

(No Model.)

H. H. BURDEN.
CAR COUPLING.

2 Sheets—Sheet 1

No. 542,437.

Patented July 9, 1895.

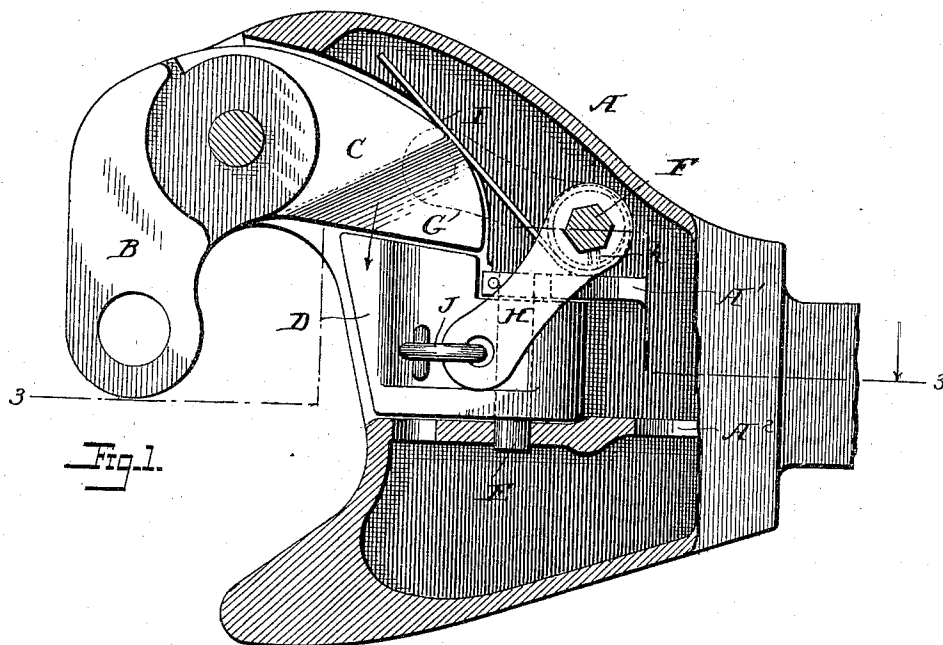


Fig. 1.

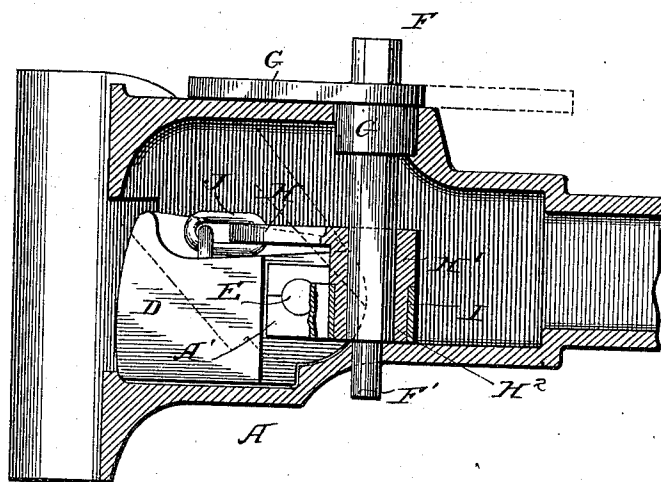


Fig. 3.

