

No. 615,916.

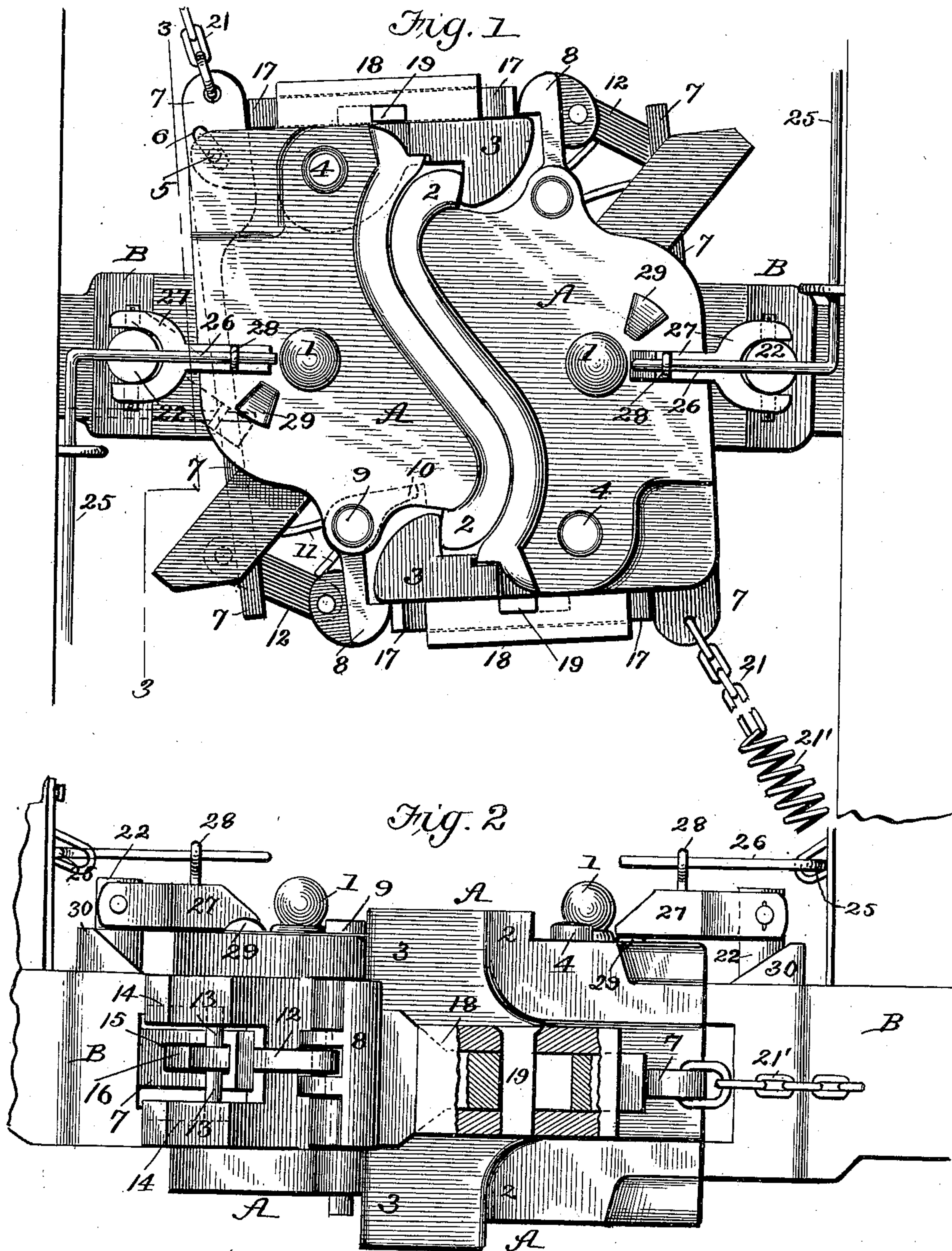
Patented Dec. 13, 1898.

W. C. SHAW.
CAR COUPLING.

(Application filed Mar. 31, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:
Jos. A. Ryan
Amos W. Hart

INVENTOR
William C. Shaw.
BY *Munn & Co.*

ATTORNEYS.

No. 615,916.

