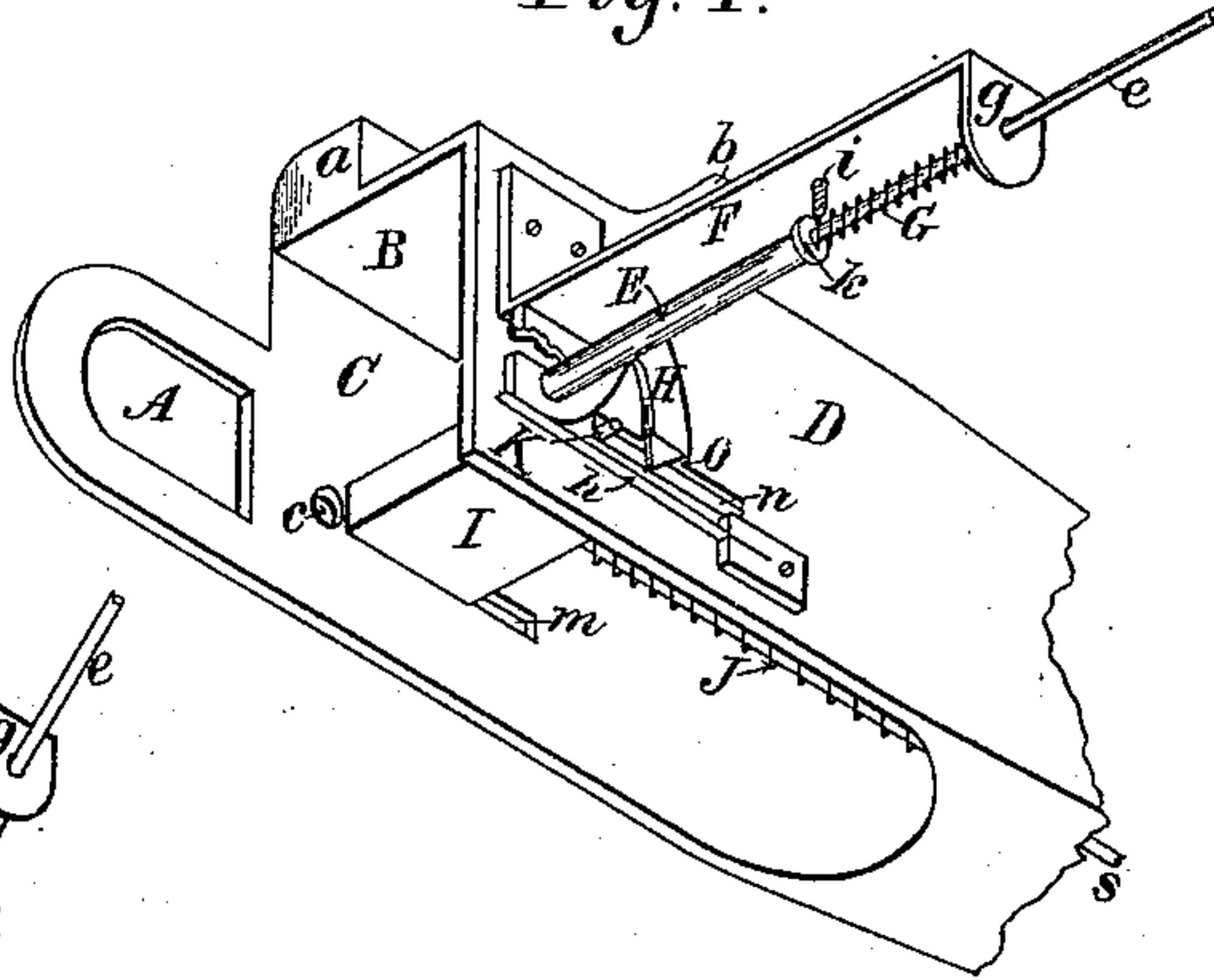


V. BRETT.  
CAR COUPLING.

Patented Dec. 16, 1890.



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# UNITED STATES PATENT OFFICE.

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## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 442,853, dated December 16, 1890.

Application filed May 10, 1890. Serial No. 351,360. (No model.)

*To all whom it may concern:*

Be it known that I, VICTOR BRETT, a citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Double Automatic Car-Couplings; and I do hereby 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.

My invention relates to an improved double automatic car-coupling, and is fully illustrated in the accompanying drawings, in which —

Figure 1 is an isometric view of one coupler with coupling-pin in position as when uncoupled. Fig. 2 is an isometric view of same with pin in position as when coupled. Fig. 3 is an isometric view of the two couplers coupled together and turned bottoms upward. Figs. 4 and 5 are enlarged elevations of details of spring-pawls.

