No. 756,174. PATENTED MAR. 29, 1904.

J. MEEHAN.

CAR COUPLING.

APPLICATION FILED AUG. 6, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

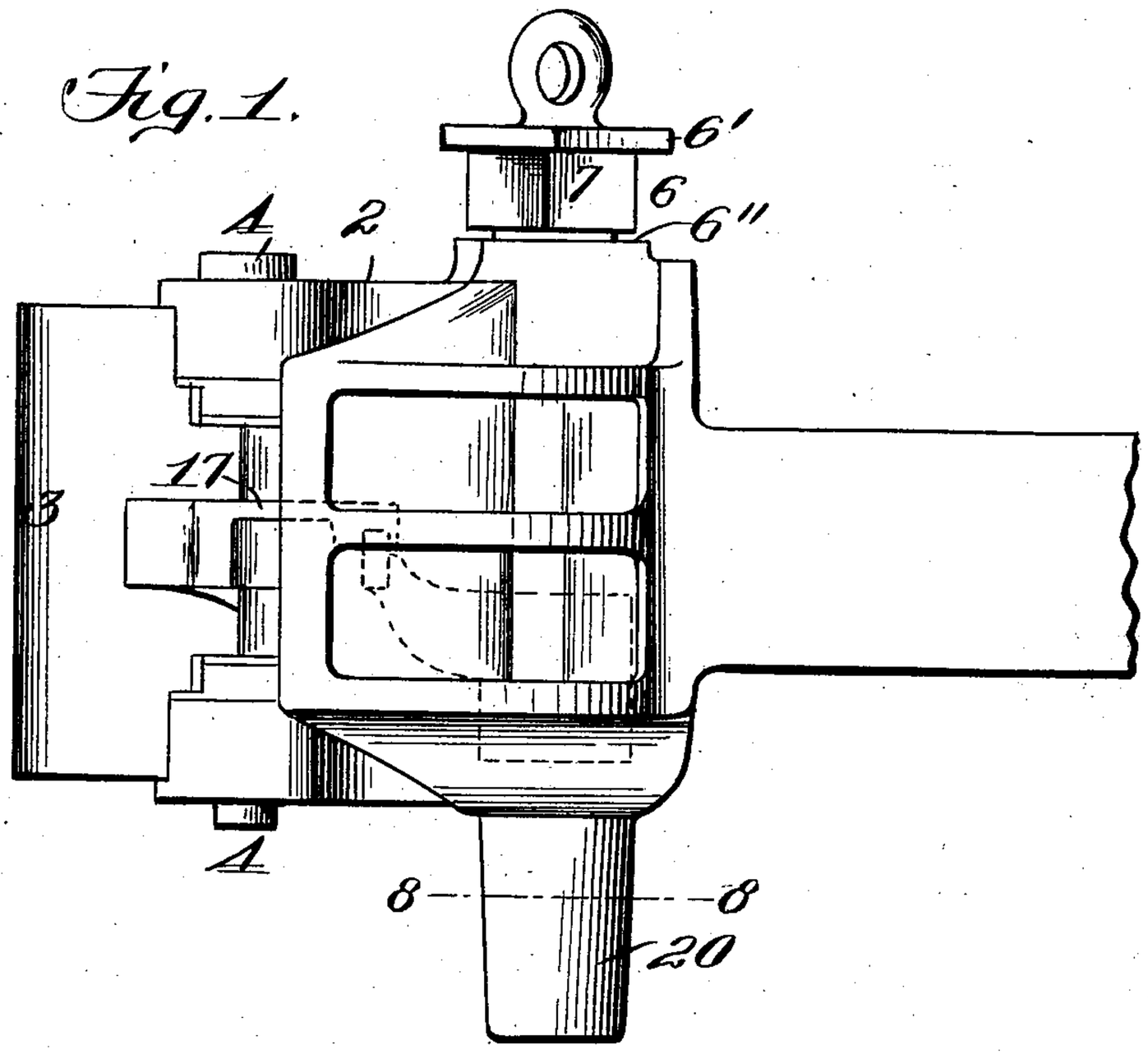
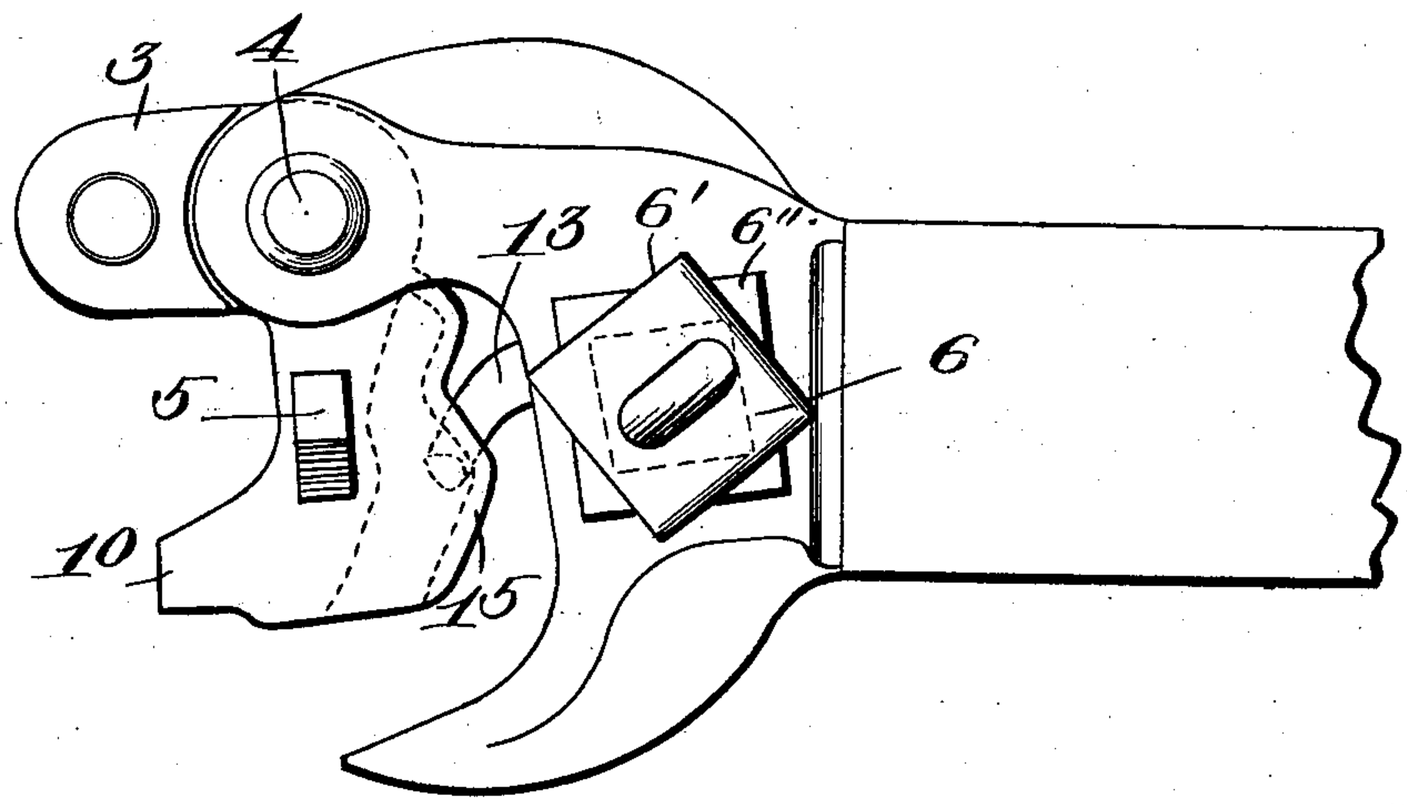