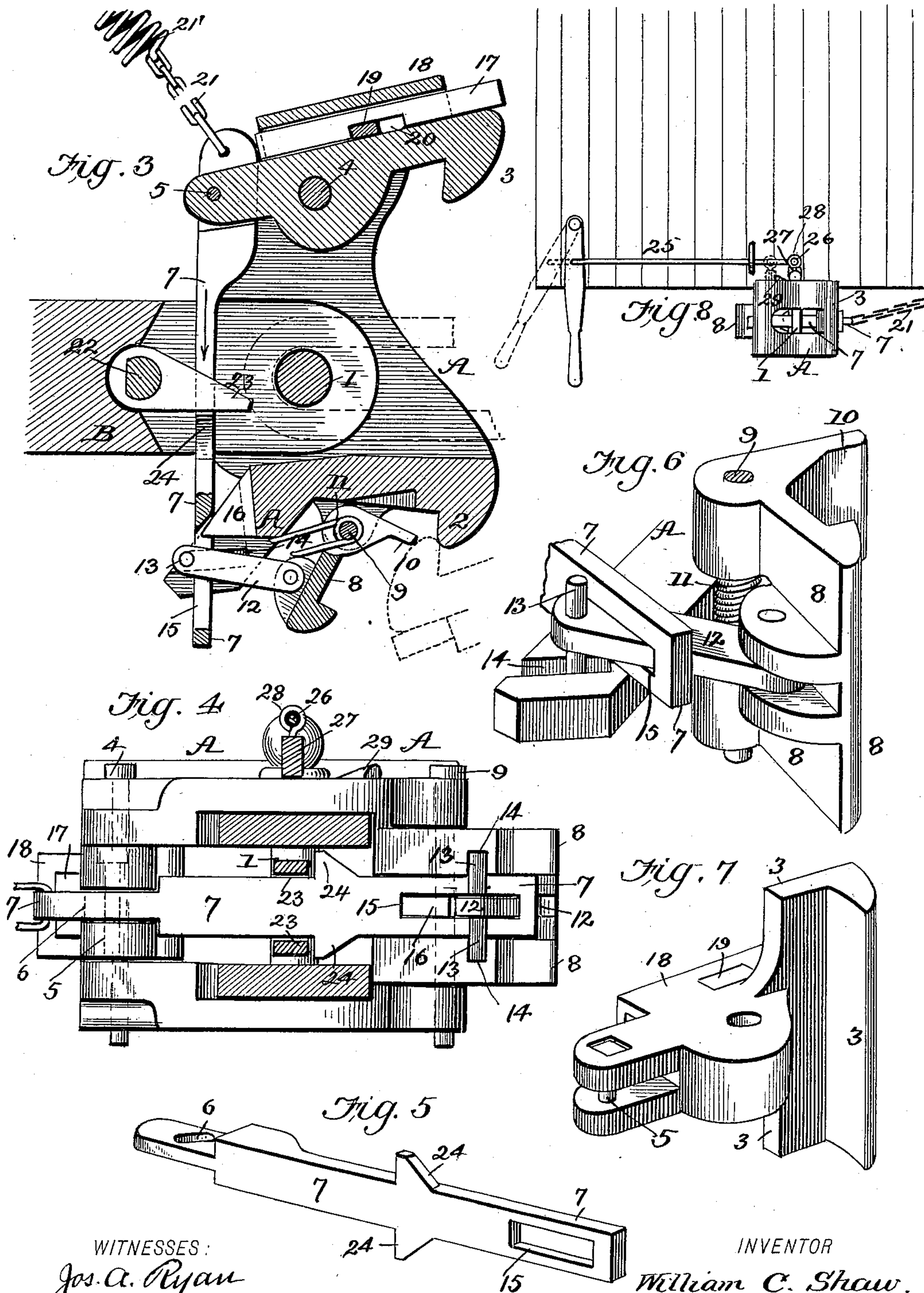
Patented Dec. 13, 1898.

W. C. SHAW.
CAR COUPLING.

(Application filed Mar. 31, 1898.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:
Jos. A. Ryan
Amos W. Hart

INVENTOR
William C. Shaw.
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM C. SHAW, OF WHITE PLAINS, MARYLAND, ASSIGNOR OF THREE-FOURTHS TO PETER W. HAWKINS, OF SAME PLACE, AND CHARLES W. JENKINS, OF BALTIMORE, MARYLAND.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 615,916, dated December 13, 1898.

Application filed March 31, 1898. Serial No. 675,877. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. SHAW, of White Plains, in the county of Charles and State of Maryland, have invented a new and
5 useful Improvement in Car-Couplings, of which the following is a specification.

