

(No Model.)

2 Sheets—Sheet 1.

G. W. CURTIS & J. WOOD, Jr.

CAR COUPLING.

No. 321,344.

Patented June 30, 1885.

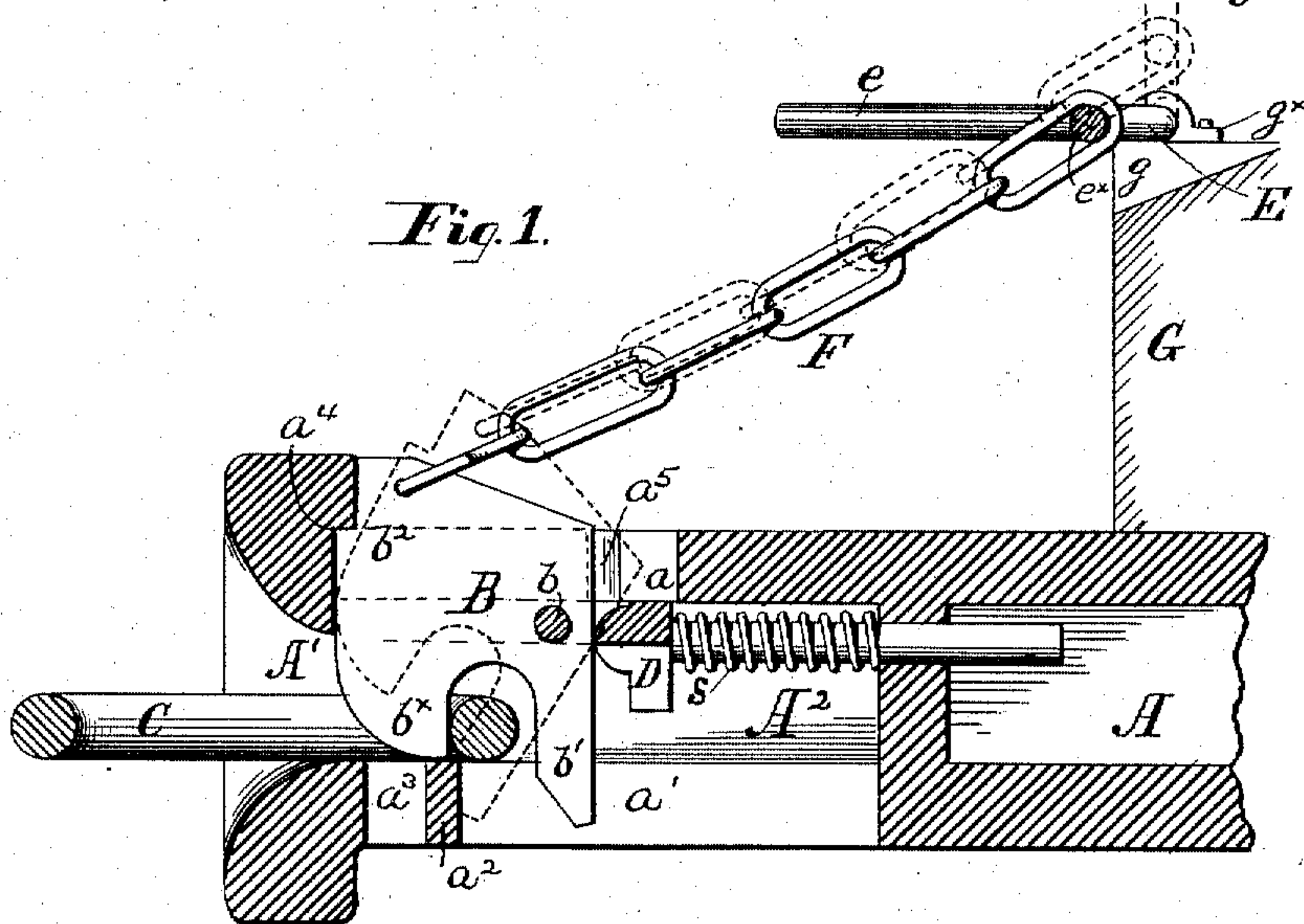


Fig. 2.