Fig. 2.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 1.

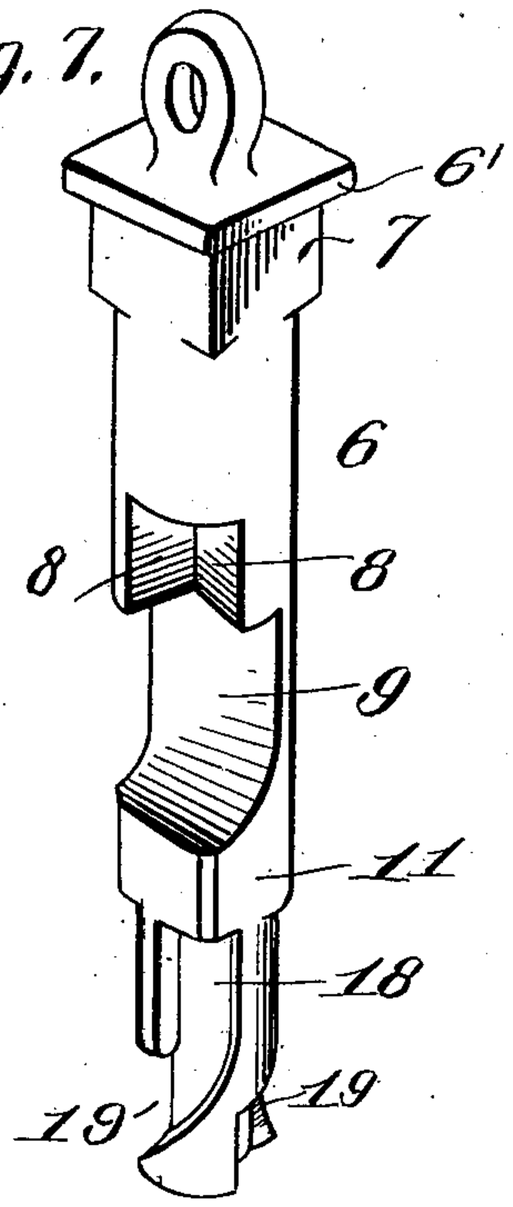


Fig. 3.

