

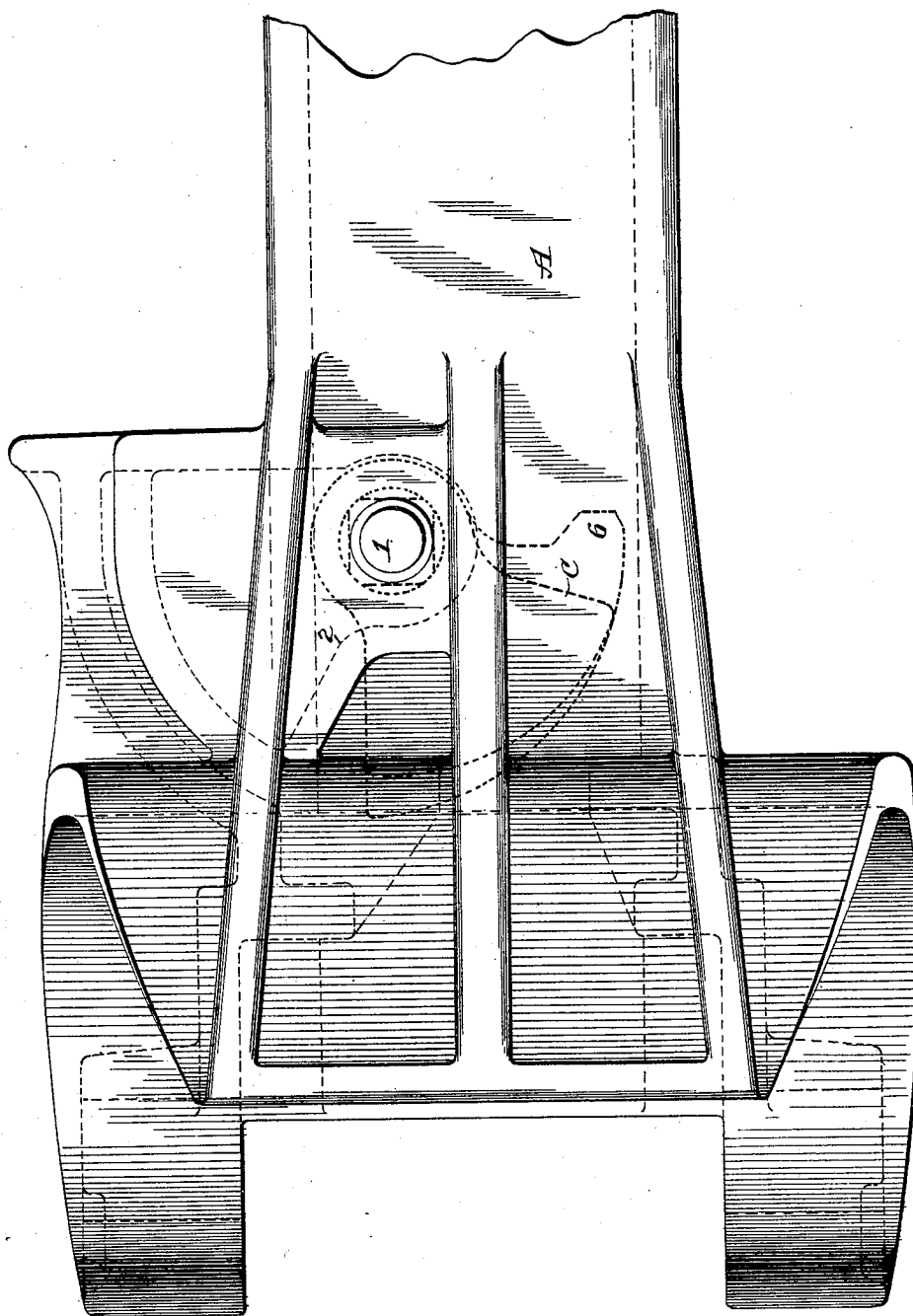
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4 Sheets—Sheet 1.

J. TIMMS.
CAR COUPLING.

No. 587,070.

Patented July 27, 1897.