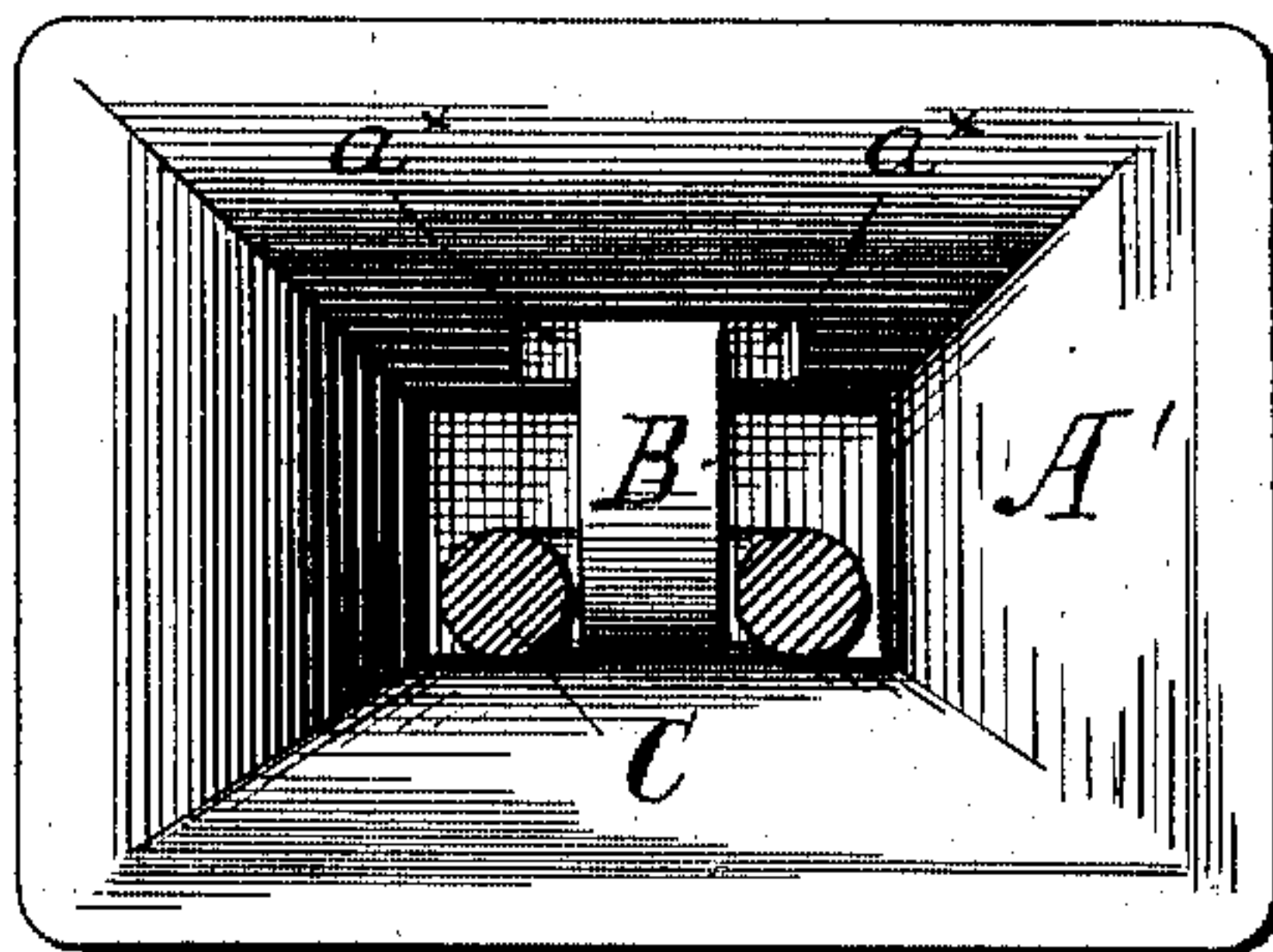
