(No Model.)

W. H. CRACKEL.

CAR COUPLING.

No. 504,021. Patented Aug. 29, 1893.

Fig. 1.

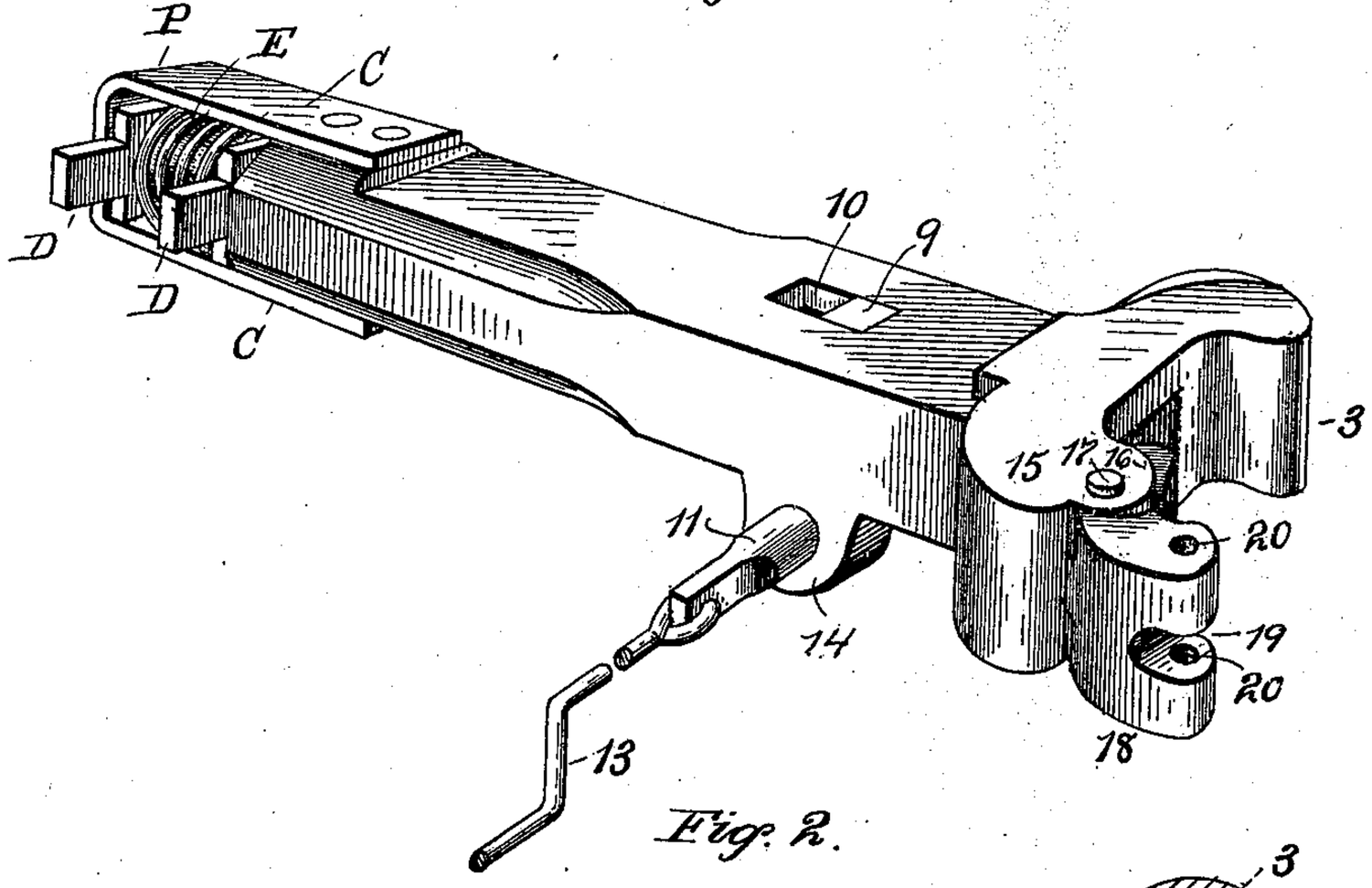


Fig. 2.