Witnesses
Geo. Hinkel
A. A. Dobson

Inventor
Howard H. Burden
By *Foster Freeman*
Attorneys

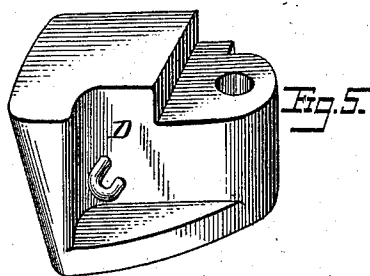
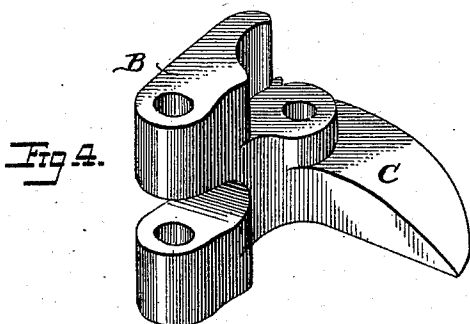
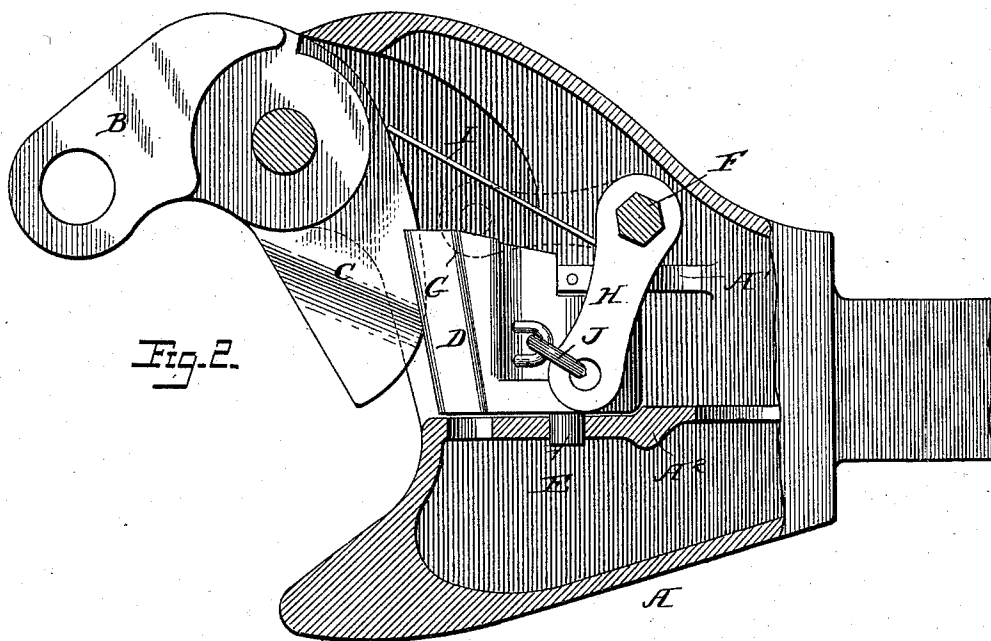
(No Model.)

2 Sheets—Sheet 2.

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CAR COUPLING.

No. 542,437.

Patented July 9, 1895.



Witnesses
John Hinkel
Andrew

Inventor
Howard H. Burden
By *John Freeman*
Attorneys

UNITED STATES PATENT OFFICE.

HOWARD H. BURDEN, OF NEW YORK, ASSIGNOR TO THE TROJAN CAR
COUPLER COMPANY, OF TROY, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 542,437, dated July 9, 1895.

Application filed November 21, 1892. Serial No. 452,714. (No model.)

To all whom it may concern:

Be it known that I, HOWARD H. BURDEN, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to improvements in that class of car-couplers which are known as the "knuckle type" or "twin-jaw type;" and it has for its object to provide a simple, cheap, and effective coupler which shall be practically automatic in its operations, and which shall be certain, sure, and efficient in action.

To these ends my invention consists in a coupler having the features of construction, arrangement, and mode of operation substantially as herein more particularly set forth.

Referring to the accompanying drawings, wherein I have illustrated an embodiment of my invention, Figure 1 is a horizontal section through a draw-head, showing the coupler in its closed or locked position. Fig. 2 is a similar view showing the parts with the jaw or knuckle open. Fig. 3 is a vertical sectional view on the line 3 3, Fig. 1; and Figs. 4 and 5 are perspective detail views showing some of the parts.

In carrying out my invention the object has been to provide a coupler composed of few parts, which shall be strong and efficient and capable of being cheaply made, and which shall be practically automatic and positive in operation, and without attempting to set forth the prior state of the art and all the difficulties and objections inherent in many of the couplers of this class heretofore used I will now proceed to describe the construction of the device, as shown in the drawings, and point out its mode of operation, and set forth some of the advantages thereof.