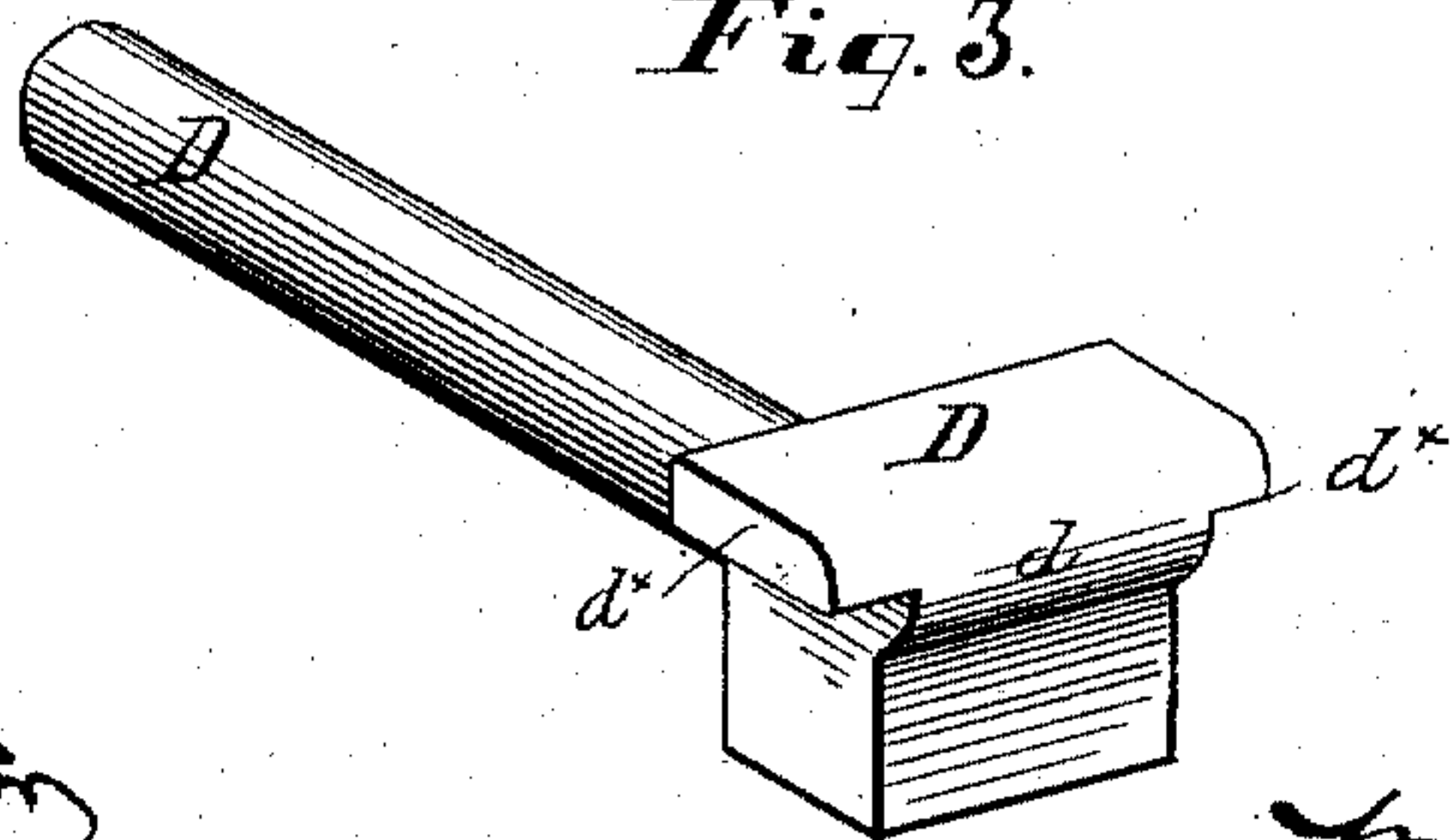