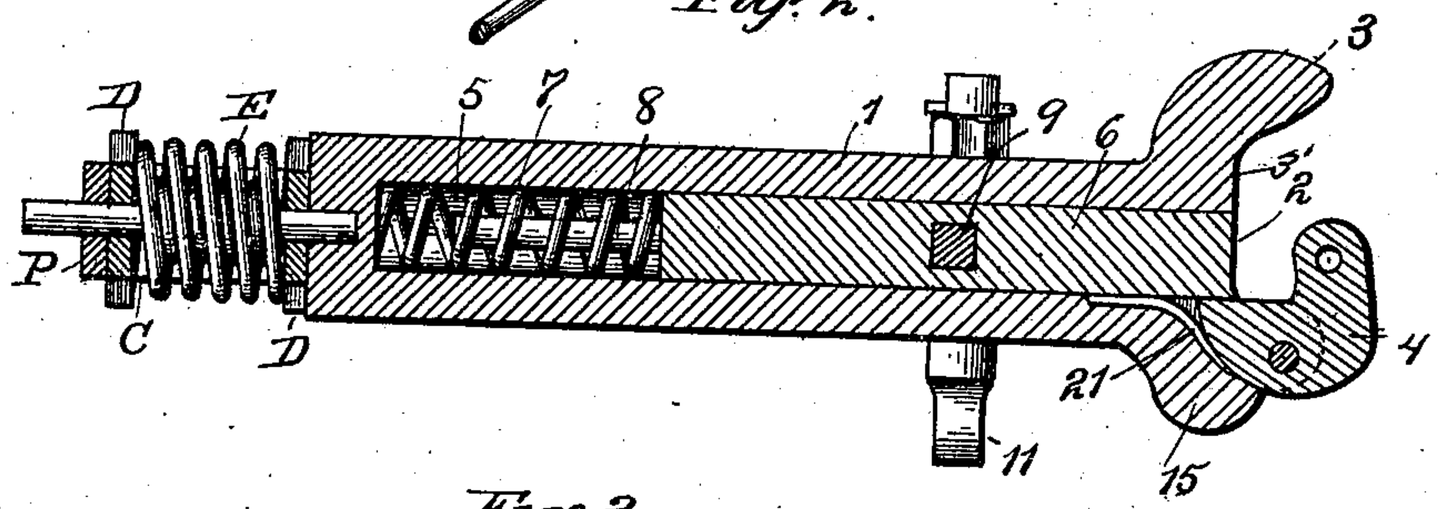


Fig. 3.