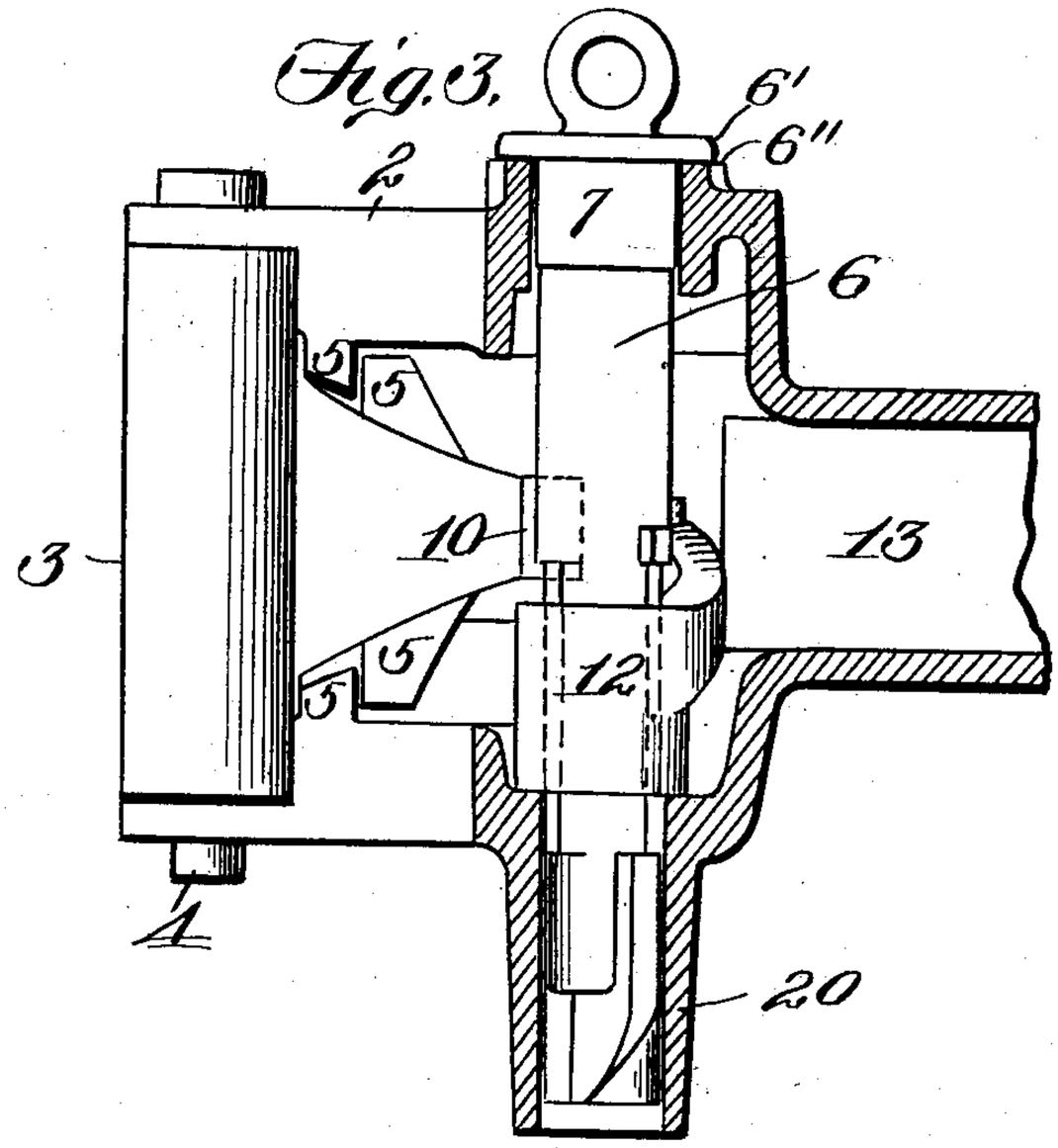


Fig. 5.

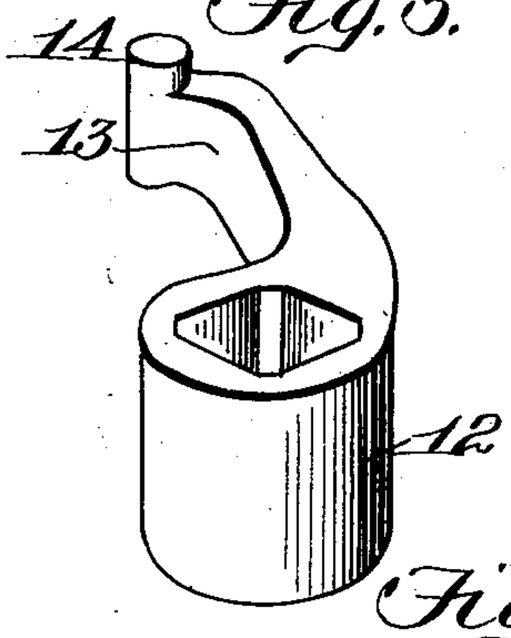


Fig. 4.

