

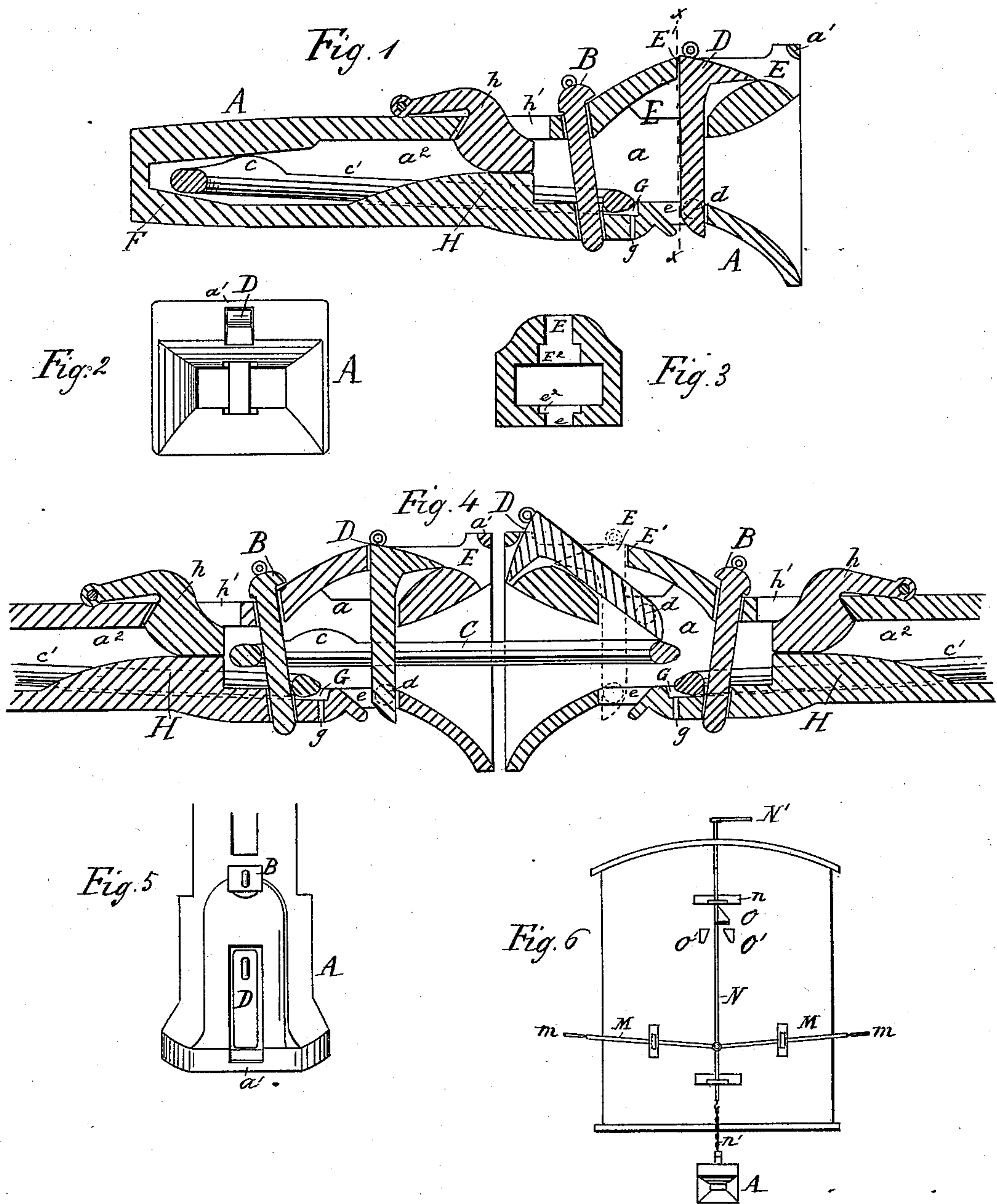
(No Model.)

G. FORBES.

CAR COUPLING.

No. 297,247.

Patented Apr. 22, 1884.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE FORBES, OF NEW YORK, N. Y.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 297,247, dated April 22, 1884.