Fig. 3.



WITNESSES:

John Dole
A. H. Henshaw

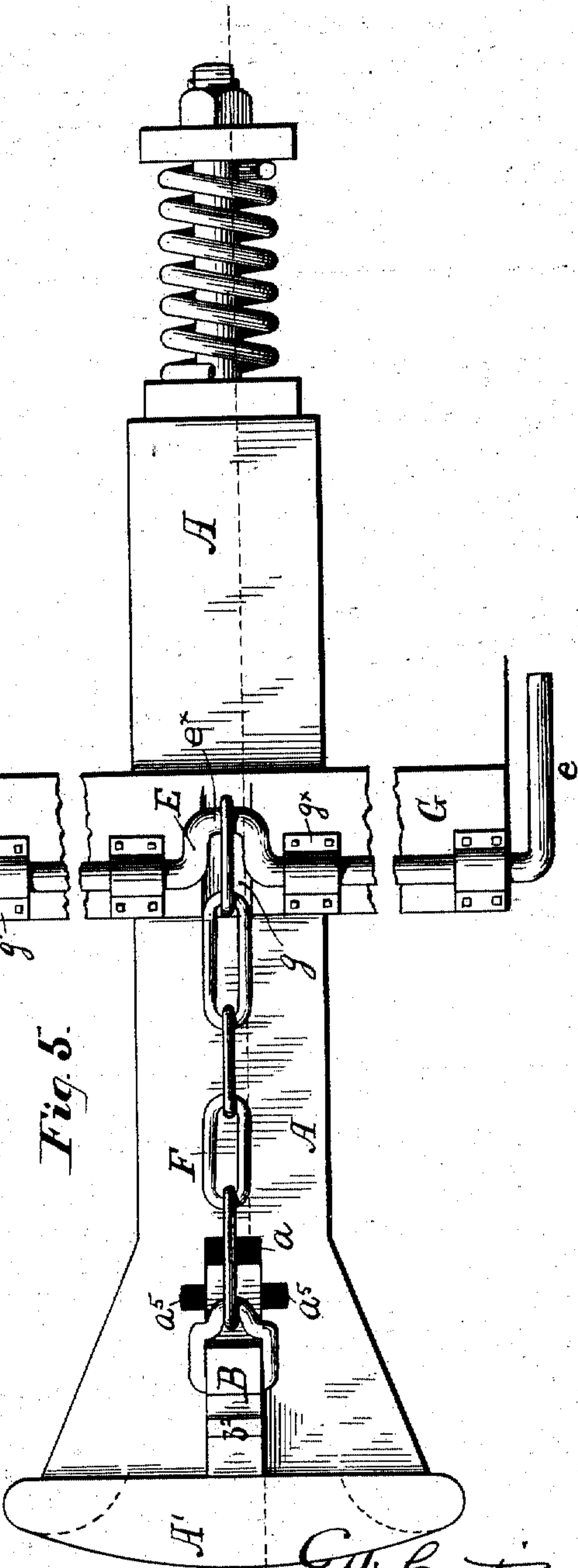
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2 Sheets—Sheet 2.

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Patented June 30, 1885.



WITNESSES:
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UNITED STATES PATENT OFFICE.

GEORGE WILLIAM CURTIS, OF PHILADELPHIA, AND JOHN WOOD, JR., OF CONSHOHOCKEN, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE CURTIS AND WOOD AUTOMATIC CAR COUPLER COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 321,344, dated June 30, 1885.