Witnesses
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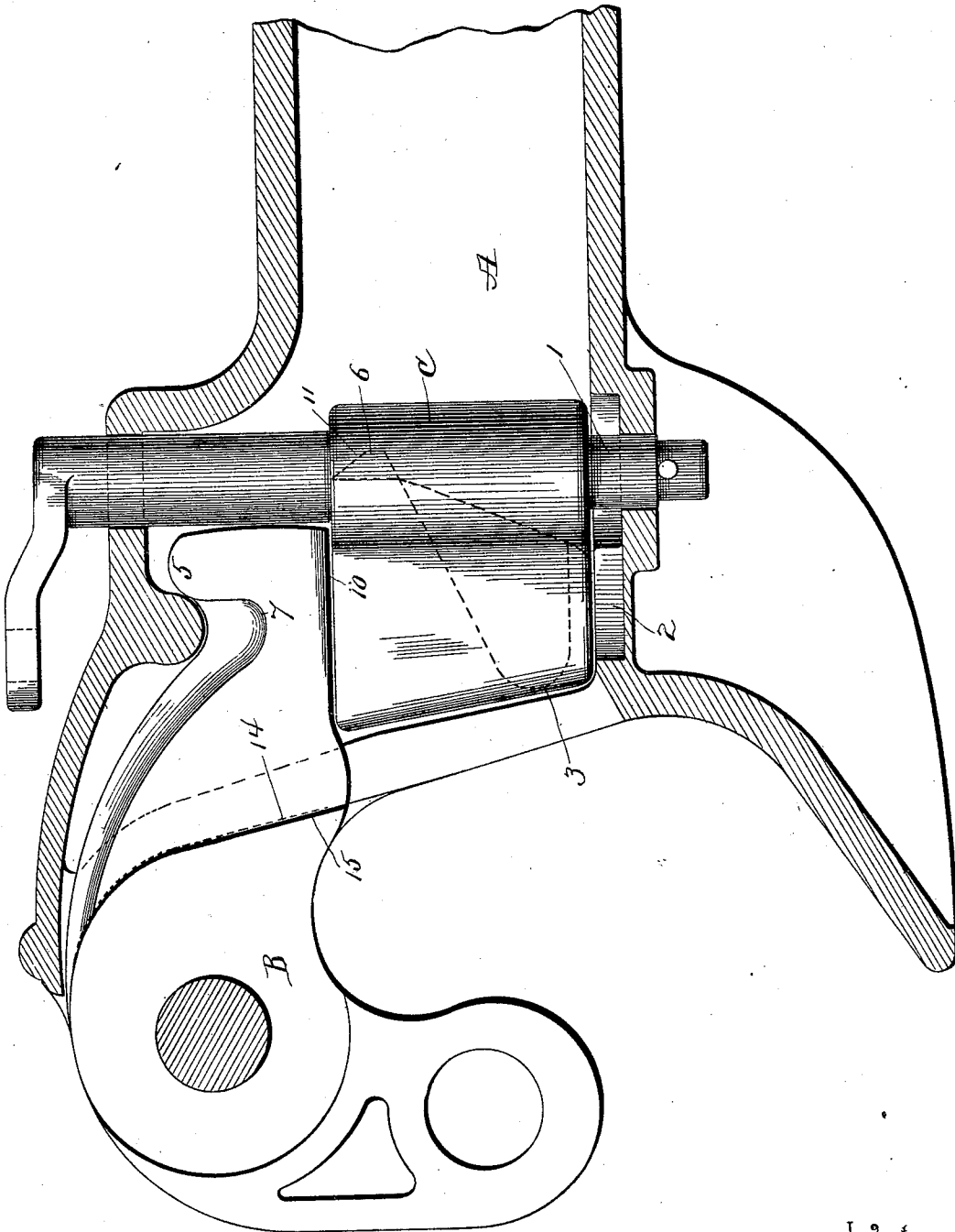
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