

(No Model.)

S. GARRATT.

CAR COUPLING.

No. 246,744.

Patented Sept. 6, 1881.

Fig. 1.

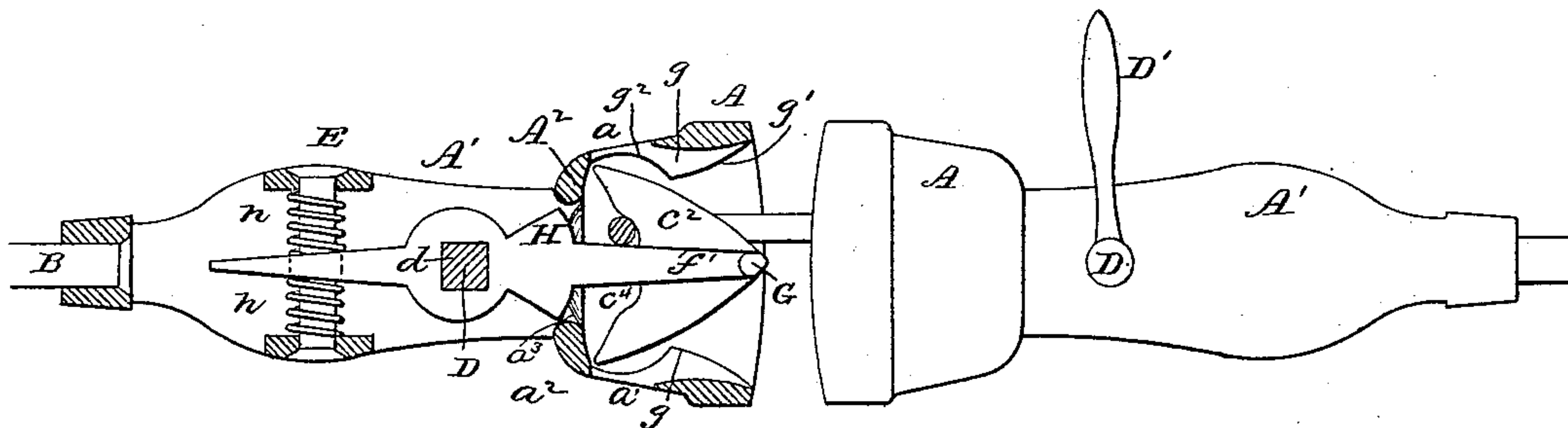


Fig. 2.