Application filed September 22, 1882. Renewed October 13, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE FORBES, of New York, of the county of New York and State of New York, have invented new and useful Improvements in Automatic Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure I represents a longitudinal vertical section of my draw-head. Fig. II is a perspective view, showing the opening or throat of the same. Fig. III is a transverse section of the same on the line *x x* of Fig. I. Fig. IV is a longitudinal vertical section of two draw-heads when in the act of coupling. Fig. V is a plan or top view, and Fig. VI is a view of the end of a car fitted with my improved coupler and manual operating devices.

Similar letters of reference indicate corresponding parts.

My invention relates to automatic car-couplings; and it consists in the construction and novel arrangement of the parts hereinafter fully described.

Referring to the drawings, A represents the draw-head, the throat or opening of which is constructed in such a manner as to leave a mass of metal at the top or upper part of the draw-head to give sufficient strength to the same, while at the sides and bottom the enlargement of the throat or opening leaves but a thin edge of metal, as is clearly shown in Fig. II. The top and bottom of the interior chamber *a* of the draw-head, which receives the link, are made with plane or flat surfaces for the purpose of holding the link C by means of the pin B in a horizontal position, in order to facilitate the operation of connecting with the opposite draw-head. I also make the front or outward end of the link C sharp or wedge shape, the rear or inner part being thickened, and also being weighted, either by widening the inner end or else by being provided with an elevation, *e*, which being formed of metal serves to weigh the inner end down, and thus prevent any jars or concussions from throwing the link C from its horizontal position. A

catch-block or coupling-pin, D, is placed at the forward end of the draw-head within a slot or opening, E, cut longitudinally through the top part thereof. The catch-block D is of a hook or L-shape form, the shank having straight or tapering sides, and the end being beveled, for the purpose hereinafter described. A hole or opening, *e*, in the base of the draw-head is adapted to allow the end of the catch-block D to enter therein when at rest or in its normal position. The rear ends of the opening *e* and the slot E are beveled inward, a shoulder being formed at E'. The slot E is shaped so as to leave a partially-semicircular bed or bearing for the catch-block D. The lower end of the catch-block D rests against the stay formed by the forward vertical edge or end of the opening *e*. By this arrangement of parts the catch-block normally hangs by its own weight in a perpendicular or nearly perpendicular position. When displaced, however, by the entering link of the opposite draw-head, the end of the block moves inward and upward, making, as it were, part of a revolution around the point of the hook, which only has a comparatively slight forward and downward movement upon its semicircular bed until the open center of the link C allows the beveled end of the catch-block D to drop and resume its original position, thus locking and securely holding the two draw-heads together. I obtain by this movement the least possible amount of lost motion.

In constructing the catch-block D, I thicken the beveled end of the shank laterally, or place a rivet or pin, *d*, transversely through the same. This additional weight serves to assist the automatic action of the coupler. It is impossible to force the catch-block D out of its place thereby disabling the coupler, as the pin *d* at its end will not allow of its being drawn through the slot E, and the stop or shoulder *a'* at the outer end of the slot E prevents the catch-block falling too far forward. The top of the catch-block being normally flush with the top of the draw-head, a glance will determine whether the draw-head is coupled or uncoupled. The slot E and opening *e* are widened where they enter the chamber *a*, as at E<sup>2</sup> and *e*<sup>2</sup>, as will be seen in Fig. III, in order that the widened



portion of the catch-block D, formed by the pin  $d$ , will not interfere with the action required of the catch-block D in coupling.

In the smaller end of the draw-head A is the chamber  $a^2$ , which serves as a receptacle for the reserve link C', for which a cushion, F, is provided at the extreme end of the draw-head, in order to raise the rear end of the link. The forward end of the reserve link C' fits in a depression or groove, G, in about the central or a little forward of the central portion of the draw-head, which is deep enough to allow it to sink until it is flush with the plane forming the bottom of the chamber  $a$ . By this construction no obstacle is offered to the entering link when in the act of coupling. The openings  $g$  in the lowest portion of this bed, which is indicated by dotted lines in the drawings, allows the escape of any water that may be driven in in stormy weather.

In order to hold securely the link C in the opposite draw-head when it is desired to couple two cars, I place the brace or stay H at such a distance behind the pin B that the link will be able to move laterally as well as vertically, but not in a longitudinal direction, either inward or outward.