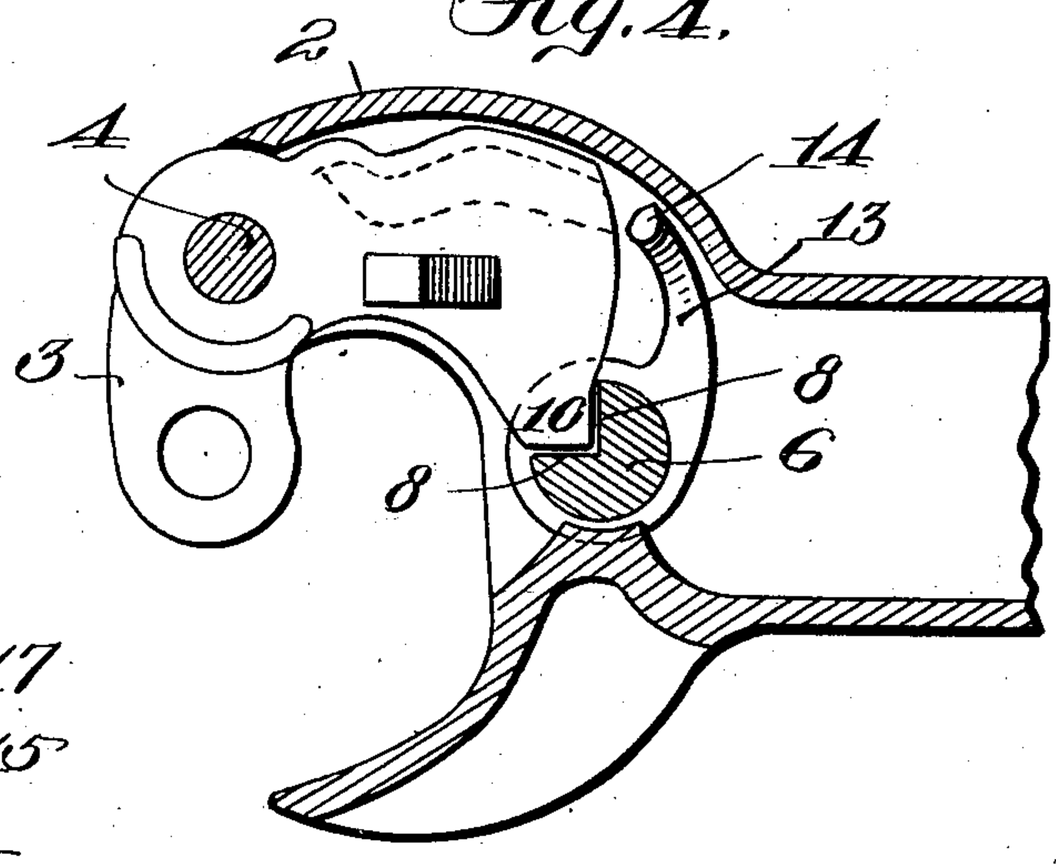


Fig. 6.

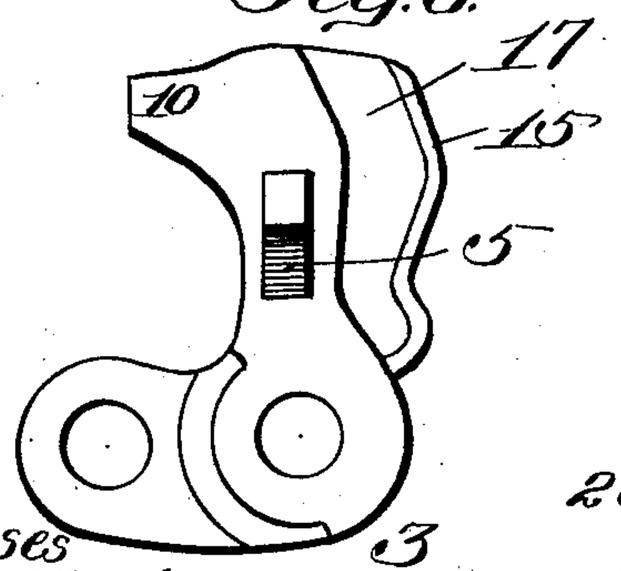
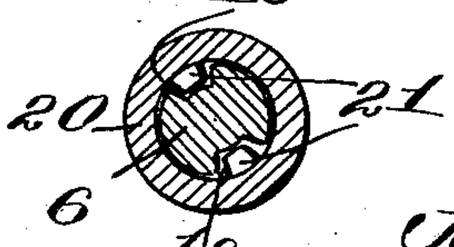


Fig. 8.



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UNITED STATES PATENT OFFICE.

JAMES MEEHAN, OF COVINGTON, KENTUCKY, ASSIGNOR TO ROSS-MEEHAN FOUNDRY COMPANY, OF CHATTANOOGA, TENNESSEE, A CORPORATION OF TENNESSEE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 756,174, dated March 29, 1904.

Application filed August 6, 1903. Serial No. 168,525. (No model.)

To all whom it may concern:

Be it known that I, JAMES MEEHAN, a citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

This invention relates to car-couplings; and the object of the invention is to provide a simple and effective device of this character the knuckle of which can be readily released or swung open and which when in its normal or closed position is positively held against accidental release.

The invention includes other objects and advantages which will be set forth at length in the following description, while the novelty thereof will constitute the basis of the claims succeeding such description.

In the drawings accompanying and forming a part of this specification I have illustrated the invention in one simple and convenient embodiment thereof, which will be set forth in detail in the said description; but the invention is not limited to the disclosure thus made, for divers variations may be made within the scope of my claims.

Referring to the drawings, Figure 1 is a side elevation of a car-coupling including the invention with the knuckle open and locking-pin up. Fig. 2 is a top plan view. Fig. 3 is a sectional side elevation with the knuckle-lock closed. Fig. 4 is a horizontal sectional top plan view. Fig. 5 is a detail view of a sleeve. Fig. 6 is a bottom plan view of the knuckle. Fig. 7 is a detail view of the locking-pin. Fig. 8 is a sectional elevation of the locking-pin and pendent hub of the draw-head.

