(No Model.)

A. C. McCORD.

CAR COUPLING.

No. 494,219. Patented Mar. 28, 1893.

Fig. 1

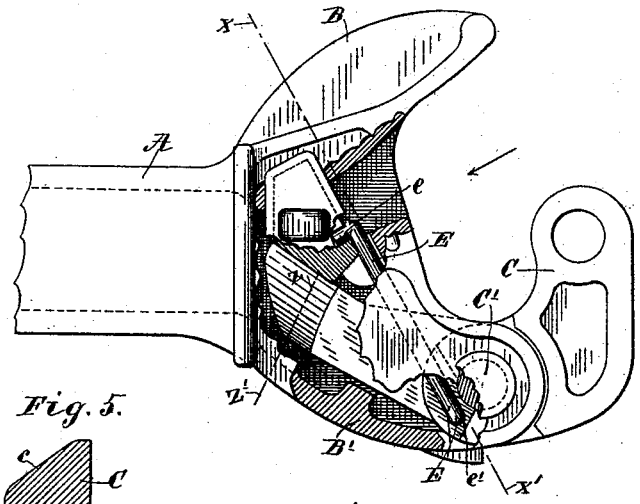


Fig. 5.

Fig. 2.

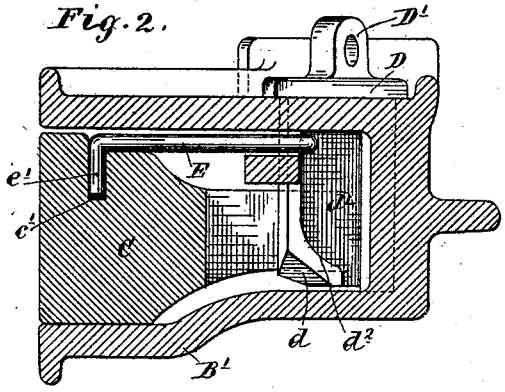


Fig. 3.

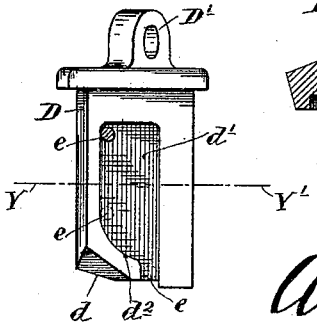
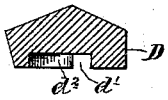


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

ALVIN CARR McCORD, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 494,219, dated March 28, 1893.

Application filed June 6, 1892. Serial No. 435,672. (No model.)

To all whom it may concern:

Be it known that I, ALVIN CARR MCCORD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Car-Couplers; 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.

My invention relates to automatic car-couplers.

The invention is in the same line as my former patents, No. 438,275, original issued of date October 14, 1890, and reissued of date February 2, 1892, under Reissue No. 11,220, and Patent No. 454,406, issued of date June 16, 1891; and is also in the same line with my two pending applications, Serial No. 392,361, filed of date May 11, 1891, and allowed of date February 24, 1892, and Serial No. 422,006, filed of date February 18, 1892. In all these prior cases, one peculiar feature of my coupler consisted in the fact that the coupling hook was unlocked and thrown open by a continuation of one and the same movement.

My present invention is directed to an improved construction for this purpose.

The invention will be hereinafter fully described and be particularly defined in the claims.

The accompanying drawings illustrate my improved coupler. Therein like letters referring to like parts throughout, Figure 1 is a plan view of the coupler, some parts being broken away. Fig. 2 is a vertical section on the line X X′ of Fig. 1, looking in the direction of the arrow. Fig. 3 is an elevation of the lock detached, looking at its face. Fig. 4 is a cross section of the lock, on the line Y Y′ of Fig. 3; and Fig. 5 is a cross section of the tail of the coupling hook, on the line Z Z′ of Fig. 1.

A is the draw-bar-body, and B B′ the coupler head, of the well-known standard twin jaw type.

C is the coupling hook pivoted to the part B′ of the coupler head by the fulcrum pin C′. This coupling hook is also of the standard type and is otherwise known as the "pivoted beak" and as "the knuckle." The extended tail-piece of the coupling hook has at its rear end a cam surface *c*, formed by cutting away a part of the tail piece, for co-operation with the corresponding cam surface *d*, on the inner front corner of the lock or pin D, for lifting the lock and permitting the tail-piece of the coupling-hook to pass behind the same and be secured by the lock in the coupling action. The lock D is provided on its face with a vertically extended recess or slot *d′*, open at its lower outer end and provided on its inner side wall with a cam surface d^2.