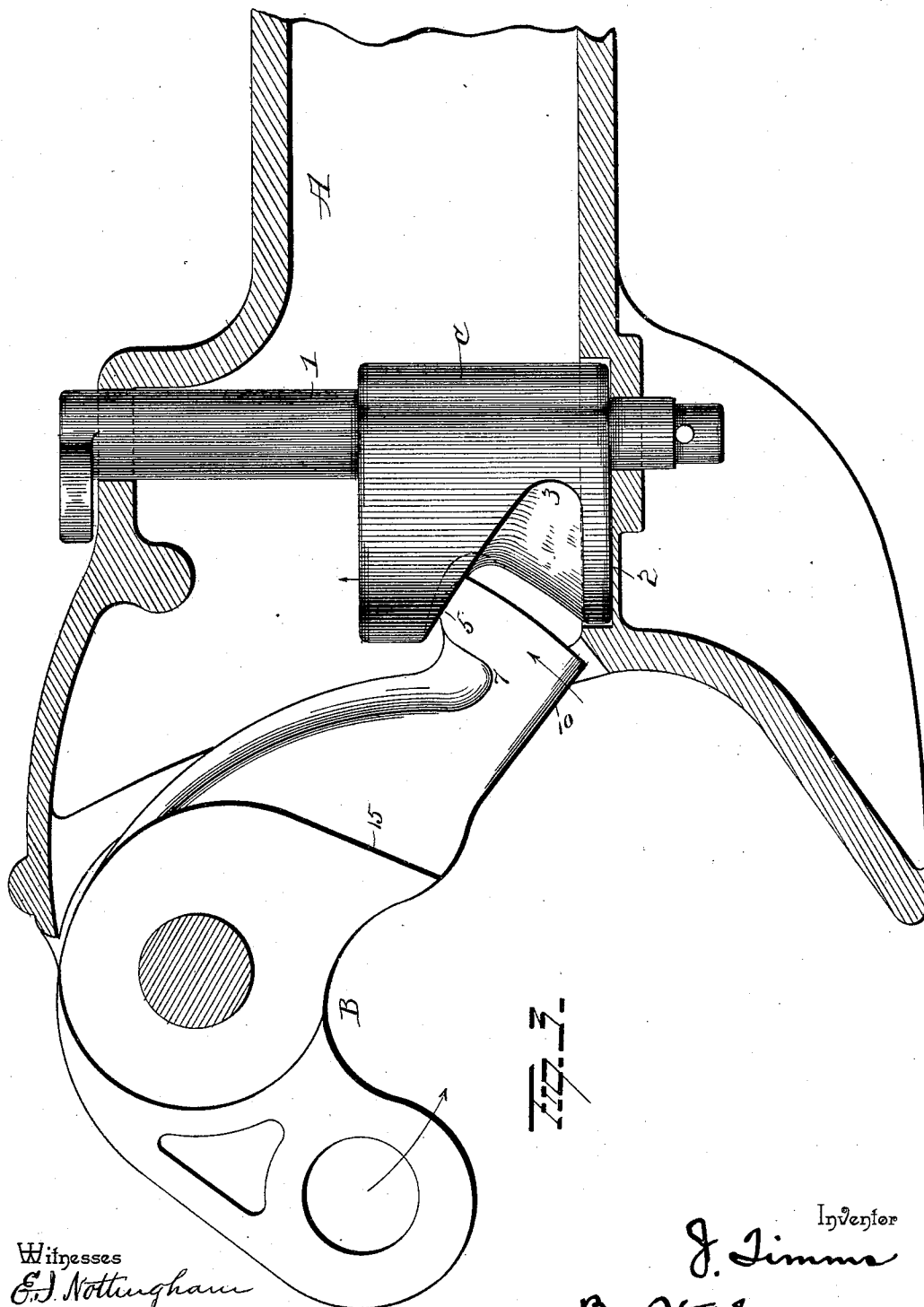
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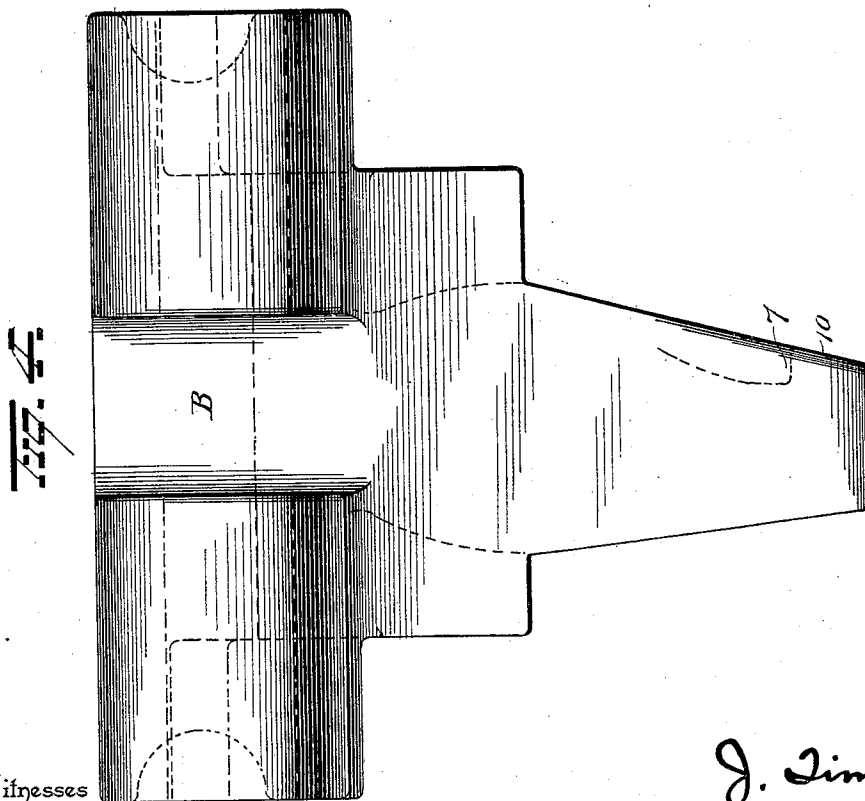