Similar letters refer to corresponding parts throughout the figures.

The object of my invention is to provide a device whereby railway-cars may be coupled automatically, uncoupled from the side of the train, and whereby the act of uncoupling may set the coupler for recoupling without further handling or arrangement. With my coupler both coupling and uncoupling are performed without entering between the cars.

My coupler consists of twin coupling links and pins with their attachments formed identically alike, and hence when one is reversed in position end for end, giving right and left links.

A description of one link separately is sufficient to explain the construction of my device, and the operation of the two in combination may be considered subsequently.

The link proper A is of elliptical shape, and projects horizontally forward edge up. It is preferably formed integral with a strong frame B of convenient shape for attachment to the draw-bar in any usual manner, or may be formed integral with the draw-bar, the frame being fitted with the buffer *a* and shoulder *b*.

The downwardly-projecting sides of the frame B form jaws C D, having apertures *c d*, which form bearings to receive and support

the coupling-pin E when the cars are coupled. From the side of the frame opposite the link projects horizontally at a right angle with the link a support or guide arm F, having one or more hanger-guides *f g*, through which the coupling-pin E, having an extension *e*, moves laterally and in line with the bearings *c d*. Upon that portion *e* of the pin E between the hangers *f g* is coiled a spiral spring G, which is compressed as the pin is withdrawn for uncoupling. A stop *i* may, if desired, be so placed upon the guide-arm F as to engage with a collar *k* upon *e* and regulate the withdrawal of the pin E, or the regulation may be determined by the length of the spring.

The pin proper E is of such length as that when coupled its extremities may rest and bear in the bearings *c d*, and has a collar or stop *k*, which rests upon the hanger-guide *g* when the coupling is effected and prevents the action of the spring G from driving the pin through the bearing *d*. When the pin E is withdrawn from the bearings *c d* against the resistance of the spring G, a cut-off or tumbler H, pivoted to the jaw D of the frame outside the inner wall of said jaw, is forced upward by the action of a spring *h*, and, covering the aperture of the bearing *d*, prevents the return of the pin E. The pin E being so withdrawn against the spring G, and prevented from returning by the cut-off H, is in the position for coupling, and is disengaged and sprung into the bearings *c d* by the following-described tripping mechanism: In each of the hanging sides C D of the frame are horizontal slots *m n*, in which a cross-head or follower I slides horizontally against the resistance of a spring J when moving from the link A, and by the action of the spring when moving toward the link. A spring-pawl or catch-point *o* is pivoted to the butt-end of the cut-off H in such manner as that it shall overlap the slot *n* and lie behind and bear against a trip-pin K, projecting from the cross-head I through the slot *n*. The pawl *o* is so pivoted to the cut-off H as that when overlapping the slot *n* it is stopped and prevented from backward motion, and when subjected to pressure from in front by the trip-pin K turns the pivoted cut-off H against the spring *h*, and, turning with the



cut-off, permits the trip-pin to pass behind it. As the cross-head carrying the trip-pin returns by the action of the spring J, pawl *o* turns forward upon its pivot and permits the trip-pin to pass it; and to restore and raise the pawl *o* to its original position I provide a spring *p*. The cross-head I, with its spring J, pin K, and pawl *o*, thus forms a tripping device, whereby the cut-off H is tripped and the pin E released.

Any equivalent power—such as weights or electricity—may be substituted for the springs actuating the pin, the cross-head, or the cut-off without affecting the operation of my device; but I believe springs to be best suited to the purpose.

The operation of my device may be described as follows, (the lettering of the parts of one coupler being primed for convenience in reference, as in Fig. 3.) The couplers are attached to the draw-bars of the cars, as usually, one being (with reference to the other) reversed in position, end for end, and are set each about one-quarter of its width off the center line of the car. The extensions *e e'* of the coupling-pins E E' terminate in handles of convenient shape, and are of such length as to reach within six inches (more or less) of the side of the car. Each pin being pulled out against the springs G G', the cut-offs H H', actuated by the springs *h h'*, rise over the bearings *d d'* and prevent the return of the pins. The device is now ready for coupling. The cars are brought together, and the link A comes in contact with the cross-head I', and simultaneously the link A' with the cross-head I. Both cross-heads are instantly driven backward by the force of the impact, the springs J J' being also compressed. As the cross-heads move backward the trip-pins K K' engage with the pawls *o o'* of the cut-offs H H' and turn the pivoted cut-offs downward, thus uncovering and exposing the apertured bearings *d d'* of the pins E E', which, operated by the springs G G', instantly move forward through the bearings *d d'*, links A A', and into the bearings *c c'*, and the coupling of the cars is accomplished. The uncoupling, as before stated, is accomplished by an operator standing by the side of the car, reaching under the body of the car some six inches, grasping the handle of the extension of the pin and pulling it out some six inches. Any ordinary pulley or lever device may be added for operating the pin from the opposite side of the car, so that uncoupling may be performed without crossing the track. The forward ends of the links should be formed of such diameter as that when coupled they may extend into the jaws of the frames sufficiently to keep the trip-pins of the cross-heads behind the pawls as they cover the slots.

