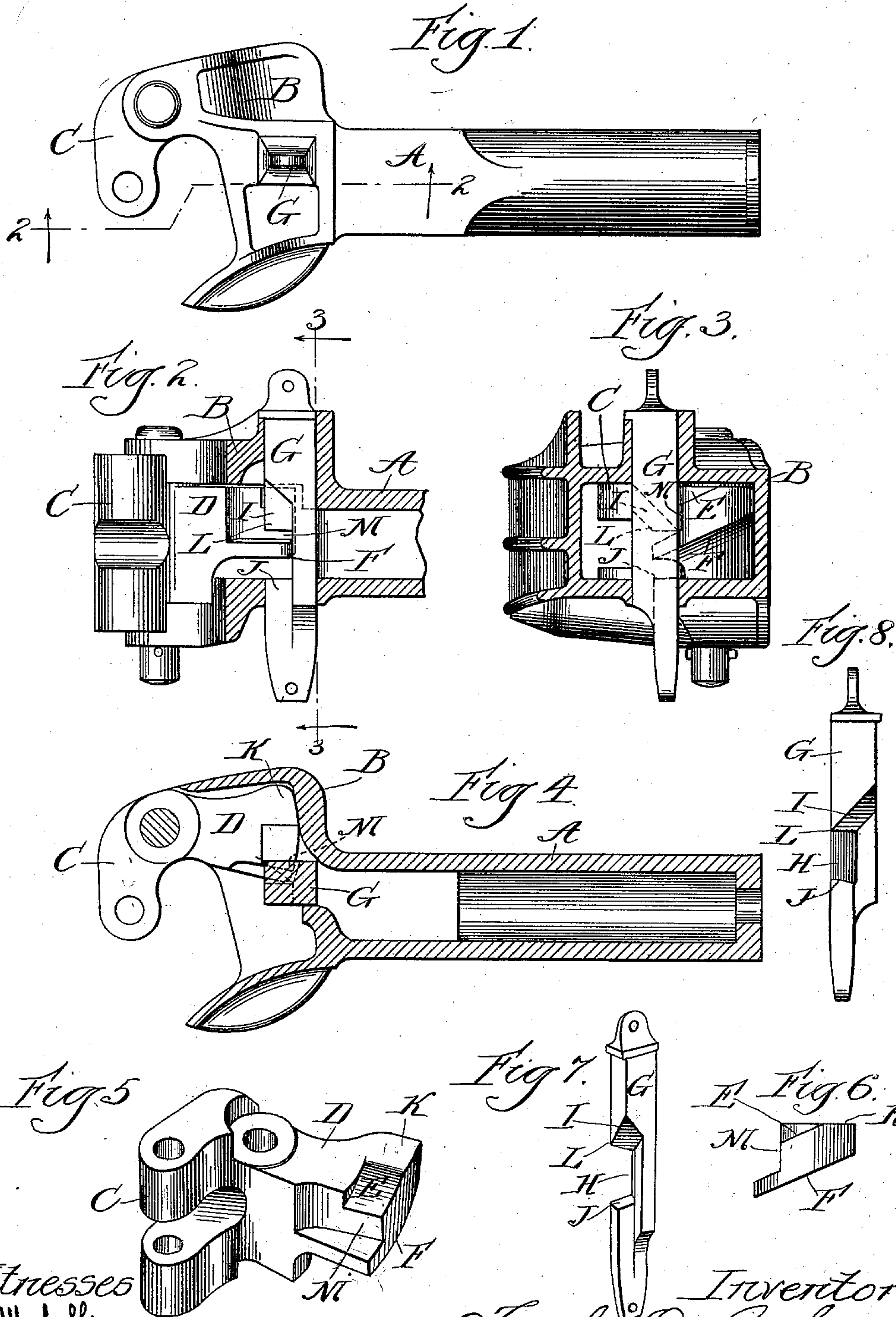


(No Model.)

F. D. BAKER.  
CAR COUPLING.

No. 570,976.

Patented Nov. 10, 1896.



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# UNITED STATES PATENT OFFICE.

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## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 570,976, dated November 10, 1896.

Application filed July 22, 1895. Serial No. 556,696. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK D. BAKER, a citizen of the United States, and a resident of Knoxville, in the county of Marion and State of Iowa, have invented certain new and useful Improvements in Car-Couplers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in automatic car-couplers of the vertical-plane type, in which the knuckle is thrown to an open position by the raising of the locking-pin and in which the locking-pin is automatically raised by the knuckle in its passage to the locked position. In this class of couplers, so far as I am aware, the nearest approach to my invention are those in which gravity alone is depended upon to return the locking-pin to locked position after being raised by the knuckle of the coupler, or wherein the force of the concussion resulting from the coupling action is relied upon to lift the pin with sufficient violence to cause its immediate return by being struck by the tailpiece of the coupler as it moves to locked position. Both of these constructions are objectionable in practice, because in wet or freezing weather cinders and dust or ice and snow lodge upon the coupler and frequently hold the pin in an elevated position, and the latter construction is but a slight improvement, for the same result will occur should the cars come together gently or without a sufficiently violent shock to produce the desired result.

The object of my invention is to insure not only the positive opening of the knuckle upon the raising of the locking-pin, but also the positive raising and lowering of the locking-pin when the knuckle is moved to locked position, regardless of the force with which it is moved, whereby it is rendered impossible for the knuckle to move to locked position without positively moving the locking-pin and automatically locking itself in that position. This object is attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a coupler embodying my invention. Fig. 2 is a section thereof on the line 2 2 of Fig. 1, looking in the direction indicated by the arrows. Fig.