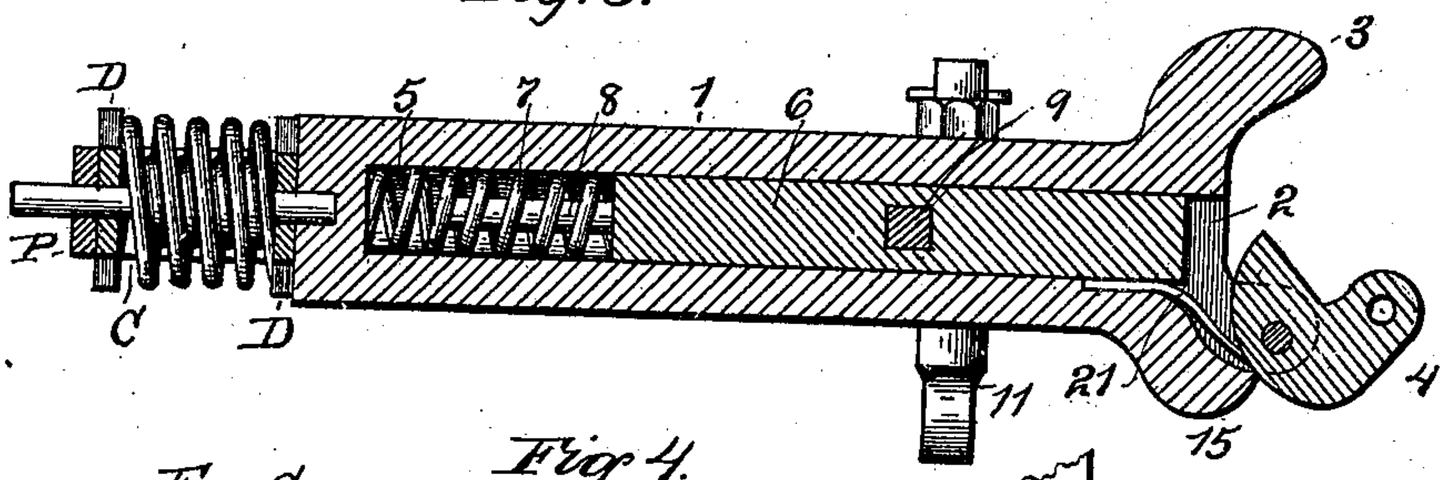
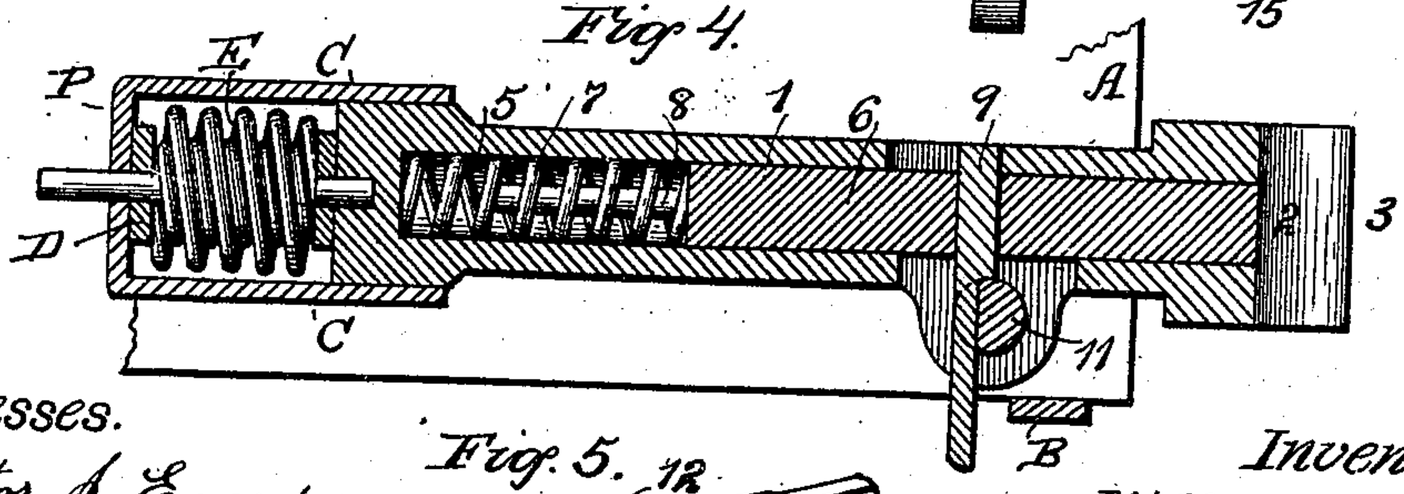
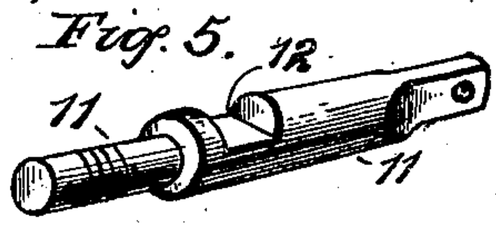


Fig. 4.



Witnesses.
Victor J. Evans.
L. M. Marble.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 504,021, dated August 29, 1893.

Application filed May 1, 1893. Serial No. 472,525. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY CRACKEL, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Car-Couplers; 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 improvements in that class of car couplers known as "twin-jaw" couplers, the pivoted jaws or knuckles of which are designed to act automatically, and thus permit cars to be automatically coupled and uncoupled, and it consists in the construction and arrangement of parts which will be hereinafter fully described, and particularly pointed out in the claims.

The main object of my invention is to facilitate the coupling and uncoupling of cars by providing a coupler, the pivotal jaw of which can be released and thrown into position for coupling by mechanism actuated from the side or top of the car, which will automatically couple with a companion coupling, and which can be released or unlocked, to permit the cars to be disengaged, from the side or top of the car, it thus being unnecessary for a man to go between the cars during any stage of the coupling or uncoupling.

Another object of my invention is to provide means whereby the pivoted jaw or knuckle of the coupler will with certainty and precision be thrown into position for coupling, and to so form the coupler, that, while it will couple with only a very slight jar, it cannot be prevented from coupling by a very severe jar, and so that the jolting and movement of the cars will not under any circumstances uncouple the couplings.

Another object of my invention is to provide means whereby the coupler may be uncoupled without the necessity of tearing it from the car, should any of the uncoupling mechanism become disarranged, and refuse to act.