Like characters refer to like parts throughout the views.

The car-coupling involves in its construction a draw-head, as 2, formed at the outer end of the draw-bar, and a knuckle 3, these two parts being of the usual material and form, and hence a detail description of the same is not necessary. The knuckle 3 is mounted for swinging movement in the draw-head, the two parts being pivotally united, the pin 4 being shown for this purpose. The knuckle and draw-head are provided with gibs or projections 5, made integral with each other and alined, respectively, longitudinally of the draw-bar when the knuckle is closed, so that in case of the breakage of the pivot-pin 4 the knuckle cannot be pulled from the draw-head.

The locking-pin is denoted by 6 and when in its effective position serves to securely hold the knuckle 3 closed. To provide normally against the rotation of the locking-pin 6 and the consequent release of the knuckle 3, the locking-pin when in its working position is non-rotatively mounted. For this purpose the locking-pin in the neighborhood of its top has a polygonal head 7, illustrated as square and adapted when said locking-pin is in its lowermost position to closely fit a correspondingly-shaped seat or aperture in the draw-head, which seat or aperture of course forms a part of the locking-pin hole. When, therefore, the polygonal head is in its seat, the locking-pin will be held against rotation. The said locking-pin below the polygonal head has the shoulders 8, the working faces of which diverge outward at an angle, thereby forming an angular notch, as indicated in Fig. 4, to receive a correspondingly-angular nose, as 10, upon the knuckle. Below the coöperating shoulders 8 is a notch or cut-away portion 9. When the locking-pin 6 is in its lowermost position, the nose 10 at the inner end of the knuckle is adapted to fit between the shoulders 8 on the locking-pin, and the latter at this time being held against rotation the knuckle 3 will be locked in its closed position. The nose is of a shape to agree with the working faces of the shoulders 8—that is to say, it is of right-angular form; but this particular shape is not essential. By lifting the locking-pin 6 sufficiently to carry the shoulders 8 out of engagement with the nose 10 the latter will naturally be brought into registration with the notch 9, so that the knuckle 3 will be released. The elevation of the locking-pin 6 will carry the polygonal head 7 out of its seat in the draw-head, means, as will hereinafter be described, being brought into operation as the knuckle opens to turn

the locking-pin 6 to move the polygonal head 7 out of registration with its correspondingly-shaped seat, by reason of which the pin cannot drop to its initial position when the knuckle is open. The locking-pin 6 has a second polygonal portion 11, located below the release-notch 9, which fits a similarly-shaped hole in the sleeve or band 12, by virtue of which the sleeve or band is non-rotatively connected with the locking-pin. The sleeve or band has an upwardly-curved projection or finger 13, terminating at its upper end in a stud 14, adapted to coöperate with primary and secondary cam-faces upon the inside of the flange 15, which depends from the web 17, extending along the inner branch of the knuckle 3.

The locking-pin 6 in practice is provided with some suitable means arranged upon the side of a car or in any other convenient place by which it may be elevated to release the knuckle. The instant that the polygonal head 7 is carried out of its seat in the draw-head the knuckle will be released, and if the car upon which the coupling is mounted is connected with another car the two cars when the knuckles are released can be separated, and as they are pulled apart the knuckles are opened. As the knuckle 3 is opened the initial cam-face upon the flange 15, acting against the stud 14, swings the projection or finger 13 through an arc, the sleeve or band 12 being thereby turned, and as the sleeve or band is non-rotatively connected with the locking-pin 6 the latter will be turned so as to move the polygonal head 7 thereof out of register with its seat. The polygonal head 7 therefore constitutes a stop to prevent the dropping of the locking-pin into its working position when the knuckle is open, the head or stop engaging the draw-head for this purpose. When, however, the knuckle is closed, the sleeve or band 12 will be rotated in a direction opposite to that originally taken, so as to turn the locking-pin 6 and bring the polygonal head 7 thereof into register with the seat, at which time the locking-pin will drop, so as to cause the locking shoulders 8 to straddle the nose of the knuckle and lock the same closed. When the knuckle is open, the locking-pin 6 is held up, so that the trainman can at once see from the side of the car the conditions.

