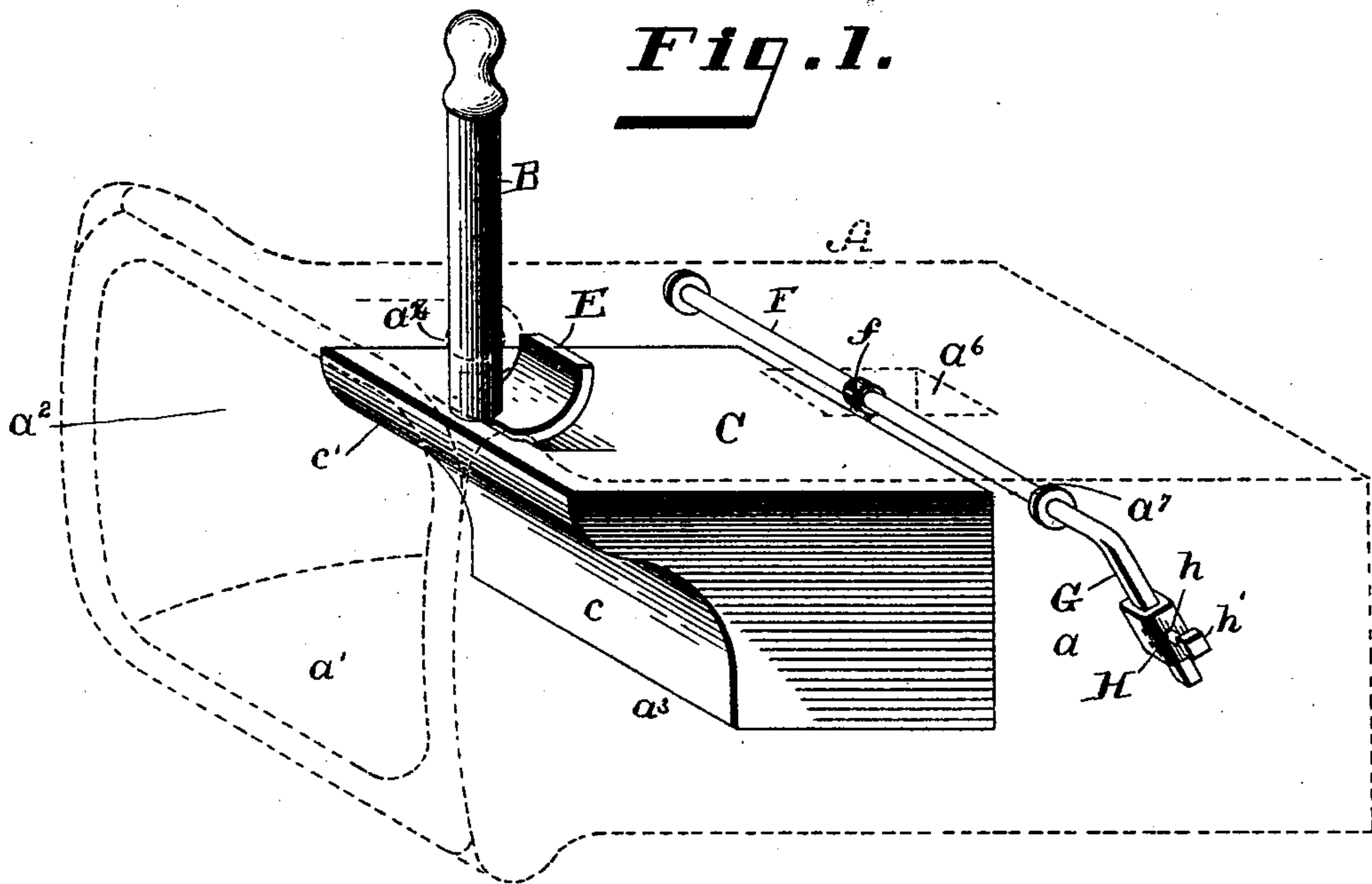


(No Model.)