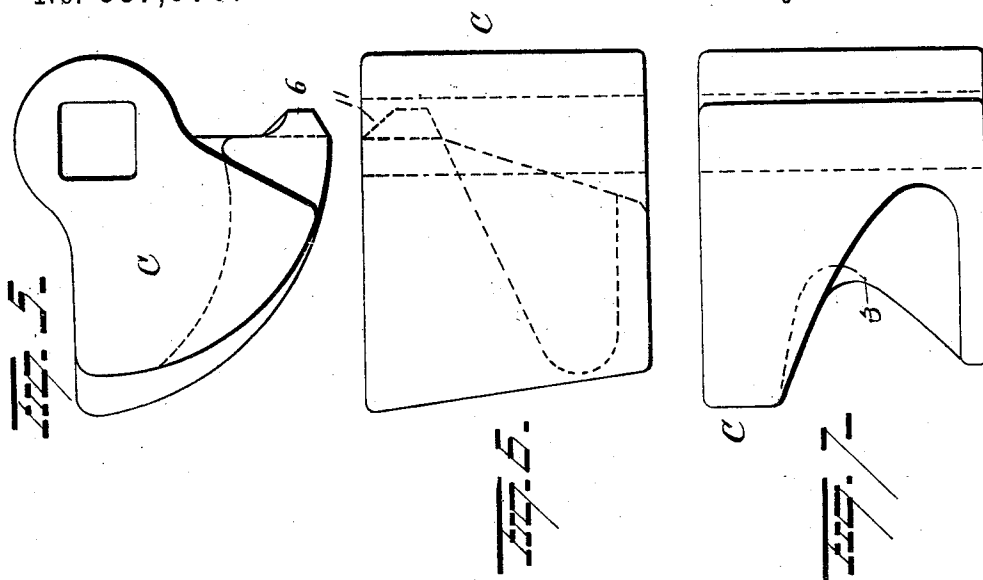
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UNITED STATES PATENT OFFICE.