Application filed January 31, 1885. (No model.)

To all whom it may concern:

Be it known that we, GEORGE WILLIAM CURTIS, of Philadelphia, Pennsylvania, and JOHN WOOD, Jr., of Conshohocken, Pennsylvania, have jointly invented an Improved Car-Coupling, of which the following is a specification.

This invention is an improvement upon a certain car-coupling invented by the above-named George William Curtis and patented to him in and by United States Letters Patent No. 234,175, issued November 9, 1880, to which patent reference is directed for the better understanding of this improvement.

The Curtis patented invention belongs to a class of car-couplings in which the ordinary closed oval link is employed in connection with a coupling-hook which is pivoted and adapted to slide within a draw-head.

The present invention comprehends improved constructions of the draw-head, coupling-hook, and spring-buffer, an improved mode of application of the hook and buffer within the draw-head, and an improved construction and application of the crank and chain, whereby the coupling-hook may be so set or adjusted as to be temporarily incapable of coupling.

Apparatus constructed substantially in the manner shown in the accompanying drawings and described in this specification embodies a good form of our invention.

The particular subject-matter which we claim as novel is hereinafter definitely specified.

In the accompanying drawings, Figure 1 is a sectional side elevation of a coupling embodying our invention in the position which the parts occupy when a link has been coupled to the draw-head. There is indicated also in dotted lines the position of the crank, chain, and coupling-hook when these parts are so set that an entering link must be automatically coupled. Fig. 2 is a front elevational or face view into the mouth of the draw-head. Fig. 3 is a view in perspective of the buffer without its spring and removed from the draw-head. Fig. 4 is a view similar to Fig. 1, but indi-

cating the position of the crank, chain, and coupling-hook, when these parts are so set that a link may enter but will not be automatically coupled. Fig. 5 is a top plan view of the same, all the parts being in the positions which they are represented as occupying in Fig. 4.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the draw-head, and A' the enlarged bell-mouthed buffer-head thereof.

a is a narrow slot through the upper portion of the draw-head, which extends back from its buffer-head in the direction of the length of the draw-head. This slot allows the coupling-hook to rise to engage with the coupling-link, to be disengaged therefrom, or to play with respect thereto when the coupling-hook is so set that coupling cannot be effected.

a' is a narrow slot through the under portion of the draw-head, which extends back from a transverse stop, a², a sufficient distance, in the direction of the length of the draw-head, to afford play for the prolonged shank or stop-arm of the coupling-hook.

a³ is a hole for an ordinary coupling-pin, should accident to any part of our coupling devices necessitate its employment.

a⁴ is a shoulder in the rear face of the bell-mouth of the draw-head, which serves to assist in retaining in position the coupling-hook when coupled.

A² is the throat or hollow interior of the draw-head. a^x a^x are longitudinally-disposed pivot-slots formed in the sides of the throat of the draw-head, and extending forward to the mouth thereof, so as to admit the introduction through the mouth and throat of the spring-buffer. Within these slots the pivot-pins of the coupling-hook are likewise received and play.

a⁵ a⁵ are vertical slots, herein termed the "pivot-notches," cut through the substance of the upper portion of the draw-head from its outer upper surface down into the pivot-slots a^x, and cut laterally out from the upper slot, a, of said draw-head to a breadth sufficient to

take in the pivot-pins of the coupling-hook. These notches permit the coupling-hook to be introduced within the draw-head from above, and through the upper slot, *a*, and consequently enable us to cast the draw-head as an entirety and avoid sectional construction.

B is the coupling-hook, provided near its rear end with two laterally-extending pivot-pins, *b b*. The straight shank *b'* of the coupling-hook is prolonged to a greater depth than the hooking-nose *b^x* thereof, and is entered and plays within the lower slot, *a'*, in the draw-head in such manner that when the coupling-hook is raised to a predetermined extent the said shank encounters the transverse stop *a²*, and limits the further upward throw of said coupling-hook. This construction enables us to dispense with the stop-pins of the Curtis patent.