E is a rod loosely seated in the coupler-head and having an angularly extended inner end *e*, working in the slot *d′* of the lock D, subject to the action of the cam-surface d^2, and having an angularly extended outer end *e′*, working in a seat *c′* formed on the knuckle. This rod E constitutes an opening device for the coupling hook or knuckle.

The action is as follows:—Suppose the coupling-hook is in its closed position. When the lock D is lifted, it will first release the coupling hook and then bring the cam surface d^2 into action on the extended end *e* of the rod E, thereby drawing the said rod toward the guard-arm B of the coupler head and throwing the coupling hook or knuckle into its open position. In this movement of the lock D, the projecting end *e* of the rod E, rides along the vertical inner wall of the slot *d′* until it reaches the dotted line position, shown in Fig. 3. At this point, the pin will have been raised sufficiently far to clear the heel piece of the coupling-hook. The hook or knuckle is then, of course, released and is free to revolve on its fulcrum pin C′. Hence, on the continued upper movement of the lock D, the end *e* of the rod E will be compelled to ride along the cam surface d^2 and pass out at the open end of the slot or recess *d′*. In this camming action, the knuckle is opened as before stated. When the lock is again dropped into its seat by the operator, the inner end *e* of the rod E will enter the opening at the lower end of the recess or slot *d′* and ride along the outer vertical wall of the same and remain at the upper outer corner of the said recess, until the coupling hook is again closed. When this closing movement of the coupling hook occurs, the lock will be lifted by the cam action between the tail of the coupling hook and the lower inner corner of the lock, as before stated,

permitting the tail piece to pass behind the lock and be secured thereby. In this closing movement, the inner end of the rod E will be thrown over to the inner upper corner of the said recess d' into the position shown in full lines, in Figs. 1, 2 and 3.

It will thus be seen that my invention broadly viewed, provides a cam surface, which is brought into action on the releasing movement of the lock, to open the coupling-hook after it is released from the lock.

It will, of course, be understood, that a lifting rod or other device for the same purpose will be applied to the head of the lock and be arranged for operation, either from the side of the car, the top of the car, or from both, as may be desired. As these lifting devices are well-known and in general use, it has not been deemed necessary to show the same, for the purposes of this case. A rod or chain connection is readily made to the head D′ of the lock D.

It should be especially noted, that the rod or hook opening device E is loosely seated. Hence, if the same should become broken, no interference would occur with either the coupling or uncoupling action. It may, of course, be omitted or dispensed with, without any change of the other parts.

The chief point of novelty is, as before stated, the construction by which the knuckle is opened, by a continuation of the same motion which raises the lock to effect the release of the coupling hook. In addition to this advantage, the design is such as to give, incidental thereto, a better distribution of the metal between the coupler head and the knuckle and a more uniform wearing surface between the knuckle and the lock. This latter fact is due to the radial arrangement of the bearing surfaces of the lock and the tail-piece of the knuckle, with respect to the pivoted center or fulcrum of the said knuckle.

The coupler is extremely simple and cheap to make, and is very strong and durable in service.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In an automatic car coupler, the combination with the coupler-head and pivoted knuckle, of a lock, for the knuckle, having a cam surface adapted to be brought into action by a continuation of the lock's releasing movement, and an intermediate rod or direct connection subject, at one end, to the action of said cam, and connected at its other end, to said knuckle, at a point eccentric to the knuckle pivot; whereby, after the release, the continued movement of the lock will force the knuckle open by a direct strain.

2. In an automatic car-coupler, the combination with the coupler-head and the pivoted coupling-hook, of a vertically movable sliding lock recessed or slotted and provided with a cam-surface on one wall of the slot, and a hook opening rod having its inner end working in the said slot or recess subject to the action of said cam-surface, and its outer end seated in the coupling-hook, whereby the lift of the lock will first release and then open the hook, substantially as described.

3. The combination with the coupler-head of the pivoted coupling-hook C having the cam-surface c on its tail-piece, the vertically sliding lock D having the cam surface d on its inner lower corner for co-operation with the cam-surface on the tail-piece of the coupling-hook, in the closing action, and provided on its face with the open ended recess d' having the cam-surface d^2, and the hook opening rod E loosely seated in the coupler-head having its inner end working in said recess d' of the lock and its outer end working in the seat c on the coupling hook, substantially as and for the purpose set forth.

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

ALVIN CARR McCORD.

Witnesses:
GEO. S. JEWELL,
CHAS. H. KING.