JAMES TIMMS, OF COLUMBUS, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 587,070, dated July 27, 1897.

Application filed February 13, 1897. Serial No. 623,283. (No model.)

To all whom it may concern:

Be it known that I, JAMES TIMMS, of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful

5 Improvements in 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.
10 My invention relates to an improvement in car-couplings of the Janney or "twin-jaw" type, the object being to simplify the construction and reduce its parts to a minimum and at the same time provide one which will afford
15 great strength and will be durable and effectual in the accomplishment of its functions.

With the above object in view my invention consists in a pivoted gravity-drop and means for retaining it in an elevated position
20 when set for coupling, in connection with a knuckle constructed and adapted when closed in the act of coupling to cause the drop to automatically fall and lock it when the drop is in an elevated position or to force it up out
25 of its path and then cause it to fall when the drop is in its depressed position and coupling of the cars is to be accomplished.

It further consists in a gravity-drop having an endwise movement and provided with
30 a depending projection at its lower end, in combination with a knuckle constructed and adapted to pass under the drop and against the projection whereby to force the drop laterally from its temporary resting-place preparatory to its falling in front of the rearward extension of the knuckle to effect a locking thereof.

It still further consists in a gravity-drop capable of endwise movement and means for
40 holding it in an elevated position, said drop furnished in its forward face with a spiral groove and having a depending projection adjacent to the lower end of the groove, in combination with a pivoted knuckle having a lateral extension at its rear end adapted to
45 enter the spiral groove in the drop whereby to force the latter upward as the knuckle is closed in coupling and having a recess to receive the depending projection on the drop, and a shoulder adjacent to the recess to strike
50 the depending projection whereby to slide the

drop laterally off of its rest and permit it to fall in front of the knuckle when the latter shall have swung beyond the vertical plane of the drop.

The invention still further consists in inclining shoulders on the knuckle and interior of the draw-head which direct the strain brought to bear upon the coupling inward instead of outward against the outer wall of the
60 draw-head; and it consists still further in certain novel features of construction and combinations of parts, which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is
65 a view in side elevation with the knuckle removed and showing the drop in its depressed position in dotted lines. Fig. 2 is a horizontal sectional view of the draw-head, showing the knuckle and drop in plan. Fig. 3 is a
70 detail of the knuckle; and Figs. 4, 5, 6, and 7 are different views of the drop.

A represents the draw-head of the coupling. B is the knuckle, and C is the gravity-drop. These three elements constitute the
75 necessary elements of the invention, and the novel features consist in certain details in the construction of these parts, which will now be described. The drop C is held fast on a horizontal rock-shaft 1, the latter being
80 preferably angular as the most expedient means for preventing the drop from turning on the shaft. If necessary, a set-screw or some equivalent means may be provided for preventing the drop from sliding on the shaft.
85 The shaft itself has a limited endwise movement in the draw-head. The reason for this is apparent when it is explained that a shoulder 2 is located on one of the inner walls of the
90 draw-head in position to sustain the drop when the latter is in its elevated position. To rest the drop upon this shoulder, the shaft 1 is rocked backward to elevate the drop. Then the shaft is pushed inward and released,
95 the drop by its own weight assuming a position of rest upon the shoulder. The object of this provision is to effect the uncoupling of a train without requiring the presence of an attendant further than to merely elevate the drop from the path of the knuckle. With-
100 out this shoulder it would be necessary for the attendant to hold the drop in its elevated

position until the cars had pulled apart. So to uncouple the drop is raised and pushed over upon the shoulder. This is the entire operation of uncoupling and is simply the work of a moment's time. If the engineer is not yet ready to pull the cars apart, all well and good. They are, nevertheless, in readiness to be pulled apart at any time it is desired to do so. If at the time of uncoupling the engineer is ready to pull the cars apart at once, then the brakeman or attendant may stand and hold the drop elevated and lower it as the cars leave each other without resting it upon the shoulder. This of course is entirely within the discretion of the operator.

The drop C itself is of peculiar construction. It is curved on its outer face approximately in the arc of a circle whose center is the shaft 1. This curved forward face of the drop is provided with a spiral groove 3, starting on a horizontal plane about on the level with the drop-shaft 1 and curving from that point downward and gradually toward the opposite end of the drop from the end where it starts.