I have shown the invention embodied in a draw-head A, which preferably has the general configuration shown, although, of course, the details as to shape and construction can be varied to suit the necessities or exigencies of any particular case. Pivottally mounted in the draw-head A is a knuckle B, and this knuckle is provided with a locking-tongue C, extending into the draw-head, and the knuckle

may be provided with proper offsets for limiting its movements, and it may be shaped and provided with curved bearing-faces, substantially as shown, or it may be otherwise arranged, as these features form no essential part of my present invention. Also mounted in the draw-head and preferably on a pivot E is a lock D, and this pivot is shown as having bearings in webs or partitions A' A² in the draw-head, and the lock has the general configuration shown more particularly in Fig. 5, although it will be understood that the form of this lock can be varied to suit the requirements of any particular case. It does, however, form a lock by resting upon the bottom of the coupler-head and filling the space between the locking-tongue C and the side or wall A² of the coupler-head, but is capable of being raised on its pivot so that the locking-tongue can swing underneath the locking-block and allow the knuckle to be thrown outward, and when in its outermost position the locking-block normally rests on the locking-tongue in such a position that when the knuckle is forced inward in automatic coupling or otherwise the lock will fall into its normal position and securely lock the knuckle. Arranged also in the coupler-head is a shaft F, having bearings in the case or frame of the head and preferably squared or otherwise formed to receive the arm or lever G, by which it may be rotated, the lower bearing F' being preferably rounded and the lever or arm G being preferably formed with a cylindrical bearing G', fitting corresponding openings in the coupler-head so that the shaft shall have freedom of motion and at the same time substantial support in the coupler-head. Also mounted on the shaft F is an arm or lever H, and this is shown as having a somewhat-extended bearing H' and secured to the bearing, the lower portion of which is preferably reduced, as shown at H², is a spring I, and this spring is secured in any suitable way, as by having its end fitting into a recess or slot h in the reduced portion of the bearing and being coiled to a greater or less extent around the bearing or otherwise, it being sufficient for the purposes of my invention that it be secured to the bearing, so

that on turning the arm H the spring I will be put under tension in the manner herein-after set forth.

It is evident that the spring may be mounted in separate bearings from the arm H, although, for convenience of construction, I prefer to form them integral.

The arm H is connected to the lock D in any suitable way, as by a link or links J, secured to and preferably lying in a recess or depression in the top of the locking-block, and the spring I normally rests or bears against the curved portion of the locking-tongue C. It will be understood that the arm G can be connected by any suitable means to be operated from a platform or top or side of the car, and I have not deemed it necessary to show such means, as they are well understood by those skilled in the art.

Such being the general construction of my device, I will now proceed to describe its mode of operation under different conditions.

In Fig. 1 the lock-block is shown as lying in its normal position, and the knuckle is locked in its closed position, and the spring is normally in repose, bearing gently against the curved surface of the locking-tongue C, and this operates to prevent the shaft F from turning accidentally or otherwise and maintains the lever H over the lock-block, so that the lock-block cannot be moved until the shaft F is turned and the spring I put under tension, and it will be seen that in this condition all the parts are positively held in their locked or closed positions. When, however, it is desired to operate the coupler to uncouple or open the knuckle, power is applied to the arm G in some suitable way, and the shaft F is consequently partially rotated and the arm H is moved backward, lifting the lock-block to the position shown in dotted lines, Fig. 3, and this operation puts the spring I under tension, causing it to bear forcibly against the curved surface of the locking-tongue C, and as soon as the locking-block reaches its proper upward position the locking-tongue C will pass under the block under the stress of the spring, throwing the knuckle B positively open, and the parts will assume substantially the position indicated in Fig. 2, and it will be seen that the spring I is in substantial repose, it having exerted its force or tension in throwing the knuckle outward. When in this position and the corresponding draw-head of another car approaches, the coupler engages the open knuckle, the locking-tongue C of the open knuckle presses back against the spring I, causing tension, turning the shaft F so that pressure is exerted through the rod or arm H on the locking-block, and as soon as the locking-tongue passes out from under the locking-block the tension of the spring will force the locking-block into its normally locked position, through the medium of the lever or arm H, with great rapidity and certainty, thereby engaging the locking-tongue

and securing the knuckle in its locked position, and this is done so quickly and positively that the locking-tongue cannot move outward and prevent the action of the lock and the certainty of coupling the cars. In this way I am able to overcome a difficulty which is well recognized in most couplers of this class and which is a subject of great annoyance. If an approaching coupler was not in position to engage the open knuckle by reason of the lock being fastened up by the hand-lever, the parts are so arranged that there will be no danger of breaking or injuring any of them by the bumping of the adjacent car or otherwise, and it is sometimes desirable to set the parts in this position, and to accomplish this the operating-lever or other connections with the arm G are moved so that the locking-block will be held positively in the position shown in Fig. 2, with the spring bearing gently on the locking-tongue and practically in repose, and if then the other coupler or car engages and forces the knuckle back against the spring its elasticity permits the knuckle to come to a closed position without damage to the lock or to any other part of the device, but the locking block being positively held the knuckle will not become locked and will resume the position shown in Fig. 2 as soon as the pressure is removed from the knuckle.