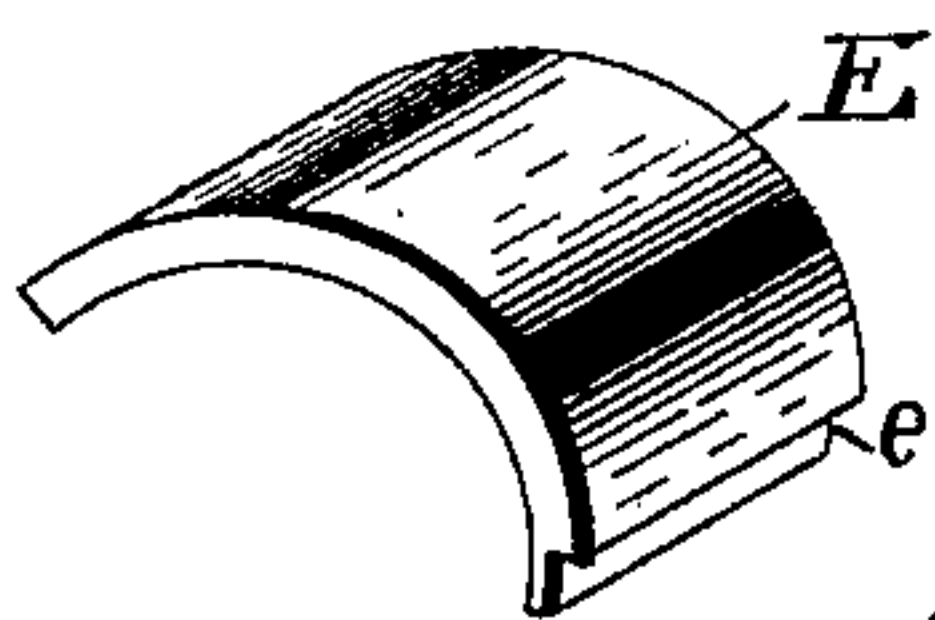
F. E. McCRARY & W. W. GELATT.  
CAR COUPLING.

No. 435,444.

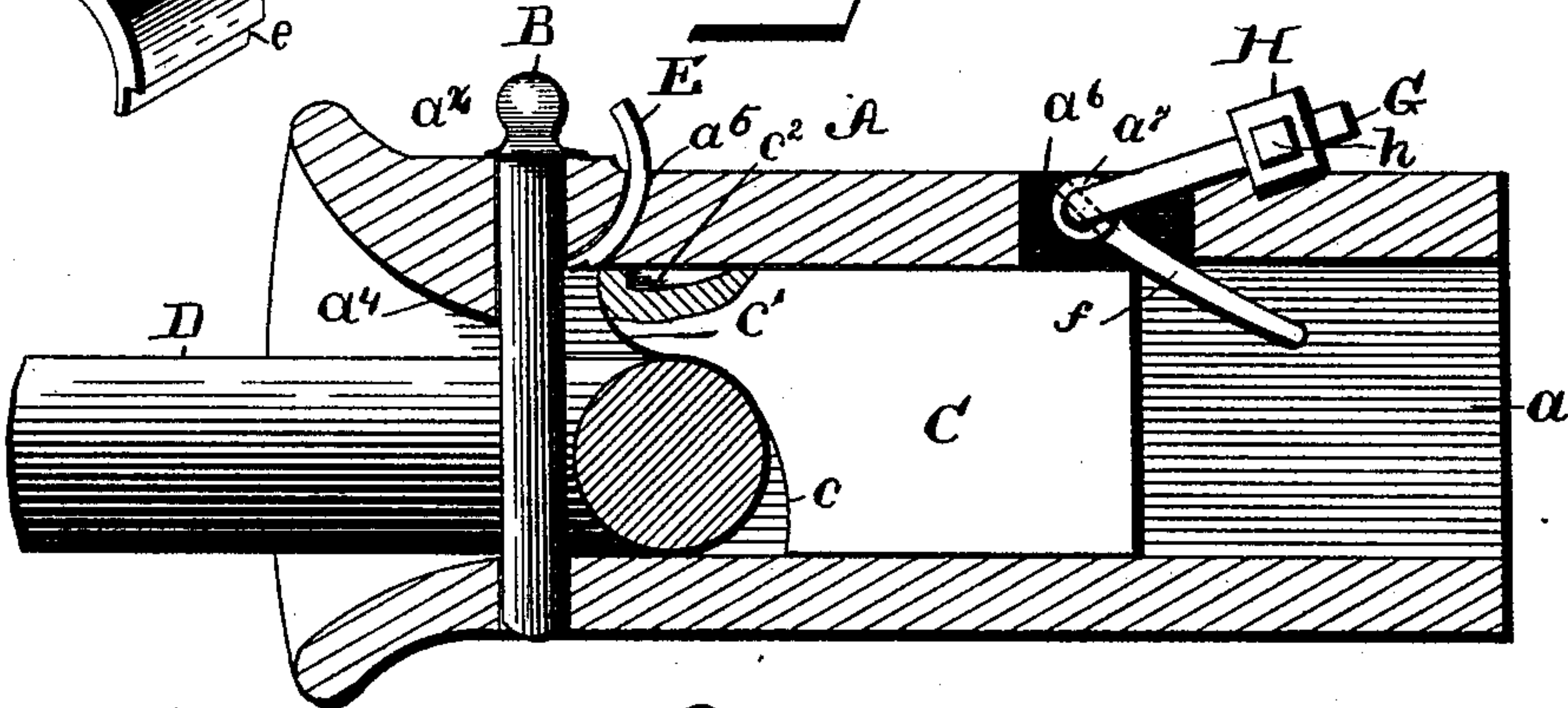
Patented Sept. 2, 1890.