The tail of the knuckle B is provided with a lateral projection 5, which enters this groove when the knuckle swings shut and forces the drop upward out of its path until the tail has passed, when the drop falls by gravity in front of it and locks the knuckle. This is the operation of the parts when the drop is down. So it is understood that the action is perfectly automatic. Now when elevated or resting upon the shoulder 2 some plan must be devised for pushing the drop off of the shoulder so it will fall into place in front of the knuckle when the tail of the latter has passed. As a convenient means of accomplishing this end the extreme lower end of the drop at a point immediately adjacent to the groove is furnished with a depending projection 6, and the tail end of the knuckle has a shoulder 7, which strikes the depending projection 6 and forces the drop with its supporting-shaft endwise until the drop falls from the shoulder, where it is temporarily supported, and locks the knuckle.

The tailpiece of the knuckle thus does the work of raising the drop when the latter is down, and it slides it off of the shoulder when it is up; also, the tailpiece is beveled on its upper outer edge 10 and the depending projection on its edge 11, so that the knuckle will open without obstruction even if the projection depends a short distance into its path even when the drop rests upon the shoulder.

Two features are worthy of notice in passing which have not hitherto been mentioned. First, the construction of the drop is such that nearly its entire weight is normally below the shaft or axle 1. The object of this is to insure against any accidental displacement of the drop incident to the jolting and springing of the cars, utilizing the entire weight of the gravity-drop so far as possible to retain

it in place against accidental displacement. The other feature alluded to consists in the knuckle disposed in a plane beneath the axial center of the shaft, so that the backward force or pressure of the knuckle against the drop is received entirely by the drop and not by the shaft, so that the shaft is preserved from undue strain and punishment, which would otherwise result if the shaft were in a direct line of the application of pressure in the act of coupling the cars.

Besides the various parts described there is one other point which requires brief description, and that is the direction of the shoulders 14 14 and 15 15, located on the top and bottom walls of the draw-head and the top and bottom of the knuckle, respectively. Heretofore these shoulders have generally been parallel or approximately parallel with the outer or buffing end of the knuckle. When so disposed, the tendency is to throw all the buffing strain upon the side wall of the draw-head. I prefer to dispose these shoulders diagonally, so they incline toward the longitudinal center of the draw-head. The effect of this is to divert the strain of sudden impact from the side to the center of the draw-head where the greatest strength resides. In this way the life of the draw-head is appreciably lengthened and the entire efficiency of the parts is preserved.

It is evident that changes might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein described; but,

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

1. In a car-coupling, the combination with a draw-head, and a pivoted knuckle, of a gravity-drop pivotally supported and endwise movable in the draw-head and normally in position to be automatically caused to drop in front of the knuckle when the latter shall have been closed.

2. In a car-coupling, the combination with a draw-head, and a knuckle pivoted thereto, of a gravity-drop pivotally supported within the draw-head, said drop having an endwise as well as a swinging movement, means for supporting the drop in an elevated position and means whereby the drop is pushed from its support by the knuckle in swinging shut whereby the locking of the knuckle is automatically effected.

3. In a car-coupling, the combination with the draw-head, knuckle pivoted thereto and a support, of a gravity-drop pivoted in the draw-head in the path of the knuckle in closing, said drop having a curved outer face and provided at its lower end with a depending projection adapted to be struck by the knuckle whereby the drop is not only raised by the knuckle in swinging shut, but also forced endwise or laterally from its support.

4. In a car-coupling, the combination with a draw-head, a knuckle pivoted therein, said knuckle having a lateral projection and a shoulder on its tailpiece and a support, of a gravity-drop provided with a spiral groove and depending projection at or near the lower end of the groove and to one side of the latter, the lateral projection on the tailpiece constructed and adapted to enter the groove in turning to force the drop upward out of its way preparatory to locking and the shoulder on the knuckle adapted to strike the depending projection on the drop and cause the latter to move endwise or laterally from its sup-

port to permit it to fall in front of the knuckle to lock it, substantially as set forth. 15

5. In a car-coupling, the combination with a draw-head, of a knuckle pivoted therein, the draw-head and knuckle each having inwardly-inclining shoulders, substantially as set forth. 20

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JAMES TIMMS.

Witnesses:

VERNON E. HODGES,
GEORGE F. DOWNING.