My invention is an improvement in the class of pivoted jaw-couplers—that is to say, couplings in which one or two jaws, hooks, or
10 claws on one draw-head are adapted to automatically engage and interlock with one or more portions of another similar draw-head and which may be unlocked for uncoupling by means of some device operated by hand.

15 The construction, combination, and operation of parts constituting my invention are as hereinafter described with reference to accompanying drawings, (two sheets,) in which—

Figure 1 is a plan view of two pivoted coupling-heads constructed according to my invention and engaged or locked together. Fig. 2 is a side view of one of such heads and a longitudinal section of the other. Fig. 3 is a horizontal section of my coupler. Fig. 4 is a
25 vertical cross-section on line 4 4 of Fig. 1. Fig. 5 is a perspective view of the trip-bar. Fig. 6 is a perspective view of the catch and connected mechanism for locking the coupling hook or jaw. Fig. 7 is a perspective view
30 of the coupling hook or jaw. Fig. 8 is an end view of a portion of a car having my improved coupler attached.

A coupling-head A is pivoted by a pin 1 to a draw-bar B, which is arranged and adapted
35 to slide in the usual way in a suitable guide beneath the car-body. The front or face of the head A is curved, it being practically S-shaped, by which form and the pivotal attachment of the head to the draw-bar B the
40 said head A is adapted to so engage with another of like construction (see Fig. 1) as to readily couple whether on a curved or straight track. Each coupling-head A has a lateral flange or shoulder 2, with which a jaw or hook
45 3 of the opposite draw-head engages. Such hook 3 is pivoted by a pin 4, Fig. 3, in a slot in one side of the draw-head A and is itself slotted at its rear end and provided with a vertical cross-pin 5, which works in a diagonal

slot 6 in a trip-bar 7. The latter extends
50 horizontally across the rear portion of the head A and coacts with the hook 3 and other coupling devices proper in the manner hereinafter described.

It will be seen that inasmuch as the hooks
55 or jaws 3 engage shoulders 2 on opposite sides of the respective heads A the latter are thereby connected in such manner that the draft is equalized or practically central through the pivots or pins 1, that connect the heads A to
60 the draw-bars B. The pins 1 may also serve in an emergency for coupling two cars by means of an ordinary link, the heads A being for this purpose slotted in the face or front end, as shown in Figs. 3 and 4, to adapt them
65 to receive such link.

I will now describe with due detail the trip-bar 7 and other devices that coact with the coupling-hooks 3, before referred to. As
70 shown in Fig. 5, the said trip-bar is straight and reduced at one end, which is provided with a diagonal slot 6. The latter is in a vertical plane. A horizontal slot 5 is formed near the opposite end of the bar, and vertical projections or shoulders 24 are formed at opposite points on the middle portion of the bar.
75 It is necessary the hooks 3 shall be normally held firmly engaged with the shoulders 2 of the opposite draw-heads A, so that no accidental detachment shall occur. For this purpose I employ a smaller claw or hook 8, Figs.
80 1, 3, and 6, which is pivoted by a vertical pin 9 to lateral projections of the draw-head A, just in rear of the locking shoulder or flange 2. This safety-hook 8 normally projects laterally, as shown in Fig. 1, and is adapted to swing backward, but prevented from swinging forward by means of forward projections or toes 10, formed on its base and resting normally in recesses in contact with the side of
90 the head A, as shown by dotted lines, Fig. 1. The safety-hook 8 is held in such position by a spring 11, which is coiled about its pivot 9. The aforesaid projections or toes 10 subserve another function than that above stated—
95 namely, when the hook or jaw 3 is swung back, as shown by full lines, Fig. 3, they act against the nose edge of the adjacent coup-

ling-hook 3 and push it off from the shoulder, as indicated by dotted lines, Fig. 3. This operation of the safety-claw is effected by its connection with the trip-bar 7. Such connection is a loose or sliding one and effected by a pivoted link 12, (see Fig. 6,) having in its free rear end a vertical pin 13, whose ends enter and are adapted to slide in grooves 14, that are formed in integral diagonal extensions of the coupling-head A and are slightly inclined to the longitudinal axis of said head. The aforesaid pin 13 passes through and is adapted to slide freely in a closed slot 15, formed in the end of the trip-bar 7. A cam 16, which is constructed solid with the aforesaid extension of the head A, also projects through said slot 15, Figs. 2, 3, 6, and 7, and works in contact with the inner end of the slot. The rear or working face of such cam is inclined at an angle of about forty-five degrees to the longitudinal axis of the coupling-head A, so that as the trip-bar 7 is forced and moved endwise (see arrow, Fig. 3) by means hereinafter described it rides on such incline or cam 16, and its slotted end is thereby forced backward, and consequently acts against the ends of the pin 13 of the link 12 and pushes them backward in the grooves 14. The result is that the safety-catch 8 is drawn backward to the position shown in Fig. 3, whereby the adjacent coupling-hook 3 is not only freed, but positively acted on by the toes 10 of hook 8, and thus disengaged from the shoulder 2 of head A.