The locking-pin 6 has two separate and independent movements, on or during the first of which the knuckle is released. During the second stage of its operation the locking-pin, through the sleeve or band 12 and finger 13, transfers a thrust to the knuckle for positively opening the same. Occasionally it is only necessary to release the knuckle—for example, when two cars are coupled together—as hereinbefore indicated. At other times it may be necessary to swing the knuckle open without going between the cars to do so, and the positive opening of the knuckle, as will be evident, is accomplished during the second movement of the locking-pin, as will hereinafter appear.

The locking-pin near its lower end has diametrically opposite longitudinal grooves 18, which merge into grooves 19, inclined to the longitudinal grooves. Two grooves are shown in each case, and although this is not essential it is preferred in order to secure a steady motion of the locking-pin. The draw-head has on its under side the depending hub 20, shown as integral therewith, and which receives the lower end of the locking-pin. Inside the hub are the diametrically opposite lugs 21, which traverse the straight and inclined grooves in succession, the lugs traveling in the straight grooves 18 on the initial ascending motion of the locking-pin. When the said locking-pin has reached the end of its first stage of movement, it will have released the knuckle, the lugs 21 at this time being at the mouths or entering ends of the inclined grooves 19.

It will be assumed that it is desired to positively open the knuckle. To do this, the locking-pin 6 is lifted, and when the first stage of its movement is completed the knuckle will be released, as just set forth. On the second stage of the ascending movement the lugs 21 will enter the inclined grooves 19, and as the lugs are fixed relatively to the pin the latter as it rises will be turned, the sleeve or band 12 being also turned, so as to swing the projection or finger 13 outward and cause the stud 14 at the free end of the same to ride along the second cam-face on the flange 15, thereby to positively swing the knuckle 3 wide open. As the knuckle is closed the reverse operation will take place, so that when the polygonal head 7 of the locking-pin coincides with its seat said locking-pin can drop to hold the knuckle in its closed relation. When the knuckle 3 is closed and locked in such position by the locking-pin 6, the inner portion of said knuckle will be in contact with the inner side of the draw-head, the gibs or projections 5 on said knuckle being behind those on the draw-head. In case the pivot-pin 4 should break forward motion of the knuckle is prevented by the gibs thereon engaging the coöperating gibs carried by the draw-head, while lateral motion of said knuckle is prevented by the locking-pin. Upon the opening of the knuckle the gibs thereon are carried free of the coöperating gibs on the draw-head.

The locking-pin is furnished at its upper end with a cap 6′, which when said locking-pin is in its effective position effectually closes its opening against the admission of water, snow, or dust. This cap rests upon a rim or shoulder 6″ upon the upper side of the draw-head. Said rim or shoulder 6″ surrounds the locking-pin opening, and being located above

the upper surface of the draw-head prevents the lateral flow of water into the locking-pin hole or opening.

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

1. In a car-coupling, a draw-head, a knuckle carried thereby, a locking-pin for the knuckle, movable into position to release the knuckle, having a stop, and means operable by the knuckle as it is opened for bringing said stop into position to engage the draw-head, to thereby prevent the accidental dropping of said locking-pin.

2. In a car-coupling, a draw-head, a knuckle carried thereby, a locking-pin for the knuckle, having a polygonal portion, the draw-head having a polygonal seat to receive said polygonal portion when the locking-pin is in its effective position, said polygonal portion being movable out of said polygonal seat to release the knuckle, and means actuated by the knuckle as it is opened for causing the locking-pin to turn and move said polygonal portion out of register with said polygonal seat.

3. In a car-coupling, a draw-head, a knuckle carried thereby, a locking-pin for the knuckle having a polygonal portion, the draw-head having a polygonal seat to receive said polygonal portion when the locking-pin is in its effective position, said polygonal portion being movable out of said seat to release the knuckle, and a sleeve non-rotatively connected with the locking-pin, having a projection, the knuckle being provided with a cam to engage said projection to thereby rotate the pin and move the polygonal portion out of register with the polygonal seat.