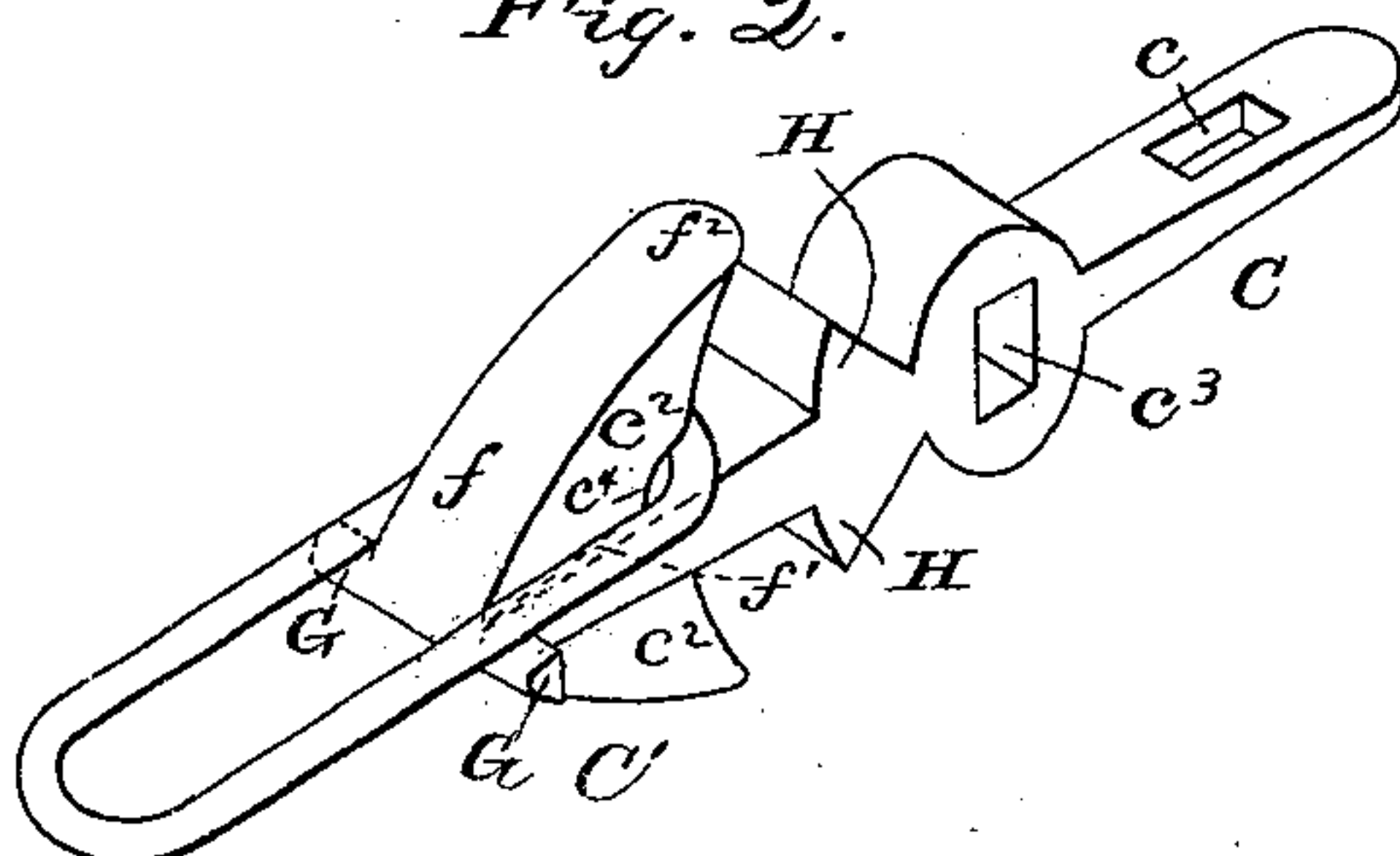


Fig. 4.

