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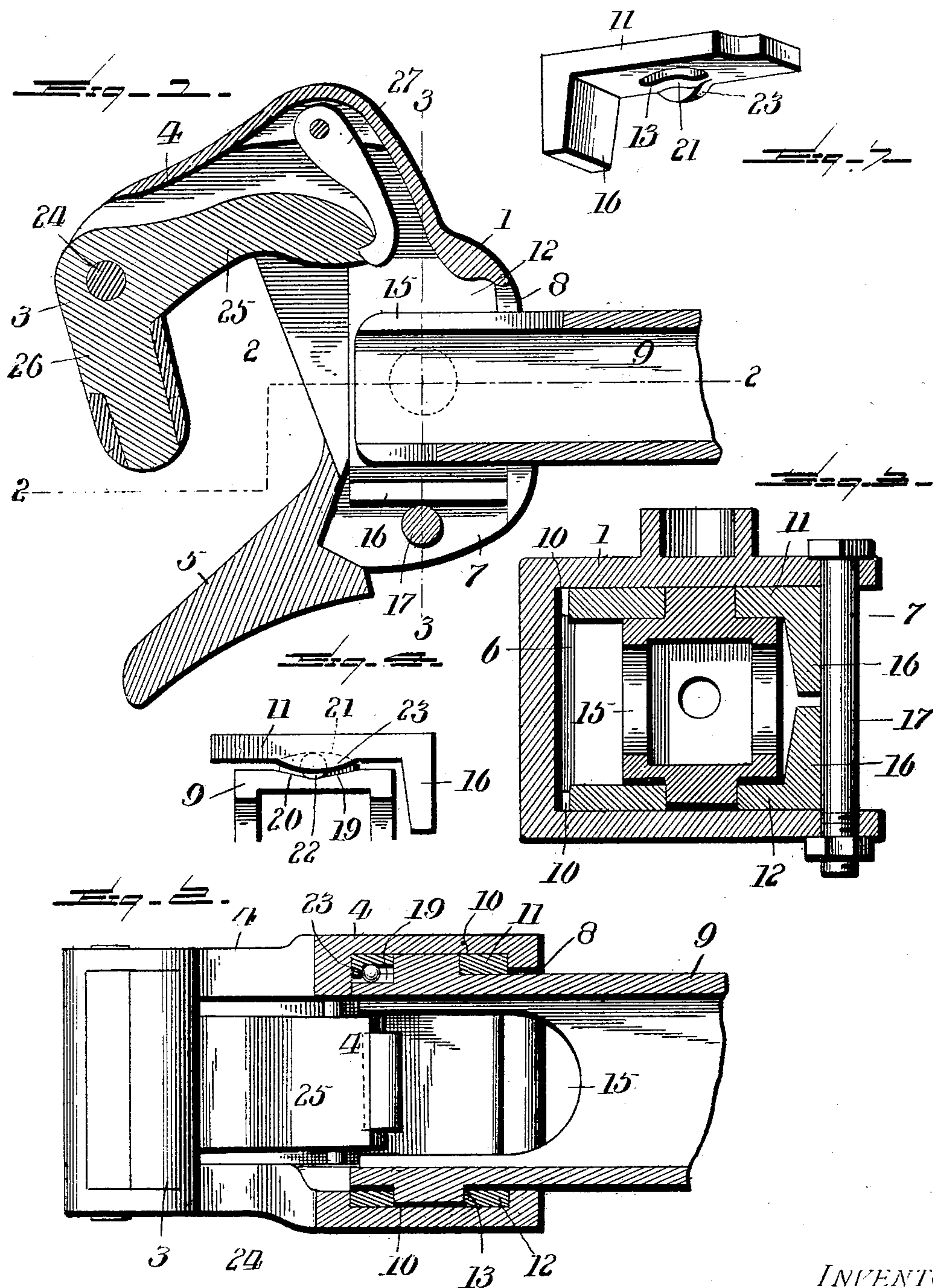
Patented July 8, 1902.