A very important feature of my device is that as the cut-offs are placed outside the inner walls of the jaws they operate the moment the coupling-pins are withdrawn and

prevent the return of the pins even when the cars are not separated and when the links remain in the jaws. The cars may be separated at any subsequent time, and the moment the links are withdrawn the cross-heads move forward and carry the trip-pins into position to move the cut-offs and release the coupling-pins.

In all other spring-pin couplers of which I am aware the cut-off mechanism is inside the jaws and does not operate until the links are withdrawn, making it necessary to lock the pins as withdrawn, until the cars are separated, and then to unlock the pins, so that they may be in readiness to couple. In this respect I believe my pin to have a substantial advantage over all others.

It will readily appear that various modifications of my device are possible. Hooks may be substituted for links and the coupling-pin may be constructed to move vertically instead of horizontally.

Various forms of tripping devices might be applied, and the spring-pin with its tripping device could be used with other links than that described, the chief features of my invention being the automatic spring-pin action, either single or double, the cut-off for stopping and releasing the pin, and the tripping device for actuating the cut-off and releasing the pin.

The advantages of my device are that the coupling is absolutely automatic, nothing whatever being required to be done, except that the cars be brought together; that both coupling and uncoupling are performed without entering between the cars; that there is so much room for play of the links on the pins that the coupling can be performed on curves of unusually short radius; that in running on curves, the pull being upon one link only, the tendency is to keep the pin in position and not draw it out; that by uncoupling the device is set for coupling without anything further being done, and is thus when uncoupled always ready for coupling; that the coupling is double, so that if one link or one pin, or one pin and the opposite link, should break the cars are still held together, and that the parts are few and all are simple and not likely to get out of order.

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

1. In an automatic car-coupling, the combination of a coupling-frame having jaws so arranged as to receive a coupling-link and having bearings in each of said jaws so placed as to receive a coupling-pin, a coupling-pin supported movably in bearings outside said frame in line with the bearings in said jaws and actuated automatically in movement toward said jaws by any suitable and constant power, a tumbler or cut-off upon that one of said jaws which first receives the coupling-pin and outside the inner wall of said jaw, said cut-off being actuated by any suitable and



constant power and so placed and arranged with reference to said jaws and pin as that when said pin has been withdrawn from the bearings in said jaws the cut-off shall move automatically and intercept the passage of said pin toward said jaws, and a device for tripping said cut-off so placed, constructed, and arranged with reference to said cut-off and said jaws as to be actuated by the impact of an approaching force and trip and turn back said cut-off and permit the passage of said pin into the bearings of said jaws.

2. In an automatic car-coupling, the combination of a coupler-frame having jaws so arranged as to receive a coupling-link and bearings in each of said jaws so placed as to receive a coupling-pin, a coupling-link rigidly attached to said frame, a coupling-pin supported movably in bearings outside said frame in line with the bearings in said jaws and operating substantially at right angles with said link and actuated automatically in movement toward said jaws by any suitable and constant power, a tumbler or cut-off actuated by any suitable and constant power and so placed and arranged with reference to said jaws and pin as that when said pin has been withdrawn from bearings in said jaws the cut-off shall move automatically and intercept the passage of said pin toward said jaws, and a device for tripping said cut-off so placed, constructed, and arranged with reference to said cut-off and said jaws as to be actuated by the impact of an approaching force and trip and turn back said cut-off and permit the passage of said pin into the bearings of said jaws.

3. The herein-described double automatic car-coupling, consisting of the combination of a pair of couplers, each having the combination of a coupling-frame having jaws so arranged as to receive a coupling-link and bearings in each of said jaws so placed as to receive a coupling-pin, a coupling-link rigidly attached to said frame, a coupling-pin supported movably in bearings outside said frame in line with the bearings in said jaws and operating substantially at right angles with said link and actuated automatically in movement toward said jaws by any suitable and constant power, a tumbler or cut-off actuated by any suitable and constant power and so placed and arranged with reference to said jaws and pin as that when said pin has been withdrawn from the bearings in said jaws the cut-off shall move automatically and intercept the passage of said pin toward said jaws, and a device for tripping said cut-off so placed, constructed, and arranged with reference to said cut-off and said jaws as to be actuated by the impact of an approaching force and trip and turn back said cut-off and permit the passage of said pin into the bearings of said jaws, and each of said links being so placed upon its frame as that when the couplers are attached to the draw-bars of cars in any usual manner the link of each coupler of said pair shall enter the jaws of the other when the

cars are brought together and bear upon the cross-head of the other and operate the tripping device and receive the coupling-pin of the other as the same passes into its bearings in the jaws of the frame.