D is the spring-buffer which is actuated by the coiled spring *s*, is arranged to slide within the draw-head, and acts upon the coupling-hook when the chain, as in Fig. 1, is slack, to push said hook forward, so that its front portion or head, *b²*, engages with the shoulder *a⁴* of the draw-head, whereby the coupled hook is prevented from rising or becoming accidentally disengaged from the link. The head of the spring-buffer is provided with a rounded face, *d*, to ease and facilitate the tumbling movement of the coupling-hook, the rear face of which works against the face of said buffer. The buffer is also provided with laterally-extending ears *d^x d^x*, by means of which the head of the buffer is entered within, and, so to speak, suspended from the pivot-slots *a^x*. The buffer can, therefore, under our improvements, be introduced within the draw-head through the mouth thereof.

C is a coupling-link, which is the ordinary closed oval link.

The means employed for drawing back and raising the coupling-hook for uncoupling are the crank E and chain F. The crank, as in the Curtis patent, is arranged horizontally and transversely in bearings *g^x* upon the car G, and it projects laterally in both directions far enough to allow its handles *e e* to be seen and operated to uncouple from the side of the car, and without requiring the brakeman to enter the space between the cars. The chain F connects the wrist-pin *e^x* of the crank with the head *b²* of the hook, so that when the parts are in the position represented in full lines in Fig. 1 an upward rotation of the crank to, for instance, a vertical position, will first occasion the drawing back of the hook until its head is free of the shoulder *a⁴* of the draw-head, and then its raising into the diagonal position shown in dotted lines in Fig. 1. If, now, the crank be either held in such vertical position or again thrown forward, as it is represented in full lines in said Fig. 1 as being thrown, (its chain remaining slack,) a link attached to another car entering the draw-head will strike the shank or stop-arm of the hook and simultaneously depress and force

back the hook, so that the latter will resume the position indicated in full lines in Fig. 1, and under the stress of the spring-buffer the chain, as stated, being slack, will be advanced to engagement with the shoulder *a⁴*, and an automatic coupling of the entered link with the draw-head be effected. If, on the other hand, the crank—after its rotation upward and backward and its consequent raising of the hook into the position indicated in dotted lines in Fig. 1—be thrown clear back into the position represented in Figs. 4 and 5, the chain F will be stretched taut between the wrist-pin and the coupling-hook, and a link entering the draw-head will strike the stop-arm of the hook, but—although simultaneously depressing and forcing back the coupling-hook so that while the entering-thrust continues the hook will maintain the position indicated in full lines in Fig. 1—will not effect coupling, for the reason that the moment the entering thrust of the link is relieved the stress of the spring-buffer, acting forward against the hook, will, in conjunction with the taut chain, occasion the instant retilting of the coupling-hook to the position indicated in full lines in Figs. 4 and 5, and prevent so great an advance of the hook as to occasion the engagement of its head with the shoulder *a⁴* of the draw-head.

The importance of the foregoing capability will be obvious when it is considered that no coupling contrivance which will effect a permanent coupling every time the cars are bumped together can be profitably applied to freight-cars.

A reference to Figs. 4 and 5 will show that an inclined channel, *g*, is formed in the car immediately beneath the crank. The office of this channel is to receive the chain when the crank is deflected into the position shown in said Figs. 4 and 5, and so to cause the chain to draw down upon the wrist-pin and obviate the possibility of such a reverse deflection of the crank as would permit the automatic coupling by the hook of an entering link.

The application of the crank with a short chain, and in such manner that it can be deflected completely backward and there maintained, will occasion the maintenance of the coupling-hook in a position in which automatic coupling cannot be effected upon the entering of a link, and is therefore an important improvement, which lends a valuable capability to the contrivance as an entirety, and renders it possible for a brakeman, by the simple turn of a crank, to set the device so that it either will or will not couple automatically, and likewise to know at a glance whether the device is set to couple or not to couple.