J. B. THOMAS.
CAR COUPLING.

(Application filed Mar. 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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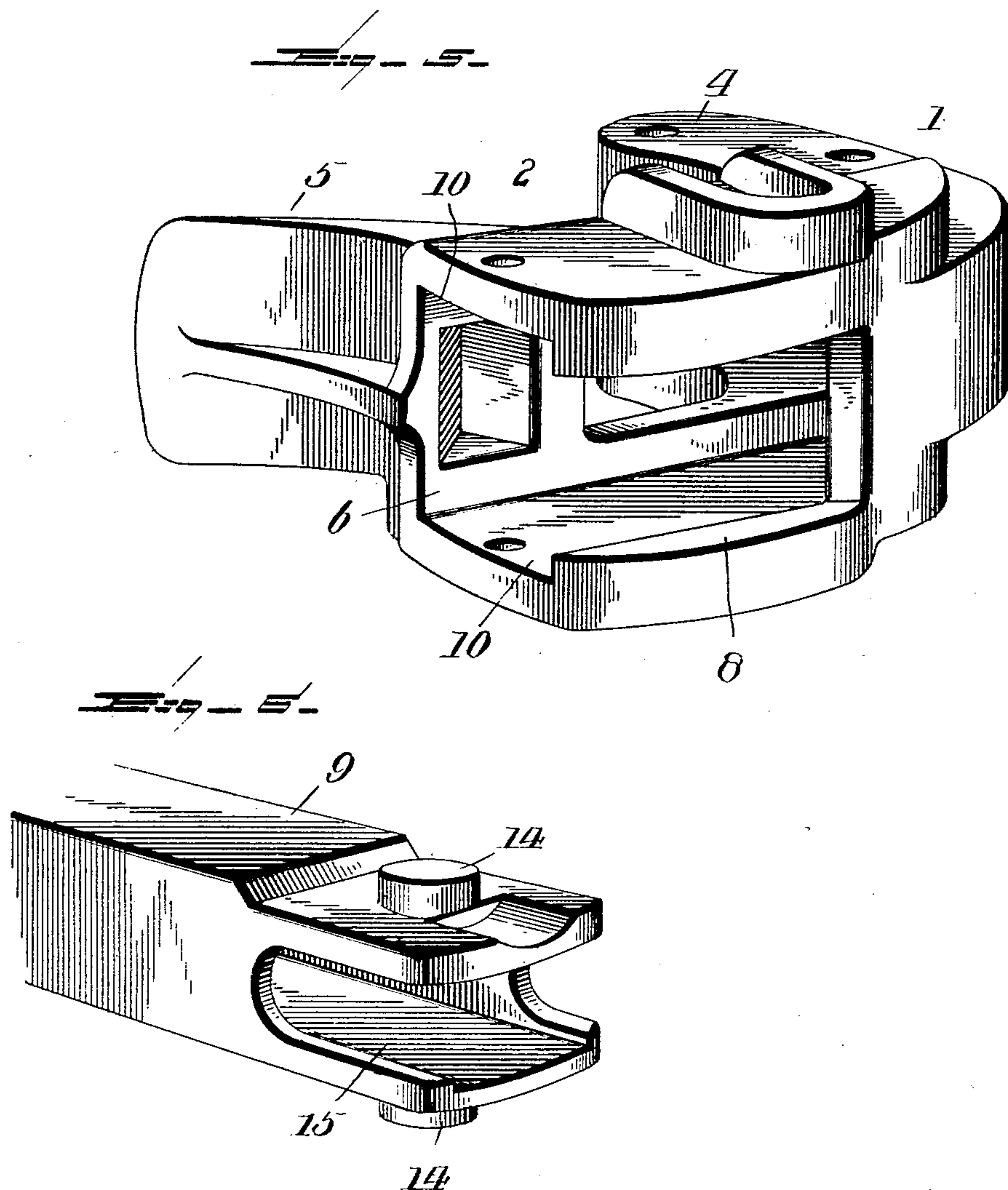
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UNITED STATES PATENT OFFICE.