I will now describe the means for disengaging the opposite safety-hook 8 from the opposite coupling-hook 3. On the side of the latter is arranged a slidable bar 17, which is held horizontally in a slotted keeper 18 and prevented from accidental detachment therefrom by means of a vertical drop pin or key 19, that passes through said keeper and also through a slot 20 in the bar 17, the latter having also a slot which is wider than the pin 19 in order to allow due play or motion of the latter. The function of this push-bar 17 is to positively act on adjacent safety-hook 8 and push it off the coupling-hook 3. Thus while the safety-hook 8 on one head A is swung backward and disengaged by the co-action of the link 12 and trip-bar 7 the safety-hook 8 on the other side of the opposite head A is simultaneously acted on by the push-bar 17. The latter is also operated—i. e., projected forward—by engagement with the trip-bar 7, which is through the medium of the pin 5 and diagonal slot 6 before described. (See Fig. 6.) Thus when the trip-bar 7 is forced endwise the pin 5 rides in its slot 6, so that the end of the trip-bar is carried forward against the push-bar 17 and forces it forward. (See positions indicated in Fig. 3.) The pin-and-slot connection of coupling-hook 3 and trip-bar 7 also opens the hook or disengages it from the shoulder 2 of the opposite head A, since when the pin 5 reaches the outer end

of the slot 6 as the bar 7 slides in the direction indicated by the arrow it is apparent the hook 3 will be swung on its pivot 4 by the leverage of the trip-bar 7 on the rear end of the same.

The trip-bar 7 is held normally in the position shown in Fig. 1 by means of a spring 21 and chain 21', the latter being attached to the end adjacent to the push-bar and the spring being secured to a car-sill in due position to exert both backward and endwise traction on the trip-bar as well as to hold the hook in place when coupled and to hold the draw-head A in normal position for the coupling.

The chief means for operating the trip-bar 7 is the short vertical rotatable rod or shaft 22, journaled in the draw-bar proper just in rear of the head A. The same is provided with forks or fingers 23, Figs. 3 and 4, that embrace the trip-bar 7 and engage lugs or shouldered projections 24 on the latter. Thus by rotating the said shaft 22 the fingers 23 act against the shoulders 24 and push the trip-bar 7 endwise into the position shown in Fig. 3, whereby the safety-hook 8 is swung open, the push-bar 17 projected forward, and the coupling-hook 3 disengaged from the opposite head A and thus uncoupled, as before described.

The preferred means for rotating the shaft 22 for the purpose of effecting this operation are a rod 25, having the arm 26, and a latch 27. The rod 25 is arranged slidably and rotatably in a bearing on the front end of the car, its forwardly-projecting arm 26 connected with the latch 27 by means of an eye 28 on the latter through which the arm slides freely. The latch is pivoted on the shaft 22, so as to be free to swing vertically. It will be seen that by pulling the free or handle end of the lever 25 its arm 26 will draw the latch 27 laterally, and thus the shaft 22 will be turned and its fingers 23 thereby act against shoulders 24 on the trip-bar 7, thus forcing the latter endwise and effecting uncoupling, as before stated.

The latch 27 is bifurcated to better adapt it for pivotal attachment to the shaft 22, and its free end, which rests on the adjacent portion of the coupling portion of the coupling-heads, is adapted to slide over a shouldered cam or projection 29. The latter is preferably cast integral with the coupling-head, and its longer axis is practically coincident with the arc in which the latch swings. By traction on the rod 25 the latch 27 is drawn over the cam 29, so that it drops automatically into engagement with the vertical shoulder of the same by the effect of gravity, and thus locks the shaft 22 and trip-bar 7, whereby the coupling-hook 3 is held out of action, so that cars may be released from each other or brought together without coupling, as may be required on occasion, especially when making up trains.