4. In an automatic car-coupling, the herein-described device for tripping the coupling-pin cut-off, consisting of the combination of a coupler-frame having that one of its jaws to which the cut-off is attached slotted longitudinally, and a spring cross-head moving longitudinally in the jaws of the coupler-frame and having a laterally-projecting trip-pin extending through and traveling in the slot in the side of the jaw, said pin being so placed as to engage with a pawl upon the cut-off as the cross-head is forced back.

5. In an automatic car-coupler, the combination of a coupler-frame having that one of its jaws to which the cut-off is attached slotted longitudinally, a cross-head actuated in forward movement by a spring and moving longitudinally in the jaws of the coupler-frame and having a laterally-projecting trip-pin extending through and traveling in the slot in said jaw, and a cut-off pivoted to the slotted jaw outside the inner wall thereof and actuated by a spring to cover the coupler-pin bearing in said slotted jaw and having a pawl pivoted to its butt-end, all so placed and arranged as that the trip-pin may engage with the pawl upon the cut-off as the cross-head moves backward.

6. In an automatic car-coupler, the combination of a coupler-frame having jaws so arranged as to receive a coupling-link, bearings in each of said jaws so placed as to receive a coupling-pin and having that one of its jaws to which the cut-off is attached slotted longitudinally, a coupling-link rigidly attached to said frame, a coupling-pin supported movably in bearings outside said frame in line with the bearings in said jaws, operating substantially at right angles with said link and actuated automatically in movement toward said jaws by a spring, a tumbler or cut-off pivoted to the slotted jaw outside the inner wall thereof and actuated by a spring to cover the coupler-pin bearing in said jaw and having a pawl pivoted to its butt-end, and a cross-head actuated in forward movement by a spring and moving longitudinally in the jaws of the coupler-frame and having a laterally-projecting trip-pin extending through and traveling in the slot in the slotted jaw, all so placed and arranged that the trip-pin may engage with the pawl upon the cut-off as the cross-head moves backward.

7. In a double automatic car-coupler and in combination with the coupler-frames, coupling-pins, and devices for cutting off the coupling-pins and for tripping said cut-offs, the combination of two coupler-frames, each having a coupling-link rigidly attached thereto and so placed as that when attached to the draw-bars of cars in any usual manner the link of each coupler shall enter the jaws of



the other when the cars are brought together and receive the coupling-pin of the other.

5 8. In the herein-described double automatic car-coupler, the coupling-links rigidly attached to the coupler-frame and having the longitudinal diameter of their forward ends so extended forward as to keep the trip-pins behind the pawls when the coupling-pins are in the links.

10 9. The herein-described double automatic car-coupler, consisting of the combination of a pair of couplers, each coupler having the combination of a coupler-frame having jaws so arranged as to receive a coupling-link, 15 bearings in each of said jaws so placed as to receive a coupling-pin and having that one of its jaws to which the cut-off is attached slotted longitudinally, a coupling-link rigidly attached to said frame, a coupling-pin supported 20 movably in bearings outside said frame in line with the bearings in said jaws, operating substantially at right angles with said link and actuated automatically in movement toward said jaws by a spring, a tumbler or cut-off 25 pivoted to the slotted jaw outside the inner

wall thereof and actuated by a spring to cover the coupler-pin bearing in said jaw and having a pawl pivoted to its butt-end, and a cross-head actuated in forward movement by a spring and moving longitudinally in the jaws 30 of the coupler-frame and having a laterally-projecting trip-pin extending through and traveling in the slot in the slotted jaw, all so placed and arranged that the trip-pin may engage with the pawl upon the cut-off as the 35 cross-head moves backward, and each of said links being so placed upon its frame as that when the couplers are attached to the draw-bars of cars in any usual manner the link of each coupler of said pair shall enter the jaws 40 of the other when the cars are brought together and bear upon the cross-head of the other and operate the tripping device and receive the coupling-pin of the other as the same passes into its bearings in the jaws of 45 the frame.

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Witnesses:

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M. H. WARDWELL.