JAMES BRYANT THOMAS, OF ST. LOUIS, MISSOURI.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 704,223, dated July 8, 1902.

Application filed March 8, 1901. Serial No. 50,384. (No model.)

To all whom it may concern:

Be it known that I, JAMES BRYANT THOMAS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful 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.

This invention relates to improvements in car-couplings, and more particularly to that class of couplings known as the "Janney" type of automatic coupler, to effect a construction which shall be simple and thoroughly positive and reliable in action.

To this end the invention contemplates a novel improvement in the mounting of the draw-head in such a way as to permit of a free rotary or oscillatory lateral motion independently of the draw-bar, whereby when companion heads come into impact the same will rotate or oscillate upon their pivots automatically into proper coupling positions, thus providing means whereby the cars may be readily coupled and uncoupled on a curve with the same facility as upon a straight section of track, which is not practical with car-couplings of the type in which the draw-heads are rigid with the draw-bars and have no lateral or swinging motion independently thereof.

In carrying out the foregoing object the invention has in view the provision of improved means whereby the pivotal support or mounting of the draw-head will have a minimum amount of friction and also means permitting of the draw-head to automatically resume or gravitate back to a central position with reference to its draw-bar when released from any strain that may cause it to assume an angle to said draw-bar or shank.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The essential features of the invention are necessarily susceptible to considerable modification without departing from the spirit or

scope of the invention; but the preferred embodiment of the improvements is shown in the accompanying drawings, in which—

Figure 1 is a horizontal sectional view of a car-coupling embodying the improvements contemplated by the present invention. Fig. 2 is a vertical sectional view of the coupling on the line 2 2 of Fig. 1. Fig. 3 is a vertical transverse or cross-sectional view on the line 3 3 of Fig. 1. Fig. 4 is a detail sectional view on the line 4 4 of Fig. 2, showing more plainly the peculiar construction of the ball-bearing associated with the upper removable bearing-step for the draw-head. Fig. 5 is a rear perspective view of the draw-head disconnected from the draw-bar. Fig. 6 is a detail in perspective of the end portion of the draw-bar to which the draw-head is pivotally connected. Fig. 7 is a detail in perspective of the removable bearing-step with which the ball-bearing is associated.

Like numerals designate corresponding parts in the several figures of the drawings.

The present invention, as already stated, contemplates a construction especially adapted to a draw-head of the oscillatory or rotary type—that is, a draw-head having a pivotal connection with the draw-bar—whereby the head is capable of a rotary or oscillatory lateral motion independently of the draw-bar to permit the draw-heads to automatically turn or adjust themselves into a proper coupling position under any and all conditions, such as upon curves, as well as to automatically accommodate themselves to the movement of the cars around the curves, so as to obviate the possibility of the couplings becoming uncoupled, strained, or broken. In carrying out this object of the invention no special change is required in the general shape or form of the draw-head, (designated by the reference-numeral 1 of the drawings,) said draw-head being provided with the usual mouth 2 for receiving the knuckle 3 of the companion or opposite head, said head also having at one side of the mouth the bifurcated supporting or pivot arm 4 for the knuckle, and at the opposite side of the mouth with the laterally-extending inclined guide or guide-arm 5, adapted to engage with the knuckle side of a companion head to draw the two heads into a coupling position.

The present invention contemplates in addition to the usual chamber or space within the hollow head a transversely-disposed bearing-socket 6, formed within the rear portion 5 of the draw-head and being disposed at right angles to the line of draft of the coupling.