Having thus described my invention, I claim—

1. In a car-coupling, the combination, with a slotted draw-head provided with a stop for the coupling-hook, of a spring-buffer, a coupling-hook provided with an elongated shank or stop-arm adapted to abut against the stop, and a chain-and-crank connection, the arrangement

being such that when the crank is thrown back the chain is held taut and the coupling-hook sustained in such position that automatic coupling is impossible, substantially as described.

5 2. In a car-coupling, the combination, with a draw-head having an upper slot and a lower slot for the coupling-hook, of a spring-buffer and a pivoted coupling-hook entered within the upper slot of the draw-head and provided
10 with an elongated shank which plays within said draw-head and is adapted to abut against the stop, substantially as described.

3. In a car-coupling, the combination, with a draw-head having an upper slot, a lower
15 slot, and a coupling-stop, of a spring-buffer, a pivoted coupling-hook entered within the upper slot of the draw-head and provided with an elongated shank playing within said lower slot and adapted to abut against the stop, and a
20 chain-and-crank connection, the arrangement being such that when the crank is thrown back the chain is held taut and the coupling-hook sustained in such position that automatic coupling is impossible, substantially as described.

25 4. The draw-head A, having a hollow throat or interior, A', and provided with pivot-slots $a^x a^x$, extending forward to its mouth, substantially as and for the purposes set forth.

5. The draw-head A, having a hollow throat
30 or interior, A', an upper slot, a , and pivot-slots $a^x a^x$, extending forward to its mouth, in combination with a coupling-hook, B, provided with lateral pivot-pins $b b$ adapted to the pivot-slots, and with a spring-buffer, D,
35 provided with ears $d^x d^x$ also adapted to the pivot-slots, substantially as and for the purposes set forth.

6. The draw-head A, having a hollow throat or interior, A', provided with pivot-slots $a^x a^x$, an upper slot, a , and notches $a^5 a^5$, substantially as shown and described, and for the purposes specified. 40

7. The draw-head A, having a hollow throat or interior, A', provided with pivot-slots $a^x a^x$, an upper slot, a , and notches $a^5 a^5$, in combination with a coupling-hook, B, provided with
45 pivot-pins $b b$ and with a spring-buffer, D, substantially as described, and for the purposes specified.

8. In combination, the draw-head, the coupling-hook, the chain, the crank, and the car
50 provided with bearings for the crank and with the inclined channel for the chain, substantially as and for the purposes set forth.

9. As an article of manufacture, a draw-head
55 having the upper slot, a , the lower slot, a' , the pivot-slots $a^x a^x$, the pivot-notches $a^5 a^5$, and the stop a^2 , substantially as described.

In testimony whereof I, the said GEORGE WILLIAM CURTIS, have hereunto signed my
60 name this 17th day of January, A. D. 1885.

GEORGE WILLIAM CURTIS.

In presence of—

J. BONSALE TAYLOR,
WM. C. STRAWBRIDGE.

And I, the said JOHN WOOD, Jr., have also hereunto signed my name this 26th day of January, A. D. 1885.

JOHN WOOD, JR.

In presence of—

MORTIMER C. WILSON,
F. A. WOOD.

It is hereby certified that in Letters Patent No. 321,344, granted June 30, 1885, upon the application of George William Curtis, of Philadelphia, and John Wood, Jr., of Conshohocken, Pennsylvania, for an improvement in "Car-Couplings," errors appear in the printed specification requiring correction, as follows: In line 127, page 2, the pronouns "my" and "I" should be read *our* and *we*, respectively; in line 7, page 3, the word "slot" should be read *stop*; and that the Letters Patent should be read with these corrections therein to make it conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 21st day of July, A. D. 1885.

[SEAL.]

H. L. MULDROW,
Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.