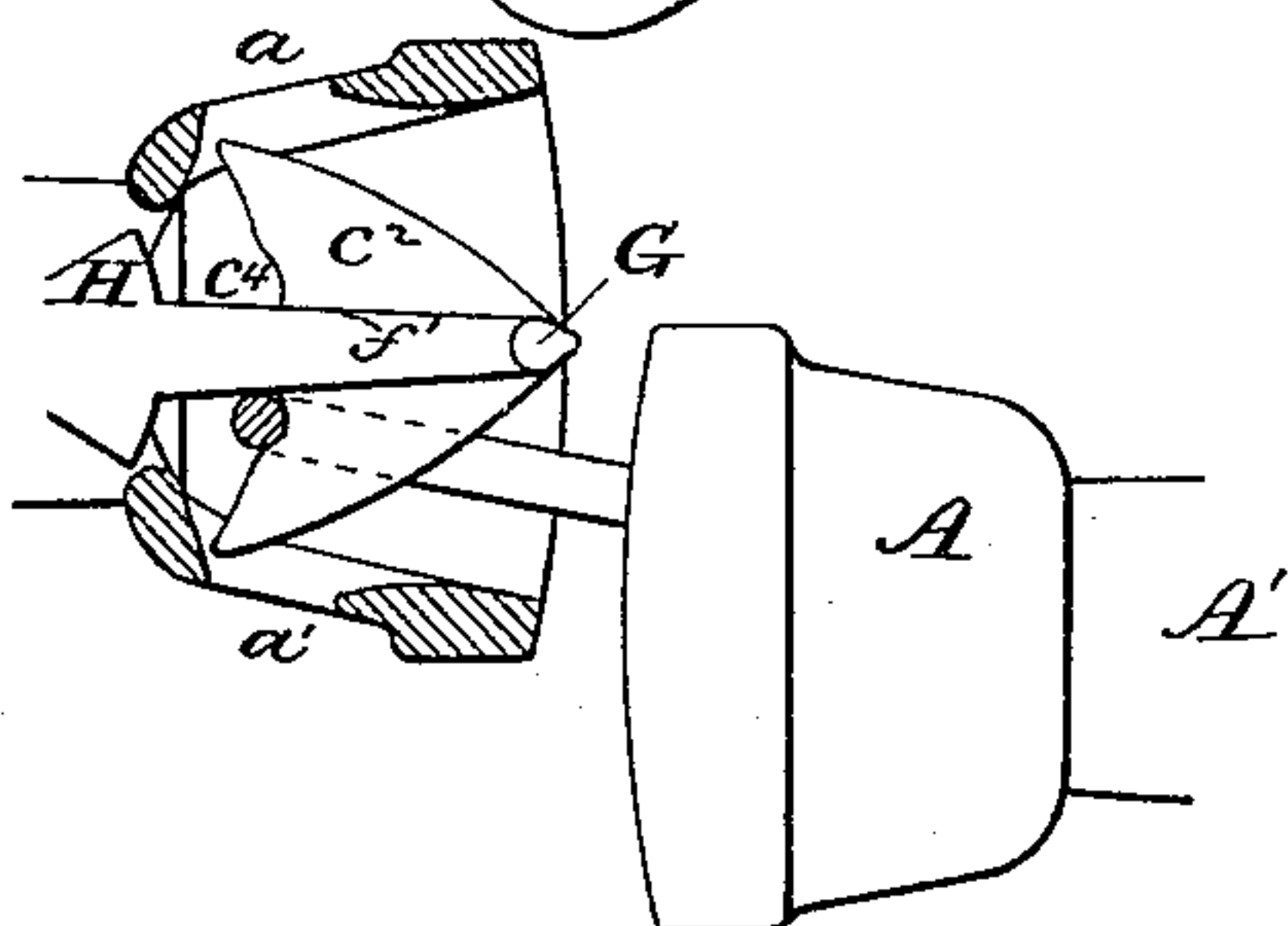
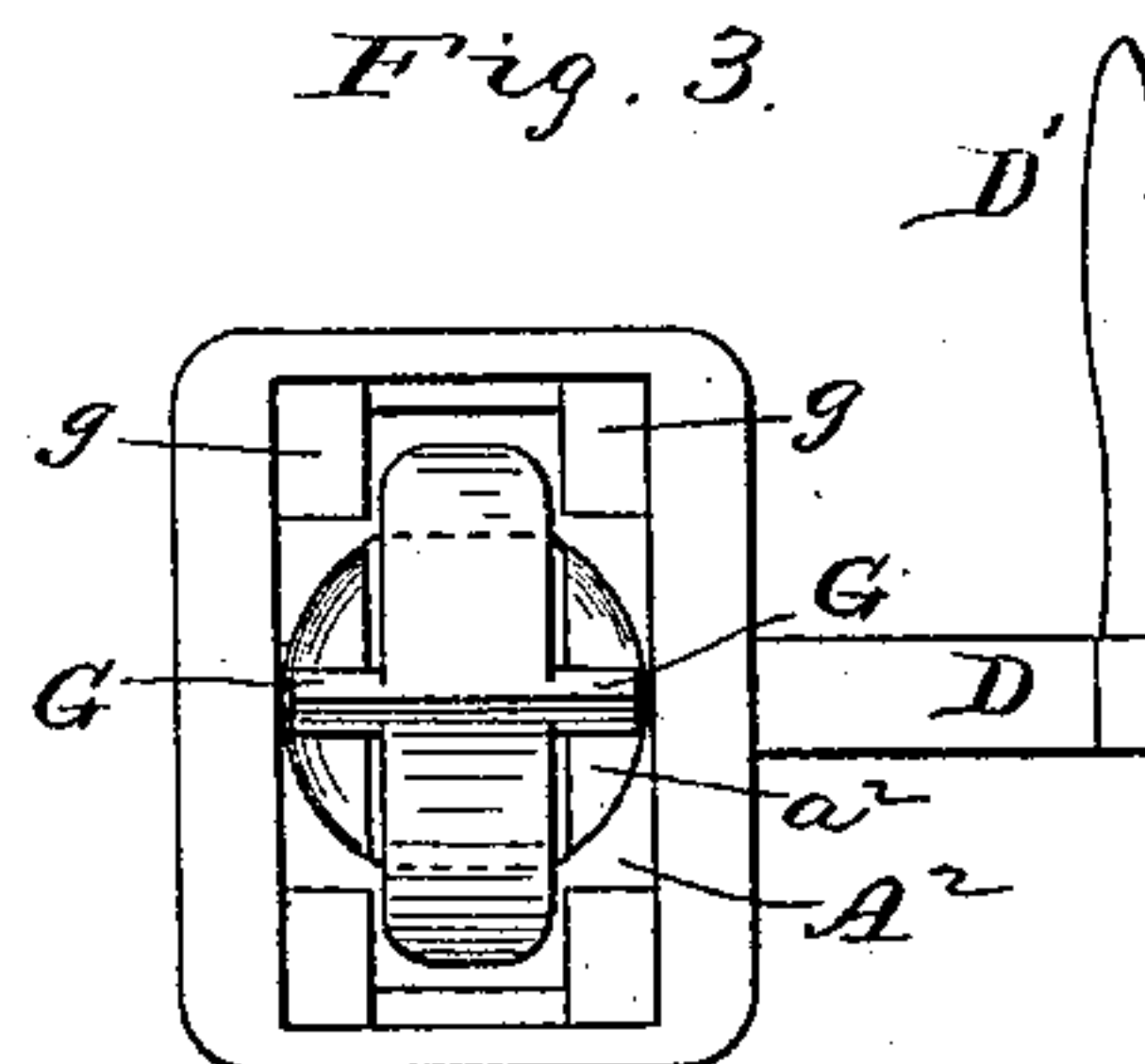