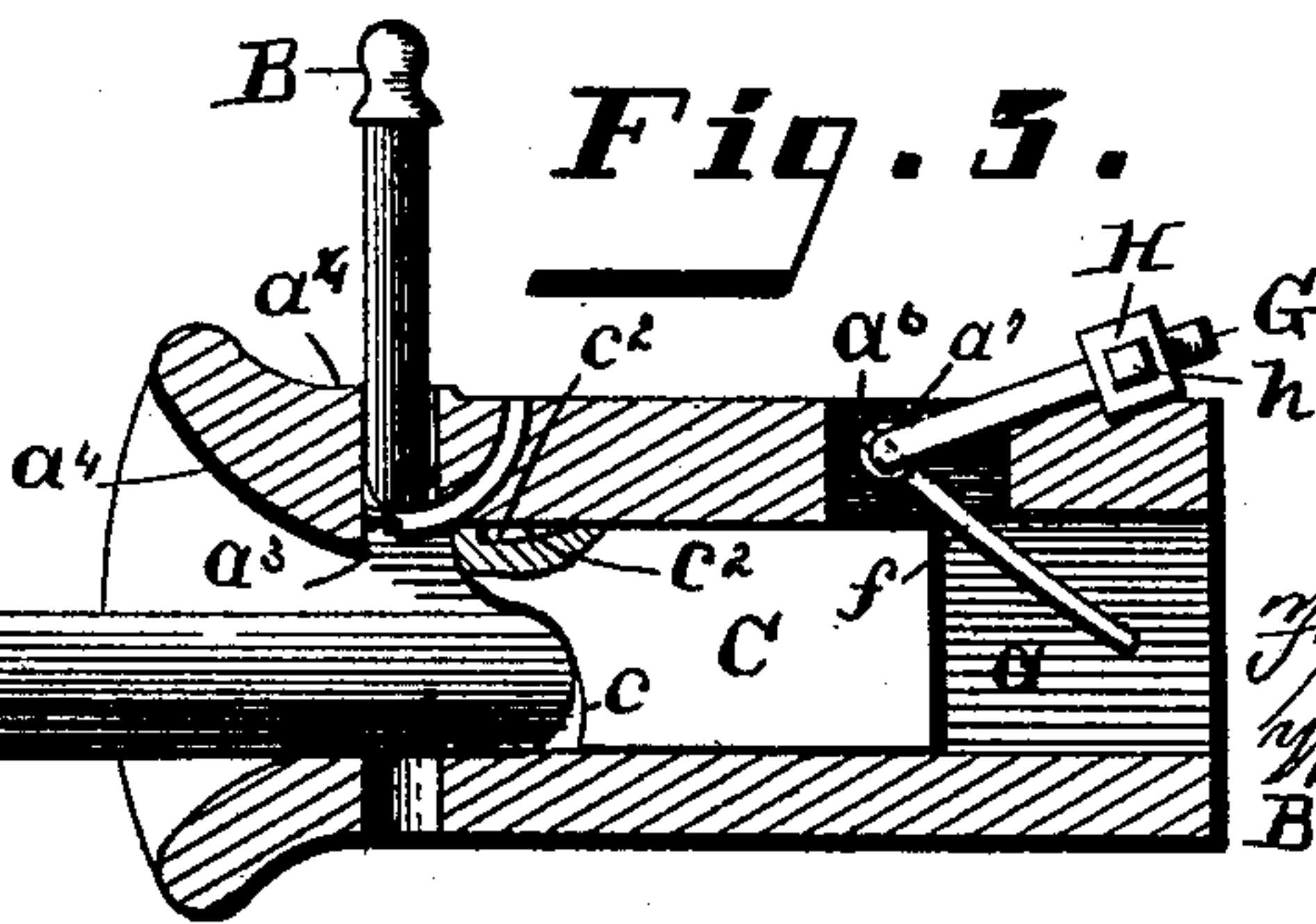
**Fig. 4.**



**Fig. 2.**



**Fig. 3.**



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# UNITED STATES PATENT OFFICE.