4. In a car-coupling, a draw-head, a knuckle carried thereby, a locking-pin for the knuckle having a polygonal portion, the draw-head having a polygonal seat to receive said polygonal portion when the locking-pin is in its effective position, said polygonal portion being movable out of said seat to release the knuckle, and a sleeve having a polygonal hole, the locking-pin having a correspondingly-shaped portion to fit said hole, and said sleeve being provided with a projection, the knuckle having means for operating the projection as said knuckle is opened, to move said first-mentioned polygonal portion out of registration with its seat.

5. In a car-coupling, a draw-head, a knuckle carried thereby, a locking-pin for the knuckle having a polygonal portion, the draw-head having a polygonal seat to receive said polygonal portion when the locking-pin is in its effective position, the said locking-pin having a shoulder to engage the knuckle to hold the same locked, and also having a releasing-notch situated below said shoulder, said polygonal portion being movable out of said polygonal seat to carry said shoulder out of engagement with the knuckle to thereby free the same, and means actuated by the knuckle as it is opened for causing the locking-pin to turn and move said polygonal portion out of register with its seat.

6. In a car-coupling, a draw-head, a knuckle carried thereby, a locking-pin for the knuckle having a movement to release the knuckle and having a straight groove and an inclined groove merging into the straight groove, a lug upon the draw-head to enter said grooves, the lug as it enters the inclined groove on the elevation of the locking-pin causing the rotation of the latter, and means actuated by the locking-pin as it rotates for positively swinging the knuckle open.

7. In a car-coupling, a draw-head, a knuckle carried thereby, a locking-pin for the knuckle having a polygonal portion, the draw-head having a polygonal seat to receive said polygonal portion when the locking-pin is in its effective position, said polygonal portion being movable out of said polygonal seat to release the knuckle, means for causing the rotation of the locking-pin when the knuckle is released, and means actuated by said locking-pin for positively opening the knuckle.

8. In a car-coupling, a draw-head, a knuckle carried thereby, a locking-pin for the knuckle having a polygonal portion, the draw-head having a polygonal seat to receive said polygonal portion when the locking-pin is in its effective position, said polygonal portion being movable out of said polygonal seat to release the knuckle, and a sleeve non-rotatively connected with the locking-pin, having a projection, the knuckle being provided with a cam-face to be traversed by the projection as the locking-pin rotates, to thereby positively open the knuckle.

9. In a car-coupling, a draw-head, a knuckle carried thereby, having a flanged web on its inner side, the flange of the web having a cam-surface, a locking-pin for the knuckle, having a polygonal portion, the draw-head having a polygonal seat to receive said polygonal portion after the locking-pin is in its effective position, and said polygonal portion being movable out of said polygonal seat to release the knuckle, means for causing the rotation of the locking-pin after the knuckle is released, and a sleeve non-rotatively connected with the locking-pin, having a projection to engage said cam-surface to positively open the knuckle.

10. In a car-coupling, a locking-pin having a polygonal head, a pair of shoulders below the head, the faces of which diverge outwardly with respect to each other, and a notch below said locking-shoulders.

11. In a car-coupling, a locking-pin having a polygonal head, a locking-shoulder below the head, a notch below the shoulder, and straight and inclined grooves merging into each other, below said notch.

12. In a car-coupling, a draw-head, a knuckle carried thereby, the top and bottom of the

draw-head having interior gibs, and the upper and lower sides of the rear or inner branch of the knuckle having coöperating gibs located behind those of the draw-head when the knuckle is closed, said rear branch having an angular nose at its free end, and a locking-pin having a correspondingly-angular notch to receive said nose and hold the knuckle in its closed position, and the outer end of said rear or inner branch, when the knuckle is closed and locked, abutting against the adjacent surface of the draw-head.

13. In a car-coupling, a draw-head, the draw-head having a locking-pin opening and a shoulder around said opening, a knuckle carried by the draw-head, a locking-pin for the knuckle entering said opening, the pin having a polygonal portion, and the opening having a corresponding polygonal portion to receive that on the locking-pin when the latter is in its effective position, said polygonal portion of the pin being movable out of the polygonal portion of the opening to release the knuckle, and said polygonal locking-pin having above its polygonal portion a cap to rest on said shoulder, and a lug upon the draw-head, the locking-pin having straight and inclined grooves merging into each other and adapted to successively receive said lug as the locking-pin is elevated.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES MEEHAN.

Witnesses:
WM. A. BYRNE,
JNO. B. KEAD.