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

SIMEON GARRATT, OF COLUMBUS, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 246,744, dated September 6, 1881.

Application filed March 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, SIMEON GARRATT, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a view of a link and two opposing draw-heads, one being shown in side elevation and the other in longitudinal section. Fig. 2 is a perspective of the coupling-hook detached. Fig. 3 is an end view of a draw-head and coupling-hook. Fig. 4 illustrates the method of coupling a higher draw-head with a lower.

In the drawings, A A' represent the draw-head of a car, which latter may be of the ordinary character, as my improvements are applicable to cars as they are now commonly constructed. The part A of the draw-head is preferably formed with a flaring opening or mouth for the reception of the link. $a a'$ are apertures formed in the upper and lower walls of the part A, for a purpose to be hereinafter explained. By means of the part A' the draw-head is secured to the car, and the securing may be effected in the ordinary manner by a bolt at B and the other customary devices.

C C' represent the coupling-catch. It is pivoted within the draw-head at D, and is arranged to vibrate vertically to a limited extent. It is constructed with a shank or stem, C, and a double head or hook, C', one part projecting upwardly and the other downwardly from the central longitudinal line. c is an aperture in the rear end of the shank portion C, through which passes a pin or stem, E, when the hook is in its position within the draw-head. The hook portion is formed of a lug, c^2 , projecting vertically from the center. This lug, in cross-section, is made narrow, to permit it to be used with any of the ordinary links, and also in order to allow the flexibility required for the necessary movements of the parts and of the

cars coupled thereby. The hook has a backwardly-projecting surface, f , somewhat rounded, over which the end of the link can easily slip when it (said link) is being passed into the draw-head to engage with the hook. The central shank portion, C, is somewhat wider than the hook part c^2 , and thus there is formed a shelf or ledge at f' on each side of the hook. This shelf or ledge is of such dimension that the link will rest against it when engaged with the hook. (See full lines, Fig. 1, and dotted lines, Fig. 2.) The flaring mouth or opening of the draw-head is but little wider than the outside width of the link, it being arranged to accurately guide the link to the uppermost point, f^2 , of the hook.