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## CAR-COUPLING.

**SPECIFICATION** forming part of Letters Patent No. 435,444, dated September 2, 1890.

Application filed December 9, 1889. Serial No. 333,143. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK E. MCCRARY, of Kansas City, in the county of Jackson and State of Missouri, and WALLACE W. GELATT, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplings; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

Our invention has for its object an automatic car-coupling for ordinary draw-bars, whereby the coupling-pin when elevated to release the shackle will be retained automatically in position until the re-entry of a shackle to self-couple; and it consists in the novel construction and combination of parts, which will first be fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a perspective view in dotted lines of our improved car-coupling, showing the coupling-pin retained in an elevated position by the drop-plate and the rebounding plunger in engagement therewith and the parts in position to receive the shackle. Fig. 2 is a vertical sectional view of the draw-head, showing the shackle thereon and the parts in a coupled position. Fig. 3 is a vertical sectional view of the draw-head, showing the shackle within the same and the pin elevated and retained by the drop-plate. Fig. 4 is a view of the drop-plate inverted.

Similar letters of reference indicate corresponding parts in all the figures.

A represents the draw-head of a car, which is cast in one piece and is of uniform width and thickness and of a suitable length. Through the draw-head is made in a longitudinal direction a rectangular-shaped opening  $a$ . At one end of the draw-head the inner side portion for a short distance from the said end in the direction of the opening  $a^2$  is cut away at an angle, so as to present the flaring sides  $a'$  of the opening for the shackle

$a^2$  in the draw-head. Within the said opening  $a^2$  of the draw-head is the throat  $a^3$ , which is formed at the meeting-point of the lines of the longitudinal opening  $a$  and the inclined sides  $a'$  of the opening in the draw-head. Within the said opening  $a^2$ , and in a vertical line with the said throat  $a^3$  of the draw-head, is made a projection or lip  $a^4$ , which extends in a downward direction a short distance, and from the lower edge of said lip to the end of the draw-head in the direction of the opening  $a^2$  the said lip is extended in a curved line. A short distance from the said throat  $a^3$ , in the direction of the outer end of the draw-bar and extending in a vertical direction through said draw-bar intersecting with said opening  $a$ , is made an opening  $a^x$ ; of the proper dimensions to receive the coupling-pin B, which in our invention consists of a round-shaped pin, and like opening to receive said pin similar to that now in use in the coupling of cars.

Within the opening  $a$  of the draw-head is fitted so as to move with freedom a rebounding plunger C, which consists of a rectangular-shaped block. One end portion of plunger C, in the direction of the opening  $a^2$  and the lip  $a^4$  in the draw-head, is cut away in a transverse direction at  $c$  from the lower line of said plunger and a suitable distance in a vertical direction equivalent to the thickness of the end portion of shackle D, which shackle is also similar to that now in common use in connection with the coupling-pin. Over the upper edge of the shackle D a portion  $c'$  of the plunger C extends a short distance, which portion, when the coupling-pin is withdrawn, strikes against the inner vertical side of the lip  $a^4$ , and said portion  $c'$  is cut away from the curved line of the lip  $a^4$  in an outwardly-curved line, which line is continued to the vertical line  $c$  in said end of the plunger C.

A short distance in rear of the coupling-pin B and through the upper portion of the draw-head is made a transverse slot  $a^5$ , the width transversely of which is slightly less than the width of the opening  $a$  in the draw-head and of the plunger C, and narrow in



depth. Said slot  $a^5$  extends from the outer side portion of the draw-head in the direction of the opening  $a$  in a downwardly-curved line and communicates with said opening on the inner side of the draw-head at a point a short distance in rear of the opening  $a^x$  in the draw-head which receives the coupling-pin B. Within the slot  $a^5$  is fitted loosely a drop-plate E, which corresponds in length and width nearly to the size and shape of the slot  $a^5$  and is curved in a similar manner.