By the use of the stay H, stay  $h$ , the pin B, the link C, and the catch-block D, as described, I am able to couple cars on a motion of about one inch, which is the minimum in automatic car-couplers. The pivoted block or stay  $h$ , moving in the slot  $h'$ , prevents the shock of coupling from forcing the link C backward, but allows the reserve link C' to be withdrawn upon any emergency arising where it may be required. To facilitate uncoupling and to release the draw-heads from the strain arising from going around curves, I bevel the edges of the forward face of the draw-head, as shown in Fig. V.

The manual appliances for operating my coupler from the platform or top of a car are shown in Fig. VI. The vertical bar N, working in eyes  $n$ , is attached by a chain,  $n'$ , to the catch-block in the draw-head A. To uncouple a car, the lever M is depressed by the handle  $m$ , working also in eyes attached rigidly to the car, thus raising the bar N until the horizontal V-shape plate O is above the brackets O', when by pulling the lever M the point of the V-shape plate O is caused to pass over and rest upon the bracket O', as is clearly shown in the drawings. A crank, N', allows the bar N to be operated from the top of the car.

I do not in this application claim, broadly, the use of a gravitating coupling-pin in a draw-head; but,

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

1. The combination, with the draw-heads A A and the sharp-pointed coupling-link C, weighted at the inner end, so as to adapt it to remain in a horizontal position while in the

act of coupling, of the L-shaped loose gravitating catch-block D, the pin or widened part  $d$ , and of the peculiar-shaped openings E  $e$  and the shoulders E'  $a'$ , adapted to sustain the catch-block D and to cause it to be automatically lifted from its normal position and its upper end slid forward and downward along the bed or bearing formed by the slot E when acted upon by the coupling-link C, and they are also adapted to prevent the catch-block D from falling out of the draw-head, substantially as described.

2. The combination, with the draw-head A and with the interior chamber  $a^2$  and weighted reserve link C', of the inclined groove G, adapted to allow the forward end of the link C' to sink flush with the bottom of the interior chamber of the draw-head, and of the cushion F, whereby the rear end of the link is elevated, substantially as described.

3. The combination, with the draw-head A and with the interior chamber  $a^2$  and weighted reserve link C', of the inclined groove G, adapted to allow the forward end of the link C' to sink flush with the bottom of the interior chamber of the draw-head, of the stay H and openings  $g$ , and of the cushion F, as and for purpose specified.

4. The combination, with the draw-head A and with the interior chamber  $a^2$  and weighted reserve link C', of the inclined groove G, adapted to allow the forward end of the link C' to sink flush with the bottom of the interior chamber of the draw-head, of the stay H, pivoted block  $h$ , and slot  $h'$ , substantially as described.

5. In a draw-head A, the combination, with the forward interior chamber  $a$  and rear chamber  $a^2$  and reserve link C', of the stay H and pivoted block  $h$ , forming a closed partition between the chambers  $a$  and  $a^2$ , being thereby adapted to prevent a link from entering too far and to allow the reserve link C' to be withdrawn, as described.

6. The combination, with a draw-head, of the pivoted block or stay  $h$  and the slot  $h'$ , substantially as and for the purpose described.

7. The combination, in a draw-head, A, with a weighted link, C, of the stay H, pivoted block  $h$ , inclined groove G, reserve link C', and pin B, adapted to prevent any longitudinal movement of the link C, substantially as set forth.

8. The combination, in a draw-head, A, with a chamber,  $a$ , and loose gravitating catch-block D, and pin  $d$ , of the slots or openings E and  $e$ , with widened portions E<sup>2</sup> and  $e^2$  at their entrance into the chamber, as described.

9. The draw-head A, constructed with the interior chambers  $a$  and  $a^2$ , and with a widened open throat, whereby the top of the draw-head is left thick, the sides and bottom being thin, its front face also having beveled edges, as and for the purpose set forth.

10. The combination of the bar N, lever

M, brackets O', and plate O, substantially as described.

11. The combination, with the bar N and crank N', of the lever M, brackets O', and  
5 plate O, substantially as set forth.

12. The combination, with the draw-head A and loose gravitating catch-block D, of the

bar N, chain *n'*, lever M, and eyes *n*, as specified.

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Witnesses:

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