

C. S. BENNETT.
CAR COUPLING.
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1,003,323.

Patented Sept. 12, 1911.

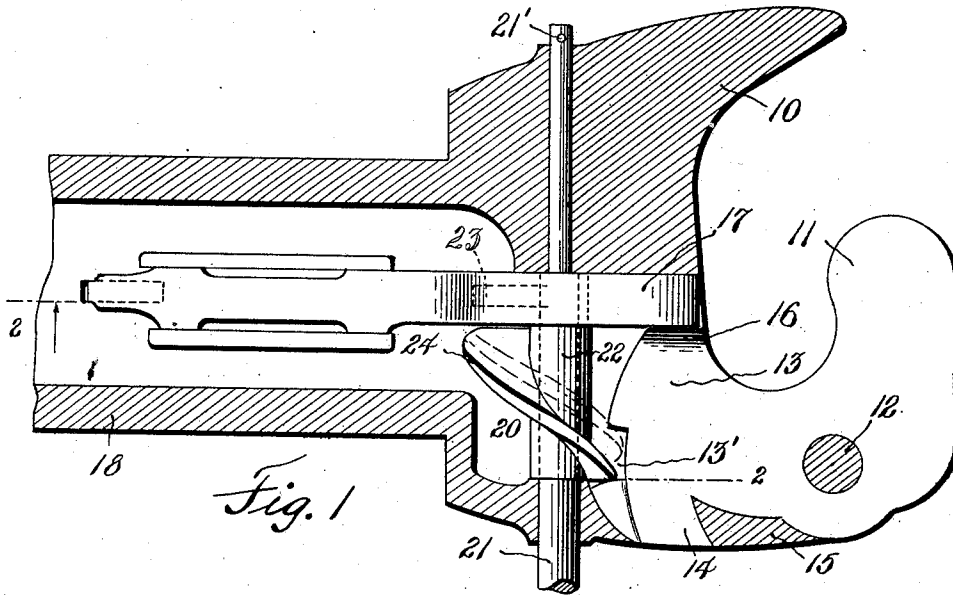


Fig. 1

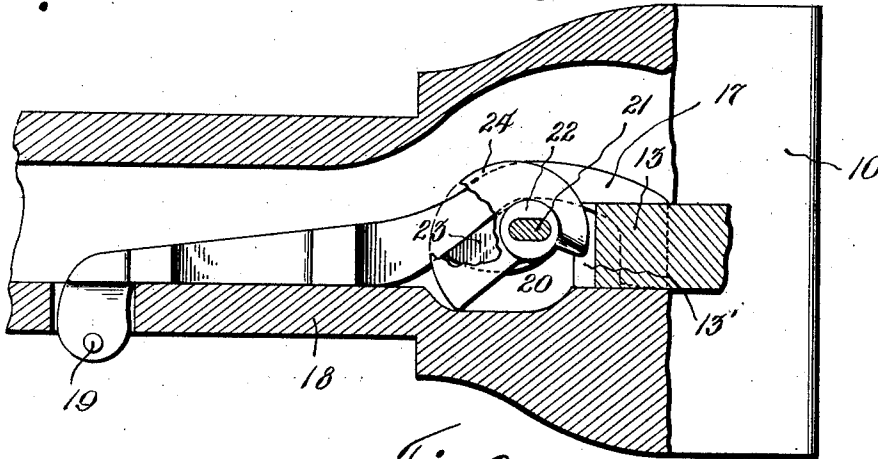


Fig. 2

Witnesses

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CAR-COUPLING.

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To all whom it may concern:

Be it known that I, CHARLES S. BENNETT, a citizen of the United States, residing at Newport News, in the county of Warwick and State of Virginia, have invented a new and useful Car-Coupler, of which the following is a specification.

This invention relates to automatic car couplers, and has particular reference to a coupler of the combined knuckle opener and lock type, the primary object of the invention being to provide a simple construction whereby the knuckle may be positively operated to either its opened or closed position, without necessitating the trainman going in front of the car.

Not only is my construction of a simple and hence practical nature but is so designed as to be easily taken apart for inspection or other purposes, all of which will be fully hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a horizontal sectional view of a draw bar, showing the improved construction principally in plain; Fig. 2 is a vertical longitudinal section substantially on the broken line 2—2 of Fig. 1.

Throughout the following detailed description and on the several figures of the drawings similar parts are referred to by like reference characters.

The draw bar, illustrated somewhat diagrammatically, is of the M. C. B. standard type, in the head 10 of which is pivoted the usual knuckle 11 on the vertical removable pivot pin 12. The tail piece 13 of the knuckle extends rearwardly into the mouth of the head and is provided with a horn 14 for interlocking engagement with the hooked portion 15 of the draw head, as is common, and at 16 is adapted to impinge against the vertically movable lock 17, which extends rearwardly therefrom and is removably connected to the lower part of the shank 18 by a cotter pin 19.