In the upper side portion of the plunger C and of the lip  $c'$ , which is in line with the inner side portion of the draw-head, through which slot  $a^5$  emerges, and in a transverse direction, is made a rabbet or depression  $c^2$ , which slightly exceeds the length of drop-plate E, and is extended in the direction of the rear end of, in an upward direction and diminished in depth as it is so extended toward, the rear end of the said plunger. Through the upper side portion of the draw-head is made a longitudinal slot  $a^6$ , said slot being in line with the rear end portion of plunger C when retracted its full distance within the draw-head. In a transverse direction through the upper side portion of the draw-head in line with the opening  $a^6$  is made a perforation  $a^7$ , through which is inserted a rock-shaft F. To the rock-shaft F is attached rigidly one end of a lever  $f$ , the other end of which extends in a downward direction a suitable distance through the slot  $a^6$  in rear of plunger C within the opening  $a$ , and is bent slightly in a curved line toward the rear end portion of the draw-bar. On one extended end portion of the shaft F on the outer side of the draw-head is attached at right angles thereto one end of a short lever G, which lever extends in the line of the diameter of shaft F at a different angle to lever  $f$ . On the lever G is an adjustable weight H, which is perforated so as to receive the lever G and move freely thereon. Through the side portion of the weight H is made a screw-threaded perforation  $h$ , and in said perforation is inserted one end of an adjusting-screw  $h'$ .

In the operation of our improved coupler the normal position of the parts for the purpose of receiving a shackle within the draw-head and self-coupling is seen in Fig. 1, in which position, when the pin is elevated, permits the plate E, which is of a suitable weight, to drop, and the lower portion of said plate enter beneath and inclose the opening  $a^x$  within the draw-head, thereby affording a rest for the coupling-pin. In this position of the drop-plate the lip of the rebounding plunger C is beneath said plate, said plunger being forced in the direction of the throat  $a^3$  of the draw-head by the weight H, which acts upon the lever  $f$  of the rock-shaft F. As the lip  $c'$  of plunger C moves forward, it strikes the inner curved line of the drop-plate E, and meeting with slight resistance elevates said

plate sufficiently to permit it to fall within the depression  $c^2$  in the said plunger. In the under side portion of the drop-plate E, at the extreme lower end, is made a transverse rabbet  $e$ , directly within which rabbet the engaging-lip  $c'$  of plunger C enters. As soon as a shackle is placed within the draw-head the plunger C is forced toward the rear end of the draw-head, and at the moment the plunger receives a rearward movement the drop-plate E is thrown by the engaging portion of the lip  $c'$  in rear of the opening  $a^x$  and in an upward direction. This movement of plate E releases the pin B, and said pin falls, and the parts are in a coupled position, as seen in Fig. 2, the weight H on the lever G being elevated in position. When cars upon the track are uncoupled, the position of the cars is frequently unchanged—that is, the pins are withdrawn and for a time no traction is applied to move the cars in any direction, or the pins may be elevated and the whole train pushed along while a pull from the engine would separate the cars so uncoupled.

In this invention we aim to so simplify the present coupling that when the pins are left in an uncoupled position or elevated, as usual, this position of the coupling-pin may be automatically controlled by the re-entry of a shackle and self-couple without necessitating any further attention to the couplings than simply lifting the pin. Until, therefore, the shackle leaves the draw-head, although the pin B is elevated, the plunger retains its position, as seen in Fig. 3, and when the shackle is withdrawn the plunger moves forward and engages the drop-plate E and the parts are in the position as seen in Fig. 1, in readiness to self-couple.

In place of the weight we may use a spring or any well-known means for causing the plunger to rebound to the opening  $a^2$  in the draw-head. The curved line  $f$  bears on the upper edge of the plunger C and serves to keep the plunger from an upward movement at the rear end and also act with uniformity. The forward end portion  $c'$  of the plunger C extends over the end of the shackle which enters the draw-head, and meeting the said portion  $c'$  and the resistance of the weight on the rock-shaft the said end of shackle is depressed and the other end elevated or thrown in a horizontal position, so that it may enter another draw-head on the same level without further attention.

Having fully described our invention, what we now claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the draw-head of a car provided with a vertical opening therein adapted to receive the coupling-pin, and an inclined slot intersecting therewith within the draw-head in rear of said vertical opening, of a rebounding plunger, a self-dropping plate on said inclined slot in the path of said



coupling-bolt, and a lip on said plunger engaging with said drop-plate within said draw-head, substantially as and for the purpose described.

5 2. In the draw-head of a car provided with a suitable longitudinal opening and an intersecting longitudinal slot, the combination therewith of a plunger, a rock-shaft in said draw-head having a lever extending from said shaft within the slot on said draw-head in one direction and in rear of said plunger and another lever extending from said shaft in another direction, and an adjustable weight

thereon, substantially as and for the purpose described.

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