$g g$, Fig. 1, are lugs or shoulders, which may be formed on the inner faces of the side walls, though their presence is not essential for the attainment of many of the objects of my invention. They each have a front inclined edge, g' , and a rear edge, g^2 , arranged to form a point at their intersection.

G G are ears projecting laterally from the side of the hook. They constitute a link-guide, which is of substantially the same width as the interior of the draw-head. Their edges correspond in position to the ledges f' around the hook. When the link is at the inner end engaged with the upwardly-projecting hook, the outer end rests upon the guide, as shown in Fig. 2.

That portion of the rear wall, A^2 , of the part A of the draw-head which surrounds the aperture a^3 , through which passes the shank of the hook, is preferably made somewhat concave, as shown at a^2 , so that when the link is forced backward or inward it shall have a firmer bearing than if it were forced against a plane wall.

H is a lug projecting vertically from the shank of the hook, and is so situated as to practically close the opening in the rear wall of the part A and receive the rearward thrust of the link.

The hook may be held normally in its central position by means of springs at $h h$, arranged to bear against the upper and the lower side of the shank part C. However, one or both of the springs may be dispensed with, although I prefer to employ them in substantially the

manner shown, finding the automatic operations of the coupling more efficient when they are used. The weight of the outer end of the hook may be depended upon for holding the hook down sufficiently far, and a single spring may be employed, if desired, to hold it up far enough.

The hook oscillates upon a shaft, D, which may be longer or shorter, as circumstances require. This shaft rocks in bearings in the part A' of the draw-head, and is provided with a handle or lever at D', whereby the operator may swing the hook in either direction, though a handle differing from the exact construction shown may be employed, if desired. After the hook has been put into proper position it may be locked there by a ratchet and pawl or by other suitable devices, though under ordinary circumstances the devices that have been described will operate to firmly lock the movable parts of the coupling in the required positions. Rock-shaft D is preferably secured to the hook by means of a square portion at d fitting the square aperture c^3 in the shank of the hook, though these parts may be secured together by means of a key, the method which I have shown, however, being the cheaper and more substantial.

It will now be seen that if the link be inserted at one end into a draw-head and engaged with the upper of the hook portions c^2 the link will naturally take the position shown in Fig. 2—that is to say, will rest upon the ledge or shelf f' and upon the laterally-projecting guides G. If, when thus situated, the opposing draw-head of another car be brought toward the projecting link, the outer end of the link will be received into the interior of the opposing draw-head. The operator, by means of the rock-shaft D, can lift or depress the outer end of the link, so as to cause it to engage with the upper or lower hook-projection of the opposing draw-head, as may be desired. It will also be seen that if there be no interference whatever upon the part of the operator the outer end of the link will be automatically guided into the opposing draw-head and behind one or the other of the hooks therein, so that the devices operate to produce the coupling of the cars whether the operator be at hand or not. If the opposing draw-heads be in the relative position shown in Fig. 4—that is to say, if the draw-head carrying the link be higher than the other—then it is preferable to engage the link first with the lower hook of the higher draw-head and afterward engage it with the higher hook of the other, though it will be readily seen that the corresponding hooks may be used, even if there be a great difference in the vertical positions of the draw-heads. I have found that the best results can be obtained by employing the lower hooks, (which is generally easy, if the opposing draw-heads be in substantially the same plane,) inasmuch as the uncoupling is accomplished without the least trouble, while at the

same time the parts remain firmly coupled until intentionally disengaged.

By this construction and arrangement of parts I am enabled to avoid entirely the expensive and complicated devices which have been heretofore tried in order to couple together the draw-heads in different vertical planes. Not only can the link be engaged with an opposing draw-head whose opening is more or less opposed horizontally to the opening in the first draw-head, but, by means of the swinging or oscillating device, the link may be even carried to points above and below the opening in the draw-head, so that the coupling may be used for any and all of the cars as they are now ordinarily built.

When the link is first engaged with the lower hook the outer end can be forced upward by the operator, if necessary, by rocking the hook downward, for the link rests upon the lower lugs, $g g$, which operate as fulcrum to raise the outer end of the link.