If perchance the parts are in the position shown in Fig. 1 and it is desired to set the coupler to engage with another, by moving the arm G in the direction indicated by the arrow *i* the spring is put under tension and the locking-block is raised until the knuckle is thrown outward and the locking-tongue passes under the locking-block, which will support it, and then, the operating-arm being released, the knuckle will be held open by a gentle spring-pressure until it engages with another coupler, which forces it back and permits the locking-block to drop into position.

It will further be understood that to allow the coupler to uncouple the operating devices are moved so as to draw the arm G in the direction of the arrow and raise the locking-block and put the spring under tension against the locking-tongue, and as soon as the corresponding coupler is drawn forward the knuckle readily opens under the spring-pressure, and so remains, if not otherwise operated, ready for coupling.

It will be observed that while I have shown a pivoted locking-block, substantially the same arrangement of spring-tension devices can be applied to a vertically-sliding or a horizontally-moving block, or even to a block sliding on an inclined plane; and it will be evident that my invention is not limited to the use of the specific locking mechanism shown; but with all of these constructions the knuckle and locking-block are under spring tension or pressure at their proper times, and all the movements are positive and certain, and automatic in their character.

In the arrangement shown, when the arm G moves in the direction of the arrow the arm H moves in a similar direction; but it will be understood that the arm G can be placed upon the shaft, so that they will move in opposite directions, and the arm G may be extended, as indicated in dotted lines, Fig. 3, so that it can be operated from either side of the car, and other arrangements and devices will readily suggest themselves to those skilled in the art whereby the spring is put under tension, and the locking-block and knuckle operate in a manner substantially as herein set forth.

In some instances it is desirable to dispense with the spring, and it will be observed that the parts are perfectly operative without this feature, and that the locking-block is held in position by the pivoted arm and is moved thereby, and all the ordinary functions of the coupler can be carried out except the automatic actions due to the pressure of the spring when under tension.

What I claim is—

1. In a car coupler the combination with the knuckle and locking device therefor, of an arm connected to the locking device, and a spring connected to be operated with the arm, and arranged to put the knuckle under pressure, substantially as described.

2. In a car coupler the combination with the knuckle and locking block, of an arm connected to the block to operate the same, a spring connected to the arm and bearing against the knuckle, and means for operating the arm and spring, substantially as described.

3. In a car coupler the combination with the knuckle having a locking tongue and a locking block engaging the tongue, an arm connected to the block, a spring connected to the arm and bearing on the locking tongue, and means for operating the arm and spring and placing the latter under tension, substantially as described.

4. In a car coupler the combination with the knuckle having a locking tongue, a locking block engaging the tongue, a shaft, an arm on the shaft engaging the locking block, and a spring connected to the arm and bearing on the locking tongue, substantially as described.

5. In a car coupler the combination with the knuckle having a locking tongue of a pivoted locking block, a shaft carrying an arm connected to operate the block, a spring connected to the shaft and bearing on the locking tongue, and an arm connected to the shaft to operate the same, and arranged to be operated from the car, substantially as described.

6. In a car coupler the combination with the head, of the knuckle pivotally mounted therein having a locking jaw, a pivoted locking block, a shaft mounted in the head, an arm mounted on the shaft engaging the block, a spring also mounted on the shaft engaging the locking tongue, and an arm connected to the shaft for operating the same, substantially as described.

7. In a car coupler the combination with a knuckle, of a horizontally pivoted locking block for the knuckle, an arm mounted on a vertical pivot and connected to the locking block, and means for operating the arm, substantially as described.

8. In a car coupler the combination with the knuckle, of the pivoted locking block, a shaft, an arm mounted on the shaft, and connected to the locking block, the said arm serving to hold the block in locking position until it is withdrawn by rotation of the shaft, substantially as described.

9. In a car coupler the combination with the knuckle, of a locking block for the knuckle, an arm for operating the locking block and means for putting the arm under pressure to depress and hold the block in locking position when the knuckle is closed, substantially as described.

10. In a car coupler the combination with the knuckle, of a locking block for the knuckle, an arm for operating the locking block, a spring connected to the arm for putting the block under pressure, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HOWARD H. BURDEN.

Witnesses:

CHANDLER P. ANDERSON,
ALBERT E. SEIBERT.