At 20 I have shown a suitable form of actuator mounted non-rotatably upon a rock shaft 21, said shaft being adapted to be rotated or rocked from one corner of the car in a well known manner. The rock shaft 21 is journaled in bearings in the draw head on an axis substantially at right angles to the axis of the pivot pin 12 and is normally maintained from longitudinal movement by means of a removable pin 21'. The actuator

is rigid and unitary and comprises a hub 22 having a longitudinal bore corresponding to any special form of the rock shaft with which it engages and whereon it is prevented from rotation, and also includes a finger 23 normally projecting rearwardly under the lock 17 whereby when the actuator is rotated in one direction said finger will lift the lock out of the path of the tail piece aforesaid to unlock the knuckle. The actuator also includes a spiral cam 24 extending from a point adjacent said finger up and sufficiently far around the actuator hub to reach to or terminate substantially in the opposite end of the hub. The tail piece is provided on its rear edge with a vertical notch 13' into which the cam 24 constantly extends and whereby upon rotation of the actuator the knuckle will be positively turned on its pivot in either direction by sliding engagement, depending upon the direction of rotation of the actuator. The notch 13' is slightly wider than the thickness of the cam 24 in order that the first effect of the rotation of the actuator in the knuckle opening direction will cause the finger 23 to lift the lock clear of the tail piece before the cam will begin movement of the knuckle, such movement of the actuator however is a continuous simple movement in one direction, the effect of the cam taking place immediately after the lock is lifted out of the way of the tail piece. The shape of the cam and the relation between it and the tail piece are such that not only will the actuator positively operate the knuckle in either direction, but the usual locking and unlocking movements of the knuckle will likewise cause the actuator to rotate in the corresponding direction without obstruction of the knuckle. The end of the cam adjacent the finger 23 is preferably of greater radius than the opposite end in order for the cam to maintain its operative engagement in the notch 13' when the tail piece is swung around to the open position of the knuckle, the notch at such time being farther from the axis of the actuator than when in the normal closed position of the knuckle.

The improvement includes the least possible number of movable parts, and in order to dismantle the same for inspection or other purposes it is but necessary to remove the pivot pin 12, cotter pin 19, and shaft pin 21' when the rock shaft may be withdrawn longitudinally from its bearings leaving the

three parts, the knuckle, the lock, and the actuator, free to be lifted out through the mouth of the draw head.

The several parts of the device may be made of such materials as may conform to the requirements of practice and in this connection I wish to be understood as not desiring to be limited to the exact structural details illustrated, reserving the right to vary therefrom in accordance with the principles of patent law.

I claim:

1. The herein described car coupler comprising essentially the following distinct elements, viz., the draw bar, a knuckle pivoted therein on a vertical pivot and including a rigid rearwardly extending tail piece having a vertical notch, a lock movable vertically in a plane at one side of the knuckle pivot, and an actuator mounted on a horizontal axis extending beneath the lock and in the rear of said tail piece, said actuator including a member which upon rotation of the actuator will lift the lock to unlock the knuckle and also including a spiral cam extending into the tail piece notch, the cam being of constantly variable radius from one end to the other, substantially as set forth.

2. In a car coupler, the combination of a draw head, a knuckle pivoted therein and having a tail piece, a lock to normally prevent the knuckle from opening on its pivot, and a rigid rotary actuator mounted on an axis at an angle to the knuckle pivot and including means to lift the lock and also including means in constant engagement with said tail piece, whereby a simple continuous rotary movement of the actuator in one direction will first lift the lock to unlock the knuckle and subsequently move the same on its pivot to open position and whereby a reverse rotation of the actuator will close the knuckle.

3. In a car coupler, a knuckle, a lock therefor, and a rigid rotary actuator including a finger under the lock to lift the same and also including a member having constant loose engagement with the knuckle, said actuator being rotatable on a horizontal axis, substantially as set forth.

4. In a car coupler, the combination of a knuckle pivoted on a vertical pivot and hav-

ing a rearwardly extending tail piece, a lock to hold the knuckle normally locked, and an actuator pivoted on an axis at an angle to the pivot of the knuckle and including a finger which on the initial rotation of the actuator will lift the lock out of the path of the tail piece and also comprising a spiral cam having constant coöperative connection with said tail piece.

5. In a car coupler, the combination of a pivoted knuckle including a tail piece having a notch, means to lock the knuckle closed, and a rigid actuator mounted for rotation on a horizontal transverse axis, said actuator including a finger to release the locking means aforesaid and also including a spiral cam extending constantly into the tail piece notch to positively move the knuckle to both its opened and closed positions.

6. In a car coupler, the combination of a knuckle having a tail piece provided with a vertical notch, a vertically movable lock to lock the knuckle closed, and an actuator mounted on a horizontal transverse axis in the rear of said tail piece, said actuator including a finger to lift the lock out of the path of the tail piece and also including a spiral cam operative upon rotation of the actuator to positively move the knuckle in either direction by slidable engagement in said tail piece notch, the width of the notch being sufficiently greater than the thickness of the cam to permit the initial rotation of the actuator to lift the lock before starting the knuckle on its opening movement.

7. In a device of the kind described, a coupler head, a knuckle pivoted to move in said head, said knuckle being provided with a notch, and a rotary member pivoted within said head on an axis at an angle to the knuckle pivot and carrying a spiral cam engaging said notch, said cam being in constant engagement with the notch when said member is rotated in either direction.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

CHARLES S. BENNETT.

Witnesses:

GEO. O. SCHMELZ,
J. H. COON.