The simplicity of this construction will be appreciated when it is noticed that there are but three absolutely essential parts—to wit, the draw-head, the hook, and the pivot—and in practice but a moment or two are necessary to join the parts of the coupling together and have it entirely ready for use. The hook portion may be longitudinally inserted into or withdrawn from the draw-head through the outer opening. I avoid entirely the use of the ordinary coupling-pins, which, as is well known to those acquainted with the construction of cars, are a source of great expense. I gain, however, much in strength of attachment, as there is provided for the link a resisting body of metal from two to three times as great as that provided by the ordinary coupling-pin. Should either of the hooks be broken or impaired the remaining one is still available, it having been already explained that either the upper or the lower hook may be utilized under all ordinary circumstances for coupling opposing heads, whether they be in the same or in different vertical positions.

By an examination of the drawings—more particularly Fig. 2 thereof—it will be seen that the hook c^2 is of such peculiar shape that when the link is in its normal or ordinary position—namely, resting upon or near to the shank portion C—it engages firmly with the hook by means of a recess at c^4 , which, under all ordinary circumstances, both holds the link in engagement and at the same time allows sufficient flexibility of movement. The rear edges of the hook are so curved that if either of the draw-heads coupled by the link should be thrown into a very unusual position—say at an angle of about forty-five degrees to the other, or the angle at which the car is when it is about to be turned over—the link will be turned upon one of its sides as an axis, so as to be disengaged from one or the other of the hooks; and thus an immediate uncoupling of the cars will result, which will prevent the overturning

car from carrying with it the contiguous one, and thus avoid that destruction, both of property and life, which frequently results from the rigid and unyielding couplings in common use.

5 The apertures a a' not only permit the catch to vibrate freely, but also permit the use of a much smaller draw-head than could be employed if the hooks of the catch were to be always situated inside thereof.

10 What I claim is—

1. The combination, with the draw-head having the apertures a , a' , and a^3 , of the pivoted catch C C' , having two hooks, c^2 c^2 , adapted to respectively pass somewhat through the apertures a and a' , and the lugs or shoulders H , adapted to be in or near the aperture a^3 , as and for the purposes set forth.

2. In a car-coupling, the vertically-swinging catch C C' , having the hooks c^2 c^2 , adapted to pass through a coupling-link, and having laterally-projecting guides G G , adapted to support the outer end of the link, as and for the purposes set forth.

3. In a car-coupling, a vertically-swinging catch, C C' , having the hooks c^2 c^2 , provided with the recesses c^4 on the rear sides, and with the ledges or shoulders f' upon the sides of the hooks.

4. The herein-described mechanism for coupling together a higher draw-head with a lower, it consisting of the combination, with the draw-head A A' , provided with the wall A^2 and the aperture a^3 , of the vertically-swinging catch C C' , having an upwardly-projecting hook, c^2 ,

and a downwardly-projecting hook, c^2 , the shoulders H , and the link adapted to be coupled with the lower hook of the catch C C' and with the upper hook of an opposing catch in a lower draw-head, as set forth.

5. The combination, with the vertically-swinging catch C C' , provided with the hooks c^2 c^2 , of the draw-head A A' , having the lugs g g on the lateral walls, with the inclined edges g' g^2 , adapted to guide the coupling-link, as and for the purposes set forth.

6. The combination, with the pivoted catch C C' , having the hooks c^2 c^2 , the ledge f' , and the laterally-projecting guides G G , of the draw-head A A' , having the lugs g g on the side walls, with inclined edges g' g^2 , adapted to lift and depress the outer end of the link when it presses against the said guides G G and ledge f' , as and for the purposes set forth.

7. The combination, with the swinging catch C C' , having the upper and lower hooks, c^2 c^2 , shoulders H H , and the guides G G , of the draw-head A A' , the shaft D , for rocking the catch, the stem E , and the springs h h , one above and the other below the shank of the swinging catch, as and for the purposes set forth.

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

SIMEON GARRATT.

Witnesses:

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J. S. BARKER.