These objects I accomplish by the use of a coupler having a spring-pressed locking bolt arranged in the hollow draw bar, so that when it is in its normal position it will engage with the movable jaw or knuckle, and hold the same securely locked, but so that it can be drawn back through the operation of a slotted bar, which projects to the side of the car, and can be operated either from that point, or, through suitable mechanism, from the top of the car, upon a latch projecting from said locking bolt, and thus allow the knuckle to be thrown forward into an unlocked position by the action of a spring, which presses against the rear face of the same. In the act of coupling, the fixed jaw of the companion coupler strikes against the lower end of the knuckle, and forces it, against the pressure of the locking bolt, into the position it assumes when locked, when the locking bolt will spring up again, and hold the coupler locked.

My invention is fully represented in the drawings accompanying and forming a part of this application, in which the same reference letters and numerals refer to the same or corresponding parts, and in which:—

Figure 1 is a perspective view of a coupler embodying my invention, the parts being shown in the position they assume when the coupler is unlocked. Fig. 2 is a vertical section of the coupler, showing the parts of the same in the position they assume when locked. Fig. 3 is a similar section, showing the parts in the position they assume at the moment of unlocking the coupler. Fig. 4 is a horizontal section of the coupler, showing particularly the disengaging latch, and the means used to secure the unlocking of the coupler in case the ordinary unlocking mechanism fails to act. Fig. 5 is a detail perspective view of the disengaging latch.

Referring to the drawings, 1 represents the draw bar, which is formed at its front end, by means of the fixed jaw 3, and the movable jaw or knuckle 4, with the locking chamber 2. The bolt receiving chamber 5 communicates with this locking chamber, in which chamber 5 is situated the locking bolt 6, which is held normally in its forward position, with its outer end level with the surface 3′ of the fixed jaw 3, by means of the spiral spring 7, which is situated in chamber 5 in the rear of

the locking bolt, the projecting end 8 being formed on the latter to secure the proper action of the spring.

The locking bolt 6, whose function, as indicated by its name, is to lock and unlock the car coupler, is arranged to reciprocate within the bolt receiving chamber 5, and is, as above stated, held normally forward in the position shown in Fig. 2 by the spring 7. The backward movement of the bolt, by means of which the coupler is unlocked, is caused by the means and in the manner following. Near the front end of said locking bolt is formed a square aperture, in which is inserted the disengaging latch 9, both of whose ends project from the sides of the locking latch through the slots 10, formed in the upper and lower surface of the draw bar so as to permit of the reciprocation of said latch. The upper end of the latch 9 lies even with the surface of the draw bar, and is formed to fit closely in the slot 10, the latter guiding it in its reciprocation. The lower end of the latch, however, projects below the surface of the draw bar for a considerable distance, and is cut away, as shown in Fig. 4, to allow it to rest more easily in the slot or groove 12, formed in the revoluble bar 11, which bar is journaled in supports 14, formed on the under surface of the draw bar, and extends outward to the side of the car, where it is formed with the handle 13, which enables it to be operated from this point. If desired, however, connecting mechanism may be used to the top of the car, and the locking bolt may be operated from that point. When the locking bolt is in its forward position, the lower end of the latch 9 fits snugly into the slot 12 formed in the revoluble bar 11. When said bar is turned, the disengaging latch 9 is forced out of said slot, and as it rides upon the round portion of the bar, is forced backward, carrying with it in its backward movement the locking bolt 6. The locking bolt continues to be held back during the entire period of rotation, and only resumes its forward position when the revolution of the bolt is complete, and the latch 9 enters the slot 11, at which time it again assumes its forward or normal position. Provision is made, however, for withdrawing the locking bolt, and thereby unlocking the coupler, independently of the disengaging mechanism thus described, by situating the draw bar, when in position on a car, between two draw bar timbers A, only one of which is shown in Fig. 4. Between these two timbers, and slightly in front of the disengaging latch 9, is fastened the iron strap B, its position being such that should the disengaging mechanism of the coupler become disarranged, the projecting end of the disengaging latch will strike the iron strap, and draw back the locking bolt, before the coupler is torn from the car. The movable jaw or knuckle 18 is pivoted, on the pivot 17, between the two forwardly-projecting lugs or ears 16, formed on the outwardly-curved portion 15 of the draw bar. The knuckle is formed on its top surface with the recess 19, which is wide enough to permit of the insertion of an ordinary link, and the projecting portions of the knuckle on either side of said recess are drilled for the insertion of an ordinary coupling pin, provision thus being made for the use of the common non-automatic coupling should the automatic apparatus become disarranged. The tail piece of the knuckle rests, when the coupling is unlocked, against the end of the locking bolt 6, this position being shown in Fig. 1, but when the coupler is locked, the parts assume the position shown in Fig. 2, the curved, rear side of the tail piece fitting snugly against the outwardly-curved portion 15 of the draw bar, and the locking bolt extending up beyond the end of the tail piece, and holding the knuckle firmly in its locked position. The flat spring 21, which extends down the bolt receiving chamber 5 for a short distance and is there fastened, and which presses with its free end against the rear surface of the tail piece of the knuckle, acts to promptly throw said knuckle into its unlocked position as soon as the locking bolt is even momentarily withdrawn. The position of the spring is such that it is exposed to but little wear, and is not liable to break.