The transversely-disposed bearing-socket 6, formed in the rear portion of the draw-head, is closed at one end, as plainly shown 10 in Figs. 1 and 3 of the drawings, while the opposite end thereof at one side of the draw-head is open, as at 7. Also the rear side of the draw-head is provided with a horizontally-disposed opening or slot 8, which, in connection with the opening 7 at one side of the 15 draw-head, permits of the ready attachment of the draw-head to the draw-bar 9, as well as the quick and convenient removal of the draw-head whenever this may be required 20 for purposes of repair or adjustment.

To provide for effecting the detachable pivotal connection between the draw-head and the draw-bar, the transversely-disposed bearing-socket 6 is formed at the upper and lower 25 sides thereof in the top and bottom walls of the hollow draw-head with the channeled seats 10, which slidably and removably receive the upper and lower bearing-steps 11 and 12, which constitute removable bearing 30 elements for the draw-head. The said upper and lower bearing-steps 11 and 12 are preferably of a rectangular form to conform in outline to the channeled seats 10 in which they are designed to be placed, so that when 35 said steps are slid into position within the seats 10 provided therefor the same are held interlocked with the draw-head, so as to have no independent movement, and will therefore turn or oscillate with the draw-head as a part thereof. Both of the removable 40 bearing-steps 11 and 12 are provided therein at a point intermediate their ends with pivot-openings 13, which loosely receive therein the pivot trunnions or studs 14, projected, respectively, from the upper and 45 lower sides of the draw-bar 9 at or contiguous to the end upon which the draw-head 1 is mounted, and at this point it may be observed that the outer end of the draw-bar, to 50 which the draw-head is pivotally connected, is provided with a horizontal bifurcation 15, which permits of the free play of the working parts in the draw-head, as may be plainly seen from Fig. 1 of the drawings.

Referring more particularly to the pivotal mounting of the draw-head upon the draw-bar, it will be noted that the bearing-steps 11 and 12, located, respectively, at the upper and lower sides of the draw-bar, are preferably 60 ably both provided at one end with the holding-flanges 16, extending toward each other and spaced a sufficient distance beyond the adjacent side of the draw-bar 9 to permit a sufficient amplitude of movement for the 65 draw-head, although by reason of the intumed holding-flanges 16 extending over one of the sides of the draw-bar the said holding-

flanges necessarily constitute a stop to prevent an extreme turning or swing of the draw-head in either direction.

In assembling the parts the upper and lower bearing-steps 11 and 12 are fitted over the pivot-trunnions 14 at the upper and lower sides of the draw-bar, with the holding-flanges 16 at the same side of the draw-bar, and these 75 steps thus fitted in place may be readily slid into place within the seats 10 through the open end 7 of the bearing-socket, or the head may be slipped over the said steps; but in either event with the assembled parts positioned as shown in Fig. 3 of the drawings 80 the same may be securely held together by simply the employment of a retaining-bolt 17, mounted in bolt-openings 18 at the upper and lower sides of the opening 7 at one side of 85 the draw-head, said bolt 17 being thus positioned outside of the intumed holding-flanges 16 of the bearing-steps to prevent lateral displacement of the draw-head and the draw-bar, while at the same time permitting the 90 free rotation or oscillation of the draw-head upon the pivot-trunnions 14.

An important feature of the invention resides in the provision of a ball-bearing in connection with the pivotal mounting for the 95 draw-head. The preferable construction is shown in the drawings, and consists in providing the draw-bar, in the upper side thereof and preferably in advance of its upper trunnion 14, with a ball-seat 19, having inclined 100 walls 20 and opposed to a similarly-shaped seat 21, formed in the under side of the upper bearing-step 11, said complementary seats 19 and 21 constituting a race or housing for the bearing-ball 22. A single bearing-ball is 105 represented as a preferable construction, although a plurality of balls might be advantageously employed in the construction of the bearing. However, in the construction shown the said upper bearing-step 11 is also provided 110 at one side of the ball-seat 22 with a pendent guard-lip 23, lying in front of the ball-seat 19 and serving to hold the ball in an operative position.