3 is a transverse section on the line 3 3 of Fig. 2, looking in the direction indicated by the arrows. Fig. 4 is a horizontal section through the draw-bar, showing the knuckle in plan view and the locking-pin in section. Fig. 5 is a perspective view of the knuckle; Fig. 6, a detail end view of the knuckle-tailpiece, and Figs. 7 and 8 detail views of the locking-pin.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the draw-bar, B the coupler-head, and C the knuckle pivoted to the coupler-head, all of which parts may be of the usual or any desired construction, the coupler-head being suitably chambered to receive the knuckle and its tailpiece D, in which latter, in conjunction with the locking-pin, resides the novel features of my invention. This tailpiece is provided at its end with an upper and a lower incline or bevel E and F, respectively, said incline being parallel with each other, the inclines E being shorter than the width of the upper face of the tailpiece, while the lower incline preferably extends the full width of the tailpiece. The essential feature of the arrangement of these two beveled surfaces with relation to each other is that the lower beveled face shall extend forward of the upper bevel or further toward the knuckle on the arc described by the outline of the end of the tailpiece.

The locking-pin G is notched or cut away at a suitable point in the forward side thereof, as at H, and immediately above this notch the pin is obliquely beveled, so as to form an oblique face I, while the lower wall of the notch J may or may not be beveled or curved, as preferred. In practice the projection J works upon the lower bevel F of the tailpiece, and the oblique face I is engaged by the corner K of the tailpiece when the latter is moving to locked position so as to receive the pin. The upper wall of the notch H, formed by the projection L, at which the oblique face I terminates, rides upon the upper face of the tailpiece and upon the bevel E.

Assuming the knuckle to be in the closed position, if the pin be raised, the projection J will engage the lower incline or beveled



face F of the tailpiece and force the knuckle to turn upon its pivot, the tailpiece thereof moving upwardly through the notch H, between the projections J and L, until the 5 knuckle is open wide, whereupon the pin being released it will drop back to position, with the top of the obliquely-beveled face I about on a plane with the upper corner K of the tailpiece, but behind the same. When 10 the cars come together and the coupler is turned upon its pivot by its companion, the corner K of the tailpiece will impinge against the oblique face I, force the pin upwardly, and pass on through the notch H into locked 15 position, with the tailpiece resting against the walls of the coupler-head. In this operation the projection L first rides upon the top of the tailpiece and then down the incline E, from which it drops down in front of 20 the shoulder M upon the tailpiece, thus locking the coupler in closed position. In this raising and lowering action of the pin, however, gravity is not at all depended upon to draw the pin down to locked position, but, 25 on the contrary, as soon as the projection L begins to ride down the upper bevel E the projection J on the pin is engaged by the lower bevel F upon the tailpiece and the pin is thereby positively and forcibly drawn down 30 to locked position.

To accomplish this result, obviously the notch H in the locking-pin must be of less height than the extreme height of the tailpiece, or, in other words, of a width substantially corresponding to the distance between 35 the parallel upper and lower bevelled faces of the tailpiece, and while it is not at all essential that the lower beveled face of the tailpiece shall extend the full width of the 40 tailpiece it is essential that it shall begin in a vertical plane substantially coincident with the upper end of the beveled face E, and shall extend to a vertical plane beyond the termination of the upper bevel. This latter requirement is necessary in order that when 45 the pin is in locked position, as illustrated in Fig. 3, the projection J shall underlie the lower bevel F of the tailpiece, so that when the pin is moved vertically the projection 50 will make contact with the lower bevel and force the jaw open.

It will thus be seen that with the parts arranged as proposed no matter how gently

the cars come together the knuckle cannot be moved to closed position without automatically and positively raising and lowering the locking-pin and locking itself in closed position, therefore relying neither upon gravity nor upon the force of the impact or shock of coupling to accomplish this desirable object. 60

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

1. In a car-coupling of the class described, the combination of a pivoted knuckle, a tail- 65 piece on said knuckle provided with parallel upper and lower beveled faces and having a flat surface directly in the rear of the upper beveled face, said upper beveled face terminating with a locking-shoulder and the lower 70 beveled face extending beyond the upper bevel, and a locking-pin having a notch of a length substantially equal to the distance between the upper and lower beveled faces of the tailpiece said notch having an upper and 75 lower wall, the upper wall of the notch having a beveled face arranged in the path of the upper or flat surface of the tailpiece and the lower wall arranged in the path of the lower beveled face of the tailpiece, whereby 80 the locking-pin is first raised and then forced to its seat by the swinging movement of the tailpiece, substantially as shown and described.

2. In a car-coupling of the class described, 85 the combination with a locking-pin having a notch therein and a beveled face at the upper side thereof, of a pivoted knuckle, a tail- piece provided with parallel upper and lower 90 beveled faces and having a flat surface directly in the rear of the termination of the upper beveled surface, the lower beveled surface extending beyond the vertical plane of the upper beveled face, and a locking-shoulder between the forward ends of said beveled 95 parallel faces to engage the locking-pin, said locking-pin also having a shoulder arranged in the path of the lower beveled face of the tailpiece, whereby the said pin is forced to its seat or locked position by the swinging 100 movement of the said tailpiece, substantially as shown and described.

FRANK D. BAKER.

Witnesses:

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