To unlock the coupler, and thus prepare it for coupling with another car, the revoluble rod 11 is rotated, the spring 21 forcing the knuckle outward as soon as the rotation commences. When the rotation is complete, the locking bolt will spring into its forward position, and thus hold the knuckle from closing and locking as the result of any slight jar.

In the operation of coupling, the fixed jaw of an approaching coupler comes in contact with the outwardly swung knuckle and strikes the tail piece of the same, forcing the knuckle to swing rearwardly upon its pivot until the straight side of the said tail piece is in line with the bolt receiving chamber 5, the locking bolt being depressed by this movement until the last mentioned position is reached, when it springs forward, and locks the knuckle in the position last stated. It is impossible to release the two knuckles of the opposite jaws, thus interlocked, except through the withdrawal of the locking bolt, which may be effected by again turning the revoluble rod 11. When cars are to be uncoupled, the rod 12 may be turned half way, and the bolt 6 will thus be permanently withdrawn, and the knuckle 4 held unlocked. It is thus unnecessary for any one to go between the cars to uncouple the same.

Referring more particularly to Fig. 1, C represents a bail, the ends of which are secured to the rear end of the draw bar A. Within this bail, and between the two plates D, are placed the twin springs E, which form an efficient shock compensating or relieving buffer.

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

1. In a car coupler, the combination with a fixed jaw and a movable jaw or knuckle, of a locking bolt arranged in the draw head, and a spring, secured within the locking bolt chamber, and bearing against the rear face of the knuckle, for throwing said knuckle open when the locking bolt is withdrawn, substantially as described.

2. In a car coupler, the combination with a fixed jaw and a movable jaw or knuckle, of a locking bolt arranged in the draw head, and a flat spring, secured within the locking bolt chamber, and bearing against the rear face of the knuckle, for throwing said knuckle open when the locking bolt is withdrawn, substantially as described.

3. In a car coupler, the combination with a fixed jaw, and a movable jaw or knuckle, of a locking bolt arranged in the draw head, a projecting latch secured in said locking bolt, means for reciprocating said latch and thereby the locking bolt, and a spring, secured within the locking bolt chamber, and bearing against the rear face of the knuckle, for throwing open said knuckle when the locking bolt is withdrawn, substantially as described.

4. In a car coupler, the combination with a fixed jaw and a movable jaw or knuckle, of a locking bolt having secured therein a projecting latch arranged in the draw head, a slotted, revoluble bar for reciprocating said latch and thereby the locking bolt, and a spring, bearing against the rear face of the knuckle, for throwing said knuckle open when the locking bolt is withdrawn, substantially as described.

5. In a car coupler, the combination with a fixed jaw and a movable jaw or knuckle, of the locking bolt 6, having secured within it the projecting latch 9, arranged within the draw head, the slotted bar 12 for reciprocating said latch and thereby the locking bolt, and the spring 21, bearing against the rear face of the knuckle, for throwing said knuckle open when the locking bolt is withdrawn, substantially as described.

6. The combination with a car coupler having a fixed jaw and a movable jaw or knuckle, a locking bolt having secured therein a projecting latch arranged within the draw head, means for reciprocating said latch and thereby normally operating the locking bolt and means for throwing said knuckle open when the locking bolt is withdrawn, of a strap, connected with the frame-work of the car, for engaging with said latch and withdrawing the locking bolt before the coupler can be torn from the car, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM HENRY CRACKEL.

Witnesses:

C. E. POWELL,

HENRY J. NORTHRUP.