When it is desired to unlock or release the

latch 27, the lever 25 is pulled and its handle end simultaneously raised or drawn forward to a slight angle in order to lift the latch high enough to pass over the cam 29, when the springs 11 and 21 throw the shaft 22 and latch 27 back to the original normal position, in which the coupling-hooks 3 are again ready for coupling.

The draw-bar proper, B, has a vertical oblique shoulder 30, Fig. 2, in the nature of a boss around the shaft 22.

My improved coupling will couple automatically on the shortest curves as easily as on straight tracks, and the draw-head proper being pivoted traction is applied equally on the two coupling-hooks of opposite draw-heads. Uncoupling is effected by use of one lever and rod without difficulty or danger, and the coupling devices may be set in position to hold them out of action by the same means which are employed for uncoupling.

The rotary shaft 22 may be extended to the top of a car, and a hand-wheel applied for rotating it for the purpose of uncoupling, the latch in that case being lifted by a rod or chain.

What I claim is—

1. A pivoted coupling-head, having a lateral shoulder, a coupling-hook pivoted on one side of the draw-head, a locking or safety catch pivoted on the opposite side of the same, adjacent to said shoulder, and adapted to engage the coupling-hook, means for automatically engaging the said hooks, and means for disengaging, substantially as shown and described.

2. The combination of a draw-head, a coupling-hook pivoted thereto, a combined safety and disengaging hook pivoted on the opposite side of the draw-head, a bar extending laterally across the draw-head and having a loose connection with both hooks, and means for adjusting such bar as required to operate, *i. e.*, disengage, the hooks, substantially as shown and described.

3. The combination, with a pivoted draw-head, of a coupling-hook pivoted thereto, a locking or safety hook pivoted on the opposite side of said draw-head, a trip-bar and link connecting the rear portions of such hooks and a rotary shaft having projections that engage the trip-bar, substantially as shown and described.

4. The combination with a pivoted draw-head, a pivoted coupling-hook, a pivoted safety or locking hook, a trip-bar arranged in rear of said hooks, and loosely connected with them, a rotary shaft having fingers that engage said bar, a latch pivoted on the shaft, a cam or projection on the draw-head which said latch is adapted to engage, and a device extending laterally and connected with the latch for pulling it sidewise and thereby en-

gaging it with the cam, substantially as shown and described.

5. The combination with the draw-head pivoted coupling and safety hooks of the trip-bar having a loose connection with the hooks, a rotary shaft adapted to engage the trip-bar, a latch pivoted on the shaft, a cam on the draw-head which such latch may engage, and the slidable pull-rod having a forwardly-projecting arm that loosely engages the latch for turning and raising it, substantially as shown and described.

6. The combination with a draw-head, a pivoted latch, a rotary shaft, the trip-rod, and lever, automatic coupling and safety hooks, and a cam or locking shoulder for said latch, of a means for effecting uncoupling and also for locking the coupling devices out of engagement, the same consisting of a rotatable and slidable pull-rod having a lever attachment and a forwardly-projecting arm that slidably engages the latch, substantially as shown and described.

7. The combination with a pivoted draw-head, and a coupling-hook, of a safety or locking hook having toes or forward projections that are adapted to engage the head of such coupling-hook, for pushing it off the locking-shoulder, the link pivoted to the safety-hook and having a pin that works in a guide-groove of the draw-head, the trip-bar pivoted to the coupling-hook and having a slot in its opposite end which receives said link, a cam 16 on the draw-head that engages the inner end of the slot, means for holding the hooks normally engaged, and manual means for disengaging them, substantially as shown and described.

8. The combination with a draw-head, pivoted coupling-hook, and safety-hook, of a slide or push bar arranged slidably on the coupling-hook, the trip-bar pivoted to the coupling-hook, and adapted to act on the rear end of the push-bar, for forcing it forward to disengage a safety-catch from the adjacent coupling-hook, substantially as shown and described.

9. The combination with the pivoted draw-head, coupling and safety hooks pivoted thereto, on opposite sides, of a slidable push-bar arranged on the side of the coupling-hook, the trip-bar having a diagonal slot, a pivot-pin of the coupling-hook, working in said slot, a link connection between the safety-hook and trip-bar, and manual means for forcing the trip-bar endwise, to tilt or swing both of the aforesaid hooks, and force the push-bar forward, substantially as shown and described.

WILLIAM C. SHAW.

Witnesses:

AMOS W. HART,
 SOLON C. KEMON.