By reason of the construction and arrangement 115 of the ball-bearing there is necessarily a great reduction in friction provided for, so as to permit the draw-head to freely oscillate or rotate laterally under the conditions already set forth, while at the same time on 120 account of inclined formation of the ball-seats when the draw-head is released from any strain which causes it to angle with reference to the draw-bar or shank the same will automatically gravitate back to a centered position. 125

In the drawings the knuckle 3 is of the usual elbow formation, the same being pivotally mounted upon the knuckle-pin 24 within the bifurcated or supporting pivot-arm 4 and 130 consisting of the locking-arm 25 and the coupling-arm 26. The locking-arm 25 is designed to cooperate with the latch 27, pivotally mounted within the draw-head and op-

erated by any suitable mechanism; but as no claim is made herein to any special form of latch nor of the means for operating the same the horizontally-swinging type of hook-latch shown in the drawings is simply disclosed for illustrative purposes.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described car-coupling will be readily apparent to those skilled in the art without further description, and it will be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a car-coupling, the combination with the draw-bar, of a draw-head having a pivot ball-bearing arranged to bear the weight of the head.

2. In a car-coupling, the combination with the draw-bar, the draw-head, and a separate pivotal ball-bearing connection coupling the head with the bar and arranged to bear the weight of the head.

3. In a car-coupling, the draw-bar, the draw-head, and a pivotal connection between the draw-bar and draw-head, the said pivotal connection comprising means for permitting the draw-head to have an independent lateral oscillation, and also for causing it to automatically return to a centered position when released from lateral strain.

4. In a car-coupling, the draw-bar, the draw-head, and means for permitting the draw-head to have an independent lateral oscillation, and also to gravitate automatically to a centered position when released from lateral strain.

5. In a car-coupling, the draw-bar, the draw-head, and a pivotal connection between the draw-head and the draw-bar, said connection comprising means for causing the draw-head to automatically gravitate to a centered position when released from lateral strain.

6. In a car-coupling, the draw-bar, the draw-head, and a pivotal ball-bearing connection between the draw-head and the draw-bar,

said pivotal ball-bearing connection comprising means for causing the draw-head to automatically gravitate to a centered position when released from lateral strain.

7. In a car-coupling, the draw-bar, the draw-head, and a pivotal connection between the draw-head and the draw-bar, said pivotal connection being detachable from the draw-head and comprising means for causing the latter to automatically gravitate to a centered position when released from lateral strain.

8. In a car-coupling, the draw-bar, the draw-head, and a pivotal connection between the draw-head and the draw-bar, said pivotal connection comprising oppositely-arranged bearing members, and a ball-bearing associated with one of said members, and arranged to permit the automatic gravitation of the head to a centered position.

9. In a car-coupling, the draw-bar, the draw-head, and a pivotal connection between the draw-head and the draw-bar, said pivotal connection comprising upper and lower bearing-steps pivotally fitting the draw-bar, and a ball-bearing interposed between the upper bearing-step and the draw-bar, and arranged to permit of the automatic gravitation of the head to a centered position.

10. In a car-coupling, the draw-bar, the draw-head, a pivotal connection between the draw-head and the draw-bar comprising upper and lower bearing-steps, the upper step and the adjacent side of the draw-bar having a ball-seat, and a bearing-ball arranged therein.

11. In a car-coupling, the draw-bar, the draw-head, a pivotal connection between the draw-head and the draw-bar comprising upper and lower bearing-steps arranged respectively at the upper and lower sides of the draw-bar, said draw-bar being provided beneath the upper bearing-step with a ball-seat having inclined walls, a bearing-ball arranged in said bearing-seat, and means for holding said ball in place.

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

JAMES BRYANT THOMAS.

Witnesses:

HERMAN BUERMANN,
JOHN LA PRELLE.